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Fakultet fizičkog vaspitanja i sporta / Faculty of Physical Education and Sports
Univerzitet u Banja Luci / University Banja Luka
Bulevar Vojvode Petra Bojovića 1A
78000 Banja Luka
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Phone/Fax: 00387 (0)51 31 22 80
E-mail: ffvis@blic.net
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RAZVOJ MLADIH IGRAČA: SOCIJALNO-ANTROPOLOŠKE DIMENZIJE - PRIMJER KOŠARKA

DEVELOPMENT OF YOUNG PLAYERS: SOCIAL AND ANTHROPOLOGICAL DIMENSIONS - EXAMPLE OF BASKETBALL

Dragan Koković¹

¹Odsjek za sociologiju, Filozofski fakultet, Univerzitet u Novom Sadu, Srbija
Department of Sociology, Faculty of Philosophy, University of Novi Sad, Serbia

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SUMMARY

On numerous occasions, the great talents disappeared due to a lack of knowledge of certain socio-psychological and anthropological dimensions of sport. Many young players after the first game where they made a reputation, lost in the multitude of average players. All that players could make a team of a big potential. If the aforementioned principles were taken into account, if the *way the players approached the sport was more professional* and more socio-anthropological, many of these talents could become the standard players in the regular team of their club and also a regular players of a national team.

Key words: sport, game, young players, education, development.

SAŽETAK

Brojni su slučajevi da su veliki talenti nestajali zbog nepoznavanja određenih socio-psiholoških i antropoloških dimenzija sporta. Mnogi mladi igrači nakon prvih utakmica sticali su ugled, a onda se gubili u mnoštvu prosječnih igrača. Od njih bi se moglo sastaviti nekoliko ekipa velikog igračkog potencijala. Da su pomenuti principi uzimani u obzir i da se na to pravovremeno mislilo, *da je način na koji se pristupalo igračima bio sportski stručniji* i više socio-antropološki, mnogi od ovih talenata mogli su postati standardni igrači u stalnoj postavi svog kluba i eventualno državne reprezentacije.

Ključne riječi: sport, igra, mladi igrač, vaspitanje, razvoj.

Creating a player is a difficult and longlasting process that, *systematically* speaking, may be presented with a cybernetic model of input (entry) into the training processes and output (exit), more concretely speaking, with the creation of players with productive orientation.

A young player takes from his surroundings, which includes culture, area, race, nation, stratum, class, family, and education. He is in great measure determined by his life conditions and other conditioning processes. There are three widely accepted conceptions, particular ones or in the combinations, that explain the conditions and situational influences involved in the development of young players.

Young players have to learn to respect individual differences within their group, to accept and

Stvaranje igrača je tegoban i dugotrajan proces koji se, posmatrano *sistemski*, može predstaviti kibernetičkim modelom imputa (ulaska) u trenažne procese i izlaskom (autputom), konkretnije rečeno stvaranjem igrača sa produktivnom orijentacijom.

Mladi igrač dolazi iz okruženja koje podrazumijeva određenu kulturu, podneblje, rasu, naciju, sloj, klasu, porodicu, obrazovanje, itd. On je, u velikoj mjeri, determinisan životnim uslovima i drugim procesima uslovljavanja. Postoje tri širokoprihvatačene koncepcije, pojedinačne ili u kombinacijama, koje objašnjavaju uslove i situacione uticaje na razvoj mladih igrača.

Mladi igrači moraju da nauče da poštuju individualne razlike unutar svoje grupe, da prihva-

to live together with their teammates that, in some cases, can belong to different social group, race, religion, ethnic group, country, or town. They have to respect the differences that appear while playing basketball because some of them play better than others, some acquire certain skills quicker than others, and some are playing longer than others. (Jose Maria Buceta, former Spanish Women's National Team Coach).

Genetic determinism proceeds from heredity and, basically speaking, it claims that many individual's manifestations are a matter of heredity and of the things we inherited from our ancestors (temper, character, temperament).

Psychological determinism claims that the forms of behaviour of a young player are the result of what was done to us by our parents. The education and experience from childhood essentially predetermines the development of the person and his character structure. If a player is afraid of being a group leader, this is, among other staff, it is the result of the parents' education. A young player that feels very guilty when he makes a mistake, »remembers« the emotional scenario from the time when he was vulnerable, sensitive and dependant. He can be influenced by possible punishment when his emotions suffered, when he was rejected and underestimated, when he compared himself to others, when he didn't meet certain expectations.

Ambiental determinism basically says that the individual's (player's) development is under the influence of chiefs, coaches, opponents, economic situations, and state policy. One should not forget that many young sportsmen come from countries that pay a lot of attention to sports, but there are always those ones that come from countries that pay no attention to sports. Top achievements of individuals are the reflection of these various conditions but also of the self-confidence, of the hard work performed in order to help oneself efficiently.

Progress in the development of a young player is very important to the basketball coach. If he doesn't take it into account in his approach to the player, it is very probable that there will be *misinterpretations* regarding the capability of *realizing certain achievement* - especially among young players-and that could have further and serious consequences.

In the constant learning of the basketball technique, tactical variants of the court movement, the psychology of training and learning is also crucial. Many coaches, regarding young players *do not know the curved line of the achievements*, and they should be familiar with it from their experience. A young player relatively quickly reaches a certain level because he possesses *great skills*. If he stops suddenly, he doesn't go further. This is the sign that such a player reached the plateau, and relative *stagnation* occurs, or even a *fall* and because of that he

taju i zajedno žive sa svojim saigračima koji, u nekim slučajevima, mogu da pripadaju drugačijoj socijalnoj grupi, rasi, konfesiji, etničkoj grupi, zemlji, gradu, itd. i koji mogu da imaju drugačije ideje i ponašanje. Oni moraju da poštuju razlike koje se ispoljavaju tokom igranja košarke zbog toga što neki igraju bolje od ostalih, neki savladavaju neke vještine brže od ostalih, neki igraju duže od ostalih, itd [...] (Jose Maria Buceta, trener ženskog nacionalnog tima Španije).

Genetički determinizam polazi od nasljedstva i u osnovi tvrdi da su mnoge manifestacije pojedinca stvar nasljeđa i onoga što su nam ostavili naši preci (narav, karakter, temperament, i sl.).

Psihološki determinizam tvrdi da su obrasci ponašanja mladog igrača rezultat onoga što su nam učinili roditelji. Vaspitanje i iskustvo iz djetinjstva suštinski predodređuju razvoj ličnosti i njenu karakternu strukturu. Ako se igrač plaši da bude predvodnik grupe, to je, između ostalog, rezultat roditeljskog vaspitanja. Mlad igrač koji se osjeća strašno krivim kada pogriješi, »sjeća se« emocionalnog scenarija iz vremena kad je bio ranjiv, osjetljiv i zavisn. Na njega može uticati i eventualno kažnjavanje u kojem su trpjele njegove emocije, odbacivanja i potcjenjivanja, poređenja sa drugima kad nije bio na visini očekivanja.

Ambijentalni determinizam u osnovi tvrdi da na razvoj pojedinca (igrača) mogu uticati šefovi, treneri, suparnici, ekonomska situacija, državna politika, itd. Ne treba zaboraviti da veliki broj mladih sportista dolazi iz zemalja koje sportu poklanjaju ogromnu pažnju, ali uvijek se nađu i oni koji dođu iz zemalja koje sportu jedva da poklanjaju mrvicu pažnje. Vrhunska postignuća svakog pojedinca odraz su ovih različitih uslova, ali i vjere u samog sebe, u predani rad koji ulaže kako bi djelotvorno pomogao sam sebi.

Za košarkaškog trenera, napredovanje razvoja mladog igrača je posebno važno. Ako ga ne uzme u obzir u svom pristupu igračima, vrlo je vjerovatno da će doći do *pogrešnih interpretacija* u odnosu na sposobnost *ostvarivanja određenih postignuća* – posebno kod mladih igrača, što može imati dalekosežne i teške posljedice.

U neprestanom učenju tehnike, taktičkih varijanti kretanja po terenu, važna je psihologija obučavanja i učenja. Mnogi treneri, kad su u pitanju mladi igrači ne *poznaju krivulju postignuća*, koja bi im iz iskustva trebala biti poznata. Stvar je u tome da mlad igrač relativno brzo postiže određeni nivo, jer posjeduje veliko *oduševljenje, interes i žnatiželju*. A onda odjednom zastane, dalje više ne ide. To je znak da je takav igrač dostigao plato, kod njega nastupa relativna *stagnacija*,

starts to feel *insecure*.

There are numerous cases where great talents, frustrated with not knowing such learning principles, became insecure and blocked in their further sports development.

Many young basketball players get reputations after early matches, and then get lost in the multitude of average players.

One could make a few teams of great players' potential out of them. If one had thought timely at this approach, if *the way of approaching these players had been more expert in sports* and more socio-psychological, many of these talents would have become standard players in the permanent lineup of their club and perhaps of the national team, too.

For such a positive development, based on *optimal learning*, it is necessary to provide at least the minimum of *emotional relaxation* (not emotional devastation!) and more pleasant atmosphere at training sessions (»joyful training«), especially during the technical training. When learning fine coordination movements, like basketball techniques, spiritual relaxation is extremely important, and it is crucial that there is no convulsion. One should create an atmosphere of *joy* and *happiness*. When one gains and trains condition, everything is harder, more tiring, more aggressive. When one trains the tactics, then everything is more thought of, with a distance and one learns in a step-by-step fashion. Some coaches realized that the players' technique and work with the ball requires some sort of musicality, relaxation and joy. That's why they succeed.

If you want to train kids really well, you have to know something about their development (corporeal, cognitive and soul development).

Evolution phases of the child should be known well in order to *adjust* the training in the proper way. On the contrary, there is a typical *overburdening*. This is no pleasure to anyone, and children stop playing basketball already when teenagers because of it. At that time, other activities, perhaps adventures too, other sports become more important than playing basketball.

If one analyzes more thoroughly the development of body motoric, one could observe a precondition of the psychomotor development-movement development. First soft, cartilaginous tissue in the process of ossification becomes harder. At the same time, with neuromuscular maturation, this is the precondition for the child to learn to sit, stand, and walk. All these processes are mainly the processes of maturing that are related to nutrition that has to be adjusted to the age. One cannot almost influence these processes and it would be unwisely to force them with too early exercises. Anytime you force a child may cause development disorders and block the development processes that are supposed to happen.

Regarding the training condition in child's age,

ili čak izvjestan *pad* i on zbog toga počinje osjećati *nesigurnost*.

Brojni su slučajevi da su veliki talenti, frustrirani nepoznavanjem takvih principa učenja, postajali nesigurni i blokirani u svom daljem sportskom razvoju.

Mnogi mladi košarkaši nakon prvih utakmica stiču ugled, a onda se izgube u mnoštvu prosječnih igrača. Od njih bi se moglo sastaviti nekoliko ekipa velikog igračkog potencijala.

Da se kod tog pristupa na to pravovremeno mislilo, da je *način na koji se pristupalo igračima bio sportski stručniji* i više socio-psihološki, mnogi od ovih talenata mogli su postati standardni igrači u stalnoj postavi svog kluba i eventualno državne reprezentacije.

Za takav pozitivan razvoj, koji se temelji na *optimalnom učenju*, potrebno je osigurati barem minimum *emocionalne opuštenosti* (a ne emocionalne opustošenosti!) i ugodnu atmosferu na treningu („veseli trening“), posebno za vrijeme tehničkih treninga. Kod učenja fino koordiniranih kretnji, kao što su košarkaške tehnike, jako je važna duhovna opuštenost, važno je da *nema grča*. Treba stvoriti atmosferu *veselja* i *radosti*. Kad se stiče i »nabija« kondicija, sve je mnogo tvrđe, naporanije, agresivnije. Kad se trenira taktika, onda je sve više promišljeno, distancirano i uči se korak po korak. Neki treneri su shvatili da igračka tehnika i rad sa loptom zahtijeva neku vrstu muzikalnosti, opuštenosti i veselosti. Zato i žanju uspjehe.

Ako želite djecu trenirati zaista dobro, morate znati nešto o njihovom razvoju (tjelesni, kognitivni i duševni razvoj).

Razvojne stadijume djeteta treba poznavati da bi se na odgovarajući način *prilagodilo* trening. U protivnom, pojavljuje se tipična *preopterećenost*, koja dovodi do toga da to više nikome nije zadovoljstvo, a djeca prestaju da igraju košarku već u pubertetu. Tada druge aktivnosti, možda i avanture, drugi sportovi postaju važniji od igranja košarke.

Ako se detaljno razmotri razvoj tjelesne motorike, uočava se jedan preduslov psihomotornog razvoja – razvoj kretanja. Isprva mekano, hrskavičavo tkivo u procesu okoštavanja postaje sve čvršće. Zajedno sa neuromuskularnim sazrijevanjem, ovo je preduslov da malo dijete nauči da sjedi, stoji, hoda. Kod svih ovih procesa u prvom redu se radi o procesima sazrijevanja koji su povezani sa ishranom koja mora biti prilagođena uzrastu. Na ove procese se gotovo ne može uticati i bilo bi nerazumno forsirati ih preuranjenim vježbanjem. Svako preforsiranje djeteta može dovesti do poremećaja u razvoju i blokiranja razvojnih procesa koji tek treba da uslijede.

Kad je u pitanju treniranje i sticanje kondicije u dječijem uzrastu, postoje razlike s obzirom na pojedine

certain factors must be taken into account: *strength, speed, endurance, mobility, and skillfulness.*

1. *Strength* - It is *wise* to start strength training only *after* the beginning of puberty because as a child *naturally matures*, he depends on the growth of muscular mass. Before this period, strength training *will harm more* than be useful.
2. When talking about *speed*, the basic speed will mostly depend on the *individual predispositions* found with »fast« and slow-twitch muscle fibers.
3. Training of *endurance* in child's age was considered some time ago to be inefficient and not practical. Nowadays, there is much evidence of a child's achievements in endurance (For example: participation in 26-mile marathon races). Nevertheless, it is obvious that the attitudes of whether to train kids in endurance may be done (For example: could the extraordinary achievements of children of that age in endurance be explained with special predispositions and technical tactical instruction, related to the high level of motivation).

Research has shown that at least one thing is sure: a regular control of the pulse in a long period *cannot be used as an indicator of successful training of children in endurance* because its frequency in children that are growing is slowing down-slowing down, in that case, must not be interpreted, as it is ordinary with grown-ups, as an effect of all the training.

4. *Mobility* is very significant for basketball because it represents a basic precondition for acquiring motoric skills in sports. It is clear that reduction will occur if one doesn't train for years.
5. *Skillfulness* is related to the neuromuscular activity that optimally regulates the processes of connection and automatization of sportsmotoric skills. Precisely, this *skillfulness* is the condition skill that can be trained most early because it perfectly suits the process of child's psychomotoric development, for which constant acquiring of new motoric skills is characteristic.

There's a special rule in the training of children: The focus of their teaching, particularly for some sport, in this case basketball, should be based *on enhancing basic technical skills.* In no other life period the approach to learning motorics is as easy as in the child's age.

Training with children should be planned in such a way to be more diverse, to comprise different technique skills and to make it possible for the child to become conscious of *general relations* (For example: the ability to shoot after running and coming to a

faktore: *snagu, brzinu, izdržljivost, pokretljivost i spretnost.*

1. *Snaga* – opravdana su mišljenja da bi bilo *razumno* započeti trening snage tek *nakon* početka razvoja u pubertetu, jer tada kod djeteta dolazi do *prirodnog sazrijevanja* koje je uslovljeno rastom mišićne mase. Prije ovog perioda, trening snage *više će štetiti* nego koristiti.
2. Kad je u pitanju *brzina*, osnovna će brzina, u velikoj mjeri, zavisiti od *individualnih predispozicija* (odnos „izdržljivih“ - crvenih i „brzih“ - bijelih mišićnih vlakana). Zbog toga se na sticanje brzine vrlo malo može uticati.
3. Trening *izdržljivosti* u dječijem uzrastu ranije se smatrao neefikasnim i nepraktičnim. Danas postoje dokazi o uspjesima djece u izdržljivosti (npr. učešće na maratonskim trkama). Ipak, primjetno je da se još uvijek razlikuju shvatanja o tome da li se kod djece smije trenirati izdržljivost (npr. mogu li se izuzetni uspjesi u izdržljivosti kod djece u tom dobu objasniti posebnim preddispozicijama i tehničko–taktičkom obukom, povezanom sa visokim stepenom motivacije). Istraživanja su pokazala da je barem jedno sigurno: redovna kontrola pulsa kroz duži period *ne može se kod djece koristiti kao indikator uspješnog treninga* na području izdržljivosti jer se njegova frekvencija kod djece koja rastu usporava – usporavanja se u tom slučaju ne smije, kao što je to uobičajeno kod odraslih, interpretirati kao efekat treninga.
4. *Pokretljivost* je za košarku veoma važna jer predstavlja osnovni preduslov za učenje motoričkih vještina u sportu. Sasvim je jasno da će doći do njene redukcije s godinama ako se ne trenira.
5. *Spretnost* je povezana sa neuromuskulatomnom aktivnošću koja optimalno reguliše procese povezivanja i automatizaciju sportskomotoričkih vještina. Upravo je spretnost ona kondiciona vještina koja se može *najranije trenirati* budući da savršeno odgovara procesu djetetovog psihomotoričkog razvoja, za koji je karakteristično stalno sticanje novih motoričkih vještina.

Za trening sa djecom vrijedi sljedeće načelo: težište njihovog obučavanja, specifično za neki određeni sport, u ovom slučaju košarku, treba da se zasniva na *podsticanju osnovnih tehničkih vještina.* Ni u jednom drugom periodu života pristup motoričkom učenju nije ni približno lak kao što je to u dječijem dobu.

Trening sa djecom treba da bude tako koncipiran da bude što raznovrsniji, da obuhvati raznolike tehničke vještine i omogući djetetu da postane svjesno *opštih odnosa* (npr. može se vježbati preciznost šuta iz trka, skok šut kao i šut dodanih lopti u uigranim va-

stop, attempting to shoot while standing still and then jumping, as well as shooting right after receiving a pass are all familiar variants that can be trained).

Each mentioned action that is performed at the beginning rather unsuccessfully, with lots of tries and errors, becomes more perfect, more automatic with regular exercise.

By automatic, I meant that a degree of body control at which one *needn't concentrate* on is carried out as part of the movement performance. It practically occurs by itself, because it's »automatic«.

A great advantage of automatization is that an athlete can pay attention to other tasks. For example, one can concentrate on the opponent or teammate only when one doesn't have to watch the ball in dribbling and can pass it in the right moment and in the right direction. For the automatization of the court movement it is very important that the same movements are constantly repeated.

Neuromuscular activity will be optimal only with very frequent repetition of certain elements. Coaches should know that fine motoric can be improved only if the *body has had a complete rest and recovery period*.

For example, this would mean that it is not very wise to do conditioning training in the morning followed by an exercise technique in the afternoon.

Automatization may be interrupted if we become conscious of what we have learned.

It happens the same as it did to the story of the centipede. When asked by a turtle how it manages to coordinate all hundred legs, the centipede thought for a moment *about what it had never before had to think of* and at the next moment it could not move its numerous legs forward in the right rhythm.

Perception is very significant in every sport. It is not by chance that: »what is the perception like, such will be the reception«. Perceptive truth differs from construed truth. In sports, it is necessary to learn perceptive logics and »tools« for *widening* and *changing* of perception. *Experience* acquired in the early days helps athletes to perceive. The experience makes *foretelling* possible. For example, it lets the experience make decisions according to few parameters and information.

Perceptive expectation may help sometimes to perceive quicker what we expect and in that way to react quickly and adequately. But there may be some confusion, most often when something we haven't hoped for appears (surprise factor in sports). That is the time to react to this unexpected stimulus longer than if we didn't expect anything at all.

The basis of sports training consists of differentiation of movements and their *coordination with visual perception*.

rijantama. U svemu tome igrač mora postati svjestan odnosa između položaja ruke i smjera udarca).

Svaka od navedenih radnji koja se u početku učena izvodi sa dosta neuspjeha, pokušaja i pogrešaka, vježbanjem se postepeno izvodi sve savršenije, postaje automatizovana..

Automatizacija znači takav stepen kontrole tijela na kojem se više *ne moramo koncentrisati* na samo izvođenje kretanja. One, praktično, slijede same od sebe, jer su »automatske«.

Velika je prednost automatizacije što sportista može slobodno posvetiti pažnju ostalim zadacima koje ima. Tako se npr. na protivničkog igrača ili saigrača može koncentrisati tek onda kad kod driblinga više ne mora očima da prati loptu, može je dodati u pravom trenutku i u pravom smjeru. Za automatizaciju kretanja po terenu neobično je važno da se isti pokreti stalno ponavljaju.

Neuromuskulturna aktivnost biće optimalna tek uz veoma učestalo ponavljanje određenih elemenata. Treneri treba da znaju da se fina motorika može poboljšati samo ako je *tijelo potpuno odmoreno i oporavljeno*.

To bi značilo da npr. baš nije jako mudro prije podne sprovoditi kondicioni trening, a poslije podne uvježbavati tehniku.

Automatizacija se može prekinuti ako ono što smo naučili dovedemo u svoju svijest.

Događa nam se tada isto što i onoj stonogi iz priče, koju kornjača pita kako uspijeva da koordinira svih svojih sto nogu. Stonoga zastane da razmisli o onome *o čemu nikad ranije nije morala razmišljati* i već idućeg trenutka nije mogla pokrenuti svoje mnogobrojne noge prema naprijed u pravom ritmu.

Percepcija je veoma značajna u svakom sportu. Nije slučajno rečeno: »kakva percepcija, takva recepcija (primanje)«. Perceptivna istina razlikuje se od konstruisane istine. U sportu je potrebno naučiti perceptivnu logiku i „alatke“ za *proširenje* i *mjenjanje percepcije*. Sportisti pri opažanju pomaže iskustvo koje se stiče od prvih dana. Iskustvo omogućava *predviđanje*, tj. omogućava mu da na temelju manjeg broja parametara i informacija donosi odluke.

Perceptivno očekivanje može katkad pomoći da zaista brže opazimo ono što očekujemo i da na taj način brzo i adekvatno reagujemo. Ali, pri tom, može doći do zabune, najčešće onda kad se umjesto onoga što očekujemo pojavi nešto drugo čemu se nismo nadali (faktor iznenađenja u sportu). Tada je vrijeme reakcije na taj neočekivani podražaj duže no što bi bilo da uopšte nismo ništa očekivali.

Osnovu sportskog treninga čini diferencijacija pokreta i njihova *koordinacija sa vizuelnom percepcijom*.

The perception development consists of *space and time experience*. These experiences depend on whether they are contentful or not. For example, time at the match passes quickly, while it may seem to us that the coach's lecture lasts too long, like eternity. Something similar could be said about the last minutes (seconds) of the basketball game that often seem infinite to the coach, players and spectators in a closely contested game.

The assessment of distance is crucial in further development of perception. During the development, the distance assessment becomes more realistic.

Pre-school children that handle the ball variously assess and perceive the distance; kids catch the ball when it rolls in front of their feet or when they step forward. Pre-school children at shorter distance manage much better to assess the speed of the ball and its trajectory.

With years, the experience increases and young players are capable to *exactly adjust in time* the way they have to cross with the ball trajectory.

It has been noted that, although these experiences are getting more automatized, they can, if the *factors of surroundings* change, lead to defeat. For example, it is crucial for the player to understand and recognize in a timely fashion whether the ball that flies toward him is »cut« or not. If it is very »cut« and if a player cannot catch it before it falls on the floor, the player must assess in advance what »extraordinary« direction a ball could get. For example, he has to apply according to this his own running direction and prepare the change of direction by replacing his own balance (similar problems occur when the floor is slippery and when the ball starts to behave untypically, and the players more cautiously).

An individual organizes perception on his own and does it by *choosing* particular sense stimuli. On the basis of collected data already available by childhood, *structures are created* to which any other perception is added. Only those stimuli that we can integrate in the familiar sample, can be maintained and changed. With every additional, new experience the sample changes and widens, and becomes more individual and differentiated-under the hypothesis that in adults there are constantly new voluntary experiences, and naturally also such that are against our will. Thus, having finished the basketball match there are many versions of what was experienced. The fact that spectators belong to or are supporters of different clubs can *change the perception of the same match*.

Motivating young players represents mostly positive motivation that gives strength (instead of a »motive«, the word »incentive« is sometimes used). The significance of motivation in instruction of young players is huge. It is well-known that an individual, although he

U razvoj percepcije spada i *doživljaj prostora i vremena*. Ovi doživljaji zavise od toga jesu li sadržajno ispunjeni ili nisu. Tako npr. vrijeme na utakmici može naprosto proletjeti, dok će nam se izlaganje trenera koje predugo traje, činiti kao čitava vječnost. Slično bi se moglo reći za posljednje minute (sekunde) utakmice, koje se, već prema tome kakav je rezultat, treneru, igračima i gledaocima čine beskrajnim.

U daljem razvoju percepcije veoma je bitna procjena daljine. Tokom razvoja procjena udaljenosti postaje sve realističnija.

Predškolska djeca koja barataju loptom različito procjenjuju i percipiraju udaljenost; mala djeca hvataju loptu tek kad im se dokotrlja pred noge ili eventualno naprave iskorak nogom. Predškolska djeca na kraćoj distanci znatno bolje uspijevaju da procijene brzinu lopte i njenu putanju.

Sa godinama iskustvo raste i mladi igrači su u stanju da *egzaktno vremenski* usklade put koji moraju preći s putanjom lopte.

Primjetno je da, iako se ova iskustva sve više automatizuju, ona mogu, ako se promijene *faktori okoline*, ipak dovesti do neuspjeha. Na primjer za igrača je važno da pravovremeno shvati i prepozna je li lopta koja leti prema njemu »rezana« ili nije. Ako je jako »rezana« i ako igrač nije mogao prihvatiti loptu, prije nego što je pala na tlo, igrač mora unaprijed proračunati koji bi relativno »neuobičajen« smjer lopta na kraju mogla dobiti, tj. mora u skladu sa tim primijeniti sopstveni smjer trčanja i promjenu smjera pripremiti prebacivanjem vlastitog težišta. (Sličan problem pojavljuje se onda kad parket postane klizav i kad se lopta počinje ponašati netipično, a igrači opreznije.)

Percepciju pojedinac organizuje sam i to putem *izbora* pojedinih osjetilnih podražaja iz cjeline postojećih. Na temelju prikupljenih podataka još u djetinjstvu, *nastaju strukture* na koje se nadovezuje svaka dalja percepcija. Samo one podražaje koje možemo integrisati u poznati uzorak, možemo zadržati i preraditi. Sa svim daljim, novim iskustvom mijenja se i proširuje uzorak, postaje sve individualniji i diferenciraniji – pod pretpostavkom da kod odrasle osobe stalno dolazi do novih dobrovoljnih doživljaja, a naravno i takvih koji su protiv naše volje. Zbog toga po završetku košarkaške utakmice postoje mnoge verzije doživljenog. A već sama pripadnost gledaoca različitim klubovima može znatno *izmijeniti percepciju jedne te iste utakmice*.

Motivisanje mladih igrača pretpostavlja, prije svega, pozitivnu motivaciju koja budi snagu (za motiv se nekad koristi i riječ pobuda). Značaj motivacije u obučavanju mladih igrača je ogromna. Poznato je da

performs something well, may do it even better. The difference between a successful and less successful coach is in taking into account the motivation and knowledge about it. Motivating players must be individual or in smaller groups. In addition, the motivation must begin on time. However, enhanced motivation *does not help* some athletes-it often harms them. Excessive insisting may be counterproductive. Coaches sometimes with great enthusiasm stimulate the players using unusual forms (One athlete at the recent Olympic Games in Greece, for example, was motivated by listening to the epic fiddle poems). Coaches are making a mistake when they apply the same strategy of motivation to all the team members; many don't realize that they are making an error. There are players that should be prepared early. The coach should get them ready for the match that is going to be played, in seven days, for example.

On the other hand, some players become *too tense* if motivated for too long. The less preoccupied they are with their performance and tasks before the match, the less burdened they are at the start of the game.

Coaches can learn a lot about motivation. It is not enough to rely only on our feelings. If it were correct that enhanced motivation was a guarantee for success, why then do coaches speak to the players and tell them to pull themselves together, calm down, and relax. It is always necessary to take into account the particularities of the sport and motoric forms (some motoric exercises are more complex than others).

Excessive motivation can be counterproductive in those sports whose characteristics are complex, clear, and entail *controlled coordination* - basketball is an example of this.

Apart from the motive, there are needs that can also be incentives of human behavior. The meaning of concepts »motive« and »need« are partially the same, and in ordinary, colloquial speech there is almost no difference. However, when meeting needs, state of shortage, that occurred in organism (hunger, thirst) or in the individual's mind-for example, the need for social recognition-is canceled. There are primary and secondary needs, primary and secondary motivation.

When the basketball player that has a primary motivation enters the game, he becomes active because he likes basketball. However, the secondary motivated player will not engage because of the emotional or material prize he expects. (Some coaches motivate their players by making it clear to them what kind of prize they can expect in the case of victory. Some do it in such a way by sticking money on the wall of the dressing room).

If there is no *communication*, motivation won't be possible. These are two areas that are very tightly connected. It's the matter of *what* to say, *when* to do it, and of course *who* is going to tell it.

pojedinaac, iako nešto obavlja dobro, može to činiti još bolje. Razlika između uspješnog i manje uspješnog trenera je u uvažavanju motivacije i znanja o njoj. Motivisanje igrača mora biti pojedinačno ili u manjim grupama i sa motivacijom se mora početi na vrijeme. Međutim, nekim sportistima pojačana motivacija ne samo da *ne pomaže* – ona može biti štetna. Suviše veliko nastojanje može biti kontraproduktivno. Treneri, ponekad, s velikim entuzijazmom stimulišu igrače koristeći i neprimjerne obrasce (jednog našeg sportistu na olimpijadi motivisali su na taj način što su mu pjevane epske guslarske pjesme). Treneri griješe kad primjenjuju jednu te istu strategiju motivisanja na sve članove ekipe. Ima igrača koje treba početi rano pripremati, zagrijavati za utakmicu koje se igra tek npr. za sedam dana.

S druge strane, neki igrači postaju *prenapeti* ako se predugo motivišu. Što su prije utakmice manje zaočupljeni svojim nastupom i zadacima, to neopterećeni ulaze u igru.

Treneri još mnogo toga mogu naučiti o motivaciji. Nedovoljno je pouzdati se samo u svoj osećaj. Ako bi bilo tačno da je povećana motivacija garancija uspjeha, zašto onda treneri često govore igračima da se saberu, smire i opuste. Uvijek je potrebno voditi računa o specifičnosti takmičarskog sporta i o motoričkim obrascima (neke motoričke vježbe su složenije od drugih).

Prekomjerna motivacija može biti kontraproduktivna u onim sportovima, čije su odlike složenost, jasna i *kontrolisana koordinacija*. (Košarka je primjer za to.)

Osim motiva, postoje i potrebe koje, isto tako, mogu biti pokretači ljudskog ponašanja. Značenja pojmova motiv i potreba djelimično se preklapaju, i u svakodnevnom, kolokvijalnom govoru skoro da se i ne razlikuju. Doduše, kod zadovoljavanja potreba, radi se prije o *ukidanju stanja nedostatka* koji se razvio u organizmu (glad, žeđ), ili u psihi pojedinca (npr. potreba za socijalnim priznanjem).

Postoje primarne i sekundarne potrebe, primarna i sekundarna motivacija. Dok košarkaš koji je primarno motivisan ide u igru; postaje aktivan jer voli košarku, sekundarno motivisan igrač se neće angažovati npr. zbog emocionalne ili materijalne nagrade koju očekuje. (Neki treneri motivišu svoje igrače stavljajući im jasno do znanja kakvu premiju mogu očekivati za pobjedu, i to na taj način što na zid svlačionice pričvršćuju određene novčanice.)

Ako ne postoji *komunikacija*, ni motivacija nije moguća. To su dva područja koja su sasvim usko povezana. Radi se o tome šta reći, kada to učiniti, i naravno ko će to reći.

When it comes to motivation, the damage that can be created because of the wrong approach mustn't be underestimated.

Many coaches cannot communicate because they don't know how to listen (they are not from a culture of listening). Self-consciousness in others may be developed only by a person that is self-conscious. A young player can be infected with enthusiasm only by an enthusiastic man (only a delighted man can delight). Aggression (we think of *aggression within rules*) can be transmitted only by an aggressive person. A coach has to experience himself exactly what he wants his staff to teach. There's the danger with this because one may think one knows everything the best and thus he doesn't have to listen but only speak. If the players say two or three sentences, the coach knows in advance what he should say. The players' speech becomes boring to him and the conversation often ends with an imperative phrase, »shorten the speech«. The coach may have the right, but he will not convince the players. A player, especially a young man, feels unaccepted; roots of acceptance and feeling are extremely important for a young player, and this is the very obligation of the coach. However, the coach wouldn't be able to do it unless he knows how to listen. This is a great weakness of the coach, and of the professor in school as well; having always been right for years in the classroom, they treat their children at home in the same way—they always have to be right.

»The relation between a coach and young players may have a decisive influence on the opinion that a player has about himself and on his self-confidence. Thus the coach's behavior towards his players is extremely important. For example: A coach may have a negative influence if he insults his players (»Are you crazy?«); if he underestimates his players (»Why are you always making a fool of yourself?«); if he ridicules them in front of their teammates (»Kid, the basket is not on the other side of the street!«); if he scorns them without any explanation or without a possibility to correct themselves later (»You are never doing this right! You're making mistakes all the time.«); or if he uses the words that compare player's sports values with his human qualities (»You are not doing anything right, because you are just lazy!«).

- Coaches have a positive influence if they do not behave in this way and if they apply the following strategies:
- Clearly and precisely define the objectives that players have to achieve.
- Help players achieving the objectives and point out their good work.
- Select the practice sessions that are related to sports skills and to pay attention to them.
- Correct each player in a constructive way by showing him what he is doing wrong while

Štetu koja može nastati zbog neispravnog pristupa motivaciji ne treba potcjenjivati.

Mnogi treneri ne mogu komunicirati zato što ne znaju slušati (ne posjeduju kulturu slušanja). Samosvijest kod drugih može razviti samo neko ko je samosvjestan. Oduševljenje na mladog igrača može da prenese samo oduševljen čovjek (samo oduševljen može da oduševi). Agresiju (misli se na *agresiju u okviru pravila*) može prenijeti samo neko ko je agresivan. Ono što treba da usadi drugima, trener mora sam da proživi. A tu se krije opasnost, jer može misliti da sve zna bolje i da zato ne treba da sluša, već samo da govori. Ako igrači kažu dvije - tri rečenice, trener unaprijed zna šta treba reći. Govorenje igrača postaje mu dosadno i razgovor se često završava sa imperativnim sloganom – «skrati». On, doduše, može imati pravo, ali time ne pridobija igrača. Igrač se, pogotovo mlad, osjeća neprihvaćeno; prihvatanje i ukorijenjenost su veoma važni za mladog igrača, a to je upravo obaveza trenera. Međutim, trener to neće moći učiniti ako ne zna da sluša. A to je velika slabost trenera, baš kao i nastavnika u školi; nakon što godinama u školskom odjeljenju imaju pravo, kod kuće se prema sopstvenoj djeci ponašaju isto tako – uvijek moraju biti u pravu.

»Odnos između trenera i mladih igrača može da ima odlučujući uticaj na mišljenje koje igrač ima o sebi kao i na njegovo samopouzdanje. Stoga je ponašanje trenera prema igračima od velikog značaja. Na primjer: trener može da ima negativan uticaj ako vrijeđa svoje igrače (»da li si lud«); ako potcjenjuje svoje igrače (»da li praviš budalu od sebe kao i uvijek?«); ako ih ismijava pred ostalim saigračima (»mali, koš nije preko puta ulice«); ako ih prekoreva bez objašnjenja ili bez mogućnosti da se kasnije koriguju (»nikada to ne radiš kako valja! Samo praviš greške«); ili ako upotrebljava riječi kojima poredi igračeve sportske vrijednosti sa njegovim ljudskim kvalitetima (»Ti ništa ne radiš kako valja, ti si aljkav«).

Međutim, treneri imaju pozitivan uticaj ako se ne ponašaju na ovakav način i ako primjenjuju sljedeće strategije:

- jasno i precizno definišu ciljeve koje igrači moraju da postignu,
- pomažu igračima da postignu te ciljeve i ističu njihove dobre postupke,
- izdvajaju postupke koji imaju veze sa sportskim sposobnostima i na njih posebno ukazuju,
- koriguju igrače konstruktivno tako što im ukazuju na to šta rade pogrešno i istovremeno, omogućuju i da shvate grešku i pružaju

making it possible for them to realize the error. Offer him the possibility to correct himself.« (Jose Maria Buceta, former Spanish Women's National Team Coach)

Young players that attracted early attention and publicity because of the skills now have to face high expectations from clubs. Unfortunately, too many are not able to live up to the expectations. This occurs because not enough time has been allowed for learning and maturing. Optimum levels of motivation are needed to help this player achieve his potential.

CONCLUSION

Every player with whom a coach contacts provides from particular social surroundings within which there are specific communication structures. Children learn through specific characteristics of communication structures that prevail in their families.

Out of a young player a successful person should be created. Defeat plays an important role, as well. A player that wants to become successful has to possess the following qualities: *direction, understanding, courage, scruples, respect, self-confidence* and *self-acceptance*. The picture and mechanism of defeat are related to *frustrations* (hopelessness, feeling unworthy), *aggression* (wrongly directed), *insecurity, loneliness* (lack of »unity with oneself«), *hesitation, resistance, and emptiness*.

Self-consciousness of a young player is built also with the culture of defeat. Culture of defeat or more narrowly said, sports defeat, is one of the darkest places of our sports consciousness. This is the place of conspiracies, vanity, and multitude of the guilty ones. Defeat is considered to be a natural disaster and no one gets ready for it. Metaphorically speaking »defeat is the victory that we are deprived of« (corruption, referee, mass interference, violation of rules, etc.). Rejecting to give legitimacy to the concept of defeat, leads us often to the situation to lie ourselves. Perhaps the whole culture of one nation is reflected in the culture of defeat, and our culture keeps sports at distance. Without culture of defeat one stays without culture of victory.

Coaches should teach a young player that defeat does not represent him as a person and that it is transitory. Defeat can be shown as a wonderful opportunity to learn something we couldn't learn under other circumstances. Losing means being a man, but we are all humans. It is important to find out whether we lost because of the reasons we could control, or because of the reasons we couldn't control.

»You should invest whole strength in what you want to achieve, but never when it is obvious that it

mogućnost da se isprave.« (Jose Maria Buceti).

Mladi igrači koji su rano dospjeli u žižu javnosti i u središte interesa klubova i koji su prisiljeni da se suoče sa visokim očekivanjima u pogledu svojih daljih postignuća, mogu lako da se »potroše« u korist kratkoročnog uspjeha. To se dešava jer nemaju dovoljno vremena koje je uspješnom igraču potrebno za učenje i sazrijevanje. Optimalni stepen motivacije je preduslov za stanje u kom se može razviti ono što čini igrača, što mu treba.

ZAKLJUČAK

Svaki igrač s kojim trener dolazi u kontakt potiče iz specifične socijalne okoline unutar, koje postoje specifične komunikacijske strukture. Djeca uče kroz specifična obilježja komunikacijskih struktura koje prevladavaju u njihovim porodicama. Igrač koga su u mladosti prečesto kritikovali, ili o njemu pretjerano brinuli, svaku dobronamjernu kritiku može shvatiti kao apsolutnu osudu svoje cjelokupne ličnosti i reagovao u skladu sa tim negativno.

Od mladog igrača treba stvoriti uspješnu ličnost, ali ga istovremeno naučiti da poraz prihvata kao korisno iskustvo. Da bi igrač postao uspješan, mora posjedovati sljedeće osobine: *usmjerenje, razumijevanje, hrabrost, obzirnost, poštovanje, samopouzdanje, i samoprihvatanje*. Slika i mehanizam neuspjeha povezani su sa *frustracijama* (beznadežnost, ništavnost), *agresivnošću* (pogrešno usmjerenom), *nesigurnošću, usamljenošću* (nedostatak »jedinstva sa sobom«), *oklijevanjem, otporom i ispraznošću*.

Samosvijest mladog igrača se gradi i na kulturi poraza. Kultura poraza ili uže, sportskog poraza, jedno je od najtamnijih mjesta naše sportske svijesti. To je zapećak zavjera, praznih taština i gomile krivaca. Poraz se shvata kao elementarna nepogoda i ne dočekuje se spremno. Metaforički rečeno »poraz – to je pobjeda koju nam je neko drugi neopravdano uskratilo« (korupcija, sudija, uplitanje gomile, izigravanje pravila i sl.). Odbijanje da pojmu poraza osiguramo legitimitet, dovodi nas često u situaciju da lažemo sami sebe. Možda se cjelokupna kultura jednog naroda ogleda u kulturi poraza, a naša kultura drži sport daleko od sebe. Bez kulture poraza, ostaje se i bez kulture pobjede.

Treneri treba da nauče mladog igrača da poraz ne predstavlja njega kao osobu i da je prolaznog karaktera. Poraz se može pokazati kao sjajna prilika da se nauči nešto što se pod drugačijim okolnostima ne bi moglo naučiti. Gubiti znači biti čovjek, a svi smo ipak ljudi. Važno je uočiti da li smo zatajili iz razloga koji

will be useless«. Limited psychological energy must be directed not at the feeling of depression, but in constructive purposes.

Defeat makes you miserable, rejected and helpless. On the other hand, you can take it as a challenge to the temptation of our own force and skill to manage in difficult circumstances, impetus to get to know yourself, to replace your priorities and to think of what to do further and how to go on in future. Defeat helps to precisely determine the direction of progress in your own life segment. No matter how unpleasant it is, nevertheless it helps you to understand better where you are and in which direction you want to go. If you get the message from defeat, then it was not worthless... every difficulty should be considered to be the challenge, test of strength, opportunity to develop. If you look in such a way at the happenings, then you are the winner in every situation (Terry Orlick, Sport Psychologist).

Life is constant adjustment. The more you adjust, the healthier you will be.

smo mogli kontrolisati, ili zbog onih nad kojima nemamo kontrolu.

»Svu snagu uložite u ono što želite ostvariti, ali nikad kad je očigledno da će biti uzalud« (Seli). Ograničena psihička energija mora se usmjeriti ne na osjećaj potištenosti, već u konstruktivne svrhe.

Poraz vas čini jednim, odbačenim i bespomoćnim. S druge strane, možete ga shvatiti kao izazov iskušenju vlastite snage i sposobnosti snalaženja u otežanim okolnostima, podsticaj da bolje upoznate sebe, premeštate svoje prioritete i razmislite šta i kako dalje. Poraz pomaže da tačno odredite pravac napretka u sopstvenom segmentu svoga života. Kako god je neugodan, ipak pomaže da bolje shvatite gdje se nalazite i u kojem pravcu želite krenuti. Ukoliko iz poraza izvučete ijednu pouku, on nije potpuno bezvrijedan... na svaku poteškoću gledajte kao na izazov, ispit snage, priliku za razvoj. Imate li ovakav pogled na zbivanja, tad ste pobjednik u svakoj situaciji (Teri Orlik, sportski psiholog).

Život je neprekidno prilagođavanje. Što se bolje prilagodite, bićete zdraviji.

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Correspondence to:

Prof. Academician Dragan Koković, PhD

Faculty of Philosophy

Dr Zorana Džindjića 2

21000 Novi Sad

Serbia

E-mail: kokovic@ff.uns.ac.rs

Phone: 00381 63 80 89 333

Korespodencija:

Akademik Prof. dr Dragan Koković

Filozofski fakultet

Dr Zorana Đinđića 2

21000 Novi Sad

Srbija

E-mail: kokovic@ff.uns.ac.rs

Telefon: 00381 63 80 89 333

ENTWICKLUNG VON JUNGEN SPIELERN: SOZIALANTHROPOLOGISCHE DIMENSIONEN – AM BEISPIEL BASKETBALL

Dragan Koković¹

¹Institut für Soziologie, Philosophische Fakultät, Novi Sad, Serbien

In der Entwicklung von jungen Spielern spielen folgende Determinanten die Hauptrolle:

Genetischer Determinismus bezieht sich auf das Erbe und behauptet, dass die Eigenschaften des Einzelnen vom Erben abhängen, beziehungsweise

von dem was uns die Vorfahren hinterlassen haben (der Eifer, der Charakter, das Temperament, usw.).

Psychologischer Determinismus behauptet, dass das Benehmen des jungen Spielers das Ergebnis der elterlichen Erziehung darstellt. Erziehung und die Erfahrung aus der Kindheit bestimmen groesstenteils

die Entwicklung der Persönlichkeit und ihre charakterliche Struktur. Wenn der Spieler Angst hat Anführer einer Gruppe zu werden, ist das höchstwahrscheinlich das Ergebnis der elterlichen Erziehung. Ein junger Spieler, der sich nach einem Fehler sehr schuldig fühlt, "erinnert" sich an emotionale Szenarien aus der Zeit als er verwundbar, empfindlich und abhängig war. Eventuelles Bestrafen kann auch sehr seine Emotionen beeinflussen, weil er sich unterbewertet fühlen kann und nicht das Gefühl hat im Vergleich mit anderen auf dem gleichen Leistungsniveau zu sein.

Umgebungsbedingter Determinismus behauptet, dass Arbeitgeber, Trainer, Gegner, Wirtschaftslage, Staatspolitik usw. Einfluss auf die Entwicklung des Einzelnen (des Spielers) haben können. Man darf nicht ausser Acht lassen, dass sehr viele junge Spieler aus Ländern kommen, in denen sehr grosser Wert auf den Sport gelegt wird, aber immer wieder findet man auch Sportler die aus Ländern kommen wo Sport keine grosse Rolle spielt.

Hochleistungen jedes Einzelnen sind Spiegelbild dieser verschiedenen Bedingungen, aber auch des Glaubens an sich selbst und an die Arbeit die man ausübt.

Es gibt sehr viele Beispiele, die bezeugen, dass Riesentalente nie den Sprung nach oben schafften, weil sie bestimmte sozialpsychologische und anthropologische Dimensionen des Sports nicht kannten.

Viele junge Sportler haben sich nach einigen guten ersten Spielen einen respektablen Ruf verschafft, sanken dann aber sehr schnell in den Kreis des Durchschnitts ab. Man könnte von diesen Spielern einige Teams mit riesengrossen spielerischen Potential zusammenstellen.

Wenn man die obengenannten Prinzipien rechtzeitig in Betracht genommen hätte und wenn man mit den Spielern sportlich fachlicher und sozialanthropologischer umgegangen wäre, wären viele von diesen Talenten Leistungsträger in ihren Vereinen und eventuell auch in ihren Nationalmannschaften geworden.

Für das Kindertraining gilt das folgende Prinzip: Das Augenmerk der Ausbildung, speziell für eine bestimmte Sportart, in diesem Fall Basketball, muss auf die Entwicklung der Grundtechnik gelegt werden. In keiner Phase des Lebens ist der Zugang zur motorischen Ausbildung leichter als im Kindesalter.

Das Konzept des Trainings mit den Kindern muss vielfältig sein, es muss verschiedene technische Fähigkeiten umfassen und dem Kind ermöglichen den allgemeinen Beziehungen bewusst zu werden.

Junge Spieler, die frühzeitig in den Fokus der Öffentlichkeit gelangen und die frühzeitig das Interesse verschiedener Vereine wecken, müssen sich mit hohen Erwartungen in Bezug auf die zukünftigen Leistungen auseinandersetzen, so dass die Gefahr besteht sich wegen des kurzfristigen Erfolgs zu "verbrauchen". Das passiert immer wieder, weil man den Spielern nicht genug Zeit lässt, dass sie sich entwickeln und reifen.

Ein optimales Niveau an Motivation ist die Voraussetzung für ein Umfeld in dem ein Spieler seine Fähigkeiten komplett entwickeln kann.

Das Selbstbewusstsein eines jungen Spielers entwickelt sich auch durch die Kultur der Niederlage. Die Kultur der Niederlage, oder genauer, der sportlichen Niederlage, ist eine der dunkelsten Seiten unseres sportlichen Bewusstseins. Das ist eine Kammer von Verschwoerungen, Eitelkeiten und vielen Schuldigen. Eine Niederlage wird als seine Naturkatastrophe angesehen, und man bereitet sich nicht entsprechend vor auf solch eine.

Metaphorisch betrachtet "Niederlage – das ist ein Sieg den uns jemand unverdient genommen hat" (Korruption, Schiedsrichter, falsche Regelausrichtung, usw.). Sehr oft belügen wir uns selbst, indem wir dem Begriff Niederlage keine Legitimität gewähren. Vielleicht könnte man die gesamte Kultur eines Volkes durch die Kultur einer Niederlage betrachten, wobei unsere Kultur den Sport weitfern von sich hält. Ohne die Kultur der Niederlage bleibt man auch ohne die Kultur des Sieges.

Ein Trainer soll einen jungen Spieler lehren, dass eine Niederlage ihn nicht als Persönlichkeit darstellt, sondern dass man weitergehen muss. Eine Niederlage kann als Vorsatz dazu dienen dass man etwas lernt was man unter anderen Umständen hätte nicht lernen können. Es ist menschlich zu verlieren, und wir sind alle schliesslich nur Menschen. Es ist wichtig zu wissen ob wir aus einem Grund, den wir hätten kontrollieren können, versagt haben, oder nicht.

Schlüsselwörter : Sport, Spiel, junger Spieler, Erziehung, Entwicklung.

ANALIZA SUĐENJA SVJETSKOG PRVENSTVA U MUŠKOJ SPORTSKOJ GIMNASTICI U LONDONU 2009 GODINE

ANALYSIS OF THE JUDGING RESULTS FROM THE WORLD CHAMPIONSHIP IN MEN'S ARTISTIC GYMNASTICS IN LONDON 2009

Almir Atiković¹, Sunčica Delaš Kalinski², Snežana Bijelić³, and Nađija Avdibašić Vukadinović¹

¹Fakultet za tjelesni odgoj i sport, Univerzitet u Tuzli, Bosna i Hercegovina
Faculty of Physical Education and Sport, University of Tuzla, Bosnia and Herzegovina

²Kineziološki fakultet, Sveučilište u Splitu, Hrvatska
Faculty of Kinesiology, University of Split, Croatia

³Fakultet fizičkog vaspitanja i sporta, Univerzitet u Banja Luci, Bosna i Hercegovina
Faculty of Sport and Physical Education, University of Banja Luka, Bosnia and Herzegovina

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SUMMARY

On a sample of 176 male gymnasts, we analyzed the score of judges from the World Championship in men's artistic gymnastics, held 2009 in London. The subject of the analysis were the final scores competitors got for the exercises shown in the qualifying competition (C I). Analysis problem was determination of the differences on individual apparatus between judges E1 to E6 and apparatus. The main objective of this study was to determine the reliability of evaluation of judges and whether the current Code of Points (Federation Internationale de Gymnastique, 2009b) should be revised in terms of equalizing score on apparatus. Equality was tested for the achieved D, E and all-around scores on the disciplines of floor exercise, pommel horse, rings, vault, parallel bars and horizontal bar. Vault has the highest D and E scores, while pommel horse the lowest D and E scores. *T*-tests showed that those two disciplines significantly differ from other disciplines. Reliability were calculated (intraclass correlation coefficient ICR, Cronbach's alpha, differences in mean E1 to E6 between judges were tested using factor analyses with method first major component. All data were analyzed using SPSS Statistics 17.0. Results show very high reliability (e.g. Cronbach's alpha range from .94 up to .98).

Key words: Men's Artistic Gymnastics, Judging, Code of Points (FIG).

SAŽETAK

Na uzorku od 176 gimnastičara, analizirane su ocjene studija sa Svjetskog prvenstva u muškoj sportskoj gimnastici, koje se je održalo u Londonu 2009. godine. Predmet analize je kvalitet ocjenjivanja sudija u kvalifikacijama (C I) na osnovu važećeg pravilnika za ocjenjivanje Međunarodne gimnastičke federacije (C I). Problem je bio određivanje razlika ocjena sudija na spravama i između sudija na pojedinim spravama od E1 do E6 sudije. Osnovni cilj rada bio je da se ustanovi pouzdanost ocjenjivanja sudija i da li važeći Pravilnik za ocjenjivanje (Federation Internationale de Gymnastique, 2009b) treba revidirati po pitanju ujednačavanja ocjena na spravama. Razlike su testirane za ocjene komisija D, E i rezultat na svim spravama u višeboju: parteru, konju s hvataljkama, krugovima, preskoku, razboju i vratilu. Preskok ima najveću srednju D i E ocjenu, a konj s hvataljkama najniže srednje D i E ocjene. *T*-testovi su pokazali da se ove dvije sprave značajno razlikuju od drugih sprava. Pouzdanost je izračunata sa ICR, Kronbah alfa, razlike između ocjena komisije od E1 do E6 su testirane uz pomoć faktorske analize metodom prave glavne komponente. Svi podaci su analizirani uz pomoću statističkoga paketa SPSS 17.0. Rezultati pokazuju vrlo visoku pouzdanost (Kronbah alfa je u rasponu je od 0,94 do 0,98).

Ključne riječi: muška sportska gimnastika, suđenje, pravilnik za ocjenjivanje (FIG).

INTRODUCTION

In artistic gymnastics, the emphasis is on the aesthetic component which has to be performed in accordance with the specific conventional structure of a movement. Although the methods of assessment in conventional sports differ either by number of judges, set criteria or method of calculating the final results, it is characteristic for the sports industry that judges represent the measuring instrument and that their assessments are instruments of qualities of contestant's results. Each contestant brings his own competitive exercises which are being evaluated from two perspectives: content and performance of an exercise. Today, for the assessment of artistic gymnastic, the international competitive Code of Points for assessment of men's and women's artistic gymnastics is in effect, which are being improved and published after the Olympic Games finish. Male competition Code of Points for the evaluation of the technical commission is composed by Men's Technical Committee, The *Fédération Internationale de Gymnastique* (FIG).

The first unique instructions FIG for evaluation of gymnastic exercises were created in 1949. year known as "*Code of Points*" for the assessment of the artistic gymnastics includes seven levels of degree of difficulty. Initial degree of severity represents the level A, and the next levels are B, C, D, E, F, and G (Federation Internationale de Gymnastique, 2009b). The latest one is the greatest degree of severity. The main purpose and goal of the Code of Points for evaluating is provision of more objective evaluation of exercises. Independent members of the Refereeing Commission (D & E commission) are on all apparatus: D commission evaluates (weight, special requirements, and bonus points) and the assessment starts from 0.00 points to more and E commission the performance of an exercise (performance techniques, body posture, and balance), and provides deductions for the performance from 10.00 points to lower. D commission determines the initial assessment of an exercise, and the E commission registers performance errors due to technical performance, body posture and balance of exercise performance so that those two grades would at the end sum up in the final one.

Several authors have tried to evaluate the quality of judging at different competitions. Ansorge, Scheer, Laub, and Howard (1978) found bias in scores induced by the position in which female gymnasts appear in their within-team order. Ansorge and Scheer (1988) found biased judging towards judges' own national team and against immediate competitors' teams. Hraski (1988) analyzed judging at the World Cup in 1982 in all male disciplines.

In rhythmic gymnastics, for the purpose of this study Popović (2000) designated a bias pattern with the

UVOD

U sportskoj gimnastici naglasak je na estetskoj komponenti, koja mora biti izvedena u skladu sa konvencionalno određenom strukturom kretanja. Iako se načini ocjenjivanja u pojedinim sportovima međusobno razlikuju: bilo prema broju sudija, postavljenih kriterija ili načina izračunavanja konačnog rezultata, za pojedine sportove kao što su (umjetničko klizanje, skokovi u vodu, sinhrono plivanje, ritmička gimnastika) karakteristično je, da sudije vrednuju kvalitet takmičarevih učinaka na osnovu prikaznih sastava. Svaki takmičar izvede na takmičenju u sportskoj gimnastici svoj takmičarski sastav, koji se ocjenjuje sa dva aspekta: sadržaj i izvođenje vježbe. Danas su na snazi kod ocjenjivanja sportske gimnastike međunarodni takmičarski pravilnici za ocjenjivanje za mušku i žensku sportsku gimnastiku, koji se dopunjuju sa novim elementima i izdaju nakon završenog olimpijskog ciklusa. Muški takmičarski pravilnik za ocjenjivanje je sastavila Muška tehnička komisija *Međunarodnog gimnastičkog saveza* (FIG).

Prve jedinstvene upute FIG za ocjenjivanje gimnastičkih vježbi su nastale 1949. godine pod nazivom „pravila bodovanja“. Danas Pravilnik za ocjenjivanje iz sportske gimnastike obuhvata sedam nivoa po stepenu težine. Početni stepen težine predstavlja nivo A, slijedeći nivoi su B, C, D, E, F i G. Posljednji predstavlja najveći stepen težine (Federation Internationale de Gymnastique, 2009b). Osnovna namjena i cilj pravilnika za ocjenjivanje je osiguravanje što objektivnijeg vrednovanja sastava. Na svim spravama nalaze se nezavisni članovi sudijske komisije (D i E komisija): D komisija vrednuje (težine, posebne zahtjeve i bonus bodove) dok ocjenjivanje sudije započinju od 0,00 bodova na više, a E komisija vrednuje izvođenje sastava, tehniku izvođenja položaj tijela i sklad), a ocjenjivanje počinje od 10,00 bodova prema dolje. D komisija određuje početnu ocjenu sastava, a E komisija registruje greške u izvođenju s obzirom na tehniku izvođenja, položaj tijela i sklad izvedenog sastava. Konačna ocjena se dobiva tako što se te dvije ocjene na kraju sabiraju u jednu konačnu ocjenu.

Nekoliko autora pokušali su procijeniti kvalitet ocjenjivanja na različitim takmičenjima. Ansorge, Scheer, Laub i Howard (1978) pronašli su pristranost u rezultatima na osnovu redoslijeda po kojem se pojavljuju gimnastičarke u njihovom ekipnom redoslijedu. Ansorge i Scheer (1988) pronašli su pristranost sudija prema vlastitoj nacionalnoj ekipi nasuprot neposrednog konkurenata. Hraski (1988) analizira suđenje na Svjetskom kupu održanom 1982. godine u svim muškim disciplinama.

U ritmičkoj gimnastici, u svrhu studije, Popović (2000) je određivala pristranost međunarodnih sudija na takmičenju u ritmičkoj gimnastici na Olimpijskim

international judges at the competition in rhythmic gymnastics at the Olympic games held in Sydney in 2000. The results of analysis conducted on the basis of a test of proportions (relative to the number of major, minor, or identical assessments) in the qualifications for individual all-around competition indicate on biased evaluation of competitors from their own countries. Woman judges evaluated gymnasts from their federations with higher assessment than the other scoring woman judges.

Sands (2010) in his research “Judging in real time” mentioned the biggest problem of evaluation and that is: reliability and validity. In his paper, the author mentions that the judges could use modern technology and with that, immediately after the performance, give their deductions so that a smaller number of judges would stay at rank. Other authors have dealt with this issue, too, such as Čuk and Forbes (2006) who have made the program B Jury Judging Real Time System (RTJS) at the Australian Institute for Sport. The program has improved the objectivity of the evaluation by Jury B Execution Deductions entered during the performance and it cannot be changed, judges must deduct quickly and precisely each time they see an error. This program is approved by the Technical Commission of the *European Union of Gymnastics* (UEG) which was first used at the European Championships in Berlin held in 2011.

Leskošek, Čuk, Karácsony, Pajek, and Bučar (2010) in results show very high reliability and satisfactory validity of judging at the University Games. It should be emphasized that judging quality differs between apparatus, sessions and judges. In different sessions and apparatus all reliability measures (Cronbach’s alpha range from .92 up to .99, ICC, Armor’s theta) are higher than .90. Those indices tend to be a little lower in the all round finals than in qualification and apparatus finals. There appears to be no systematic differences in reliability between apparatus. Vault scores tend to have lower reliability than other apparatus in qualification and all around. Armor’s theta ranged from .92 (on the floor) to .98 (rings and high bar), whereas in Belgrade Armor’s theta ranged from .93 (rings and vault all round finals) to .99 (high bar qualifications and apparatus finals). Finals, but not in apparatus finals, high bar scores have the highest reliability in qualification session and apparatus finals, but only average in all around finals.

METHODS

Sample Entity

Our sample was composed of 176 gymnasts who competed at the WCh in London 2009 qualification event C1. On some apparatus, it was a smaller number of gymnast because it comes to qualifying competition

igrama održanim u Sidneju 2000. godine. Rezultati provedene analize temelje se na ispitivanjima u proporcijama (u odnosu na broj velikih, manjih ili identičnih ocjena). Rezultati u kvalifikacijama za pojedinačno takmičenje u višeboju ukazuju na pristrasno ocjenjivanje takmičarki iz svojih zemalja. Ženske sudije su ocijenile gimnastičarke iz svojih zemalja s višim ocjena od ostalih ženskih sudija iz drugih zemalja.

Sands (2010) u svom istraživanju “Suđenje u pravom vremenu” spominje najveći problem vrednovanja, a to je: pouzdanost i valjanost. U svom radu, autor spominje da bi sudije mogli koristiti moderne tehnologije i to, odmah nakon izvođenja, da daju odbitke od ocjene, tako da manji broj sudija ostane u rangu. Drugi autori su se bavili tim pitanjem, kao što su Čuk i Forbes (2006) koji su napravili program za suđenje B komisije u realnom vremenu (RTJS) na Institutu za sport iz Australije. Program je poboljšao objektivnost ocjenjivanja od strane B komisije, a odbici su unošeni tokom izvođenja vježbe, i to se ne može kasnije mijeniti: sudije moraju odbiti brzo i precizno svaki put kad uvide pogreške. Ovaj program je kasnijeg odobren od strane Tehničke komisije *Evropske gimnastičke unije* (UEG), koji je prvi put zvanično korišten od strane na Evropskom prvenstvu održanom u u Berlinu 2011. godine.

Leskošek, Čuk, Karácsony, Pajek i Bučar (2010) u rezultatima pokazuju vrlo visoku pouzdanost i zadovoljavajuću valjanost suđenja na Univerzijskim igrama. Valja naglasiti da se suđenje kvalitetnom razlikuje između sprava, sesija i sudija. U različitim sesijama i spravama, sva pouzdanosti mjerena je sa (Kronbah Alfom u rasponu od 0,92 do 0,99, ICC, Armorova teta) su više od 0,90. Ovo ukazuju na tendenciju da je malo niža ocjena u finalnu višeboja nego u kvalifikacijama i finalu po spravama. Čini se da nema sistematske razlike u pouzdanosti između sprava. Ocjene na preskoku imaju tendenciju nižeg nivoa pouzdanosti od ostalih sprava u kvalifikacijama i višeboju. Armorova teta je u rasponu od 0,92 (na parteru) do 0,98 (na krugovima i vratilu), dok je u Beogradu Armorova teta u rasponu od 0,93 (na krugovima i preskoku finala u višeboju) do 0,99 (na vratilu kvalifikacije i finalu po spravama). Ocjene na vratilu imaju visoke rezultate pouzdanosti tokom sesije kvalifikacija i finala po spravama, ali samo u prosjeku finala višeboja.

METODE

Uzorak ispitanika

Naš uzorak je bio sastavljen od 176 gimnastičara koji su se takmičili na Svjetskom prvenstvu u Londonu 2009. godine u kvalifikacijama (C1). Na pojedinim spravama je bio manji broj gimnastičara jer je u pitanju

where they compete only by specialists on particular apparatus, so the number of gymnasts on individual apparatus is considerably smaller.

Variables

From official Book of results (Federation Internationale de Gymnastique, 2009a) we made six variables of judges E scores, one D variable and one All variable (final score D+E) from 6 apparatus: floor exercise (FX), pommel horse (PH), rings (RI), vault (VA), parallel bars (PB) and horizontal bar (HB).

TABLE 1

Descriptive statistic and Kolmogorov - Smirnov Test

TABELA 1

Deskriptivna statistika i Kolmogorov - Smirnov Test

kvalifikacijono takmičenje, gdje se takmiče samo specijalisti na pojedinim spravama, pa je i broj gimnastičara na pojedinima spravama znatno manji.

Varijable

Iz službene knjige rezultata (Federation Internationale de Gymnastique, 2009a) napravili smo šest varijabli ocjena E sudija, D ocjena i jedna varijabla konačni rezultat (D + E ocjena) od 6 disciplina: parter (FX), konj sa hvataljkama (PH), krugovi (RI), preskok (VA), razboj (PB) i vratilo (HB).

| Scores | Apparatus | <i>n</i> | Range | MIN | MAX | <i>M</i> | <i>SE</i> | <i>SD</i> | Skew. | <i>SE</i> | Kurt. | <i>SE</i> | ICR | KS test | <i>p</i> |
|--------|-----------|----------|--------|--------|--------|----------|-----------|-----------|--------|-----------|--------|-----------|-------|---------|-------------|
| E | FX | 133 | 3.175 | 6.100 | 9.275 | 8.217 | 56.087 | 646.722 | -.780 | .210 | .544 | .417 | .938 | .796 | .551 |
| | PH | 131 | 5.725 | 3.950 | 9.675 | 7.739* | 83.478 | 955.464 | -1.054 | .212 | 1.961 | .420 | 1.175 | 1.164 | .133 |
| | RI | 126 | 3.900 | 5.200 | 9.100 | 7.935 | 59.096 | 663.350 | -1.205 | .216 | 2.128 | .428 | .800 | 1.114 | .167 |
| | VA | 176 | 2.225 | 7.375 | 9.600 | 8.722** | 45.451 | 602.976 | -.648 | .183 | -.798 | .364 | 1.000 | 1.766 | .004 |
| | PB | 127 | 4.400 | 4.800 | 9.200 | 8.074 | 69.012 | 777.725 | -1.114 | .215 | 1.735 | .427 | 1.000 | 1.294 | .070 |
| | HB | 127 | 5.300 | 3.550 | 8.850 | 7.798 | 75.099 | 846.323 | -1.570 | .215 | 4.247 | .427 | 1.100 | 1.627 | .010 |
| D | FX | 133 | 3.000 | 3.700 | 6.700 | 5.549 | 54.200 | 625.060 | -.065 | .210 | -.593 | .417 | .925 | .935 | .346 |
| | PH | 131 | 5.900 | .800 | 6.700 | 5.137* | 78.681 | 903.980 | -1.081 | .211 | 3.178 | .419 | 1.000 | .957 | .319 |
| | RI | 126 | 4.400 | 2.400 | 6.800 | 5.427 | 80.983 | 909.034 | -.495 | .216 | .210 | .428 | 1.325 | .736 | .651 |
| | VA | 176 | 3.400 | 3.800 | 7.200 | 6.132** | 53.878 | 714.778 | -1.151 | .183 | 1.192 | .364 | .400 | 3.360 | .000 |
| | PB | 127 | 4.700 | 2.200 | 6.900 | 5.312 | 77.801 | 876.772 | -.858 | .215 | 1.018 | .427 | 1.200 | 1.024 | .245 |
| | HB | 127 | 5.500 | 1.700 | 7.200 | 5.311 | 88.561 | 998.032 | -.579 | .215 | .911 | .427 | 1.125 | .767 | .598 |
| All | FX | 133 | 5.700 | 10.075 | 15.775 | 13.684 | 91.241 | 1.052 | -.288 | .210 | .253 | .417 | 1.313 | .457 | .985 |
| | PH | 131 | 15.475 | .800 | 16.275 | 12.819* | 161.806 | 1.859 | -2.359 | .211 | 12.977 | .419 | 1.850 | 1.304 | .067 |
| | RI | 126 | 6.850 | 9.050 | 15.900 | 13.363 | 122.623 | 1.376 | -.622 | .216 | .427 | .428 | 1.744 | .762 | .606 |
| | VA | 176 | 5.600 | 11.200 | 16.800 | 14.779** | 75.941 | 1.007 | -.646 | .183 | .734 | .364 | 1.138 | .724 | .672 |
| | PB | 127 | 7.850 | 8.100 | 15.950 | 13.367 | 127.460 | 1.436 | -1.068 | .215 | 1.805 | .427 | 1.688 | 1.118 | .164 |
| | HB | 127 | 10.350 | 5.250 | 15.600 | 13.109 | 131.985 | 1.487 | -1.464 | .215 | 5.462 | .427 | 1.681 | 1.095 | .181 |

Legend: **E** – Judges score (Sudijska ocjena); **D** – Judges score (Sudijska ocjena); **All** – D & E judges score (D i E sudijska ocjena); **FX** – Floor (Parter); **PH** – Pommel horse (Konj sa hvataljkama); **RI** – Rings (Krugovi); **VA** – Vault (Preskok); **PB** – Parallel bars (Razboj); **HB** – High bar (Vratilo); **n** – Number of performances (Broj gimnastičara); **M** – Mean (Srednja vrijednost); **MIN** – Lowest value (Najniža vrijednost); **MAX** – Highest value (Najviša vrijednost); **SD** – Standard deviation (Standardna greška); **Skew.** – Coefficients of skewness (Koeficijent spljoštenosti); **Kurt.** – Coefficients of kurtosis (Koeficijent izduženosti); **SE** – Standard error (Standardna greška); **ICR** – Interguartile range (Interguartilni rang); **KS test** – Kolmogorov Smirnov test normality of the distribution (Kolmogorov Smirnov test normalnosti distribucije); **p** – Probability at the level of $p < .05$ (Vjerovatnoća na nivou $p < 0,05$); ***** – Minimum mean (Minimalna srednja vrijednost); ****** – Maximum mean (Maksimalna srednja vrijednost); Scores – Skorovi; Apparatus – Disciplina; Range – Rangovi.

Data processing methods

To evaluate all judges scores we used SPSS 17.0 to calculate Descriptive Statistics, Interquartile range, Kolmogorov Smirnov test normality of the variables distributions, Pearson correlations, pair-wise tests between scores of all apparatus. The following reliability and statistics were then calculated: Cronbach's alpha. At the end we did also factor analysis, to define important factors. Five percent level of significance ($p < .05$) was considered for all statistic parameters except Pearson correlation was ($p < .01$).

Metode obrade podataka

Za ocjenu svih sudija koristili smo verziju statističkoga paketa SPSS 17.0 za izračunavanje deskriptivne statistike, interkvartilnog raspona, Kolmogorov-Smirnov test normalnosti distribucije rezultata, Pearsonovu korelaciju, t -test razlika među ispitivanim rezultatima svih disciplina. Slijedeći rezultate, izračunata je pouzdanost i statistika uz pomoć Kronbah alfe. Na kraju je urađena i faktorska analiza, sa ciljem definiranja značajnih faktora. Statistička značajnost je izračunata na nivou od 5 posto ($p < 0,05$) za sve statističke parametre osim Pearsonove korelacije ($p < 0,01$).

RESULTS AND DISCUSSION

Mean E and D scores (Table 1) vary between apparatus, and for some judges the data is not normally distributed (e.g. vault and high bar during qualification). There is also a large difference in the variability of scores. In general, the smallest score at competition sessions is observed on pommel horse, and the highest in vault.

REZULTATI I DISKUSIJA

Srednje E i D ocjene (Tabela 1) variraju između disciplina, a za neke ocjene sudija, podaci nisu normalno distribuirani (npr. preskok i vratilo tokom kvalifikacija). Tu je i velika razlika u varijabilnosti rezultata. Takođe, najniža srednja ocjena na takmičenju ostvarena je na konju sa hvataljkama, a najviša na preskoku. Kolmogorov-

TABLE 2

Paired Samples T-test

TABELA 2

Upareni uzorci T-test

| Pair | Apparatus | <i>M</i> | <i>SD</i> | <i>SE</i> | 95% Confidence | | <i>t</i> | <i>df</i> | <i>p</i> |
|------|-----------|-----------|-----------|-----------|-------------------------------------|----------|----------|-----------|-------------|
| | | | | | Interval of the Difference Lower | Upper | | | |
| 1 | FX - PH | 500.954 | 624.156 | 54.533 | 393.068 | 608.841 | 9.186 | 130 | .000 |
| 2 | FX - RI | 356.151 | 573.548 | 51.096 | 255.026 | 457.275 | 6.970 | 125 | .000 |
| 3 | FX - VA | -650.752 | 669.470 | 58.050 | -765.581 | -535.922 | -11.210 | 132 | .000 |
| 4 | FX - PB | 210.039 | 622.011 | 55.195 | 100.811 | 319.268 | 3.805 | 126 | .000 |
| 5 | FX - HB | 486.220 | 650.974 | 57.765 | 371.906 | 600.535 | 8.417 | 126 | .000 |
| 6 | PH - RI | -103.175 | 611.948 | 54.517 | -211.070 | 4.721 | -1.893 | 125 | .061 |
| 7 | PH - VA | -1133.397 | 901.071 | 78.727 | -1289.149 | -977.645 | -14.397 | 130 | .000 |
| 8 | PH - PB | -253.937 | 624.932 | 55.454 | -363.678 | -144.196 | -4.579 | 126 | .000 |
| 9 | PH - HB | 22.244 | 773.919 | 68.674 | -113.660 | 158.148 | .324 | 126 | .747 |
| 10 | RI - VA | -949.802 | 721.564 | 64.282 | -1077.024 | -822.579 | -14.776 | 125 | .000 |
| 11 | RI - PB | -165.476 | 574.777 | 51.205 | -266.818 | -64.235 | -3.232 | 125 | .002 |
| 12 | RI - HB | 102.976 | 652.661 | 58.144 | -12.097 | 218.050 | 1.771 | 125 | .079 |
| 13 | VA - PB | 811.220 | 766.749 | 68.038 | 676.575 | 945.866 | 11.923 | 126 | .000 |
| 14 | VA - HB | 1087.402 | 891.710 | 79.127 | 930.813 | 1243.991 | 13.743 | 126 | .000 |
| 15 | PB - HB | 276.181 | 688.294 | 61.076 | 155.313 | 397.049 | 4.522 | 126 | .000 |

Legend: **FX** – Floor (Parter); **PH** – Pommel horse (Konj sa hvataljkama); **RI** – Rings (Krugovi); **VA** – Vault (Preskok); **PB** – Parallel bars (Razboj); **HB** – High bar (Vratilo); ***M*** – Mean (Srednja vrijednost); ***SD*** – Standard deviation (Standardna devijacija); ***SE*** – Standard error (Standardna greška); ***t*** – Student's t distribution (Studentova t distribucija); ***df*** – Degrees of freedom (Stepeni slobode); ***p*** – Probability (Vjerovatnoća); Pair – Par; Apparatus – Sprava; 95% Confidence, Interval of the Difference – 95% Vjerovatnoće, Interval razlika; Lower – Donji; Upper – Gornji.

Kolmogorov Smirnov test showed that only vault and high bar were not normally distributed. Analyzing the judicial commission E and the medium scores on all apparatus, the difference is 0.938 points, with D Commission is 0.965 points and the overall result is different for 1.96 points. The pair-wise test (Table 2) showed significant difference with 12 out of 15 pairs; pairs with PH and RI, PH and HB and RI with HB were significant different. The average D scores on the vault were the highest and the lowest on the pommel horse. Similar

Smirnov test pokazao je da samo preskok i vratilo nemaju normalno distribuirane rezultate. Analizirajući sudačku komisiju E i srednje ocjene u svim disciplinama, razlika je za 0.938 bodova, D komisija se razlikuje za 0.965 bodova i sveukupni rezultat je različit za 1.96 bodova. *T*-testovi (Tabela 2) pokazuju značajnu razliku u 12 od 15 parova. Najznačajnije razlike bile su izražene kod slijedećih parova: konj sa hvataljkama i krugovi, konj sa hvataljkama i vratilo i krugovi i vratilo. Prosječna ocjena D komisije je najviša na preskoku i najniža na konju s

TABLE 3

Pearson correlation coefficients between judges' E scores with average score of 6 judges

| Apparatus | E1 | E2 | E3 | E4 | E5 | E6 |
|---------------|-------|-------|-------|-------|-------|-------|
| FX E_N133 | JPN | VEN | LUX | ROU | EGY | ITA |
| Average score | .969* | .931* | .974* | .944* | .646* | .952* |
| PH E_N131 | SLO | RUS | PUR | BRA | PRK | DEN |
| Average score | .963* | .967* | .961* | .973* | .939* | .947* |
| RI E_N126 | BUL | FRA | GRE | QAT | JOR | RSA |
| Average score | .935* | .954* | .931* | .817* | .897* | .890* |
| VA E_N176 | MEX | NZL | BLR | GER | CAN | ISL |
| Average score | .944* | .973* | .922* | .978* | .971* | .960* |
| PB E_N127 | NED | KOR | LTU | ARG | CZE | POL |
| Average score | .956* | .933* | .963* | .942* | .943* | .963* |
| HB E_N127 | ALG | POR | AUT | UKR | HUN | GBR |
| Average score | .969* | .965* | .970* | .966* | .966* | .971* |

Legend: **E** – Judges score (Sudijska ocjena); **FX** – Floor (Parter); **PH** – Pommel horse (Konj sa hvataljkama); **RI** – Rings (Krugovi); **VA** – Vault (Preskok); **PB** – Parallel bars (Razboj); **HB** – High bar (Vratilo); **N** – Number of performances (Broj gimnastičara); **JPN** – Japan; **VEN** – Venezuela; **LUX** – Luxembourg; **ROU** – Romania; **EGY** – Egypt; **ITA** – Italia; **SLO** – Slovenia; **RUS** – Russia; **PUR** – Puerto Rico; **BRA** – Brazil; **PRK** – People's Republic of Korea; **DEN** – Denmark; **BGR** – Bulgaria; **FRA** – France; **GRC** – Greece; **QAT** – Qatar; **JOR** – Jordan; **RSA** – South Africa; **MEX** – Mexico; **NZL** – New Zealand; **BLR** – Belarus; **GER** – Germany; **CAN** – Canada; **ISL** – Iceland; **NED** – Netherlands; **KOR** – Republic of Korea; **LTU** – Lithuania; **ARG** – Argentina; **CZE** – Czech Republic; **POL** – Poland; **ALG** – Algeria; **POR** – Portugal; **AUT** – Austria; **UKR** – Ukraine; **HUN** – Hungary; **GBR** – Great Britain; * – Correlation is significant at the $p < .01$ level (Korelacija je značajna na nivou $p < 0,01$); Apparatus – Sprava; Average score – Prosječan rezultat.

results were obtained at OG2008 (Čuk & Atiković, 2009). Pearson's correlations between judges (Table 3) are, in the main, very high. One very low correlation is on the floor apparatus between average score and judge E5 from EGY ($r: .646; p < .01$) and judge E4 from (r: .817; $p < .01$). The reason for such a huge discrepancy of this the two judges in the assessments should be sought in the fact that they come from countries where the sport artistic gymnastics is not very developed, so we think that their experience in the trial of major competitions such as the World Cup, World Championships and Olympic games is not like the other judges.

hvataljkama. Slične rezultate sa Olimpijskih igara iz 2008. godine dobili su autori (Čuk i Atiković, 2009). Pearsonova korelacija između sudija (Tabela 3) uglavnom je vrlo visoka. Vrlo niska korelacija je na parteru i krugovima između prosječnih ocjena svih sudija sa sudijom E5 iz Egipta ($r: 0,646; p < 0,01$) i sudijom E4 iz Katara ($r: 0,817; p < 0,01$). Smatramo da je razlog takve razlike između sudija to što dolaze iz zemalja u kojima ritmička gimnastika nije dovoljno razvijena, pa samim tim nemaju dovoljno iskustva u suđenju velikih takmičenja, kao što su Svjetski kup, Svjetsko prvenstvo i Olimpijske igre.

Despite all results, indices of reliability are generally quite high. In different sessions and apparatus all reliability measures (Cronbach's alpha - α), are higher than .94. There appears to be no systematic differences in reliability between apparatus. Floor scores tend to have lower reliability than other apparatus in

Uprkos svim rezultatima, indeksi pouzdanosti su prilično visoki. U različitim disciplinama, pouzdanost suđenja, mjerena je uz pomoć (Kronbah alfa - α), gdje je opšta vrijednost rezultata veća od 0,94. Čini se da nema sistematske razlike u pouzdanosti između disciplina. Rezultati na parteru imaju tenden-

TABLE 4*Reliability of judge's E scores***TABELA 4***Pouzdanost rezultata E sudija*

| Case Processing Summary | FX | | PH | | RI | | VA | | PB | | HB | |
|-------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Reliability Statistics | α | <i>n</i> | α | <i>n</i> | α | <i>n</i> | α | <i>n</i> | α | <i>n</i> | α | <i>n</i> |
| | .947 | 6 | .982 | 6 | .956 | 6 | .982 | 6 | .978 | 6 | .987 | 6 |

Legend: **FX** – Floor (Parter); **PH** – Pommel horse ((Konj sa hvataljkama); **RI** – Rings (Krugovi); **VA** – Vault (Preskok); **PB** – Parallel bars (Razboj); **HB** – High bar (Vratilo); ***n*** – Nounber of performances (Broj gimnastičara); **α** – Cronbach's index of internal consistency (Cronbachov indeks unutrašnje konzistentnosti); Case Processing Summary – Pregled Case obrade; Reliability Statistics – Statistička pouzdanost.

TABLE 5*Component matrix E judges***TABELA 5***Matrica komponente E sudija*

| Judges | FX | Component 1 | PH | Component 1 | RI | Component 1 | VA | Component 1 | PB | Component 1 | HB | Component 1 |
|-----------------|-----|-------------|-----|-------------|-----|-------------|-----|-------------|-----|-------------|-----|-------------|
| E1 | JPN | .963 | SLO | .962 | BUL | .935 | MEX | .948 | NED | .957 | ALG | .970 |
| E2 | VEN | .930 | RUS | .966 | FRA | .953 | NZL | .971 | KOR | .939 | POR | .960 |
| E3 | LUX | .970 | PUR | .961 | GRE | .933 | BLR | .930 | LTU | .961 | AUT | .971 |
| E4 | ROU | .943 | BRA | .971 | QAT | .833 | GER | .977 | ARG | .947 | UKR | .965 |
| E5 | EGY | .710 | PRK | .944 | JOR | .902 | CAN | .970 | CZE | .946 | HUN | .968 |
| E6 | ITA | .950 | DEN | .951 | RSA | .888 | ISL | .960 | POL | .960 | GBR | .972 |
| Average E1 - E6 | | .911 | | .959 | | .907 | | .959 | | .952 | | .969 |

Legend: **E** – Judges score (Sudijska ocjena); **FX** – Floor (Parter); **PH** – Pommel horse (Konj sa hvataljkama); **RI** – Rings (Krugovi); **VA** – Vault (Preskok); **PB** – Parallel bars (Razboj); **HB** – High bar (Vratilo); ***N*** – Nounber of performances (Broj gimnastičara); **JPN** – Japan; **VEN** – Venezuela; **LUX** – Luxembourg; **ROU** – Romania; **EGY** – Egypt; **ITA** – Italia; **SLO** – Slovenia; **RUS** – Russia; **PUR** – Puerto Rico; **BRA** – Brazil; **PRK** – Peopole's Republic of Korea; **DEN** – Denmark; **BGR** – Bulgaria; **FRA** – France; **GRC** – Greece; **QAT** – Qatar; **JOR** – Jordan; **RSA** – South Africa; **MEX** – Mexico; **NZL** – New Zealand; **BLR** – Belarus; **GER** – Geramny; **CAN** – Canada; **ISL** – Iceland; **NED** – Netherlands; **KOR** – Republic of Korea; **LTU** – Lithuania; **ARG** – Argentina; **CZE** – Czech Republic; **POL** – Poland; **ALG** – Algeria; **POR** – Portugal; **AUT** – Austr; **UKR** – Ukraine; **HUN** – Hungray; **GBR** – Great Britan; Judges – Sudije; Component 1 – Komponenta 1; Average E1 - E6 – Prosjek E1 - E6.

qualification. High bar scores have the highest reliability in qualification session .98. This results are similar like (Leskošek et al., 2010). Although these results are not directly comparable with results from the 1982 World Cup in Zagreb (Hraski, 1988) it seems that reliability is improving over time, and through the introduction of new rules, especially splitting judges' panel into judges for exercise presentation and exercise content. In Zagreb, only 20 gymnasts competed, all in one session; they were evaluated by 5 judges (head judge and four score judges), which were judging exercise difficulty and exercise presentation together.

With the matrix analysis of the first isolated principal component (Table 5), where the matrix coefficients of the mentioned component (vector correlations of variables with the isolated first principal component) are shown, one can see that all 6 judges have the same and very high correlations with the first principal component. The first principal component is saturated very low on the two apparatus; to the FX with the judge from EGY whose value is the lowest on all apparatus (.710), and the judge from QAT on apparatus RI, who had unlike all other judges, the lowest value (.833). We can conclude that these judges do not partially fit into an average assessment of judges on that apparatus. All principal components which explain different total variabilities (cumulative %) with (FX; 83.8%) of common variance of the entire system, (PH; 92.0%), (RI; 82.4%) which represents the lowest value, (VA; 92.0%), (PB;

ciju niže pouzdanosti od ostalih disciplina u kvalifikacijama. Visoki rezultati na vratilu imaju najveći stepen pouzdanost u kvalifikacijama 0,98. Dobijeni rezultati su slični sa rezultatima autora (Leskošek i saradnici, 2010). Iako ovi rezultati nisu direktno uporedivi sa rezultatima iz 1982. godine sa Svjetskog kupa u Zagrebu (Hraski, 1988), čini se da je pouzdanost poboljšana tokom vremena, i kroz uvođenje novih pravila, pogotovo razdvajanjem sudija kroz sadržaj i formu vježbe. U Zagrebu se takmičilo samo 20 gimnastičara, svi u jednoj disciplini; ocjenjivalo ih je pet sudija (glavni sudija i četiri zapisničara) koji su zajedno procjenjivali i težinu i izvođenje vježbe.

Sa analizom matrice izolovana je prva glavna komponenta (Tabela 5), gdje je prikazan koeficijent matrice spomenutih komponenti (korelacije vektora varijabli sa izolovanom glavnom komponentom), se može vidjeti da svih 6 sudija imaju relativno isti ili vrlo visok nivo povezanosti sa prvom glavnom komponentom. Prva glavna komponenta ima niske projekcije vektora za dvije discipline, za sudiju na parteru iz Egipta čija je vrijednost najniža u svim disciplinama 0,710, i sudija iz Katara na krugovima, koji se razlikuje od svih drugih sudija, što je najniža vrijednost za tu disciplinu 0,833. Može se zaključiti da se te sudije djelimično ne mogu uklopiti u prosjek ocjena sudija u tim disciplinama. Sve glavne komponente objašnjavaju različite ukupne varijabilite (kumulativni %), parter 83,8% zajedničkih varijanse cijelog sistema, konj sa hvataljkama 92,0%, krugovi 82,4%, što predstavlja najnižu vrijednost, preskok 92,0%, razboj

TABLE 6

Matrix of characteristic roots and total variance explained

TABELA 6

Matrica karakterističnih korjenova i ukupne pojašnjene varijanse

| Apparatus | Component | Total Variance Explained | | | | | |
|-----------|-----------|--------------------------|---------------|--------------|-------------------------------------|---------------|--------------|
| | | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
| | | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| FX | 1 | 5.030 | 83.836 | 83.836 | 5.030 | 83.836 | 83.836 |
| PH | 1 | 5.522 | 92.036 | 92.036 | 5.522 | 92.036 | 92.036 |
| RI | 1 | 4.950 | 82.497 | 82.497 | 4.950 | 82.497 | 82.497 |
| VA | 1 | 5.524 | 92.060 | 92.060 | 5.524 | 92.060 | 92.060 |
| PB | 1 | 5.433 | 90.546 | 90.546 | 5.433 | 90.546 | 90.546 |
| HB | 1 | 5.629 | 93.822 | 93.822 | 5.629 | 93.822 | 93.822 |

Legend: **PH** – Pommel horse (Konj sa hvataljkama); **RI** – Rings (Krugovi); **VA** – Vault (Preskok); **PB** – Parallel bars (Razboj); **HB** – High bar (Vratilo); Total Variance Explained – Objašnjeno ukupno varijanse; Apparatus – Sprava; Component – Komponenta; Initial Eigenvalues – Inicijalne sopstvene vrijednosti; Extraction Sums of Squared Loadings – Estrakcija sume zasićenih kvadrata; Total – Ukupno; % of Variance – % varijanse; Cumulative % – Kumultativno %.

90.5%) and the highest value of common variance of the entire systems being on (HB; 93.8%) were isolated on all apparatus (Table 6). The principal isolated components have values (Total): FX: 5.0, PH: 5.5, RI: 4.9 which represents the lowest value VA: 5.5, PB: 5.4 and the highest value HB: 5.6.

The tendency, which appears in the evaluation exercise, is the enlargement of the result of objective factor and the reduction of the result of subjective (human) factor. In addition to various attempts of qualitative improvements, the subjective tone remains necessarily present, sometimes only as a result of different perspectives on a performance, and not so rarely as a result of the subjective interests and prestige. Objectification of the contestant's performance evaluation is increasingly a problem, not only because the effort which increases their results is much bigger than in the past, but also because the differences among the contestants are minimal and thus the ability for a mistake to be made is much higher and the consequences worse.

CONCLUSION

In the analyzed results presented in this paper, vault in comparison with other apparatus have the lowest deductions of the judging commission E, which evaluates the performance of the jump itself. The average gain on all other apparatus differs from the average for 0.797 points. Average initial assessment given by the judging commission D on the vault, tells us again about the need to revise the current Code of Points (Federation Internationale de Gymnastique, 2009b) because vault has much higher initial assessment than all other apparatus, for 0.784 points, while the total sum of all assessments and value is even higher, amounting to 1.510 points the assessments value on the vault should soon be as equal in the results of all-round which is currently not so. With the 2009 Code of Points, all results for the six apparatus are not equal to obtain D, E and final score (D + E). Reliability is generally quite higher on this WCh 2009 and ranged from .947 to .987. With the help of factor analysis and the matrix analysis of the first isolated principal component, it has been established that the two judges partially fit into an average assessment of all judges on the ground and circles. Computerized system, suggested by authors (Bučar Pajek, Forbes, Pajek, Leskošek, & Čuk, 2011), on next competitions would be good to overcome significant differences in E judge's scores. Coaches can use results from this research for planing of preparation tactics of gymnasts for all round, team and apparatus competition...

90,5%, a najveću vrijednost zajedničke varijanse cijelog sistema se nalazi na vratilu 93,8% (Tabela 6). Posmatrajući pojedinačni doprinos u objašnjenju zajedničke varijanse, tj. relativni kumulativni doprinosi glavnih komponenti, može se vidjeti da (% varijanse) za prvu iznosi (parter) 5,0%, za drugu (konj sa hvataljkama) 5,6%, za treću (krugovi) 4,9% što predstavlja najnižu vrijednost, za četvrtu (preskok) 5,5%, za petu (razboj) 5,4% i najvišu vrijednost ostvarilo je vratilo 5,6%

Tendencija koja se pojavljuje u procjenjivanju vježbi je proširenje rezultata objektivnih faktora i smanjenje rezultata subjektivnih (ljudskih) faktora. Uz razne pokušaje kvalitativnih poboljšanja, subjektivni ton i dalje je nužno prisutan prilikom ocjenjivanja gimnastičkih takmičenja, ponekad samo kao rezultat različitih perspektiva i pogleda na izvođenje vježbi, a ne tako rijetko kao rezultat subjektivnog interesa i prestiža. Objektivizacija suđenja takmičara je sve veći problem, zato što je uloženi napor mnogo veći nego prije a razlika između takmičara minimalna, čime se i mogućnost za grešku povećava.

ZAKLJUČAK

U analizi rezultata prikazanih u ovom radu, preskok u poređenju s drugim disciplinama ima najniži odbitak od sudija E komisije, koji ocjenjuje izvođenje. Prosječni odbici u svim drugim disciplinama razlikuje od prosjeka za 0.797 bodova. Prosječna početna ocjena sudija D komisije na preskoku, govori nam o potrebi revidiranja trenutnih pravila za ocjenjivanje (Federation Internationale de Gymnastique, 2009b), jer preskok ima puno veću početnu ocjenu od svih drugih disciplina, za 0,784 boda, dok je konačna ocjena veća čak za vrijednost od 1,510 bodova od prosječne vrijednost. Ocjene na preskoku bi trebale biti podjednake u rezultatima svih disciplina, ali trenutno nije tako. Sa pravilnikom za ocjenjivanje iz 2009. godine, svi rezultati za šest disciplina nisu jednaki od strane sudijske komisije D, E i konačnog rezultata (D + E). Pouzdanost je velika na ovom Svjetskom prvenstvu 2009. godine u muškoj sportskoga gimnastici i kreće se u rasponu od 0,947 do 0,987. Uz pomoć faktorske analize i analize matrice izolovane prve glavne komponente, utvrđeno je da se dvoje sudija djelimično mogu uklopiti u prosjek ocjena svih sudija na preskoku i krugovima. Sistem računanja koji su predložili autori (Bučar Pajek, Forbes, Pajek, Leskošek i Čuk, 2011) za iduća takmičenja bi bio dobro rješenje da se prevaziđu značajne razlike kod E sudijske komisije. Rezultati provedenog istraživanja mogu koristiti trenerima za planiranje taktike pripreme gimnastičara za višebojsko takmičenje, ekipno i pojedinačno po spravama..

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Correspondence to:

Almir Atiković, PhD

Faculty of Physical Education and Sport

2. Oktobra 1

75000 Tuzla

Bosnia and Herzegovina

E-mail: almir.atikovic@untz.ba

Phone: 00387 61 830 730

Fax: 00387 35 278 536

Korespodencija:

dr Almir Atiković

Fakultet za tjelesni odgoj i sport

2. oktobra 1

75000 Tuzla

Bosna i Hercegovina

E-mail: almir.atikovic@untz.ba

Telefon: 00387 61 830 730

Faks: 00387 35 278 536

ANALYSE DES SCHIEDSRICHTENS IN DER WELTMEISTERSCHAFT IN DER MÄNNERSPORTGYMNASTIK IN LONDON IM JAHRE 2009

Almir Atiković¹, Sunčica Delaš Kalinski², Snežana Bijelić³, und Nađija Avdibašić Vukadinović¹

¹Fakultät für Körpererziehung und Sport, Universität in Tuzla, Bosnien und Herzegowina

²Kinesiologische, Univerzität in Split, Kroatien

³Fakultät für Körpererziehung und Sport, Universität in Banja Luka, Bosnien und Herzegowina

EINFÜHRUNG

Beim Turnen wird der Akzent auf die ästhetische Komponente gestellt, die im Einklang mit der konventionell bestimmten Bewegungsstruktur ausgeführt werden muss, obwohl sich die Bewertungsweisen der einzelnen Sportarten entweder nach der Zahl der Schiedsrichter, nach den vorbestimmten Kriterien oder nach der Art des Ausrechnens des Endergebnisses unterscheiden. Heute umfasst die Bewertungsordnung (CoP) der Sportgymnastik sieben nach dem Schwierigkeitsgrad bestimmten Stufen. Die Anfangsstufe stellt das Niveau A dar, die nächsten Niveaus sind B, C, D, E, F und G (FIG, 2009). Einige Autoren haben versucht, die Bewertungsqualität auf verschiedenen Wettbewerben zu überprüfen (Ansorge, Scheer, Laub und Howard, (1978), Ansorge und Scheer (1988), Hraski (1988), Popović (2000) die Parteilichkeit der internationalen Schiedsrichterinnen in der rhythmischen Sportgymnastik auf den in Sydney stattgefundenen Olympischen Spielen im Jahre 2000 bestimmt. Sands (2010) erwähnt das größte Bewertungsproblem und zwar die Verlässlichkeit und die Richtigkeit. Čuk und Forbes (2006) haben das Schiedsrichterprogramm für das Schiedsrichten der Kommission B in einem realen Zeitraum (RTJS) an der Institut für Sport in Australien gemacht. Durch dieses Programm wurde die Objektivität der Bewertung von Seite der Kommission B verbessert und die Punkteabzüge wurden während der Ausführung der Übung eingetragen, so dass das später nicht geändert werden konnte; die Schiedsrichter mussten die Punkte schnell und präzise abziehen, wenn sie Fehler einsahen. Čuk und Atiković (2009) haben die Gleichheit unter den Disziplinen getestet, indem sie 44 Gymnastiker, die an den Olympischen Spielen in Peking im Jahre 2008 an einem Mehrkampf teilnahmen, testeten. Čuk und Forbes (2010) haben aufgrund der gezeigten Ergebnisse festgestellt, dass für Ergebnisse der Mehrkämpfe in sechs Disziplinen die Bewertungsergebnisse von der Kommission D nicht gleichgerecht sind; die Bewertungsergebnisse beim Sprung und beim Pauschenpferd unterscheiden sich ziemlich von anderen D Bewertungsergebnissen. Leskošek, Čuk, Karácsony, Pajek und Bučar (2010) zeigen in

den Ergebnissen hohe Verlässlichkeit und zufriedenstellende Richtigkeit in der Bewertung auf den in Belgrad stattgefundenen Universitätsspielen.

DIE METHODEN

Befragt wurden 176 Gymnastiker, die am Wettbewerb in den Qualifikationen (CI) in London im Jahre 2009 teilnahmen. Aus dem Amtsergebnisbuch (FIG, 2009) bestimmten wir 6 Bewertungsvariablen der E Schiedsrichter, der D Bewertungsnoten und eine Variable als das Endergebnis (D+E Note) unter sechs Disziplinen: Boden (FX), Pauschenpferd (PH), Ringe (RI), Sprung (VA), Barren (PB) und Reck (HB). Als die statistische Analyse für die Bewertung aller Schiedsrichter diente uns SPSS 17.0 für die Berechnung der deskriptiven Statistik, des Inerquartilsabstands, Kolmogor-Smirnow-Anpassungstest, Pearson-Korrelation, *t*-Test der Unterschiede zwischen den Ergebnissen in allen Disziplinen, Kronbach-Alpha. Die Faktorenanalyse wurde zum Ziele der Definierung wichtiger Faktoren eingeführt. Die statistische Wichtigkeit wurde auf dem Niveau von 5 Prozent ($p < .05$) für alle statistischen Parameter außer der Pearson-Korrelation ($p < .01$) bestimmt.

ERGEBNISSE UND DISKUSSION

Die mittleren E und D Noten variieren zwischen den Disziplinen und für einige Noten der Schiedsrichter wurden sie nicht normal distribuiert (z.B. Sprung und Heck während den Qualifikationen). Da gibt es auch einen großen Unterschied in der Variabilität der Ergebnisse. Allgemein wurde die niedrigste Mittelnote auf PA und die höchste auf VA erreicht. Kolmogor-Smirnow-Anpassungstest zeigte, dass nur VA und HB keine normal distribuierten Ergebnisse liefern. Die Analyse der Schiedsrichterkommission E und der mittleren Note in allen Disziplinen zeigte einen Unterschied von 0.938 Punkten; die Kommission D unterscheidet sich in 0.965 Punkten und das Gesamtergebnis zeigt einen Unterschied von 1.96 Punkten. Die bedeutendsten Unterschiede im *t*-Test wurden bei nächsten Paaren betont: PH und RI, PH und HB und RI und HB. Die durchschnittliche Note der Kommission D ist die höchste auf VA und die nie-

drigste auf PH. Pearson-Korrelation zwischen den Schiedsrichtern ist ziemlich groß. Eine sehr niedrige Korrelation gibt es auf VA und RI zwischen den Durchschnittsnoten aller Schiedsrichter mit dem Schiedsrichter E5 aus Ägypten ($r: .646; p < .01$) und dem Schiedsrichter E4 aus Katar ($r: .817; p < .01$). In den verschiedenen Disziplinen wurde die Verlässlichkeit mithilfe von (Kronbach Alpha - α) gemessen, wobei der Allgemeinwert des Ergebnisses um 0,94 größer ist. Es scheint, dass es keinen systematischen Unterschied in der Verlässlichkeit unter den Disziplinen gibt. Die Ergebnisse auf FX haben die Tendenz niedrigerer Verlässlichkeit im Unterschied zu anderen Disziplinen in den Qualifikationen. Die hohen Ergebnisse auf HB haben die höchste Stufe der Verlässlichkeit in den Qualifikationen: 0,98. Die Ergebnisse sind den Ergebnissen von den Autoren (Leskošek et al., 2010) ähnlich. Die erste Hauptkomponente hat niedrige Projektionen der Vektoren in zwei Disziplinen: für den Schiedsrichter auf FX aus Ägypten, dessen Wert in allen Disziplinen der niedrigste ist .710 und der Schiedsrichter aus Katar auf RI, der sich von allen anderen Schiedsrichtern unterscheidet, was für diese Disziplin der niedrigste Wert ist .833. Man kann feststellen, dass diese Schiedsrichter zu den Durchschnittsnoten der Schiedsrichter in diesen Disziplinen teilweise nicht passen. Alle Hauptkomponenten erklären verschiedene Gesamtvariabilitäten (kumulative %), Boden 83.8% der gemeinsamen Variationen des Gesamtsystems, PH 92.0%, RI 82.4% was den niedrigsten Wert darstellt, VA 92.0%, PB 90.5%, und der höchste Wert der gemeinsamen Variabilität des gesamten Systems befindet sich auf HB 93.8%.

SCHLUSSFOLGERUNG

Die Analyse in dieser Arbeit zeigt, dass VA im Vergleich zu anderen Disziplinen die niedrigeren Abzüge von den Schiedsrichtern der Kommission E, die die Ausführung bewerten, hat. Die durchschnittlichen Abzüge in allen anderen Disziplinen betragen im Unterschied zum Durchschnitt 0,797. Die durchschnittliche Anfangsnote der Schiedsrichter der Kommission D auf VA zeigt einen Bedarf an Revidierung momentan geltender CoP (FIG, 2009), weil VA eine sehr höhere Anfangsnote als alle anderen Disziplinen um 0,784 Punkte hat, während die Endnote sogar um einen Wert von 1,510 Punkte von der durchschnittlichen Note höher ist. Die Noten auf VA sollten in den Ergebnissen aller Disziplinen gleich sein, was momentan nicht der Fall ist. Beim CoP aus dem Jahre 2009 sind nicht alle Ergebnisse für die sechs Disziplinen von Seite der Schiedsrichterkommissionen D, E und das Endergebnis (D+E) gleich. Die Verlässlichkeit ist auf dieser Weltmeisterschaft aus dem Jahre 2009 in der Männersportgymnastik ziemlich hoch und bewegt sich zwischen 0,947 und 0,987. Mithilfe der Faktorenanalyse und der Analyse der Matrix der ersten isolierten Komponente wurde festgestellt, dass zwei Schiedsrichter teilweise zu den Durchschnittsnoten aller Schiedsrichter auf VA und RI passen. Die Ergebnisse der durchgeführten Untersuchung können den Trainern bei den Vorbereitungen der Gymnastiker für Mehrkämpfe, Team- oder Einzelwettbewerbe auf Geräten dienen.

Schlüsselwörter : Männersportgymnastik, Schiedsrichtern, Bewertungsordnung.

DISCIPLINOVANOST UČENIKA U GRČKIM SREDNJIM ŠKOLAMA U ODNOSU NA POL, ZAINTERESOVANOST ZA NASTAVU FIZIČKOG VASPITANJA I SPORTSKE AKTIVNOSTI

DISCIPLINE OF GREEK STUDENTS IN RELATION TO GENDER, INTEREST IN PHYSICAL EDUCATION LESSON AND SPORT ACTIVITY

Panteleimon Bakirtzoglou¹ and Panagiotis Ioannou²

¹Organizacija za stručno obrazovanje i obuku u Grčkoj, Atina, Grčka
Organisation for Vocational Education and Training in Greece, Athens, Greece

²Fakultet fizičkog vaspitanja i sportskih nauka, Univerzitet Solun, Grčka
Faculty of Physical Education and Sports Science, University of Thessaloniki, Greece

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SUMMARY

The purpose of this study was to compare the differences between different groups (student's gender, type of school, interest in physical education and sport activity outside school hours), based on the student's disciplined/undisciplined behavior in the physical education class. Sample consisted of 565 secondary education students aged between 15 and 16, in the Region of Athens (Greece). Participants completed the following scales: Reasons for Discipline Scale (RDS) and Strategies to Sustain Discipline Scale (SSDS). Results showed that female students were more disciplined and perceived more intrinsic reasons in their teachers for maintaining discipline than boys, who demonstrated more undisciplined behavior and perceived more reasons of indifference or introjection in their teachers to maintaining discipline. On the other hand, students that liked physical education and did sport were more disciplined and perceived more intrinsic reasons in their teachers for maintaining discipline.

Key words: discipline, physical education students, gender, sport activity.

INTRODUCTION

One of the aspects of most concern to professionals and researchers in connection with physical education is understanding the cognitive mechanisms

SAŽETAK

Cilj ove studije je bio da se uporede razlike između pojedinih grupa učenika (u zavisnosti od pola, vrste škole koja se pohađa, i zainteresovanosti za fizičko vaspitanje i sportske aktivnost van same nastave) koje se ispoljavaju kroz njihovo disciplinovano ili nedisciplinovano ponašanje na časovima fizičkog vaspitanja. Uzorak ispitivanja se sastojao od 565 srednjoškolskih učenika, uzrasta od 15 do 16 godina starosti, iz šire oblasti Atine u Grčkoj. Učesnici u ispitivanju su kompletirali sljedeće skale za procjenu stanja: skala razloga za disciplinovanost (RDS) i skala strategija za održavanje discipline na času (SSDS). Rezultati su pokazali da je disciplinovanost prisutnija među učenicima ženskog pola koje su istovremeno i percipirale više intrinzičkih razloga za održavanje discipline kod svojih profesora fizičkog nego što su to radili učenici muškog pola. Dječaci su skloniji nedisciplinovanom ponašanju i percipiraju više razloga za ravnodušnost ili intorjekciju kod svojih profesora. Sa druge strane, svi učenici kojima se dopada nastava fizičkog vaspitanja i koji se bave sportom imaju disciplinovanije ponašanje i percipiraju više intrinzičkih razloga za održavanje discipline kod svojih profesora.

Ključne riječi: disciplina, učenici nastave fizičkog vaspitanja, pol, sportska aktivnost.

UVOD

Jedan od aspekata koji se najviše tiče stručnjaka i istraživača u oblasti fizičkog vaspitanja je razumijevanje kognitivnih mehanizama koji uslovljavaju disciplinovano

related to disciplined and undisciplined behavior in the class (Lewis, 2001; Siedentop, 1991).

Discipline is a concern to many teachers (Doyle, 1986). To maintain an environment that supports learning, teachers must have the cooperation of their students to engage in the learning process (Rink, 1998). Teaching objectives may not be reached and teachers' perceptions of competence may be affected if students' behavior is not controlled (Vogler & Bishop, 1990).

Harrison and Blakemore (1992) define discipline as orderly social behavior in an atmosphere that allows learning to transpire. Siedentop (1991) defines discipline as the management of behavior that is consistent with the educational goals of the learning environment.

Positive experiences in physical education will be able to influence students to adopt physically active lifestyles in adult life (Goudas, Biddle, & Fox, 1994; Sallis & McKenzie, 1991). In this respect, it is essential to know the motivational, cognitive and affective processes that will determine if the students perceive physical education classes as a valuable, pleasant and gratifying experience, or as something unpleasant, boring and humiliating (Atkinson, 1977; Ntoumanis, 2001).

There are three possible sources of pupils' misbehavior: parents, students and teachers (Brophy & Rohrkemper, 1981; Emmer, 2001; Ishee, 2004). Regardless of the method teachers use to reach these two goals, success is dependent on properly functioning of instructional and managerial skills (Hammer et al., 2010; Harrison & Blakemore, 1992). The way educators develop and maintain their environment directly impacts student behavior and teaching effectiveness (Rink, 1998).

In sports and physical education, the achievement goal perspective theory (Ames, 1992; Nicholls, 1989) has been the theoretical model which has contributed the most to the understanding of cognitive, behavioral, and emotional patterns related to students' achievement in physical education (Papaioannou, 1998b). Key aspects such as the study of disciplined behavior, the appearance of prosocial conduct, such as sportsmanship and moral development in sport and physical activity, have been analyzed with respect to the achievement goals model (Bortoli, Bertollo, Comani, & Robazza, 2011; Duda & Huston, 1995; Duda, Olson, & Templin, 1991; Kavussanu & Roberts, 2001; Papaioannou, 1997, 1998b; Spray & Wang, 2001). Persistence at exercise is related to the motivational constructs described above. For example, young athletes cite fun as a primary reason for participating in sports (Carrol & Loumidis, 2001; Gill,

odnosno nedisciplinovano ponašanje na nastavi (Lewis, 2001; Siedentop, 1991).

Disciplina učenika na nastavi je bojazan koja je prisutna kod mnogih prosvjetnih radnika (Doyle, 1986). Kako bi se stvorilo okruženje za cjelishodan nastavni process, nastavnicima je neophodna i predusretljivost od strane učenika kojima predaju (Rink, 1998). Ukoliko se ne ostvari takav odnos, tj. ako se ponašanje učenika ne kontroliše, može se doći u situaciju da se ne ispune ciljevi nastavnog procesa i da se ugrozi sam osjećaj kompetentnosti prosvjetnog radnika za svoj posao. (Vogler i Bishop, 1990).

Harrison i Blakemore (1992) definišu disciplinu kao prihvatljivo društveno ponašanje u atmosferi koja podstiče učenje. Siedentop (1991) definiše disciplinu kao upravljanje ponašanjem koje je u skladu sa obrazovnim ciljevima u procesu učenja.

Pozitivna iskustva iz nastave fizičkog vaspitanja će poslužiti đacima da usvoje fizičku aktivnost kao dio životnog stila jednom kada postanu odrasle osobe (Goudas, Biddle i Fox, 1994; Sallis i McKenzie, 1991). U tom smislu, od ključne je važnosti da se poznaju motivacioni, kognitivni i afektivni (emocionalni) procesi koji određuju doživljavanje nastave fizičkog vaspitanja od strane đaka kao važna, ugodna i prijatna iskustva, ili eventualno kao nešto što donosi neprijatne, dosadne i ponižavajuće podražaje (Atkinson, 1977; Ntoumanis, 2001).

Tri su moguća uzroka zbog kojih se učenici loše vladaju na časovima: roditelji, đaci i nastavnici (Brophy i Rohrkemper, 1981; Emmer, 2001; Ishee, 2004). Bez obzira na koji se nastavne metode odluču, uspjeh u postizanju ovih ciljeva je potpuno zavisan od valjanog funkcionisanja instruktivnih i upravljačkih vještina nastavnog osoblja. (Hammer i saradnici, 2010; Harrison i Blakemore, 1992). Način na koji se razvija i održava nastavno okruženje direktno utiče na ponašanje đaka i uspješnost učenja (Rink, 1998).

Teorija postizanja određenog cilja u nastavi fizičkog vaspitanja (Ames, 1992; Nicholls, 1989) je bila teorijski model koji je najviše doprinio razumijevanju kognitivnih, ponašajnih i emocionalnih obrazaca kada se govori o postignućima učenika na nastavi fizičkog vaspitanja (Papaioannou, 1998b). Ključni aspekti, poput disciplinovanog ponašanja, prosocijalnog odnosa prema drugima, razvijanja sportskog duha i moralnih vrijednosti u nastavi fizičkog vaspitanja, analizirani su kroz prizmu teorije postizanja određenog cilja (Bortoli, Bertollo, Comani i Robazza, 2011; Duda i Huston, 1995; Duda, Olson i Templin, 1991; Kavussanu i Roberts, 2001; Papaioannou, 1997, 1998b; Spray i Wang, 2001). Istrajnost u vježbanju je recimo povezana sa pomenutom motivacionom strukturom. Na primjer, mladi sportisti pominju zabavu kao glavni razlog zbog kojeg se bave sportom (Carrol i Loumidis, 2001; Gill, Gross i Huddleston, 1983). Ovaj osjećaj zabave je uslovljen doživlja-

Gross, & Huddleston, 1983). This feeling of fun depends on experiencing the intrinsic satisfactions of skill improvement, personal accomplishment, and excitement (Boyd, Weinmann, & Yin, 2002; Wang, Liu, Chatzisarantis, & Lim, 2010; Wankel & Kreisel, 1985; Wankel & Sefton, 1989).

In a sample of 254 Greek secondary education students, Hassandra, Goudas, and Chroni (2003) reported that a wide variety of social factors and individual differences influence students' intrinsic motivation in physical education. These need to be taken into account when designing physical education lesson.

Motivational climate refers to all the social and contextual signs through which the related social agents define success and failure. With regards to discipline, Papaioannou (1998a), and Spray (2002) indicated that the perception of a task-involving climate is related to intrinsic and identified reasons promoted by teachers for behaving well in physical education classes. However, the perception of an ego-involving climate is more likely to encourage more means of controlling motivation, due to the promotion of external assessment criteria. In this environment, the role of effort and hard work is emphasized, students try to perform better than the others and they are concerned about the errors they make (Ames, 1992; Papaioannou, 1998b; Spray, 2002).

Recent studies have shown the association between the perception of a motivational climate and discipline. In a sample of 456 Spanish students Moreno, Cervello and y Martinez Galindo (2007) reported that female students were more disciplined and perceived more intrinsic reasons in their teachers for maintaining discipline than boys, who demonstrated more undisciplined behavior and perceived more reasons of indifference or introjection in their teachers to maintaining discipline. Cervello, Jimenez, Del Villar, Ramos, and Santos Rosa (2004) demonstrated that the perception of a motivational task-oriented climate is linked positively with more disciplined behavior, while the perception of a motivational ego-oriented climate is linked to more indiscipline in physical education classes. Spray and Wang (2001) found that those students that had low scores in ego and task orientation, as well as in perceived competence in physical education, also had low self-concept feelings. They also assessed their discipline in physical education classes as being below the assessment of students that are strongly task and ego-oriented, who trusted in their abilities and had a feeling of autonomy in their behavior, showing high levels of discipline.

vanjem ličnog unaprijeđenja, poboljšanja određenih vještina i uzbuđenja (Boyd, Weinmann i Yin, 2002; Wang, Liu, Chatzisarantis i Lim, 2010; Wankel i Kreisel, 1985; Wankel i Sefton, 1989).

Na uzorku od 254 učenika srednjih škola u Grčkoj, Hassandra, Goudas i Chroni (2003) zapažaju da širok spektar socijalnih faktora i individualnih razlika utiču na intrinzičku motivaciju učenika na nastavi fizičkog vaspitanja. O ovome treba voditi računa kada se sastavljaju planovi za časove fizičkog.

Motivaciona klima je pojam koji se odnosi na društvene i kontekstualne znakove kroz koje socijalni agenti definišu svoje uspjehe odnosno neuspjehe. Što se tiče discipline učenika Papaioannou (1998a) i Spray (2002) ukazuju na to da percepcija okruženja u kojem se zna tačan zadatak koji treba postići jeste povezana sa intrinzičkim i identifikovanim razlozima koje nastavnici fizičkog vaspitanja podstiču kao uzorno ponašanje na časovima fizičkog vaspitanja. Sa druge strane, percepcija okruženja sa izraženim ego karakteristikama ima više izgleda da podstakne različite načine u kontrolisanju motivacije, i to zbog podupiranja eksternih kriterijuma pri ocjenjivanju. U ovakvom okruženju naglasak se stavlja na trud i predan rad, a učenici, sa druge strane, postižu bolje rezultate od svojih vršnjaka i vode računa o greškama koje prave (Ames, 1992; Papaioannou, 1998b; Spray, 2002).

Skorašnje studije pokazuju povezanost između percepcije motivacionog okruženja i discipline učenika. Na uzorku od 456 učenika u školama u Španiji, Moreno, Cervello i y Martinez Galindo (2007) zapažaju da učenici ženskog pola pokazuju veći stepen discipline i percipiraju više intrinzičkih razloga kod svojih nastavnika kada je u pitanju disciplina, dok učenici muškog pola pokazuju veći stepen nediscipline i zapažaju više razloga za nezainteresovanost odnosno introjeksiju kada su u pitanju njihovi nastavnici i način na koji oni održavaju discipline u razredu. Cervello, Jimenez, Del Villar, Ramos i Santos-Rosa (2004) u svom radu pokazuju da je percepcija motivacione klime sa zadacima za ispunjavanje određenog cilja u pozitivnoj vezi sa ispoljavanjem disciplinovanijeg ponašanja, dok je percepcija motivacione klime sa ego-orijentisanim zadacima povezana sa većim stepenom nediscipline na časovima fizičkog vaspitanja. Spray i Wang (2001) zapažaju da učenici koji postižu slabe rezultate u obe vrste okruženja i koji imaju slabo znanje iz oblasti fizičkog vaspitanja imaju takođe i slab stepen samopoimanja. Oni istovremeno procjenjuju svoju disciplinu na časovima fizičkog vaspitanja ispod nivoa u poređenju sa onim učenicima koji pokazuju zavidne rezultate kako na ego-orijentisanim tako i na zadacima sa ispunjavanjem određenog cilja. Đaci sa ovako dobrim rezultatima vjeruju svojim fizičkim sposobnostima i posjeduju osjećaj izvjesnog stepena autonomnosti u svom ponašanju kao i visok stepen disciplinovanog ponašanja.

On the other hand, Heaven (1996) considers that the formation of a self-image, which is known as self-concept, is one of the challenges that the adolescent has to face. Different studies have demonstrated that individuals with more self-determined rates of motivation (intrinsic motivation) demonstrate more disciplined behavior, whereas, by contrast, individuals with low rates of self-determined motivation (extrinsic motivation, amotivation) are more inclined to demonstrate disruptive or undisciplined behavior in class (Papaioannou, 1998a; Papaioannou & Kouli, 1999).

Therefore the aim of this study is to compare differences due to student's gender, type of school, interest in physical education and sport activity outside school hours, based on the student's disciplined / undisciplined behavior in Greek physical education students.

METHODS

Sample

Our study sample consisted of 536 secondary education students, aged between 15 and 16 ($M \pm SD$: 15.7 ± 0.52). The 536 students in our sample consisted of an equal number of boys and girls both divided into two groups (male and female), all members of PE classes in schools at the region of Athens (Greece). 46.4% of the students attended state schools and 53.6% of them attended private schools. 312 of these participants did physical activities outside physical education classes and 144 indicated that they did not do any physical activity. Also 378 liked physical education and 78 did not. All subjects volunteered to participate in the study.

Procedure

Permission to conduct this investigation was received from head teachers. The students were told the purpose of the research and their rights, and were asked to sign a consent form. The instruments for measuring the different variables were administered in a classroom to the students when the teacher was not present. Measures were given to all students in the same order. Each student took 15-20 minutes to complete the questionnaires and responses to the instrument were kept anonymous. Students were told to ask for help if confused concerning either instructions or the clarity of particular items. No problems were encountered in either completing the inventories or understanding the nature of the questions.

Reason for Discipline Scale (RDS)

This questionnaire measured students' reasons for

S druge strane, Heaven (1996) smatra da je stvaranje slike o sebi, odnosno proces samopoimanja, jedan od izazova sa kojima se adolescent trebaju suočiti. Različite studije pokazuju da pojedinci sa većim stepenom sopstvene motivacije (intrinzičke) ispoljavaju veći stepen discipline, dok osobe sa niskim stepenom samomotivacije pokazuju sklonost nedisciplini i ponašanju koje remeti nastavu (Papaioannou, 1998a; Papaioannou i Kouli, 1999).

Cilj ove studije je upoređivanje razlika zasnovanih na disciplinovanom odnosno nedisciplinovanom ponašanju učenika na časovima fizičkog vaspitanja u grčkim srednjim školama, i to razlika koje proizilaze iz vrste škole koju pohađaju, zainteresovanosti za nastavu fizičkog vaspitanja i sportske aktivnosti van škole, kao i pola kome pripadaju.

METODE

Uzorak

Uzorak ove studije se sastoji od 563 učenika srednjih škola uzrasta od 15 do 16 godina ($M \pm SD$: $15,7 \pm 0,52$). Uzorak se sastojao od podjednakog broja učenika muškog i ženskog pola sa šireg područja Atine podijeljenih u dvije polne skupine. Procentualno govoreći, 46,4% učenika su bili iz državnih škola a 53,6% su pohađali private škole. Od tog broja, 312 učenika u istraživanju se bavilo sportskom aktivnošću mimo nastave fizičkog vaspitanja dok ih je 144 reklo da ne praktikuju fizičke aktivnosti van nastave. Uz to, 378 ih je reklo da vole fizičko vaspitanje a 78 da ga ne vole. Svi učesnici su se dobrovoljno javili da učestvuju u istraživanju.

Procedure

Direktori su škola u kojima se istraživanje sprovelo dali saglasnost za sprovođenje istog. Učenici su bili upoznati sa svrhom istraživanja i svojim pravima, te je od njih bilo zatraženo da potpišu izjavu o saglasnosti. Instrumenti za mjerenje različitih varijabli dati su učenicima dok su bili u učionicama, i to onda kad nije bilo profesora fizičkog vaspitanja. Oni su bili dati svakom učeniku istim redoslijedom. Svakom đaku je trebalo 15 do 20 minuta da ispuni upitnike a njihovi odgovori su držani u anonimnosti. Takođe, svakom đaku je rečeno da zatraži pomoć u slučaju da im nije jasno šta se od njih traži, odnosno kako su formulisana pitanja. U cijelom toku popunjavanja obrazaca nije primijećeno da učenici nisu razumjeli suštinu pitanja odnosno način na koji ih treba popuniti.

Skala razloga za disciplinu na času (RDS)

Ovaj upitnik mjerio je razloge zbog kojih su se uče-

behaving in the PE class (Papaioannou, 1998a). The original questionnaire created by Papaioannou was formed by 26 items grouped into 6 factors: intrinsic reasons for behaving, external reasons for behaving, reasons for not behaving, introjected reasons for behaving, responsibility reasons for behaving and caring reasons for behaving. It showed the existence of five factors (we eliminated the external reasons for behaving factor) and an organisation of the items that formed each factor that was similar to the original one, although with slight modifications: identified reasons (i.e. "It is important for me to pay attention"), intrinsic reasons (i.e. "I enjoy the classes"), introjected reasons (i.e. "I will feel bad if I misbehave"), amotivation (i.e. "I do not know why I am disciplined") and caring reasons for behaving in class (i.e. "I like helping my classmates"). The reliability obtained for every one of the factors was: .86, .76, .71, .58, and .66, respectively. Only two factors showed a reliability or alpha value below the one recommended .70 (Nunnally, 1978). Given the small number of items and due that Alpha coefficient was related to the number of items that formed both factors (number of items = 3), the internal consistency observed could be accepted (Nunnally & Bernstein, 1994). The items forming the questionnaire were preceded by the phrase: "In the PE class [...]". The responses were graded on a Likert type scale with a point range fluctuating from 0 (totally disagree) to 100 (totally agree).

Strategies to Sustain Discipline Scale (SSDS)

The original questionnaire was created by Papaioannou (1998a) based on the theory and research of Ryan and Connell (1989), and Vallerand et al. (1992) in order to evaluate students' perception of the strategies used by their teacher to maintain discipline in the physical education class. The original questionnaire was formed by 27 items grouped into four factors: teacher's emphasis on intrinsic reasons to maintain discipline, teacher's emphasis on introjected reasons to maintain discipline, teacher's indifference to maintaining discipline and teacher's emphasis on external reasons to maintain discipline in the physical education class. The scale was formed by 24 items grouped into four factors: teacher's emphasis on caring and responsibility reasons (i.e. "He helps us to be responsible for our progress"), teacher's emphasis on intrinsic reasons (i.e. "He makes the classes fun"), teacher's emphasis on introjected and external reasons (i.e. "He makes us feel bad with ourselves when we misbehave") and teacher's indifference to maintaining

nici ponašali na izvjestan način na časovima fizičkog vaspitanja (Papaioannou, 1998a). Izvorni obrazac za ovu svrhu koji je sastavio Papaioannou sastojao se od 26 pojedinačnih stavki podijeljenih na 6 faktora: intrinzički razlozi za određeno ponašanje, eksterni razlozi ponašanja, razlozi neponašanja, introjektovani razlozi za određeno ponašanje, razlozi ponašanja koji proističu iz lične odgovornosti i razlozi koji proističu iz pažnje prema drugima. Pokazalo se da postoji pet faktora (eliminirali smo eksterne razloge ponašanja) koje je trebalo posložiti kao stavke, sa određenom modifikacijom u odnosu na prvobitni upitnik, i to na slijedeći način: identifikovani razlozi (npr. Važno mi je da obraćam pažnju), intrinzički razlozi (npr. Uživam na časovima fizičkog), introjektovani razlozi (npr. Neću se dobro osjećati ako se loše ponašam), amotivacija (npr. Ne znam zašto se ponašam disciplinovano), i razlozi koji proističu iz pažnje prema drugima (npr. Volim pomagati svojim drugovima u razredu). Pouzdanost podataka koja je dobivena za svaki od ovih faktora je slijedeća: 0,86; 0,76; 0,71; 0,58 i 0,66, (redosljedom kojim su navedeni u prethodnoj rečenici). Samo se kod dva faktora pokazala pouzdanost sa alfa vrijednošću ispod 0,70 (Nunnally, 1978). Budući da je u pitanju mali broj stavki, i da se alfa koeficijent odnosi na stavke koji su sačinjavali oba faktora (broj stavki je bio 3), registrovana unutrašnja konzistentnost podataka može biti prihvaćena (Nunnally i Bernstein, 1994). Na početku stavki koje su sačinjavale upitnik stajalo je: "Na časovima fizičkog vaspitanja [...]". Odgovori su ocjenjivani po principu Likertove skale sa rasponom od 0 (u potpunosti se ne slažem) do 100 (u potpunosti se slažem).

Strategije za uspostavljanje skale disciplinovanosti (SSDS)

Prvobitni oblik upitnika je kreirao Papaioannou (1998a) bazirajući ga na teorijskoj osnovi i straživanju koje su sproveli Ryan i Connell (1989) i Vallerand i saradnici (1992) sa ciljem da evaluiira percepciju učenika o strategijama koje njihovi profesori fizičkog vaspitanja koriste kako bi održali discipline na časovima fizičkog vaspitanja. Pomenuti upitnik je sačinjavalo 27 stavki koje su grupisane u četiri faktorske cjeline: naglasak koji su profesori stavljali na intrinzičke razloge kako bi održali disciplinu, njihov naglasak na introjektovane razloge za održavanje discipline, ravnodušnost profesora spram održavanja discipline na času, i naglasak na eksterne razloge pri održavanju discipline na časovima fizičkog vaspitanja. Skala disciplinovanosti je na kraju kreirana od 24 stavke grupisane u 4 faktorske cjeline: naglasak koji profesor stavlja na razloge koji proističu iz brige i odgovornosti za napredovanje (npr. Pomaže nam da budemo odgovorni za naše napredak), naglasak koji profesor stavlja na intrinzičke razloge (npr. Časove fizičkog čini zabavnim), naglasak koji profesor stavlja na introjektovane i eksterne razloge (npr. Ako se loše ponašamo, profesor će učiniti

discipline in class (i.e. “He makes us feel that there is no discipline in the class at all”). The reliability obtained for every one of the factors was: .86, .88, .76, and .70, respectively. The items forming the questionnaire were preceded by the phrase: “The PE teacher [...]”. The responses were graded on a Likert type scale with a point range fluctuating from 0 (totally disagree) to 100 (totally agree).

Sociodemographic Variables

Data about the characteristics of the students associated with their personal environment and their demographic character were also collected. The following variables were analyzed: student’s gender (male or female), type of school (state or private), interest in physical education (interested or not interested), and the level of sport activity outside school hours (does or does not do any sport). Sport was understood as any physical activity (aerobics, jogging, weight training, swimming etc.) or sport (football, basketball) that was done outside school hours.

Statistical Analysis

The Statistical Program SPSS 17.0 was used to analyze the data. Descriptive statistics means and standard deviations for all variables were obtained. This statistical approach test of the subjects was different in some variables. The univariate factorial design was developed using a single factor ANOVA calculation, establishing significant differences depending on the student’s gender, type of school, interest in physical education and sport activity outside school hours (independent variables) and every one of the factors forming both questionnaires (dependent variables). MANOVA calculation was used to establish significant differences by means of the interaction between every one of the variables among themselves and all the factors forming both questionnaires.

RESULTS

Table 1 presents the descriptive statistics (means and standard deviation) for the variables: student’s gender and type of school. As shown, girls scored higher in most of the factors of the two questionnaires (RDS and SDDS).

Table 2 presents the descriptive statistics (means and standard deviation) for the variables: interest in physical education (PE) and sport activity outside school hours. As shown, students that liked physical education and did sport were more disciplined and perceived more intrinsic reasons in their teachers for

da se zbog toga loše osjećamo), ravnodušnost profesora fizičkog vaspitanja prema disciplini na času (npr. Osjećamo se kao da na času i ne postoji disciplina). Pouzdanost rezultat koji su dobijeni bila je: 0,86; 0,88; 0,76 i 0,70, (redosljedom kojim su navedeni u prethodnoj rečenici). Na početku stavki koje su sačinjavale upitnik stajalo je: “Profesor fizičkog vaspitanja [...]”. Odgovori su ocjenjivani po principu Likertove skale sa rasponom od 0 (u potpunosti se ne slažem) do 100 (u potpunosti se slažem).

Socio-demografske varijable

Uz sve prethodno navedeno, prikupljani su i podaci o karakteristikama učenika koji se tiču njihovog ličnog i demografskog okruženja. Analizirane varijable bile su slijedeće: pol učenika (muški ili ženski), vrsta škole (državna ili privatna), zainteresovanost za nastavu fizičkog vaspitanja (zainteresovani ili nezainteresovani) i bavljenje sportskim aktivnosti mimo časova fizičkog vaspitanja (bavi se odnosno ne bavi se nikakvim sportom). Ovdje se pod sportskom aktivnošću podrazumijeva bilo koja fizička aktivnost (aerobik, trčanje, dizanje tegova, plivanje, itd.) ili sportovi (fudbal, košarka) kojim se đaci bave kada nisu na časovima fizičkog vaspitanja.

Statistička analiza

Kako bi se obradili prikupljeni podaci, u ove svrhe korišten je statistički program SPSS 17.0. Za sve varijable su dobijeni deskriptivne statističke sredine kao i standardne devijacije. Kod nekih varijabli pristup statističkom testiranju subjekata je bio drugačiji. Univarijantna faktorska struktura subjekata je razvijena uz korišćenje ANOVA analize varijance sa jednim faktorom prilikom čega su uspostavljene značajne razlike koje zavise od pola učenika, vrste škole koju pohađaju, zainteresovanosti za časove fizičkog vaspitanja i sportske aktivnosti van nastave (nezavisne varijable), kao i od svakog faktora koji formira oba upitnika (zavisne varijable). MANOVA analiza varijance je korištena da se identifikuju značajne razlike na način da se uspostavi interakcija između svake varijable pojedinačno i svih faktora koji sačinjavaju oba upitnika.

REZULTATI

Tabela 1 predstavlja deskriptivnu statističku vrijednost (aritmetičke sredine i standardne devijacije) za varijable pola učenika i vrste škole koju pohađaju. Kao što se može i vidjeti, djevojčice su postigle bolje rezultate u većini faktora iz oba upitnika (RDS i SDDS).

Tabela 2 predstavlja deskriptivnu statističku vrijednost (aritmetičke sredine i standardne devijacije) za varijable zainteresovanosti za nastavu fizičkog obrazovanja i sportske aktivnosti van nastave. Kao što se može vidjeti, učenici koji vole časove fizičkog i koji se bave sportom i poslije škole ispoljavaju više discipline na časovima i

maintaining discipline.

Table 3 shows the results of Univariate differences. Table 3 shows the results of Univariate differences. With regards to the relationship between the student's gender variable and each one of the factors established, we observed significant differences in all the factors in the "RDS": identified reasons ($F = 26.80$, $p < .01$), introjected reasons ($F = 15.91$, $p < .01$), intrinsic reasons ($F = 8.33$, $p < .05$), amotivation ($F = 7.71$, $p < .05$) and caring reasons ($F = 12.28$, $p < .01$) and in three of the four factors in the "SSDS": emphasis on intrinsic reasons ($F = 5.88$, $p < .05$),

percipiraju više intrinzičkih razloga koje koriste njihovi profesori kako bi uspostavili i održali disciplinu na času.

Tabela 3 prikazuje rezultate univarijantnih razlika. Kada se posmatra odnos između varijable pola učenika i svih uspostavljenih faktora, primjećuje se značajna razlika kod svih faktora u skali razloga za discipline (DS): identifikovani razlozi ($F = 26,80$, $p < 0,01$), introjektovani razlozi ($F = 15,91$, $p < 0,01$), intrinzički razlozi ($F = 8,33$, $p < 0,05$), nemotivisanost ($F = 7,71$, $p < 0,05$) i pažnja prema drugima ($F = 12,28$, $p < 0,01$), a u tri od četiri faktora u skali SSDS: naglasak na intrinzičke razloge ($F = 5,88$, $p < 0,05$), naglasak na introjektovane i eksterne razloge ($F = 16,33$, $p < 0,01$) i ravnodušnost

TABLE 1

Mean and Standard Deviation for the Sociodemographic variables students gender and type of school.

TABELA 1

Aritmetička sredina i standardna devijacija za socio-demografske varijable pola učenika i vrste škole koju pohađaju

| Gender | Boys | | Girls | |
|---------------------------|----------|-----------|----------|-----------|
| Reasons scale | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Identified reasons | 74.20 | 15.32 | 81.44 | 12.20 |
| Introjected reasons | 58.30 | 22.84 | 67.30 | 21.93 |
| Intrinsic reasons | 73.46 | 17.28 | 78.41 | 16.80 |
| Amotivation | 42.88 | 21.63 | 39.41 | 23.91 |
| Caring Reasons | 61.97 | 19.94 | 69.46 | 18.41 |
| Strategies Scale | | | | |
| Caring and responsibility | 69.34 | 15.93 | 72.17 | 16.22 |
| Intrinsic | 68.69 | 17.30 | 73.99 | 18.05 |
| Introjected and external | 45.81 | 21.30 | 35.41 | 23.98 |
| Indifference | 39.40 | 24.93 | 31.28 | 24.40 |
| Type of School | State | | Private | |
| Reasons scale | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Identified reasons | 78.83 | 13.40 | 77.91 | 15.94 |
| Introjected reasons | 65.21 | 22.80 | 60.34 | 22.90 |
| Intrinsic reasons | 72.60 | 19.14 | 78.88 | 16.82 |
| Amotivation | 47.56 | 21.69 | 39.69 | 22.11 |
| Caring Reasons | 67.31 | 19.59 | 64.94 | 19.02 |
| Strategies Scale | | | | |
| Caring and responsibility | 67.61 | 17.40 | 71.88 | 15.90 |
| Intrinsic | 66.69 | 20.51 | 75.49 | 15.91 |
| Introjected and external | 49.09 | 21.67 | 39.41 | 22.21 |
| Indifference | 41.55 | 25.55 | 33.32 | 20.19 |

Legend: Gender – Pol; Boys – Dječaci; Girls – Djevojčice; Reasons scale – Skala razloga;

M – Mean (Srednja vrijednost); *SD* – Standard deviation (Standardna devijacija); Identified reasons – Identifikovani razlozi; Introjected reasons – Introjektovani razlozi; Intrinsic reasons – Intrinzički razlozi; Amotivation – Amotivacija; Caring Reasons – Pažnja prema drugima; Strategies Scale – Skala strategija; Caring and responsibility – Pažnja i odgovornost; Intrinsic – Intrinzička; Introjected and external – Introjektovana i eksterna; Indifference – Ravnodušnost; Type of School – Vrsta škole; State – Državna; Private – Privatna

emphasis on introjected and external reasons ($F = 16.33, p < .01$) and the teacher's indifference to maintaining discipline in class ($F = 15.41, p < .01$).

With regards to the variable type of school, we found significant differences in the factors belonging to the "RDS": intrinsic reasons ($F = 8.14, p < .05$) and amotivation ($F = 33.69, p < .01$), as well as in all the factors related to the strategies the teacher used

profesora fizičkog prema disciplini na času ($F = 15.41, p < 0,01$).

Što se tiče varijable vrste škole koja se pohađa, pronalazimo značajne razlike u faktorima koji pripadaju RDS-u: intrinzički razlozi ($F = 8,14, p < 0,05$) i nemotivisanost ($F = 33,69, p < 0,01$), kao i kod faktora koji se odnose na strategije koje koriste profesori kako bi održali disciplinu na času fizičkog vaspitanja

TABLE 2

Mean and Standard Deviation for the Sociodemographic variables, interest in Physical Education (PE) and Sport Activity.

TABELA 2

Statistička sredina i standardne devijacije za socio-demografske varijable zainteresovanosti za nastavu fizičkog vaspitanja i sportske aktivnosti van škole.

| Interest in PE | Not interest | | Interest | |
|---------------------------|--------------------|-----------|------------|-----------|
| Reasons scale | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Identified reasons | 69.38 | 20.59 | 80.22 | 13.12 |
| Introjected reasons | 61.30 | 28.10 | 61.28 | 21.69 |
| Intrinsic reasons | 54.49 | 21.59 | 75.45 | 16.39 |
| Amotivation | 44.20 | 22.99 | 41.34 | 22.41 |
| Caring Reasons | 58.37 | 24.60 | 66.69 | 19.53 |
| Strategies Scale | | | | |
| Caring and responsibility | 55.49 | 21.49 | 71.30 | 15.12 |
| Intrinsic | 52.30 | 25.13 | 72.90 | 16.98 |
| Introjected and external | 45.28 | 21.92 | 41.89 | 22.81 |
| Indifference | 31.99 | 22.95 | 33.69 | 24.44 |
| Sport Activity | Daes not any sport | | Does sport | |
| Reasons scale | <i>M</i> | <i>SD</i> | <i>M</i> | <i>SD</i> |
| Identified reasons | 76.30 | 15.30 | 79.37 | 12.20 |
| Introjected reasons | 62.41 | 21.80 | 61.39 | 21.50 |
| Intrinsic reasons | 70.29 | 17.56 | 75.40 | 19.34 |
| Amotivation | 40.84 | 21.36 | 40.66 | 21.64 |
| Caring Reasons | 63.69 | 19.50 | 68.68 | 19.56 |
| Strategies Scale | | | | |
| Caring and responsibility | 66.21 | 15.91 | 72.40 | 15.91 |
| Intrinsic | 65.40 | 17.40 | 75.28 | 17.41 |
| Introjected and external | 42.38 | 24.40 | 43.27 | 24.41 |
| Indifference | 36.55 | 25.41 | 37.80 | 25.81 |

Legend: Interest in PE – Zaintersovanost za FV; Not interest – Nezainteresovanost; Interest – Zainteresovanost; Reasons scale – Skala razloga; *M* – Mean (Srednja vrijednost); *SD* – Standard deviation (Standardna devijacija); Identified reasons – Identifikovani razlozi; Introjected reasons – Introjektovani razlozi; Intrinsic reasons – Intrinzički razlozi; Amotivation – Amotivacija; Caring Reasons – Pažnja prema drugima; Strategies Scale – Skala strategija; Caring and responsibility – Pažnja i odgovornost; Intrinsic – Intrinzička; Introjected and external – Introjektovana i eksterna; Indifference – Ravnodušnost; Sport Activity – Sportska aktivnost; Daes not any sport – Ne bavi se sportom; Does sport – Bavi se sportom.

to maintain discipline in class: emphasis on caring and responsibility reasons ($F = 11.24, p < .05$), emphasis on intrinsic reasons ($F = 23.87, p < .01$), emphasis on introjected and external reasons ($F = 25.97, p < .01$) and teacher's indifference ($F = 44.68, p < .01$).

With regards to the variable that referred to interest in physical education, we observed significant differences in the identified reasons ($F = 11.44, p < .05$) and intrinsic reasons ($F = 42.28, p < .01$) factors in the "RDS", as well as in the teacher's emphasis on responsibility and caring reasons factors ($F = 22.98, p < .01$) and teacher's emphasis on intrinsic reasons ($F = 37.69, p < .01$) in the "SSDS".

kao što su: naglasak na razloge koji proizilaze iz pažnje i odgovornosti ($F = 11,24, p < 0,05$), naglasak na intrinzičke razloge ($F = 23,87, p < 0,01$), naglasak na introjektovane i eksterne razloge ($F = 25,97, p < 0,01$) i ravnodušnost profesora fizičkog ($F = 44,68, p < 0,01$).

Kada govorimo o varijabli koja se odnosi na zainteresovanost za nastavu fizičkog vaspitanja, uočili smo značajne razlike za identifikovane razloge ($F = 11,44, p < 0,05$) i intrinzičke razloge ($F = 42,28, p < 0,01$) kod faktora u RDS-u, kao i za naglasak na pažnju i odgovornost dat od strane profesora ($F = 22,98, p < 0,01$) i naglasak profesora na intrinzičke razloge ($F = 37,69, p < 0,01$) u SSDS-u.

TABLE 3

Univariate and Multivariate analysis of the RDS and the SSDS.

TABELA 3

Univarijantna i multivarijantna analiza RDS i SSDS-a

| Variables | Gender | School | Interest in PE | Sport Activity | School + Interest in PE |
|------------------------------|---------|---------|----------------|----------------|-------------------------|
| Reasons scale | | | | | |
| Identified reason | 26.80** | 1.15 | 11.44** | .01 | 5.68* |
| Introjected reason | 15.91** | 3.56 | .09 | .04 | 3.91 |
| Intrinsic reason | 8.33** | 8.14* | 42.28** | 6.12** | .77 |
| Amotivation | 7.71** | 33.69** | .41 | .00 | 4.12* |
| Caring reason | 12.28** | 1.33 | 2.98 | .25 | 7.68* |
| Strategic scale | | | | | |
| Caring and responsibility | 2.91 | 11.24* | 22.98** | 7.17** | .00 |
| Intrinsic | 5.88** | 23.87** | 37.69** | 8.68** | 1.92 |
| Introjected and external | 16.33** | 25.97** | 1.58 | .01 | .82 |
| Indifference | 15.41** | 44.68** | .19 | .21 | .33 |
| Multivariate Analysis | | | | | |
| Λ | .94 | .91 | .93 | .90 | .93 |
| F | 3.38** | 2.14* | 4.12** | 2.18* | 2.64* |

Legend: Variables – Varijable; Gender – Pol; School – Vrsta škole; Interest in PE – Zaintersovanost za FV; Sport Activity – Sportske aktivnosti; School + Interest in PE – Škola + zainteresovanost; Identified reasons – Identifikovani razlozi; Introjected reasons – Introjektovani razlozi; Intrinsic reasons – Intrinzički razlozi; Amotivation – Amotivacija; Caring Reasons – Pažnja prema drugima; Strategies Scale – Skala strategija; Caring and responsibility – Pažnja i odgovornost; Intrinsic – Intrinzička; Introjected and external – Introjektovana i eksterna; Indifference – Ravnodušnost; * – $p < .05$; ** – $p < .01$; Λ – Wilks's multivariate test criterion; F – F distribution.

With regards to the variable referring to doing sport outside school hours, there were only significant differences in the intrinsic reasons factor ($F = 6.12, p < .05$) for behaving in the "RDS" and in the teacher's emphasis on caring and responsibility reasons ($F = 7.17, p < .05$) and teacher's emphasis on intrinsic

Kod varijable bavljenja sportom van nastave fizičkog vaspitanja, signifikantne razlike su primijećene samo kod faktora intrinzičkih razloga za ponašanje ($F = 6,12, p < 0,05$) u RDS-u, kod profesorovog naglasaka na razloge koji su vezani za pažnju i odgovornost prema drugima ($F = 7,17, p < 0,05$) i profesorovog

reasons ($F = 8.68, p < .05$) factors for maintaining discipline in the PE class.

After doing the MANOVA calculation (Table 3), significant differences were found in the interaction established between the type of school (state or private) and the interest in physical education ($\Lambda = .94, F(9, 335) = 2.64, p < .05$). Specifically, significant differences were found in the factors belonging to the "Reasons for Behaving Scale": identified reasons ($F = 5.68, p < .05$), amotivation ($F = 4.12, p < .05$) and caring reasons ($F = 7.68, p < .05$). As a result, students from state schools who liked physical education had more reasons of responsibility, amotivation and interest and caring for their classmates for behaving in the class than students from state schools that did not like physical education, as well as compared with all the students from private schools (whether they liked physical education or not).

DISCUSSION

In this study we proposed to compare the differences between different groups (student's gender, type of school, interest in physical education and sport activity outside school hours), based on the student's disciplined/undisciplined behavior in the Greek physical education class.

With regard to the relationship between the student's gender variable and each and every one of the factors established, results obtained suggested that female students show more self-determined reasons to be disciplined and perceive their teacher as more intrinsically motivated to maintain discipline in the classroom than the male students. These data are in agreement with those found by Moreno, Cervello & y Martinez (2007).

We can justify the results by reporting that women do not feel as much need to compete to be successful in the PE class and are interested in more cooperative activities, and this is most likely having an influence on the appearance of disciplined behavior. Similarly, these results are in line with research carried out by Duda & Whitehead (1998), Escartí, Roberts, Cervelló & Guzmán (1999) and White, Kavassanu & Guest (1998). According to these authors, women tend to be more task-oriented and intrinsically motivated, while males are more ego-oriented and extrinsically motivated or amotivated.

As for the variable type of school, we observed that students from private schools are more intrinsically motivated to behave than students at state schools, who are totally amotivated to behave well. Similarly, students at private schools perceive that their teachers

naglaska na intrinzičke razloge kod održavanja nastave na časovima fizičkog vaspitanja ($F = 8,68, p < 0,05$).

Nakon sprovođenja MANOVA analize varijance (Tabela 3), signifikantne razlike su nađene u odnosu koji su uspostavile stavke vrste škole koje učenici pohađaju (državna ili privatna) i zainteresovanosti za nastavu fizičkog vaspitanja ($\Lambda = 0,94, F(9, 335) = 2,64, p < 0,05$). Posebno su uočljive razlike kod faktora koji pripadaju skali razloga za ponašanje: identifikovani razlozi ($F = 5,68, p < 0,05$), amotivisanost ($F = 4,12, p < 0,05$) i pažnja prema drugima ($F = 7,68, p < 0,05$). Kao posljedica takvog stanja, rezultati pokazuju da đaci iz državnih škola koji vole fizičko vaspitanje pokazuju više razloga za odgovornost, amotivisanost, zainteresovanost i pažnju prema svojim drugovima iz razreda nego učenici koje ne vole fizičko vaspitanje čak i kad se uporede sa đacima iz privatnih škola, bez obzira da li oni vole ili ne vole časove fizičkog vaspitanja.

DISKUSIJA

U ovoj studiji smo imali namjeru uporediti razlike (u odnosu na pol učenika, vrstu škole, zainteresovanost za nastavu fizičkog vaspitanja i sportske aktivnosti van nastave) a koje su zasnovane na disciplinovanom odnosno nedisciplinovanom ponašanju đaka na nastavi fizičkog vaspitanja u grčkim srednjim školama.

Kada se uzme u razmatranje odnos između varijable pola učenika sa svim uspostavljenim faktorima, dobijeni rezultati sugerišu da učenici ženskog pola pokazuju veći stepen razloga koji dolaze iz samomotivisanosti, u odnosu na đake muškog pola, kada je u pitanju disciplina koju ispoljavaju na času, te percipiraju svoje profesore fizičkog kao intrinzički motivisane da održe disciplinu na času. Ovi podaci su se tako pokazali na istom fonu kao i podaci prikupljeni od strane Moreno i saradnici (2007).

Ovakvi rezultati se mogu opravdati činjenicom da pripadnice ženskog pola nemaju potrebu da se takmiče i budu uspješne na časovima fizičkog vaspitanja nego su više zainteresovane za kooperativne aktivnosti, te se iz tog razloga njihovo ponašanje čini disciplinovanijim. Spomenimo i to da su ovi podaci u skladu sa onima koji proističu iz istraživanja koje su sproveli Duda i Whitehead (1998), Escartí, Roberts, Cervelló i Guzmán (1999) i White, Kavassanu i Guest (1998). Kako navode pomenuti autori, žene su više orijentisane ka rješavanju određenih zadataka i intrinzički su motivisanije, dok muškarci, sa druge strane, ispoljavaju veći stepen ego-orijentisanosti, ekstrinzičkoj motivaciji ili amotivaciji.

Kada je u pitanju vrsta škole koja se pohađa, primjećujemo da učenici iz privatnih škola imaju veću intrinzičku motivisanost u ponašanju na časovima u

are intrinsically motivated to maintain order and discipline in their classes, they care about their students' behavior and they feel responsible for it. On the contrary, students at state schools perceive that their teachers are totally indifferent to discipline and in the event that there is a concern, it is mainly motivated by reasons related to avoiding guilt feelings, as well as avoiding any possible reprisals from external sources. These results are in agreement with those found by Moreno, Cervello & y Martinez (2007).

With reference to the variables concerning students' interest in physical education, and sport activity outside school hours, we found significant differences in the group of students that said they liked PE and in the group that do sport outside school hours with more self-determined reasons for discipline. These findings are in agreement with previous study (Moreno, Cervello & y Martinez, 2007). We explain these results to the fact that an intrinsically motivated individual takes part in an activity for his own good, as well as for the feeling of pleasure and satisfaction obtained directly from his participation (Deci & Ryan, 1985; Dorobantu, & Biddle, 1997; Ntoumanis, 2001; Standage & Treasure, 2002; Wang, Chatzisarantis, Spray, & Biddle, 2002; Wang, Liu, Chatzisarantis, & Lim, 2010). According to Hassandra, Goudas, & Chroni (2003) and Ryan & Deci (2000), an individual motivated intrinsically will be characterized by psychological wellbeing, which will lead him to experience feelings of enjoyment and satisfaction with what he is doing, and, consequently, to doing sport outside school hours, internalizing the rules established and, therefore, exhibiting more disciplined behavior.

Finally, with regards to the interaction between the type of school variable and interest in physical education, our findings suggested that students from state schools who liked PE behaved better in the classroom than students from state schools that did not like PE, as well as compared with all the students from private schools. Similarly, and in a contradictory manner, it was also these students that had more amotivation reasons, as well as more undisciplined behavior in the class. These findings are in agreement with the findings of Moreno, Cervello & y Martinez (2007).

Research has shown that there is a decrease in the students' motivation to take part in physical education activities (Parish & Treasure, 2003; Trudeau & Shephard, 2005) and a decrease in the level of perceived competence (Weiss & Amorose, 2005) as they progress through the school and perceive more academic demands. Given the decrease in the level of

odnosu na učenike iz državnih škola koji su potpuno amotivisani da se dobro ponašaju. Na sličan način, učenici iz privatnih škola percipiraju svoje profesore kao intrinzički motivisane da održe discipline na časovima fizičkog, brinu o ponašanju đaka i osjećaju se odgovornima za to. Sa druge strane, učenici iz državnih škola su potpuno ravnodušni prema discipline na času, i ako i postoji briga za takvim nečim ona je uglavnom motivisana razlozima zbog kojih žele izbjeći osjećaj krivice odnosno bilo koju vrstu represalija od strane eksternog faktora. Ovakvi zaključci su u skladu sa onima nađenim od strane Moreno i saradnici (2007).

Govoreći o varijablama koje se odnose zainteresovanosti đaka prema fizičkom vaspitanju i bavljenju sportom van škole, pronalazimo značajne razlike kod grupe đaka koja je rekla da voli nastavu fizičkog vaspitanja i da se bavi sportom u slobodno vrijeme, i to sa više samosvjesnijih razloga za disciplinu na času. I ovo je u suglasnosti sa prethodnom studijom (Moreno i saradnici, 2007). To se objašnjava činjenicom da intrinzički motivisani pojedinci učestvuju u pojedinim aktivnostima za svoje vlastito dobro ali i zbog osjećaja zadovoljstva i satisfakcije koju dobijaju samim učestvovanjem (Deci i Ryan, 1985; Dorobantu, i Biddle, 1997; Ntoumanis, 2001; Standage i Treasure, 2002; Wang, Chatzisarantis, Spray i Biddle, 2002; Wang, Liu, Chatzisarantis i Lim, 2010). Autori Hassandra, i saradnici (2003) i Ryan i Deci (2000), kažu da intrinzički motivisane pojedince karakteriše psihološko blagostanje koje dovodi do osjećanja uživanja i satisfakcije onim čime se bavi, a kao posljedicu toga primjećeno je bavljenje sportom mimo nastave fizičkog vaspitanja i ispoljavanje više disciplinovanijeg ponašanja.

Na kraju, kada se govori o interakciji između varijabli vrste škole koja se pohađa i zainteresovanosti za nastavu fizičkog vaspitanja, naši zaključci upućuju na to da učenici iz državnih škola, koji vole nastavu fizičkog vaspitanja, ispoljavaju bolje ponašanje od učenika iz državnih škola koji ne vole časove fizičkog, čak i kad se uporede sa svim učenicima iz privatnih škola. Na jedan kontradiktoran način, učenici pomenutog profila pokazuju u isto vrijeme i više razloga za amotivisanost i nedisciplinovano ponašanje na času fizičkog vaspitanja. I ovi zaključci su u skladu sa radom Moreno i saradnici (2007).

Istraživanja su pokazala da učenici, kako napreduju kroz različite stepene obrazovanja i sve više percipiraju akademske zahtjeve koje obrazovanje pred njih postavlja, pokazuju stepen opadanja kada je u pitanju učestvovanje u fizičkim aktivnostima (Parish i Treasure, 2003; Trudeau i Shephard, 2005), kao i pad u stepenu percipirane kompetencije (Weiss i Amorose, 2005). Kada se uzme u obzir stepen fizičke samopercepcije i motivacije koja se pojavljuje u prvim godinama adole-

physical self-perception and motivation that occurs in the first years of adolescence, it is important to understand the motivational process students are wrapped up in at these ages and their effects on their physical self-perceptions.

Self-esteem is affected by exercise and an increase in its level leads to both psychological and physical benefits (Boyd & Hrycaiko, 1997). Therefore, students that do some physical or sport activity have a more positive perception of their physical self-concept, a more positive self-esteem in all the dimensions forming this construct: body image perception, sport competence perception, physical condition, perception of general physical competence and physical strength (Bortoli, Bertollo, Comani & Robazza, 2011). According to Ntoumanis (2001), positive social factors, such as promoting cooperative learning, emphasis on individual improvement and changes in tasks can result in positive motivational results in physical education.

In conclusion, we would like to highlight the importance that both this study and similar studies already carried out, may have in understanding the causes of disciplined and undisciplined behavior appearing in the PE class. Student's internal reasons for developing disciplined or undisciplined behavior give an insight into a better understanding of the reasons for disruptive behavior.

These findings may have implications for the practice of physical education. Lessons should be structured in a way that students have the opportunity to satisfy their needs for autonomy, competence and social relatedness. Therefore, students need to be given choices about their participation, to experience a sense of accomplishment and to have ample opportunities for interaction with their peers during the lesson.

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scencije, važno je razumjeti koji su to motivacioni procesi koji potiču učenike i kako oni djeluju na njihovu fizičku samopercepciju.

Samopoštovanje se podiže fizičkim vježbanjem i tako koristi ljudima kako na psihološkom tako i na fizičkom planu (Boyd i Hrycaiko, 1997). Iz tog razloga učenici koji su fizički aktivni imaju pozitivniju percepciju njihovog samopoimanja, samopoštovanja u svim dimenzijama koji ga sačinjavaju: percepcija tjelesne slike, percepcija sportske kompetencije, fizička kondicija, percepcija opšte fizičke kompetencije i fizičke snage (Bortoli, Bertollo, Comani i Robazza, 2011). Prema Ntoumanisu (2001), pozitivni socijalni faktori poput promovisanja kooperativnog učenja, stavljanja naglaske na individualno unaprijeđivanje i promjene u postavljanju zadataka koji se trebaju ispuniti mogu doprinijeti pozitivnim motivacionim rezultatima u fizičkom vaspitanju.

Umjesto zaključka željeli bismo istaći važnost koju ova studija i njoj slične pridaju razumijevanju uzroka koji su u pozadini disciplinovanom odnosno nedisciplinovanom ponašanju na časovima fizičkog vaspitanja. Unutrašnji razlozi za disciplinovano odnosno nedisciplinovano ponašanje na času dovode do boljeg razumijevanja razloga koji doprinose ponašanju koje remete normalan tok časa.

Nadamo se da ovakvi zaključci mogu imati implikacije na samu praksu držanja nastave fizičkog vaspitanja. Časovi bi trebalo da budu strukturirani na način da omogućavaju đacima da zadovolje svoju potrebu za samoposebnošću, kompetencijom u fizičkom vaspitanju i socijalnom povezanošću. Iz tog razloga, đacima se treba dati mogućnost da biraju da li će učestvovati u određenoj aktivnosti kao bi tako doživjeli osjećaj postignuća i imali dovoljno prilika za interakciju sa drugovima iz razred za vrijeme časova fizičkog vaspitanja.

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Correspondence to:

Panteleimon Bakirtzoglou, PhD

Organisation for Vocational Education and Training

Ethikis Antistaseos 41 - OEEK

TK.142 34

Athens-Nea Ionia

Greece

E-mail: bakirtzoglou@gmail.com

Phone: 0030 69 75 90 96 31

Korespondencija:

dr Panteleimon Bakirtzoglou

Organisation for Vocational Education and Training

Ethikis Antistaseos 41 - OEEK

TK.142 34

Athens-Nea Ionia

Grčka

E-mail: bakirtzoglou@gmail.com

Telefon: 0030 69 75 90 96 31

Η ΠΕΙΘΑΡΧΙΑ ΕΛΛΗΝΩΝ ΜΑΘΗΤΩΝ ΛΥΚΕΙΟΥ ΣΕ ΣΧΕΣΗ ΜΕ ΤΟ ΓΕΝΟΣ, ΤΟΝ ΤΥΠΟ ΣΧΟΛΕΙΟΥ, ΤΟ ΕΝΔΙΑΦΕΡΟΝ ΓΙΑ ΤΟ ΜΑΘΗΜΑ ΦΥΣΙΚΗΣ ΑΓΩΓΗΣ ΚΑΙ ΤΗΝ ΑΘΛΗΤΙΚΗ ΔΡΑΣΤΗΡΙΟΤΗΤΑ

Μπακιρτζόγλου Παντελεήμων¹, & Ιωάννου Παναγιώτης¹

¹Οργανισμός Επαγγελματικής Εκπαίδευσης και Κατάρτισης (Ο.Ε.Ε.Κ.), Αθήνα, Ελλάδα

²Τμήμα Επιστήμης Φυσικής Αγωγής και Αθλητισμού Θεσσαλονίκης, Θεσσαλονίκη, Ελλάδα

Ένα από τα θέματα που απασχολούν περισσότερο τους επαγγελματίες και ερευνητές σε σχέση με τη φυσική αγωγή είναι η κατανόηση των γνωστικών μηχανισμών που σχετίζονται με την πειθαρχημένη και απειθαρχη συμπεριφορά στην τάξη (Siedentop, 1991; Lewis, 2001). Για να διατηρηθεί ένα περιβάλλον που υποστηρίζει τη μάθηση, οι εκπαιδευτικοί πρέπει να έχουν τη συνεργασία των μαθητών τους στη μαθησιακή διαδικασία (Rink, 1998). Οι θετικές εμπειρίες από το μάθημα της φυσικής αγωγής επηρεάζουν τους μαθητές ώστε να υιοθετήσουν έναν δραστήριο τρόπο ζωής στην ενήλικη ζωή τους (Sallis & McKenzie, 1991; Goudas, Biddle, & Fox, 1994). Από αυτή την άποψη, είναι σημαντικό να γνωρίζουμε τα κίνητρα, τις γνωστικές και συναισθηματικές διαδικασίες που θα καθορίσουν αν οι μαθητές αντιλαμβάνονται το μάθημα φυσικής αγωγής ως μια πολύτιμη και ευχάριστη εμπειρία ή ως κάτι δυσάρεστο και βαρετό (Atkinson, 1977; Ntoumanis, 2001). Ο στόχος της παρούσας μελέτης είναι να ερευνήσει την πειθαρχημένη / απειθαρχη συμπεριφορά των Ελλήνων μαθητών στο μάθημα της Φυσικής Αγωγής, σε σχέση με το γένος, τον τύπο σχολείου και το ενδιαφέρον τους για το μάθημα της Φυσικής Αγωγής.

Μέθοδος

Δείγμα

Το δείγμα της μελέτης μας αποτελείται από 536 μαθητές της Δευτεροβάθμιας εκπαίδευσης, ηλικίας μεταξύ 15 και 16 ετών ($M \pm SD$: 15,7 \pm 0,52), από σχολεία της Αθήνας (Ελλάδα).

Διαδικασία

Η άδεια για τη διεξαγωγή αυτής της έρευνας ελήφθη από το Υπουργείο Παιδείας, Δια Βίου Μάθησης και Θρησκευμάτων και από τους διευθυντές των σχολείων. Στους μαθητές ειπώθηκε ο σκοπός της έρευνας και των δικαιωμάτων τους, και τους ζητήθηκε να υπογράψουν ένα έντυπο συγκατάθεσης. Οι μαθητές χρειάστηκαν 15-20 λεπτά για να συμπληρώσουν τα ερωτηματολόγια και οι απαντήσεις τους παρέμειναν ανώνυμες.

Ερωτηματολόγια

Χρησιμοποιήθηκαν δύο ερωτηματολόγια. Το Ερωτηματολόγιο Λόγων Πειθαρχίας (RDS) το οποίο μετράει τους λόγους των μαθητών για τους οποίους συμπεριφέρονται ανάλογα στο μάθημα της Φυσικής Αγωγής (Papaioannou, 1998a) και το Ερωτηματολόγιο Στρατηγικών για τη Διατήρηση της Πειθαρχίας (SSDs) (Papaioannou, 1998a) προκειμένου να

αξιολογηθεί η αντίληψη των μαθητών για τις στρατηγικές που χρησιμοποιούνται από τον δάσκαλό τους για να διατηρηθεί η πειθαρχία στη τάξη.

Κοινωνικοδημογραφικές μεταβλητές

Τα δεδομένα για τα χαρακτηριστικά των μαθητών που συνδέονται με το προσωπικό τους περιβάλλον και το δημογραφικό τους χαρακτήρα επίσης συλλέχθηκαν. Οι μεταβλητές που αναλύθηκαν ήταν: το φύλο των μαθητών (άνδρας ή γυναίκα), τον τύπο του σχολείου (δημόσιο ή ιδιωτικό), το ενδιαφέρον για τη φυσική αγωγή (δεν ενδιαφέρονται ή ενδιαφέρονται), και η συχνότητα ενασχόλησης με τον αθλητισμό εκτός σχολικών ωρών (ή δεν ασχολούνται με τον αθλητισμό).

Στατιστική ανάλυση

Για την στατιστική ανάλυση των αποτελεσμάτων χρησιμοποιήθηκε το στατιστικό πακέτο SPSS 17.0. Χρησιμοποιήθηκε ανάλυση διακύμανσης ANOVA. Επιπλέον χρησιμοποιήθηκε πολυμεταβλητή ανάλυση διακύμανσης MANOVA.

Αποτελέσματα

Τα κορίτσια ήταν καλύτερα στους περισσότερους από τους παράγοντες των δύο ερωτηματολογίων (RDS & SSDS). Οι μαθητές που τους άρεσε η φυσική αγωγή και ο αθλητισμός ήταν πιο πειθαρχημένοι και είχαν πιο αντιληπτούς εσωτερικούς λόγους προς τους καθηγητές τους για τη διατήρηση της πειθαρχίας. Οι μαθητές από δημόσια σχολεία που του άρεσε η φυσική αγωγή ήταν πιο υπεύθυνοι και ενδιαφέρονταν περισσότερο για το κλίμα πειθαρχίας σε σχέση με μαθητές από ιδιωτικά σχολεία ή και σε σχέση με μαθητές από δημόσια σχολεία οι οποίοι δεν ενδιαφέρονταν για το μάθημα της Φυσικής Αγωγής.

Συμπερασματικά, θα θέλαμε να υπογραμμίσουμε την σημασία αυτής της μελέτης και παρόμοιων μελετών που έχουν ήδη πραγματοποιηθεί, για την κατανόηση των αιτιών της πειθαρχημένης και απειθαρχης συμπεριφορές στο μάθημα της Φυσικής Αγωγής. Το μάθημα της Φυσικής Αγωγής θα πρέπει να είναι δομημένο με τέτοιο τρόπο ώστε οι μαθητές έχουν την ευκαιρία να ικανοποιήσουν τις ανάγκες τους για αυτονομία, ικανότητα και κοινωνικοποίηση.

Λέξεις κλειδιά: πειθαρχία, μάθημα Φυσικής Αγωγής, ενδιαφέρον, τύπος σχολείου

VARIJABILNOST BIOMEHANIČKIH PARAMETARA TROSKOKA - STUDIJA SLUČAJA

VARIABILITY OF BIOMECHANICAL PARAMETERS IN THE TRIPLE JUMP TECHNIQUE – A CASE STUDY

Milan Čoh¹ and Otmar Kugovnik¹

¹Fakultet sporta, Univerzitet Ljubljana, Slovenija
Faculty of Sport, University of Ljubljana, Slovenia

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SUMMARY

The purpose of the study was to examine consistency and variability of kinematical parameters in the triple jump technique. An analysis has been carried out on the basis of two attempts of a female athlete who is one of the best triple jumpers in the world. The latest biomechanical technology and the methodology of measurements in the triple jump have been used. The Opto-track technology and 3-D kinematical technology were used in order to analyse parameters of the model technique in the triple jump. The study revealed that optimal result in the triple jump can be achieved with different programme motor strategies. It has been revealed that the motor pattern is generated by consistent and variable parameters. The most consistent parameters of motor pattern were: partial distances of individual phases, duration of support phases in take-off actions, take-off angles and vertical amplitude of BCM. Variability of motor pattern has been revealed mostly in the following kinematical parameters: speed in the last 5 metres of run-up, distance and proportion of the last two run-up strides, horizontal velocity of BCM in take-off actions.

Key words: triple jump, kinematic, biomechanical parameters, technique

INTRODUCTION

From the biomechanical aspect, triple jump is one of the most complex track and field disciplines and consists of the run-up phase and three consecutive flight phases. The result is defined mainly with the speed of run-up and the optimal proportion between the distances of three flight phases (Hay, 1992; Hay & Miller, 1985; Grahman-Smith & Lees, 1994; Miladinov & Bonov, 2004). Each of the structural units represents a specific

SAŽETAK

Svrha ove studije bila je da se ispita varijabilnost kinematičkih parametara u tehnici troskoka. Analiza je sprovedena na osnovu dva pokušaja atletičarke koja je jedna od najboljih troskokašica na svijetu. Korištena je najnovija biomehanička tehnologija i metodologija mjerenja u troskoku. Opto-track i 3-D kinematička tehnologija korištene su da bi se analizirali parametri modela tehnike u troskoku. Studija je otkrila da se optimalni rezultati u troskoku mogu postići različitim motornim strategijama. Takođe je otkriveno da je motorni stereotip izazvan konstantnim i promenljivim parametrima. Konstantni parametri tog stereotipa bili su: parcijalne distance pojedinačnih faza, trajanje faze odraza, uglovi i vertikalne amplitude BCM pri odrazu. Varijabilnost motornog šablona otkriveni su uglavnom kod sljedećih kinematičkih parametara: brzina u posljednjih 5 metara zaleta, dužina i proporcija posljednja dva koraka zaleta, horizontalna brzina BCM pri odrazu.

Ključne riječi: troskok, kinematički, biomehanički parametri, tehnika

UVOD

Sa stanovišta biomehanike, troskok je jedna od najkompleksnijih atletskih disciplina i sastoji se od faze ubrzanja i tri uzastopne faze leta. Sam rezultat uglavnom je određen brzinom zaleta i optimalnim odnosom razmaka između tri faze leta (Hay, 1992; Hay i Miller, 1985; Grahman-Smith i Lees, 1994; Miladinov i Bonov, 2004). Svaki od ovih sastavnih

motor task with certain characteristics and tasks, which an athlete has to complete in order to execute a successful triple jump. According to some of previous studies (Conrad & Ritzdorf, 1990; Grahman-Smith & Lees, 1994; Hay, 1999; Jurgens, 1998, Panoutsakopoulos & Kollias, 2008), preservation of optimal horizontal velocity in the hop, step and jump phases is a crucial factor for achieving maximal distance in the triple jump. A critical moment in the triple jump is a transition from hop into step phase. From the aspect of motor pattern structure, triple jump can be regarded as a connection of cyclic and acyclic movements. Efficient transformation of run-up speed into take-off for hop phase is correlated with the correct rhythm and visual as well as kinaesthetic control (Hay, 1999; Kyrolainen, Komi, Virmavirta, & Isolehto, 2007; Yu & Hay, 1996). The first phase (hop) is the longest and represents 36 – 39% of overall distance of three phases (Grahman-Smith & Lees, 1994; Kyrolainen et al., 2007; Panoutsakopoulos & Kollias, 2008). Therefore, an efficient execution of hop phase is a key element for execution of the next two phases (step and jump) and thus the entire triple jump. The proportion of distances of three phases depends on various motor strategies for both genders of triple jumpers. Three techniques of triple jump have been identified: “Hop Dominated”, “Hop Jump” and “Balanced” technique (Panoutsakopoulos & Kollias, 2008). In the first (hop dominated) technique an emphasis is on the distance of first phase (hop), in the second technique an emphasis is on the distance of last phase, whereas in the third technique a balance between the distances of all three phases is emphasised. Distances and proportions of different phases are defined with the execution of support and flight phases. Transition of horizontal velocity is correlated mostly with the efficient technique of take-off action. The optimal proportion between horizontal and vertical component of body centre of mass (BCM) velocity in support phase is very important. An athlete should maintain as large horizontal velocity as possible whilst ensuring adequate vertical velocity for an efficient triple jump. The increase of horizontal velocity component results in reduced vertical velocity component and vice versa.

It seems that the final result in the triple jump is a product of various types of technique and other factors as well as their correlations. The Bernstein theory (Latash, 1994) defines sports technique as a managed process with compensational and self-regulative characteristics. An athlete cannot control all the motor process phases, although the motor pattern is standardised and automated (Schmidh & Lee, 1999). In order for the motor pattern to be correct and rational, its individual elements have to be coordinated in such way that some follow the principle of parallel execution and others the principle of consequent execution. Optimal coordination of the motor pattern is possible only if

dijelova predstavlja specifičan motorički zadatak sa određenim karakteristikama koje sportista mora da ostvari kako bi izveo uspješan troskok. Prema nekim prethodnim studijama (Conrad i Ritzdorf, 1990; Grahman-Smith i Lees, 1994; Hay, 1999; Jurgens, 1998, Panoutsakopoulos i Kollias, 2008), očuvanje optimalne horizontalne brzine faze poskoka, koraka i skoka je ključni faktor za postizanje maksimalne dužine troskoka. Kritičan momenat u troskoku jeste prelazak iz poskoka u fazu koraka. Sa aspekta strukture motoričkog obrasca, troskok se može posmatrati kao spajanje cikličnih i acikličnih pokreta. Efikasna transformacija brzine zaleta u odraz za fazu leta povezan je sa pravilnim ritmom kao i sa vizuelnom i kinestetičkom kontrolom (Hay, 1999; Kyrolainen, Komi, Virmavirta i Isolehto, 2007; Yu i Hay, 1996). Prva faza (poskok) je najduža i predstavlja 36–39% ukupne udaljenosti sve tri faze (Grahman-Smith i Lees, 1994; Kyrolainen i saradnici, 2007; Panoutsakopoulos i Kollias, 2008). Iz tog razloga efikasno izvođenje faze poskoka predstavlja ključni element za izvršenje sljedeće dvije faze (korak i skok) i samim tim cijelog troskoka. Odnos dužina ove tri faze zavisi od nekoliko motoričkih strategija i za muške i za ženske troskokaše. Poznate su tri tehnike troskoka: »Hop Dominated«, »Hop Jump« i »Balanced« tehnika (Panoutsakopoulos i Kollias, 2008). U prvoj (hop dominated) tehnici akcenat je stavljen na dužinu prve faze (poskok), u drugoj tehnici naglašena je dužina posljednje faze, dok je u trećoj tehnici naglašena ravnoteža između dužina u sve tri faze. Dužine i proporcija različitih faza definisana je izvođenjem faze oslonca na tlo i faze leta. Promjena horizontalne brzine najviše je povezana sa efikasnom tehnikom odraza. Optimalan odnos horizontalnih i vertikalnih komponenta brzine težišta tijela (body center of mass - BCM) u fazi oslonca na podlogu veoma je važan. Da bi ostvario efikasan troskok sportista bi trebao da održava što je moguće veću horizontalnu a u isto vrijeme adekvatnu vertikalnu brzinu. Povećanje horizontalne brzine rezultira smanjenjem vertikalne, i obrnuto.

Čini se da je konačan rezultat u troskoku proizvod nekoliko različitih tehnika i drugih faktora, kao i njihovog uzajamnog odnosa. Bernštajnova teorija (Latash, 1994) definiše sportsku tehniku kao usklađen proces sa kompenzatornim i samo-regulativnim karakteristikama. Sportista ne može kontrolisati sve faze motoričkog procesa, iako je motorički stereotip standardizovan i automatizovan (Schmidh i Lee, 1999). Da bi mozotički stereotip bio ispravan i racionalan, njegovi pojedinačni elementi moraju biti koordinisani na način da neki od njih poštuju principe paralelnog a drugi principe uzastopnog izvršenja.

it is programmed. An athlete possesses programmes and sub-programmes in a primary motor centre of central neural system; they are either permanent either acquired according to the external and internal circumstances (Enoka, 1998). The movement cannot be executed correctly without the existence of a suitable programme.

Optimalna koordinacija motoričkog stereotipa moguća je samo ukoliko je programirana. Sportista posjeduje programe i pod-programe u primarnom motoričkom centru centralnog nervnog sistema; oni su ili trajni ili stečeni u zavisnosti od spoljašnjih i unutrašnjih faktora (Enoka, 1998). Pokret ne može biti pravilno iz-

FIGURE 1

Marija Šestak is one of the best female triple jump athletes in the world, with a distance of 15.03 metres she has won 6th place at the 2008 Olympic Games in Beijing

SLIKA 1

Marija Šestak je jedna od najboljih troskokašica na svijetu a sa troskokom dužine 15.03 metra osvojila je 6. mjesto na Olimpijskim igrama u Pekingu 2008. godine



Normally, the technique in elite sportsmen is never absolute. Every athlete constantly keeps perfecting his / her technique and adapting it to the numerous external and internal factors. Basic elements of technique are stable; nevertheless, some subtle technical elements change. The complete stabilisation of technique is not possible due to various endogenous factors (mental status, degree of sports form, pressure, competitive stress) and exogenous factors (micro-climatic conditions: wind, outside temperature, height above sea level; sports infrastructure: different structure and elasticity of the surface).

veden bez postojanja odgovarajućeg programa.

Naravno, tehnika kod vrhunskih sportista nije nikada apsolutna. Svaki sportista neprestano usavršava svoju tehniku i prilagođava je brojnim spoljašnjim i unutrašnjim faktorima. Osnovni elementi tehnike su stabilni; međutim, neki prilagodljivi se mijenjaju. Potpuna stabilizacija tehnike nije moguća zbog raznih endogenih (mentalni status, sportska forma, pritisak, takmičarski stres) i egzogenih faktora (mikro-klimatski uslovi: vjetar, spoljna temperatura, nadmorska visina; sportska infrastruktura: različita vrsta i elastičnost podloge).

According to the Bernstein's theory (Latash, 1994) two programme strategies for solving the motor pattern exist in the conditions of high degree of movement stabilisation. According to the first strategy, it is possible to realise the motor pattern by keeping the technical parameters constant. The second strategy of realisation of motor pattern is based on the consistency of some and variability of other technical parameters. The aim of the present study was to examine consistency and variability of parameters in the triple jump technique of an elite female track and field athlete of highest international quality. Analysis included two best triple jump attempts (attempt A, attempt B). The official distance of the attempt A was 13.68 m with the effective distance 13.85 (toe-to-board distance = 0.17 m). The official distance of the second attempt was 13.63 m and the effective distance 13.66m (toe-to-board distance = 0.03 m). The difference in the effective distance between the two attempts was 0.19 m.

METHODS

The measured subject is one of the best female triple jumpers in the world, M. Š. (age 28, height 172 cm, weight 66.5 kg, personal triple jump record 15.03m, 6th place at the 2008 Olympic Games) - Figure 1. Measured subject had six attempts and the two longest jumps were included in the study. Measurements were carried out in the preparation phase prior to the 2008 Olympic Games in Beijing. *Opto-Track* technology by the Italian manufacturer Microgate was used to measure the distances of different phases, support and flight times in the run-up phase as well as in hop, step and jump phases. The basic components of the measuring system represent interlinked rods (100 cm x 4 cm x 3 cm), with built-in optical sensors and the computer programme for data recording and analysis. Each of the rods contains 32 sensors – photo cells, which are positioned every 4 cm and placed 0.2 cm above the surface. The total length of interlinked rods was 20 metres. The rods of the measuring system were placed on each side of the run-up track (width = 1.22 m). A system of infrared photo cells (*Brower – Timing System*) has been used in order to measure the run-up speed (11-6 m, 6-1 m). Kinematical analysis has been carried out with the use of recordings made via four synchronised video cameras (*Sony DVCAM DSR-300 PK*) with the frequency of 50 Hz and definition of 720 x 576 pixels, which were placed on a 90° angle to the optical axis. The first two cameras have covered the area of last two steps in the run-up and hop phase, the remaining two cameras have recorded step and jump phases of the triple jump. In order to achieve better precision and for the purpose of biomechanical analysis of the take-off action in hop and step phases, two high-speed digital cameras *Mikrotron Motion Blitz Cube ECO-1* and *Digital motion analy-*

Prema Bernštajnovoj teoriji (Latash, 1994) postoje dva programa za rješavanje motoričkog stereotipa u uslovima visokog stepena stabilizacije pokreta. Prema prvoj strategiji moguće je stvoriti motorički stereotip time što će se tehnički parametri održavati stabilnim. Druga strategija bazirana je na stabilnosti jednih a varijabilnosti drugih tehničkih parametara. Cilj ove studije jeste da se ispita stabilnost i varijabilnost parametara u tehnici troskoka kod vrhunskih ženskih atletičarki međunarodnog nivoa. Analiza je uključila dva najbolje ostvarena troskoka (pokušaj A i pokušaj B). Zvanična dužina pokušaja A bila je 13,68 m sa efektivnom distancom od 13,85 m (udaljenost prstiju od daske = 0,17 m). Zvanična dužina drugog pokušaja bila je 13,63 m a efektivna dužina 13,66 m (udaljenost prstiju od daske = 0,03 m). Razlika u efektivnoj dužini između dva pokušaja bila je 0,19 m.

METODE

Ispitanik je bila jedna od najboljih svjetskih trosko-kašica, M. Š. (starost 28 godina, visina 172 cm, težina 66,5 kg, lični rekord u troskoku 15,03 m, 6. mesto na Olimpijskim igrama 2008. godine) – Slika 1. Ispitanik je imao mogućnost na šest pokušaja, a dva najduža skoka su uključena u studiju. Mjerenja su provedena u pripremnoj fazi prije Olimpijskih igara 2008. godine u Pekingu. Korištena je *opto-track* tehnologija italijanskog proizvođača Microgate za mjerenje distanci između različitih faza, za mjerenje vremena oslonca na podlogu i leta u fazi zaleta, kao i u fazama poskoka, koraka i skoka. Osnovne komponente mjernog sistema bile su povezane šipke (100 cm x 4 cm x 3 cm) sa ugrađenim optičkim sensorima i kompjuterskim programom za registrovanje i analizu podataka. Svaka šipka ima 32 senzora – foto ćelije, sa 4 cm razmaka između njih a koji su postavljeni 0,2 cm iznad podloge. Ukupna dužina povezanih šipki je 20 metara. Šipke mjernog sistema postavljene su na obje strane staze (širina = 1,22 m). Sistem infracrvenih foto-ćelija (*Brower – Sistem za mjerenje vremena*) korišten je za mjerenje ubrzanja (11-6 m, 6-1 m). Kinematička analiza sprovedena je korištenjem snimki napravljenih uz pomoć četiri video kamere (*Sony DVCAM DSR-300 PK*) sa frekvencijom od 50 Hz i definicijom od 720 x 576 piksela, koje su bile postavljene na ugao 90° optičke ose. Prve dvije kamere pokrivala su posljednja dva koraka faze zaleta i fazu poskoka, dok su ostale dvije kamere snimale faze koraka i skoka. Da bi se postigla bolja preciznost i u svrhu biomehaničke analize akcije odraza u fazi poskoka i koraka, korištene su dvije high-speed digitalne kamere *Mikrotron Motion Blitz Cube ECO-1* i *Digital-*

sis recorder were used. The cameras could record 6 seconds of movement with the frequency of 100 frames per second and definition of 640 x 512 pixels; however, a frequency of 500 frames per second has been chosen for the present study. The analysed area of the last two run-up steps and three triple jump phases (hop, step

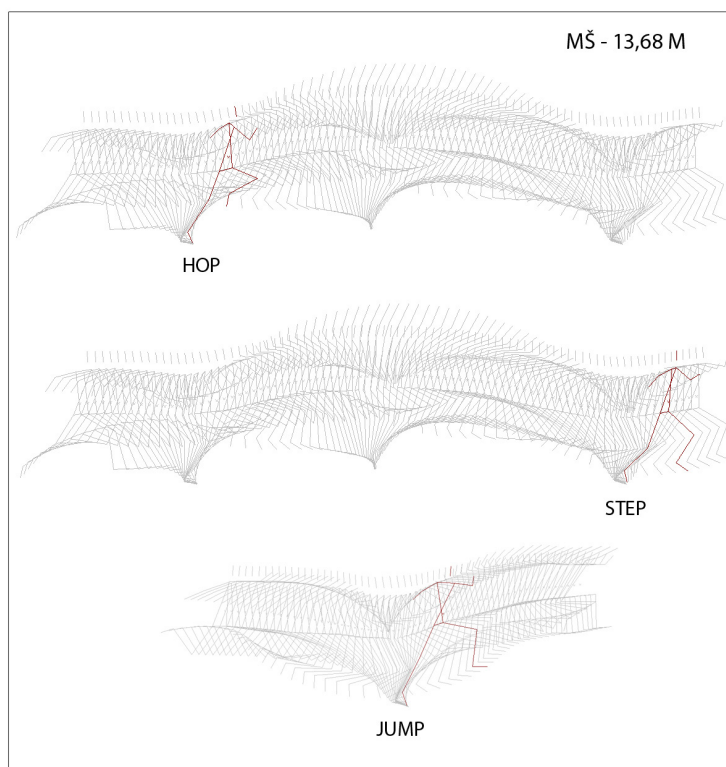
ni rekorder za analizu pokreta. Kamere su mogle snimiti 6 sekundi pokreta sa frekvencijom od 100 slika u sekundi i definicijom od 640 x 512 piksela; međutim, za ovo istraživanje odabrana je frekvencija od 500 slika u sekundi. Analizirani dio posljednja dva koraka zaleta i tri faze troskoka (poskok, korak i skok) kali-

FIGURE 2

The 3 D kinematic analysis of triple jump

SLIKA 2

3D kinematičke analize troskoka



and jump) have been calibrated with a referential measuring frame with dimensions 1 m x 1 m x 2 m, whilst considering eight referential corners (Figure 2). The length of analysed movement has been defined with “x” axis, height with “y” axis and depth with “z” axis. For calculation of kinematical parameters of technique, a 3-D software equipment APAS (Ariel Dynamics Inc., San Diego, Ca) was used (Figure 3). Digitalisation of 15-segment model of the athlete’s body has been performed; the model has been defined with 18 referential points (Dempster, cited in Miller & Nelson, 1973). The coordinates of body points were smoothed with a digital Buterworth level 7 filter. SPSS software package has been used for statistical data analysis.

RESULTS

Optimal speed, good visual control and well-structured run-up in the last three strides are basic requirements for a good triple jump result. According to the Table 1,

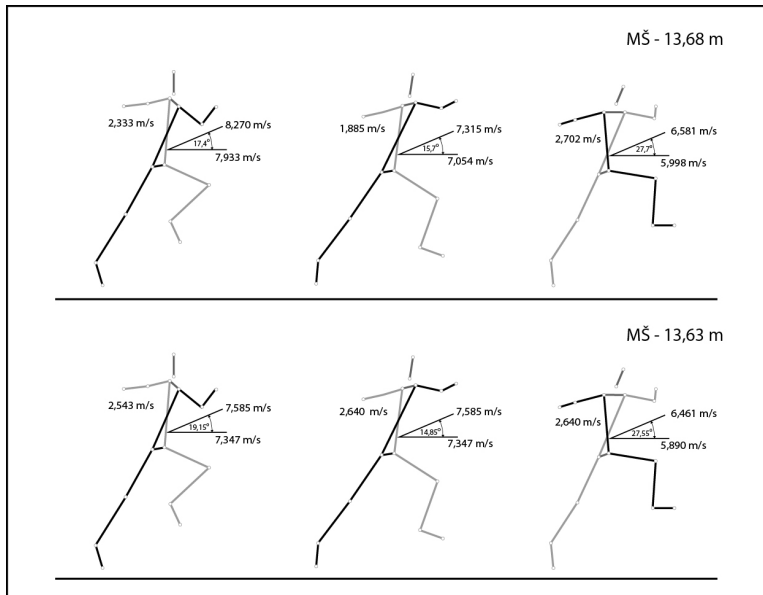
brirani su odgovarajućim mjernim okvirom dimenzija 1 m x 1 m x 2 m, uzimajući u obzir osam referentnih uglova (Slika 2). Dužina analiziranih pokreta definirana je X osom, visina Y osom a dubina Z osom. Za izračunavanje kinematičkih parametara tehnike korištena je 3-D softverska oprema APAS (Ariel Dynamics Inc., San Diego, Ca) (Slika 3). Izvršena je digitalizacija 15-segmentnog modela tijela sportiste; model je definisan sa 18 referentnih tačaka (Dempster, citiran kod Miller i Nelson, 1973). Koordinate tačaka poravnate (usklađene) su digitalnim Buterworth filterom 7-og stepena. Za statističku obradu podataka korišten je softverski paket SPSS.

REZULTATI

Optimalna brzina, dobra vizuelna kontrola i dobro struktuiran zalet u posljednja tri koraka su osnove za dobar rezultat u troskoku. Prema Tabeli 1 može se

FIGURE 3
Kinematics of technique in the HOP-STEP-JUMP phases

SLIKA 3
Kinematika faze tehnike POSKOK-KORAK-SKOK



it can be noticed that the measured subject developed identical speed (6.94 ms^{-1}) in the 11 – 6 metre zone prior to the take-off board in both of the analysed attempts. The speed differentiated significantly in the 6 – 1 metre zone. Namely, in the attempt B the measured subject achieved higher speed than in the attempt A by 0.57 ms^{-1} . The structure of the run-up in the last two strides (1L and 2L) also differentiated significantly in both stride length and speed. In both attempts the second to last stride was slightly longer than the last stride. A tendency of a longer last stride has been noticed also in some other elite female triple jumpers. The length of the last stride is correlated with the efficient transformation of horizontal into vertical velocity, which ensures the required height of the body centre of mass (BCM) trajectory in the first (HOP) phase.

DISCUSSION

According to the total and relative distances of individual phases, the measured subject is a typical representative of a »Hop Dominated« technique with particularly emphasised last (*jump*) phase. The proportion of partial distances of individual phases (*hop-step-jump*) did not differentiate significantly between the attempts. In the attempt A the distance of the first phase (*hop*) was 4.73 m (34.6%), second phase (*step*) 4.01 m (29.3%) and third phase (*jump*) 4.94 m (36.1 %). Apparently, the motor strategy of a measured subject in this phase is very stable. Kyrolainen et al. (2009) have found that the proportion between different partial phases of female

vidjeti da je ispitanik ostvario identičnu brzinu ($6,94 \text{ ms}^{-1}$) u zoni 11–6 metara prije odskočne daske u oba pokušaja. Brzina se drastično razlikovala u zoni 6–1 metra. Naime, u pokušaju B ispitanik je postigao brzinu veću nego u pokušaju A za $0,57 \text{ ms}^{-1}$. Struktura zaleta u posljednja dva koraka (1L i 2L) takođe se značajno razlikovala i po dužini i po brzini koraka. U oba pokušaja pretposljednji korak bio je malo duži nego posljednji. Tendencija ka dužem posljednjem koraku primjećena je takođe i kod drugih vrhunskih troskokašica. Dužina posljednjeg koraka povezana je sa efikasnom transformacijom horizontalne u vertikalnu brzinu, što osigurava potrebnu visinu trajektorije težišta tijela (BCM) u prvoj (POSKOK) fazi.

DISKUSIJA

Prema ukupnim i relativnim dužinama pojedinačnih faza, ispitanik je tipični predstavnik »Hop-Dominated« tehnike sa djelimično naglašenom posljednjom (*skok*) fazom. Odnos parcijalnih distanci pojedinačnih faza (*poskok-korak-skok*) nije se značajno razlikovao po pokušajima. U pokušaju A distanca prve faze (*poskok*) bila je 4,73 m (34,6%), druge faze (*korak*) 4,01 m (29,3%) i treće faze (*skok*) 4,94 m (36,1%). Očigledno je da je motorička strategija ispitanika u ovoj fazi veoma stabilna. Kyrolainen i saradnici (2009) ustanovili su da je proporcija između različitih pojedinačnih faza atletičarki na Svetskom prvenstvu 2005.

TABLE 1

Variability of kinematic parameters in the triple jump technique

TABELA 1

Variabilnost kinematičkih parametara u tehnici troskoka

| Parameters | Phase | Attempt A | Attempt B |
|---|--------|-----------|-----------|
| Result (m) | | 13.68 | 13.63 |
| Effective distance (m) | | 13.85 | 13.66 |
| Run –Up | 11 - 6 | 6.94 | 6.94 |
| Velocity (ms ⁻¹) | 6 - 1 | 8.20 | 8.77 |
| Run – Up | 2L | 2.20 | 2.17 |
| Stride length (m) | 1L | 2.30 | 2.18 |
| Run – Up | 2L | 8.25 | 8.40 |
| Velocity (ms ⁻¹) | 1L | 8.35 | 8.41 |
| Stride length (m) | Hop | 4.73 | 4.73 |
| | Step | 4.01 | 3.92 |
| | Jump | 4.94 | 4.98 |
| Relative distance (%) | Hop | 34.60 | 34.70 |
| | Step | 29.30 | 28.80 |
| | Jump | 36.10 | 36.50 |
| Horizontal velocity (ms ⁻¹) | Hop | 7.88 | 7.93 |
| | Step | 7.35 | 7.06 |
| | Jump | 5.89 | 6.00 |
| Loss of horizontal velocity (ms ⁻¹) | Hop | -0.47 | -0.48 |
| | Step | -0.53 | -0.87 |
| | Jump | -1.46 | -1.06 |
| Vertical velocity (ms ⁻¹) | Hop | 2.54 | 2.33 |
| | Step | 1.86 | 1.88 |
| | Jump | 2.64 | 2.70 |
| Duration of the support phase (s) | Hop | 0.11 | 0.12 |
| | Step | 0.15 | 0.15 |
| | Jump | 0.16 | 0.17 |
| Duration of the flight phase (s) | Hop | 0.48 | 0.48 |
| | Step | 0.39 | 0.39 |
| | Jump | 0.65 | 0.66 |
| Angle off take-off (°) | Hop | 19.20 | 17.40 |
| | Step | 14.90 | 15.70 |
| | Jump | 27.50 | 27.70 |
| Maximal height of the C.C (m) | Hop | 1.06 | 1.07 |
| | Step | 1.06 | 1.08 |
| | Jump | 1.15 | 1.15 |
| Minimal height of the C.C (m) | Hop | 0.90 | 0.89 |
| | Step | 0.90 | 0.91 |
| | Jump | 0.91 | 0.90 |

Legend: Parameters – Parametri; Phase – Faze; Attempt A – Pokušaj A; Attempt B – Pokušaj B; Result (m) – Rezultat (m); Effective distance (m) – Efektivna distanca (m); Run – Up Velocity (ms⁻¹) – Brina zaleta (ms⁻¹); Run – Up Stride length (m) – Dužina koraka u zaletu (m); Stride length (m) – Dužina koraka (m); Relative distance (%) – Relativna distanca (%); Horizontal velocity (ms⁻¹) – Horizontalna brzina (ms⁻¹); Loss of horizontal velocity (ms⁻¹) – Gubitak horizontalne brzina (ms⁻¹); Vertical velocity (ms⁻¹) – Vertikalna brzina (ms⁻¹); Duration of the support phase (s) – Trajanje faze oslonca na podlogu (s); Duration of the flight phase (s) – Trajanje faze leta (s); Angle off take-off (°) – Ugao odraza (°); Maximal height of the C.C (m) – Maksimalna visina C.C (m); Minimal height of the C.C (m) – Minimalna visina C.C (m); Hop – Poskok; Step – Korak; Jump – Skok.

athletes at the 2005 World Championships in Helsinki amounted to 36.2% : 29.4% : 34.5%. »Hop Dominated« technique is most often in both male and female triple jumpers. The characteristic of representatives of »Hop Dominated« technique is large horizontal velocity, which is developed in the run-up and the first take-off action. The characteristic of measured subject M. Š. is to have larger potential in elastic strength than in speed, the former being utilised mostly in the second and third phases of the triple jump. Partial distances of phases and their proportions are influenced by the morphological characteristics, bio-motor abilities, coordination, visual perception and the ability to control a movement in the athlete (Latash, 1994; McGinnis, 1999; Schmidh & Lee, 1999; Winter, 1990). Therefore, optimal proportions between partial phase distances extremely depend on individuals (Hay, 1992).

In the measured subject, partial phase distances were in strong correlation with the duration of support and flight phases. In the attempt A, the duration of the support part in the *hop* phase was 0.11 second, in the *step* phase 0.15 second and in the *jump* phase 0.16 second. Support times increased with the reduction of horizontal velocity of BCM (Figure 4). The athlete M. Š. slightly deviates from the model of support times of other elite female triple jumpers (Kyrolainen et al., 2009) in the last take-off and flight phase of the *jump* phase. The last phase (*jump*) is in its kinematical structure more similar to the long jump. Partial contribution of the *jump* phase to the final result amounted to high 36.1%. In the last phase a high value of take-off angle (27.70) has also been noticed. Kinematical parameters of the attempt

u Helsinkiju iznosila 36,2% : 29,4% : 34,5%. »Hop-Dominated« tehnika je najčešća među troskokašima i troskokašicama. Karakteristike predstavnika »Hop-Dominated« tehnike jeste velika horizontalna brzina koja se razvija u fazama zaleta i prvog odraza. Karakteristika ispitanika M. Š. jeste da ima veći potencijal u elastičnoj snazi nego u brzini, koja se prije koristila uglavnom u drugoj i trećoj fazi troskoka. Na pojedinačne dužine faza i njihov odnos utiču morfološke karakteristike, bio-motoričke sposobnosti, koordinacija, vizuelna percepcija i sposobnost sportiste da kontroliše pokrete (Latash, 1994; McGinnis, 1999; Schmidh i Lee, 1999; Winter, 1990). Iz tog razloga optimalan odnos dužina pojedinačnih faza posebno zavisi od pojedinca (Hay, 1992).

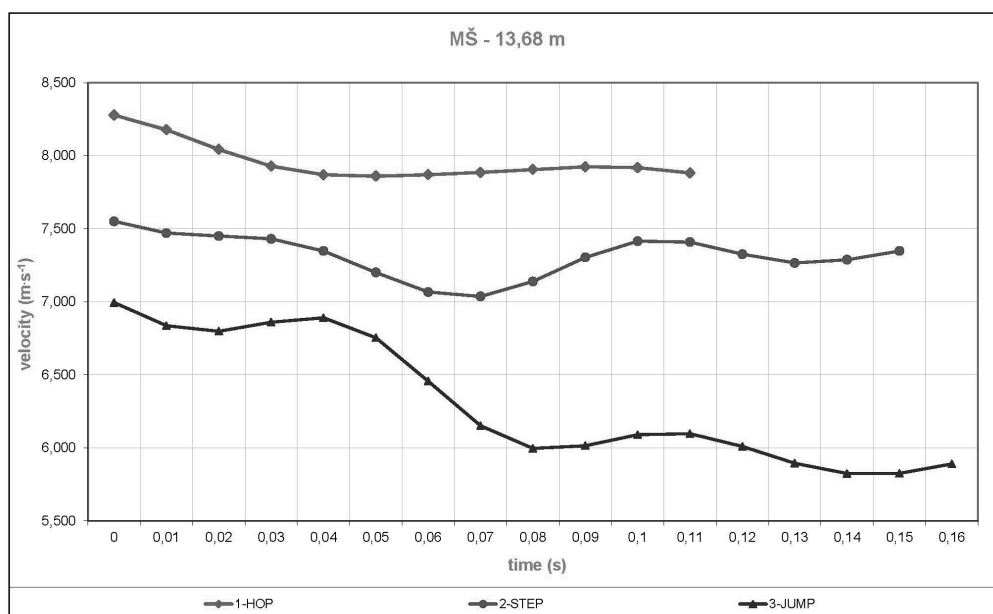
Kod posmatranog ispitanika dužine pojedinačnih faza su u velikoj korelaciji sa trajanjem faze oslonca na podlogu i fazom leta. U pokušaju A, trajanje oslonca na podlogu u fazi *poskoka* bilo je 0,11 sekundi, u fazi *koraka* 0,15 sekundi i u fazi *skoaka* 0,16 sekundi. Vrijeme oslonca povećavalo se sa smanjenjem horizontalne brzine težišta tijela (Slika 4). Atletičarka M. Š. pomalo se razlikuje od ostalih vrhunskih troskokašica po vremenu trajanja oslonca na podlogu (Kyrolainen i sardnici, 2009) u posljednjim fazama odraza i leta kod *skoaka* faze. Posljednja faza (*skoaka*) je po svojoj kinematičkoj strukturi sličnija skoku u dalj. Pojedinačni doprinos *skoaka* faze konačnom rezultatu u troskoku dostiže visokih 36,1%. U posljednjoj fazi takođe je primjećena visoka vrijednost odraznog ugla (27,70).

FIGURE 4

Horizontal velocity of BCM and the duration of support phases – M. Š: 13.68 m

SLIKA 4

Horizontalna brzina BCM i trajanje faze oslonca na podlogu – M. Š: 13,68 m



B were almost identical in the duration of support and flight phases as well as in take-off angles of the take-off action (*hop*, *step*, and *jump*). The value of take-off angle in the last (*jump*) phase differentiated significantly from some of the previous studies (Kyrolainen et al., 2009; Mendoza & Nixdorf, 2010; Panoutsakopoulos & Kollias, 2008). Large take-off angle also resulted in the high flight trajectory of the BCM and was manifested in duration of the last flight phase in the *jump* (0.65 – 0.66 s).

Undoubtedly, the horizontal velocity in individual take-off phases is a crucial generator of competition success in this track and field discipline. The smaller decrease of horizontal velocity, the better is final result. The measured subject has achieved the highest horizontal velocity in her last stride (L1) in both the attempt A (8.35 ms⁻¹) and the attempt B (8.41 ms⁻¹). Decrease of horizontal velocity at the end of take-off action in *hop* amounted to -0.47 ms⁻¹ or 5.6 % in attempt A and -0.48 ms⁻¹ or 5.7 % in attempt B. In the take-off action of the *step* phase the horizontal velocity decreased by 7.3 % in attempt A, whereas in attempt B it decreased by 10.9%. In the *jump* phase the decrease of horizontal velocity in comparison to the previous take-off action amounted to 19.8 % in attempt A and 15.0 % in attempt B. The difference in horizontal velocity of the BCM was noticeable only in the take-off action of *step* phase, which has been manifested in slightly shorter partial distance of this phase in attempt B

The reduction of horizontal velocity is a result of ensuring the optimal vector of vertical velocity. Vertical velocity is the highest in the first (*hop*) and last (*jump*) phases of both analysed attempts. The lowest vertical velocity has been recorded in the *step* phase (A = 1.86 ms⁻¹, B = 1.88 ms⁻¹). The basic strategy of the measured subject is to preserve as high horizontal velocity as possible whilst ensuring the optimal vertical velocity (Figure 5). The magnitude of vertical velocity is correlated with the take-off angle, which was also the highest in the first and third phases of the triple jump. The study by Kyrolainen et al. (2009) showed the following average values of take-off angles of the finalists at the IAAF World Championships in Athletics, Helsinki 2005: *hop* = 15.50; *step* = 11.40 and *jump* = 21.40. In comparison, significantly higher values of these angles were noticed for the measured subject in the present study. The motor pattern of the triple jump of the measured subject to larger extent emphasised the height of individual phases, which was related to the lower horizontal velocity of the subject. Lower flight trajectories are usually characteristic of female and male jumpers with higher basic speed (Hay, 1992; Kreyer, 1993; Panoutsakopoulos & Kollias, 2008).

From the biomechanical point of view of the triple jump, the motor pattern of individual take-off actions differentiated significantly in the duration of support,

Kinematički parametri u pokušaju B bili su gotovo identični u trajanju faza oslonca na podlogu i leta, kao i po pitanju odraznih uglova (*poskoke*, *korak* i *skoke*). Vrijednost odraznih uglova u posljednjoj (*skoke*) fazi značajno se razlikovala od onih u prethodnim studijama (Kyrolainen i saradnici, 2009; Mendoza i Nixdorf, 2010; Panoutsakopoulos i Kollias, 2008). Veliki odrazni ugao rezultirao je velikom trajektorijom težišta tijela što se pokazalo u trajanju posljednje faze leta kod *skoke* (0,65 – 0,66 s).

Nesumnjivo, horizontalna brzina u pojedinim fazama odraza je ključni generator uspjeha u ovoj atletskoj disciplini. Što je manji pad horizontalne brzine, bolji je konačan rezultat. Ispitanik je ostvario najveću horizontalnu brzinu u posljednjem koraku (L1) u oba pokušaja, A (8,35 ms⁻¹) i B (8,41 ms⁻¹). Smanjenje horizontalne brzine na kraju akcije odraza u *poskoku* iznosilo je do -0.47 ms⁻¹ ili 5,6% u pokušaju A, i -0.48 ms⁻¹ ili 5,7% u pokušaju B. U akciji odraza *korak* faze horizontalna brzina smanjila se za 7,3% u pokušaju A, dok se u pokušaju B smanjila za 10,9%. U *skoke* fazi smanjenje horizontalne brzine u odnosu na prethodnu akciju odraza dostiglo je 19,8% u pokušaju A, i 15,0% u pokušaju B. Razlika u horizontalnoj brzini težišta tijela mogla se primjetiti samo u akciji odraza *korak* faze, koja se manifestovala u nešto kraćoj pojedinačnoj distanci ove faze u pokušaju B.

Smanjenje horizontalne brzine je rezultat obezbjeđivanja optimalnog vektora vertikalne brzine. Vertikalna brzina je najveća u prvoj (*poskoke*) i posljednjoj (*skoke*) fazi oba analizirana pokušaja. Najmanja vertikalna brzina je zabilježena u *korak* fazi (A = 1,86 ms⁻¹, B = 1,88 ms⁻¹). Osnovna strategija ispitanika je da se sačuva što je moguće veća horizontalna dok se ostvaruje optimalna vertikalna brzina (Slika 5). Vrijednost vertikalne brzine je u korelaciji sa odraznim uglom, koji je takođe bio najveći u prvoj i trećoj fazi troskoka. Studija Kyrolainen i saradnici (2009) je pokazala sljedeće prosječne vrijednosti odraznih uglova finalista na Svjetskom prvenstvu u atletici, Helsinki 2005: *poskoke* = 15,50, *korak* = 11,40 i *skoke* = 21,40. U poređenju, značajno veće vrijednosti ovih uglova primjećene su kod ispitanika u ovom radu. Motorički stereotip troskoka ispitanika je .u većoj mjeri naglasio visinu pojedinačnih faza, koja se odnosila na manju horizontalnu brzinu ispitanika. Niže putanje leta su obično karakteristika ženskih i muških troskokaša sa većom osnovnom brzinom (Hay, 1992; Kreyer, 1993; Panoutsakopoulos i Kollias, 2008).

Sa biomehaničke tačke gledišta troskoka, motorički obrazac individualne akcije odraza značajno se razlikovao u trajanju oslonca na podlogu, horizontal-

horizontal velocity, take-off angle and vertical amplitude of the BCM movement. However, beside kinematical parameters, neuromuscular mechanisms of development of the reaction force of surface are even more important for the efficiency of take-off actions (Kyrolainen et al., 2009).

Take-off actions in the triple jump are the most typical motor situations, when the release of reaction force of the surface combined with eccentric and con-

ne brzine, odraznog ugla i vertikalne amplitude kretanja težišta tijela. Međutim, pored kinematičkih parametara, neuromišićni mehanizmi razvoja reakcione sile podloge su još važniji za efikasnost akcije odraza (Kyrolainen i saradnici, 2009).

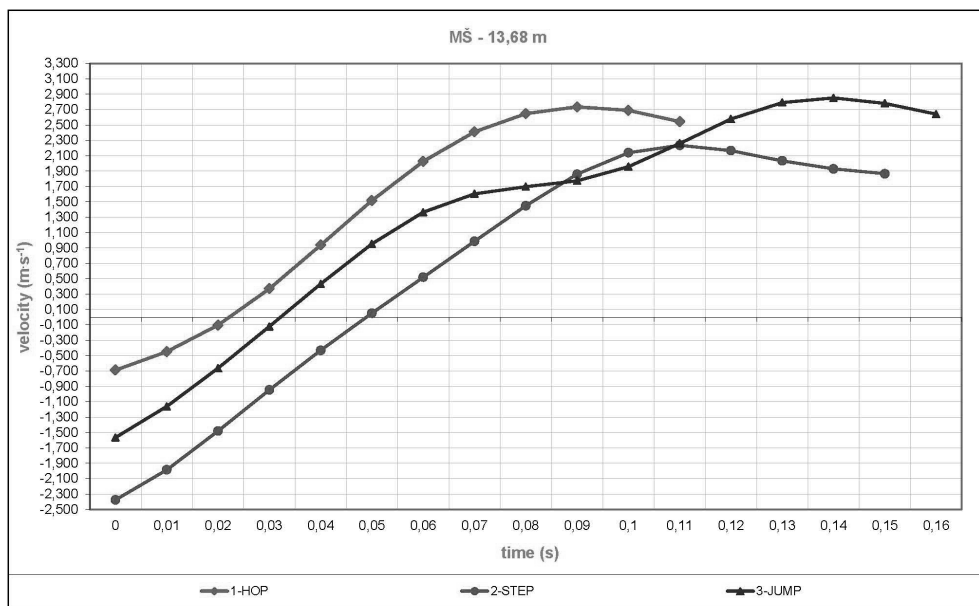
Akcije odraza u troskoku su najtipičnije motoričke radnje, kada se zahtijeva oslobađanje reakcione sile podloge u kombinaciji sa ekscentričnim i koncentričnim mišićnim kontrakcijama (Gollhofer i Kyrolai-

FIGURE 5

Vertical velocity of BCM and the duration of support phases- M. Š: 13.68 m

SLIKA 5

Vertikalna brzina BCM i trajanje faze oslonca na podlogu - M. Š: 13,68 m



centric muscular contractions is required (Gollhofer & Kyrolainen, 1991; Komi 2000; Kyrolainen et al., 2009). From the point of view of motor strategies and motor structure, the take-off actions differentiate both in the duration as well as in kinematical and dynamic parameters. According to the duration of support part, the shortest take-off time was noticed in the take-off of the first - *hop* - phase (0.12 s) and the longest was the take-off in the last - *jump* - phase (0.18 s). Eccentric-concentric cycle in the take-off action is a result of muscle-lengthening due to external force and muscle-shortening in the second phase (SSC: stretch – shortening cycle) (Komi, 2000; Komi & Gollhofer, 1997; Nicol, Avela, & Komi, 2006). In eccentric phase a certain amount of elastic energy is stored in the muscular-tendon complex, which can be then used in the second phase. A part of elastic energy, which has been accumulated in a muscle, is available only for certain time. This time is being defined with the lifespan of muscle cross bridges and lasts between 30 to 140 milliseconds. (Cavagna, 1977; Enoka, 2003). From the

nen, 1991; Komi 2000; Kyrolainen i saradnici, 2009). Sa tačke gledišta motoričkih strategija i struktura, akcija odraza razlikuje se, kako u trajanju, tako i u kinematičkim i dinamičkim parametrima. Prema trajanju oslonca na podlogu, najkraće vrijeme odraza primjećeno je kod odraza u prvoj – *poskok* – fazi (0,12 s) a najduže kod odraza u posljednjoj – *skoak* – fazi (0,18 s). Ekscentrično – koncentrični ciklus u akciji odraza rezultat je istežanja mišića pod uticajem spoljašnje sile i skraćanja mišića u drugoj fazi (SSC: stretch – shortening cycle), (Komi, 2000; Komi i Gollhofer, 1997; Nicol, Avela i Komi, 2006). U ekscentričnoj fazi određena količina elastične energije skladišti se u mišićno-tetivnom kompleksu i kasnije se može koristiti u drugoj fazi. Dio elastične energije akumulirane u mišiću dostupan je samo određeno vrijeme. Ovo vrijeme određeno je trajanjem, ili bolje rečeno postojanjem vezivnih mostića u mišićima, i traje između 30 i 140 milisekundi (Cavagna, 1977; Enoka, 2003). Sa gledišta oslobađanja sile veoma je važno da mišić u

aspect of force production it is important that the muscle in eccentric contraction develops as high force as possible and consumes less chemical energy than in concentric contraction (Enoka, 1998; Enoka, 2003; Komi & Gollhofer, 1997). The time of switch also influences the efficiency of eccentric-concentric contraction. The longer the switch between two types of contraction, the less efficient the contraction is. The duration of transformation from eccentric to concentric contraction is in correlation with the amortisation angle in the knee of the take-off leg (Figure 6). Small oscillation of the BCM in the vertical axis can be noticed in the measured subject, pointing to the small amplitude of angle in the knee with the maximal amortisation in the take-off action. Variation of the BCM height in the first two phases is 16 cm, whereas the

ekscentričnoj kontrakciji razvije što je moguće veću silu i koristi manje hemijske energije nego u koncentričnoj kontrakciji (Enoka, 1998; Enoka, 2003; Komi i Gollhofer, 1997).

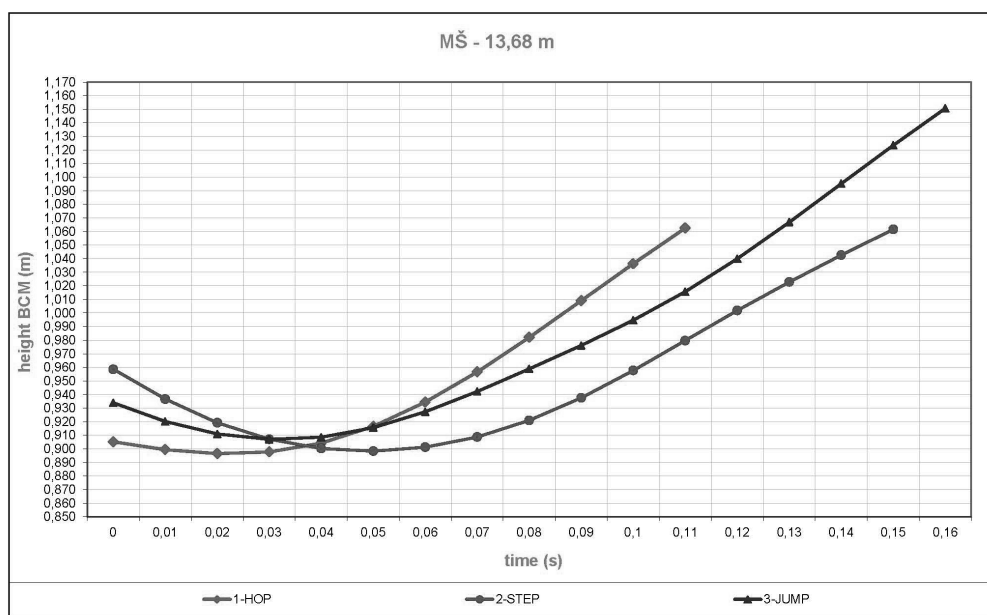
Vrijeme tog prebacivanja (zamjene) takođe utiče na efikasnost ekscentrično-koncentrične kontrakcije. Što duže traje prebacivanje između dvije vrste kontrakcije, kontrakcija je manje efikasna. Trajanje transformacije iz ekscentričnih na koncentrične kontrakcije je u korelaciji sa amortizacionim uglom u koljenu odrazne noge (Slika 6). Kod ispitanika se mogu primjetiti male oscilacije težišta tijela u vertikalnoj osi, ukazujući na malu amplitudu ugla u koljenu sa maksimalnom amortizacijom u akciji odraza. Varijacija visine težišta tijela u prve dvije faze je 16 cm, a razlika

FIGURE 6

The height of body centre of mass (BCM) and duration of support phases - M. Š: 13.68 m

SLIKA 6

Vina centra tjelesne mase (BCM) i trajanje faze oslonca na podlogu - M. Š: 13,68 m



difference between the highest and the lowest point of the BCM in the *jump* take-off is 24 cm in vertical axis. Beside the magnitude and the speed of change of the muscle length and the duration of switch, pre-activation is also very important for the efficiency of eccentric-concentric contraction (Enoka, 2003; Gollhofer & Kyrolainen, 1991; Komi, 2000). Pre-activation defines the first contact of the foot with the surface. The measured subject M. Š. placed her foot extremely actively in the direction down and backwards. Pre-activation suitably prepares the muscles for extension and is being manifested in the number of joined muscle cross bridges and the change of excitation of α -motor neurons (Enoka, 2003). Both factors influence the larger short

između najviše i najniže tačke težišta tijela u odrazu za *skoak* je 24 cm u vertikalnoj osi. Pored veličine i brzine promjene dužine mišića i trajanja zamjene, pre-aktivacija je takođe veoma važna za efikasnost ekscentrično-koncentrične kontrakcije (Enoka, 2003; Gollhofer i Kyrolainen, 1991; Komi, 2000). Pre-aktivacija definiše prvi kontakt stopala sa površinom. Ispitanica M. Š. stavlja nogu izuzetno aktivno u pravcu dolje i unazad. Odgovarajuća pre-aktivacija priprema mišiće za ekstenziju i manifestuje se u broju združenih mišićnih mostića i promjeni ekscitacija α -motornih neurona (Enoka, 2003). Oba faktora utiču na veću kratkotrajnu krutost. Ako je kratkotrajna krutost veća, produženje ligamenata i tetiva je iz-

range stiffness. If the short range stiffness is larger, the lengthening of ligaments and tendons is more pronounced, resulting in smaller consumption of chemical energy in the muscle (Cavagna, 1977; Enoka, 2003; Komi, 2000; Komi & Gollhofer, 1997). Smaller consumption of chemical energy is particularly important in those motor situations, where a particular movement has to be carried out with large speed and the triple jump is one of the most typical examples of such movement.

CONCLUSION

The result in the triple jump, which is a complex track and field discipline, depends on combination of speed, strength, technique, visual and kinaesthetic movement control. Optimal integration of cyclic and acyclic movements ensures maximal efficiency of motor pattern. However, the motor pattern is not always consistent. Some technical elements of the model are consistent, whereas the others vary. With the use of 3-D biomechanical analysis of two triple jump attempts, the following conclusions can be made:

- the run-up velocity in the last five metres (6 – 1 m) varied significantly,
- the distance and proportion of the last two run-up strides varied and the visual control of the athlete was not optimal,
- kinematical structure of the run-up revealed a tendency of longer last stride and shorter second to last stride,
- the speed of the last two strides (L2 + L1) was different,
- athlete achieved the highest total run-up speed in the last stride,
- partial distances of triple jump phases (hop-step-jump) were relatively stable with the distance of *step* varying the most,
- in both attempts athlete used a strategy of preserving the horizontal velocity with emphasised distance of the last phase,
- good connection of individual phases was a result of optimal kinaesthetic control and dynamic balance,
- the model of duration of support and flight parts in hop, step and jump phases indicated the tendency of high stability,
- horizontal velocity varied in individual take-off actions with the largest difference noticed in step phase,
- particular reduction of horizontal velocity in take-off action of *jump* phase was a result of emphasised increase of vertical velocity, which ensured optimal height of the flight trajectory in the last phase.

raženije, što rezultira manjom potrošnjom hemijske energije u mišićima (Cavagna, 1977; Enoka, 2003; Komi, 2000; Komi i Gollhofer, 1997). Manja potrošnja hemijske energije je posebno važna u onim motoričkim situacijama gdje se određeni pokret mora izvesti velikom brzinom, a troskok je jedan od najtipičnijih primjera takvih pokreta.

ZAKLJUČAK

Rezultat u troskoku, koji predstavlja složenu atletsku disciplinu, zavisi od kombinacije brzine, snage, tehnike, vizuelne i kinestetičke kontrole kretanja. Optimalna integracija cikličnih i acikličnih pokreta obezbjeđuje maksimalnu efikasnost motornog stereotipa. Međutim, motorni stereotip nije uvijek stabilan. Neki tehnički elementi modela su stabilni, dok drugi variraju. Uz korišćenje 3-D biomehaničke analize dva pokušaja troskoka, mogu biti izvedeni sljedeći zaključci:

- brzina zaleta u posljednjih pet metara (6-1 m) značajno varira,
- udaljenost i odnos posljednja dva koraka zaleta variraju, i vizuelna kontrola sportiste nije bila optimalna,
- kinematička struktura zaleta otkrila je tendenciju dužeg posljednjeg i kraćeg pretposljednog koraka,
- brzina posljednja dva koraka (L2 + L1) je različita,
- sportista je postigao najveću ukupnu brzinu zaleta u posljednjem koraku,
- parcijalne distance troskok faza (poskok-korak-skok) su relativno stabilne sa najvećim variranjem kod *koraka*,
- u oba pokušaja sportista koristi strategiju očuvanja horizontalne brzine uz naglašenu udaljenost posljednje faze,
- dobra veza pojedinih faza je rezultat optimalne kinestetičke kontrole i dinamičke ravnoteže,
- model trajanja oslonca i leta u fazama poskoka, koraka i skoka ukazuju na tendenciju visoke stabilnosti,
- horizontalna brzina varira u pojedinačnim odraznim akcijama sa najvećom razlikom primjerenom u fazi koraka,
- određeno smanjenje horizontalne brzine u akciji odraza *skok* faze je rezultat naglašenog povećanja vertikalne brzine, koja obezbjeđuje optimalnu visinu trajektorije leta u posljednjoj fazi.

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Correspondence to:

Prof. Milan Čoh, PhD

Fakulteta za šport

Gortanova 22

10000 Ljubljana

Slovenia

E-mail: Milan.Coh@fsp.uni-lj.si

Phone: 00386 41 72 93 56

Korespondencija:

Prof. dr Milan Čoh

Fakulteta za šport

Gortanova 22

10000 Ljubljana

Slovenija

E-mail: Milan.Coh@fsp.uni-lj.si

Telefon: 00386 41 72 93 56

VARIABILNOST BIOMEHANSKIH PARAMETROV PRI TEHNIKI TROSKOKA

Milan Čoh¹ in Otmar Kugovnik¹

¹Fakulteta za šport, Univerza v Ljubljani, Slovenija

Troskok je z biomehanskega vidika ena od najkompleksnejših atletskih disciplin, ki je strukturiran iz faze zaleta in treh povezanih skokov. Rezultat je definiran predvsem z hitrostjo zaleta in optimalnim razmerje posameznih dolžin skokov (Hay, 1992; Hay & Miller, 1985; Grahman-Smith & Lees, 1994; Miladinov & Bonov, 2004). Vsaka od strukturnih enot predstavlja specifično motorično nalogo s določenimi karakteristikami in nalogami, ki jih mora skakalec ali skakalka realizirati za uspešno izvedbo troskoka. Glede na nekatere dosedanje študije (Conrad & Ritzdorf, 1990; Grahman-Smith & Lees, 1994; Hay, 1999; Jurgens, 1998; Panoutsakopoulos & Kollias, 2008) je ohranjanje optimalne horizontalne hitrosti v fazi skoka (hop), koraka (step) in doskoka (jump) ključni dejavnik maksimalne dolžine troskoka. Kritična točka je prehod iz faze skoka (hop) v fazo koraka (step). Z vidika strukture gibalnega vzorca gre za povezavo cikličnega in acikličnega gibanja. Učinkovita transformacija zaletne hitrosti v odziv (hop) je povezana z pravilnim ritmom ter vizualno in kinestetično kontrolo (Hay, 1999; Kyrolainen in sod., 2007; Yu & Hay, 1996). Prvi skok (hop) je najdaljši in predstavlja 36% do 39% celotne dolžine vseh treh skokov (Grahman-Smith & Lees, 1994; Kyrolainen in sod., 2007; Panoutsakopoulos & Kollias, 2008). Učinkovita izvedba prvega koraka je tako ključni element izvedbe ostalih dveh skokov in s tem celotnega troskoka. Razmerje dolžin korakov je odvisno od različnih gibalnih strategij skakalcev in skakalk. Obstajajo tri tehnike troskoka: »Hop dominated«, »Hop Jump« in »Balanced technique«.

Končni rezultat v troskoku je produkt različnih variant tehnik in drugih dejavnikov ter njihovih medsebojnih povezav. Bernsteinova teorija (Latash, 1994) definira športno tehniko kot upravljan proces s kompenzacijskimi in samoregulativnimi značilnostmi. Atlet ne more kontrolirati vseh faz procesa gibanja, čeprav gre za visoko standardiziran in avtomatiziran gibalni vzorec (Schmidth & Lee, 1999). Da bi bil gibalni vzorec racionalen in pravilen, morajo biti njegovi posamezni elementi koordinirani tako, da eni potekajo po načelu hkratnosti, drugi pa po načelu zaporednosti. Cilj naše študije je prav ta, da ugotovimo spremenljivost parametrov tehnike troskoka pri atletinji najvišje mednarodne kvalitete. V analizi smo

upoštevali dva najboljša skoka (poizkus A, poizkus B). Pri prvem poizkusu je tekmovalka dosegla uradno dolžino 13.68 m, pri tem je bila efektivna dolžina 13.85 m (toe-to-board distances = 0.17 m). Pri drugem poizkusu je bila uradna dolžina 13.63 m in efektivna dolžina 13.66 m (toe-to-board distances = 0.03 m). Razlika v efektivni dolžini med obema poizkusoma je tako 0.19 m.

Preiskovanka je bila ena od najboljših skakalk troskoka na svetu M.Š. (starost 28 let, višina 172 cm, masa 66.5 kg, osebni rekord v troskoku 15.03 m, 6. mesto na Olimpijskih igrah v Pekingu). Izvedla je 6 skokov, v analizi smo upoštevali dva najboljša poizkusa. Meritve smo izvedli v fazi neposrednih priprav tekmovalke za Olimpijske igre v Pekingu leta 2008. Za ugotavljanje dolžine korakov, kontaktnih in letnih časov v fazi zaleta in v fazi izvedbe posameznih skokov (hop-step-jump) smo uporabili tehnologijo OPTO-TRACK italijanskega proizvajalca Microgate. Kinematično analizo smo izvedli na osnovi snemanja s štirimi sinhroniziranimi video kamerami (SONY DVCAM DSR-300 PK). Koordinate točk telesa smo pogladili z digitalnim Buterworthovim filtrom stopnje 7. Pri statistični obdelavi podatkov smo uporabili SPSS programski paket.

Optimalna hitrost in pravilno strukturiran zalet v zadnjih treh korakih sta predpogoja za dober rezultat v troskoku. Ugotovimo lahko, da preiskovanka razvije identično hitrost ($6.94 \text{ m}\cdot\text{s}^{-1}$) v coni od 11 – 6 m pred odzivno desko pri obeh analiziranih skokih. V coni od 6 – 1 m se ta hitrost bistveno razlikuje. Pri poizkusu B je atletinja razvila $0.57 \text{ m}\cdot\text{s}^{-1}$ večjo hitrost kot pri poizkusu A. Tudi struktura zaleta v zadnjih dveh korakih (1L in 2L) se bistveno razlikuje tako po dolžini korakov kot po hitrosti. V obeh primerih je predzadnji korak nekoliko daljši od zadnjega. Glede na absolutno in relativno dolžino posameznih faz je preiskovanka tipična predstavnik »Jump Dominant« tehnike z izrazito poudarjenim zadnjim skokom. Razmerje parcialnih dolžin skokov (HOP-STEP-JUMP) se med obema poizkusoma bistveno ne razlikuje. Pri poizkusu A je dolžina prvega skoka (HOP) 4.73m (34.6%), drugega (STEP) 4.01 m (29.3%) in tretjega (JUMP) 4.94 m (36.1%). Gibalna strategija je v tej fazi očitno pri tekmovalki zelo stabilna. Kyrolainen in sod. (2009) so ugotovili da je bilo

parcialno razmerje posameznih faz skakalk na Svetovnem atletskem prvenstvu v Helsinkih 36.2 % : 29.4 % : 34.5 %. Tako med atleti kot atletinjami prevladuje tip »Hop Dominante« tehnika. Značilnost predstavnikov te tehnike je velika horizontalna hitrost, ki jo razvijajo v zaletu in v prvi odzivni akciji. Za preiskovanko M.Š. je karakteristično, da ima večji potencial v elastični moči kot hitrosti, ki ga utilizira predvsem v drugem in tretjem skoku. Na parcialne dolžine korakov in njihovo razmerje vplivajo morfološke značilnosti, biomotorične sposobnosti, koordinacija, vizualna percepcija in sposobnost kontrole gibanja atleta (Latash, 1994; McGinnis, 1999; Winter, 1990).

Pri atletinji so z parcialnimi dolžinami korakov močno povezani časi kontaktnih in letnih faz. Trajanje kontaktne faze pri poizkusu A znaša pri prvem skoku (HOP) 0.11 sekunde, pri drugem skoku (STEP) 0.15 sekunde in pri tretjem skoku (JUMP) 0.16 sekunde. Kontaktni časi se podaljšujejo z redukcijo horizontalne hitrosti BCM. Atletinja M.Š. nekoliko odstopa od modela kontaktnih časov vrhunskih skakalk troskoka (Kyrolainen in sod., 2009) v zadnjem odzivu in v letni fazi zadnjega skoka (JUMP). Zadnji skok je po kinematični strukturi podoben skoku v daljino. Parcialni prispevek JUMP-a k končnemu rezultatu je kar 36.1 %. Pri zadnjem skoku lahko ugotovimo tudi visoko vrednost odzivnega kota (take-off angle), ki znaša 27.70. Kinematični parametri poizkusa B so skoraj identični tako v trajanju kontaktnih kot letnih časov in odzivnih kotov (take-off angle) v odzivni akciji (HOP, STEP in JUMP). Vrednosti odzivnega kota zadnjega skoka (JUMP) bistveno odstopajo od nekaterih dosedanjih študij (Kyrolainen in

sod., 2009; Mendoza in sod., 2010; Panoutsakopoulos & Kollias, 2008). Velik odzivni kot ima za posledico tudi visoko parabolo leta BCM, kar se manifestira v trajanju letne faze zadnjega koraka (0.65 - 0.66 s).

Nedvomno je horizontalna hitrost v posameznih odzivnih fazah ključni generator tekmovalne uspešnosti v tej atletski disciplini. Čim manjša je redukcija horizontalne hitrosti tem boljši je končni rezultat. Največjo horizontalno hitrost je dosegla tekmovalka v zadnjem koraku (L1), tako pri poizkusu A ($8.35 \text{ m}\cdot\text{s}^{-1}$) kot pri poizkusu B ($8.41 \text{ m}\cdot\text{s}^{-1}$). Redukcija horizontalne hitrosti na koncu odzivne akcije v fazi HOP znaša pri poizkusu A $-0.47 \text{ m}\cdot\text{s}^{-1}$, oziroma 5.6%. in pri poizkusu B $-0.48 \text{ m}\cdot\text{s}^{-1}$, oziroma 5.7%. Pri poizkusu A se je v odzivni akciji drugega skoka (STEP) zmanjša horizontalna hitrost za 7.3%, pri poizkusu B pa za 10.9%. V zadnjem skoku (JUMP) je redukcija horizontalne hitrosti glede na predhodno odzivno akcijo 19.8%, pri poizkusu B pa 15.0%. Razlika v horizontalni hitrosti BCM je pristna le v odzivni akciji STEP-a, kar se manifestira tudi v nekoliko krajši parcialni dolžini drugega koraka pri poizkusu B. Z aspekta biomehanike troskoka se gibalni vzorec posameznih odzivnih akcij bistveno razlikuje tako v trajanju kontaktnih časov, kot horizontalni hitrosti, odzivnem kotu kot po vertikalni amplitudi gibanja BCM. Vendar za učinkovitost odzivnih akcij niso relevantni samo kinematični parametri, še pomembnejši so neuro-mišični mehanizmi razvoja sile reakcije podlage.

Ključne besede: troskok, biomehanika, kinematika, tehnika.

SPORT I ZDRAVLJE U REPUBLICI SLOVENIJI U 2009. GODINI

SPORT AND HEALTH IN THE REPUBLIC OF SLOVENIA IN 2009

Ivan Čuk¹, Maja Bučar Pajek¹, Jernej Pajek², and Mojca Peček³

¹Fakultet sporta, Univerzitet Ljubljana, Slovenija
Faculty of Sport, University of Ljubljana, Slovenia
²Medicinski fakultet, Univerzitet Ljubljana, Slovenija
Medicine Faculty, University of Ljubljana, Slovenia
³Pedagoški fakultet, Univerzitet Ljubljana, Slovenija
Faculty of Education, University of Ljubljana, Slovenia

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SUMMARY

Sport and health are often discussed as being related to each other. The Slovenian Olympic Committee, Department of Sport for All, wanted to determine whether the proportion of population engaged in organised sport activities in the region is correlated to the level of sickness in different disease categories. Municipal authorities provided the information on the number of sport clubs and the number of members they included in 2009. The Statistical Yearbook 2009 by the Statistical Office of the Republic of Slovenia supplied the social and demographic information on municipalities in 2009. The Agency for Public Finances offered data on the financing of sports programs in municipalities in Slovenia for 2009. The Institute of Public Health (Health Statistics Yearbook 2009) provided a summary of treatments for some diseases at the primary level as per diagnosis in accordance with the international ICD-10 classification. Results show that organized sports indeed decrease the level of some health conditions (such as respiratory). The proportion of public funds per member in sport societies is correlated with occurrences of digestive diseases, symptoms and abnormal clinical and laboratory findings not elsewhere classified. Higher wages for employees in such clubs also impact on occurrences of respiratory disease, musculoskeletal diseases, gastrointestinal diseases and injury- and poisoning-related problems due to external causes. These results support the view that sports clubs act as a natural pharmacy. Increased funding for sports clubs would probably lead to an improvement in national health and save resources now spent on treatments.

Key words: sport clubs, finances, diagnosis.

SAŽETAK

Sport i zdravlje se često smatraju povezanim. Olimpijski komitet Slovenije, Odeljenje Sport za sve, željelo je da utvrdi da li je broj ljudi uključenih u organizovane sportske aktivnosti u regionu u korelaciji sa stepenom pojave različitih oblika bolesti. Opštinske vlasti obezbijedile su informacije o broju klubova i broju njihovih članova u 2009. godini. Statistički godišnjak iz 2009. godine Statističkog zavoda Republike Slovenije obezbijedio je demografske informacije u opštinama za 2009. godinu. Agencija za finansije dostavila je podatke o finansiranju sporta u opštinama Slovenije u 2009. godini. Institut za javno zdravstvo (Zdravstveni statistički godišnjak 2009) dao je pregled tretmana određenih bolesti u početnoj fazi koje su dijagnostifikovane u skladu sa međunarodnom MKB-10 klasifikacijom. Rezultati su pokazali da organizovani sport zaista smanjuje nivo određenih zdravstvenih problema (kao npr. respiratornih). Odnos javnih sredstava po članu sportskog društva je u korelaciji sa pojavom digestivnih bolesti, simptoma i abnormalnih kliničkih i laboratorijskih nalaza koja nisu nigdje drugo klasifikovana. Veće plate zaposlenih u tim klubovima takođe utiču na pojavu respiratornih bolesti, bolesti koštano – mišićnog aparata, gastrointestinalnih bolesti, kao i povreda i trovanja pod uticajem spoljašnjih faktora. Ovi rezultati podupiru činjenicu da sportski klubovi nekada djeluju kao prirodne apoteke. Povećano ulaganje sredstava u sportske klubove vjerovatno bi dovelo do poboljšanja zdravlja cijele nacije i sačuvalo resurse koji se sada koriste za liječenje.

Ključne riječi: sportski klubovi, finansije, dijagnoza.

INTRODUCTION

Health by WHO definition WHO definition (World Health Organization, 1986) is »[...] a resource for everyday life, not the objective of living, health is a positive concept emphasizing social and personal resources, as well as physical capacities.« European Sports Charter (Concile of Europe, 1992) defines »sport« as means of all forms of physical activity which, through casual or organized participation, aims to express or improve physical fitness and mental well-being, forming social relationships or obtaining results in competition at all levels. From both definitions it is obvious that health and sports are correlated.

There is a long list of research studies which proved that sport activity has a positive effect on improvement in health conditions; we will refer to those which refer how physical activities improve health by general and specific diagnosis. Karacabey (2005) wrote that physical exercise has effects on general health and it plays a preventing role against various diseases; increases work efficiency all which would contribute positively to the national economy and the quality of life. Viru and Smirnova (1995) claim endurance exercise is the most important for health improvement. Gymnastic exercises are indispensable in regards to mechanical anti-sclerotic effects and the central nervous system. According to Tanaka (2009), swimming can improve cardiovascular health and according to Almeida et al. (2009) it also suppress tumour growth. Those women who are physical active have a lower risk of stroke claim Sattelmair, Kurth, Buring, and Lee (2010). With physical activity and proper diet we can improve the status of obese people and lower the risk of injuries (Finkelstein, Chen, Prabhu, Trogdon, & Corso, 2007; Gram, Cristensen, Christiansen, & Gram 2010; Miculis, Mascarenhas, Boguszewski, & de Campos, 2010; Snyder et al., 2010). Kano (1998), Nichols, Sanborn, and Essery (2007), and Roger and Hinton (2010) proved that physical activity facilitates better bone mineralization. Physical activity improves or is beneficial to those who suffer from depression ((Stammes & Spijker, 2009) or asthma (Juvonen et al., 2008; Weisberg et al., 2009), and it stimulates the gastrointestinal system (de Oliveira & Burini, 2009). As stated Vuori (2004), physical inactivity is a cause of and physical activity is a remedy for major public health problems.

On the other hand, it is also well-known that some sport activities (over-exercising) can also damage human health. Overload, injuries, collisions and even mortality are risk factors related to sport (Boughlat, Turmel, Levesque, & Boulet, 2009; Bučar Pajek & Pajek, 2009; Dowdel, 2011; Emery & Tyreman, 2009;

UVOD

Zdravlje, prema definiciji SZO (World Health Organization, 1986), predstavlja »resurs za svakodnevni život, a ne cilj života, zdravlje je pozitivan koncept koji naglašava socijalne i lične resurse, kao i fizičke sposobnosti.« Evropska sportska povelja (Concile of Europe, 1992) definiše »sport« kao sredstvo svih oblika fizičke aktivnosti koje kroz spontano ili organizovano učešće, imaju za cilj da izraze ili poboljšaju kondiciju i mentalno blagostanje ostvarivanjem društvene povezanosti, ili održanjem rezultata na svim nivoima takmičenja. Iz obje definicije može se zaključiti da su sport i zdravlje povezani.

Postoji dugačak spisak studija koje su dokazale da sportska aktivnost ima pozitivan efekat na poboljšanje zdravstvenog stanja; a mi ćemo se baviti onima koje ispituju kako fizičke aktivnosti poboljšavaju zdravlje na generalnom i specifičnom nivou. Karacabey (2005) je napisao da fizičko vježbanje utiče na zdravlje i ima značajnu preventivnu ulogu za nekoliko različitih bolesti; podiže radnu sposobnost, što bi trebalo imati pozitivan uticaj na nacionalnu ekonomiju i kvalitet života. Viru i Smirnova (1995) tvrde da su vježbe izdržljivosti najvažnije za poboljšanje zdravlja. Gimnastičke vježbe su neophodne kada se pominje mehanički antisklerotički efekat i centralni nervni sistem. Prema Tanaka (2009), plivanje može poboljšati kardiovaskularno zdravlje, a prema Almeida i saradnici (2009), plivanje usporava razvoj tumora. Prema tvrdnjama Sattelmair, Kurth, Buring i Lee (2010), žene koje su fizički aktivne imaju manji rizik od pojave moždanog udara. Sa fizičkom aktivnošću i pravilnim načinom ishrane možemo umanjiti gojaznost, kao i rizik od povreda (Finkelstein, Chen, Prabhu, Trogdon i Corso, 2007; Gram, Cristensen, Christiansen i Gram 2010; Miculis, Mascarenhas, Boguszewski i de Campos, 2010; Snyder i saradnici, 2010). Kano (1998), Nichols, Sanborn i Essery (2007) i Roger i Hinton (2010) dokazali su da fizička aktivnost olakšava mineralizaciju koštanog sistema. Fizička aktivnost pospješuje ili koristi onima koji pate od depresije (Stammes i Spijker, 2009) ili astme (Juvonen i saradnici, 2008; Weisberg i saradnici, 2009), i stimuliše gastrointestinalni sistem (de Oliveira i Burini, 2009). Kao što je tvrdio Vuori (2004), fizička neaktivnost je uzrok velikih javnih zdravstvenih problema, dok je fizička aktivnost lijek za njih.

Sa druge strane, takođe je dobro poznato da neke sportske aktivnosti (pretjerano vježbanje) takođe mogu oštetiti zdravlje. Preopterećenje, povrede, sudari pa čak i smrt su faktori rizika koji se javljaju u sportu (Boughlat, Turmel, Levesque i Boulet, 2009;

Mafuli, Longo, Spiezia, & Denaro, 2010; Redelmeier & Greenwald, 2007).

On the national (state) level, there is only sparse information on how sports affect national health. Owen, Bauman, Brown, and Trost (2003) discussed this subject in their article *Physical activity and population health outcomes of positive and negative sides of sport and physical activity* and they agreed physical activity (moderate one) should be enforced as it has much more positive outcomes, but no data has been provided. Zheng, Ehrlich, and Amin (2010) wrote economic evaluation of the direct healthcare cost savings resulting from the use of walking interventions to prevent coronary heart disease in Australia, a huge benefit was in money savings. A very interesting research study was published by Lambert et al. (2009). They analyzed the quantity of physical activity of adult members of South Africa's largest private health insurer ($n = 948.974$) and medical claims data related to hospital admissions between active and inactive groups after adjustment for age, sex, medical plan, and chronic illness benefits; hospitalization costs per member were lower in each activity group compared with the inactive group. Powell, Salter, Chalupka, and Harper (2006) found out that lack of availability of facilities that enable and promote physical activity may, in part, underpin the lower levels of activity observed among populations of low socio-economic status and minority backgrounds.

While physical activity and sport have influence on human health (positive and negative) despite search in various databases (Web of Science, PUBMED) did not produce data on how sports activity and number of sport active people is related to national health of any country. There are many reasons why there is no such data. Probably the most important reason is the fact that national governments do not keep statistics on numbers of persons involved in sport, and the second reason is the lack of health statistics.

Slovenija is a small nation in the middle of Europe, bordering Austria to the North, Italy to the West, Hungary to the East and Croatia to the South. In 2009 it had 2.032.362 inhabitants. In year 2000, the Olympic Committee of Slovenia – Association of Sports Federations and its Sport for All Department initiated an action called »Sport Prescription for Health«, with an aim to make about 6.000 sport clubs in Slovenia contribute toward improvements in national health by promoting the idea that Sport Club can serve as a natural pharmacy. The government at the time did not accept our argument that sport clubs can serve as a natural pharmacy and improve health as the negative perspective on high performance com-

Bučar Pajek i Pajek, 2009; Dowdel, 2011; Emery i Tyreman, 2009; Mafuli, Longo, Spiezia i Denaro, 2010; Redelmeier i Greenwald, 2007).

Na nacionalnom (državnom) nivou postoje samo retke informacije o tome kako sport utiče na nacionalno zdravlje. Owen, Bauman, Braun i Trost (2003) raspravljaju o ovoj temi u svom članku *Fizička aktivnost i ishodi pozitivne i negativne strane sporta i fizičke aktivnosti na zdravlje stanovnika*, i slažu se da treba potencirati fizičku aktivnost (umjerenu), jer ima mnogo pozitivnih rezultata, ali ne navode konkretne podataka o tome. Zheng, Ehrlich i Amin (2010) uradili su ekonomsku procjenu direktne novčane uštede do koje bi se došlo korištenjem šetnje u prevenciji srčanih bolesti u Australiji, i navode da bi ušteda bila ogromna. Veoma interesantno istraživanje objavljeno je od strane Lambert i saradnici (2009). Analizirali su obim fizičke aktivnosti članova najvećeg Južnoafričkog privatnog zdravstvenog osiguranja ($n = 948.974$) i zahtijeva za bolničkim tretmanom aktivnih i neaktivnih grupa poslije usklađivanja u dobi, polu, medicinskom planu i koristi od hroničnih bolesti; troškovi bolničkog lečenja po osobi bili su niži za svaku aktivnu grupu u odnosu na neaktivne. Powell, Salter, Chalupka i Harper (2006) došli su do zaključka da nedostatak objekata koji obezbeđuju i promoviraju fizičku aktivnost mogu, u određenom stepenu, da podstaknu smanjenje fizičke aktivnosti posmatrane među populacijom nižeg socijalno-ekonomskog statusa.

Dok fizička aktivnost i sport imaju uticaja na ljudsko zdravlje (pozitivan i negativan), i pored pretrage nekoliko baza podataka (Web of Science, PUBMED) nismo dobili podatke o tome kako su sportske aktivnosti i broj sportski aktivnih ljudi povezani sa nacionalnim zdravljem bilo koje države. Ima mnogo razloga zbog kojih ne postoje takvi podaci. Vjerovatno najvažniji među njima jeste taj što vlade ne čuvaju podatke o broju ljudi uključenih u sport, i drugi razlog jeste nedostatak zdravstvene statistike.

Slovenija je mala država u središtu Evrope koja se na sjeveru graniči sa Austrijom, na zapadu sa Italijom, na istoku Mađarskom i na jugu sa Hrvatskom. U 2009. godini, imala je 2.032.362 stanovnika. U 2000. godini, Olimpijski komitet Slovenije – Udruženje sportskih saveza i njihovo odjeljenje Sport za sve, pokrenuli su akciju pod nazivom »Sport, recept za zdravlje«, sa ciljem da oko 6.000 sportskih klubova u Sloveniji doprinesu poboljšanju nacionalnog zdravlja, promovirajući ideju da sportski klub može poslužiti kao prirodna apoteka. U tom trenutku Vlada Slovenije nije prihvatila argument da sportski klubovi mogu služiti kao prirodna apoteke i poboljšati zdravlje, jer su negativne posljedice vrhunskog sporta bile neosporne

petitive sports was to overpowering. In Slovenia, health statistics is the responsibility of the Institute of Public Health of the Republic of Slovenia (Inštitut za varovanje zdravja – IVZ), which publishes its annual Health Statistics Yearbook. Demographic and economic statistics are in the domain of the Statistical Office of the Republic of Slovenia which publishes Statistical Yearbooks. The Agency of the Republic of Slovenia for Public Legal Records and Related Services provided data on funding spent on organized sports in Slovenia regions in year 2009. Nobody in Slovenia is responsible for sports statistics. For this reason, we obtained our own data on the number of active members in sport clubs in Slovenia.

By using merged data from different areas we wanted to investigate: whether the proportion of organized active sport members was related to the health status as defined by ICD-10; whether the amount of public money per active sport member was related to the health status by ICD-10, and whether the level of employee salaries was related to the health status by ICD-10.

METHODS

Slovenija is divided into 12 statistical regions: Pomurska, Podravska, Koroška, Savinjska, Gorenjska, Zasavska, Osrednja, Spodnje posavska, Jugovzhodna, Gorška, Obalno-kraška and Notranjsko-kraška. These regions comprised our sample ($N = 12$). The 2009 Health Statistics Yearbook supplied data on the reasons for attendance in out-patient health care facilities on the primary level as defined by ICD-10 chapters. ICD-10 categorises diagnoses as follows:

- I - Infectious and parasitic diseases;
- II - Neoplasms;
- III - Diseases of the blood and blood-forming organs and disorders involving the immune mechanism;
- IV - Endocrine, nutritional and metabolic diseases;
- V - Mental and behavioural disorders;
- VI - Diseases of the nervous system;
- VII - Diseases of the eye and adnexa;
- VIII - Diseases of the ear and mastoid process;
- IX - Diseases of the circulatory system;
- X - Diseases of the respiratory system;
- XI - Diseases of the digestive system;
- XII - Diseases of the skin and subcutaneous tissue;
- XIII - Diseases of the musculoskeletal system and connective tissue;
- XIV - Diseases of the genitourinary system;
- XV - Pregnancy, childbirth and the puerperium;
- XVI - Certain conditions originating in the perinatal period;

(poražavajuće). U Sloveniji zdravstvena statistika je u nadležnosti Instituta za javno zdravstvo Republike Slovenije (Inštitut za varovanje zdravja – IVZ), koji objavljuje Godišnjak zdravstvene statistike. Demografska i ekonomska statistika su u nadležnosti Zavoda za statistiku Republike Slovenije koji objavljuje Statističke godišnjake. Agencija Republike Slovenije za javne pravne evidencije i srodne službe, obezbijedila je podatke o sredstvima potrošenim na organizovani sport na teritoriji Slovenije u 2009. godini. Niko u Sloveniji nije odgovoran za sportsku statistiku. Iz tog razloga, dobili smo sopstvene podatke o broju aktivnih članova sportskih klubova u Sloveniji.

Koristeći sumirane podatke iz različitih regija, željeli smo da istražimo: da li je odnos organizovanih sportski aktivnih članova u vezi sa zdravstvenim statusom definisanim MKB-10; da li je količina javnih sredstava po sportski aktivnom članu u vezi sa zdravstvenim statusom MKB-10, i da li je visina plata zaposlenih u vezi sa zdravstvenim statusom MKB-10.

METODE

Slovenija je podijeljena u 12 statističkih regija: Pomurska, Podravska, Koroška, Savinjska, Gorenjska, Zasavska, Osrednja, Spodnje posavska, Jugovzhodna, Gorška, Obalno-kraška i Notranjsko-kraška. Ove regije činile su naš uzorak ($N = 12$). Godišnjak zdravstvene statistike, iz 2009. Godine, dao nam je podatke o razlozima za posjetu ambulantnim zdravstvenim ustanovama na primarnom nivou, kako je definisano poglavljima MKB-10. MKB-10 kategorizuje dijagnoze na sljedeći način:

- I – Infekcijske i parazitne bolesti;
- II – Neoplazme;
- III – Bolesti krvi i krvotvornih organa i određeni poremećaji u vezi sa imunim sistemom;
- IV - Endokrine, nutritivne i metaboličke bolesti;
- V - Mentalni poremećaji i poremećaji ponašanja;
- VI – Bolesti nervnog sistema;
- VII - Bolesti oka i adnexa;
- VIII - Bolesti uha i mastoidnih procesa;
- IX - Bolesti sistema za cirkulaciju;
- X – Bolesti respiratornog sistema;
- XI – Bolesti probavnog sistema;
- XII - Bolesti kože i potkožnog tkiva;
- XIII - Bolesti mišićno koštanog sistema i vezivnog tkiva;
- XIV - Bolesti genitalno urinarnog sistema;
- XV - Trudnoća i porođaj;
- XVI - Određena stanja porođajnog perioda;
- XVII - Urođene malformacije, deformacije i hromozomske abnormalnosti;

- XVII - Congenital malformations, deformations and chromosomal abnormalities;
- XVIII - Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified;
- XIX - Injury, poisoning and certain other consequences of external causes.

The Statistical Yearbook 2009 provided data on the number of inhabitants per region and the average income per employed person. The Agency of the Republic of Slovenia for Public Legal Records and Related Services supplied data on public funding allocated to organized sport in regions in 2009. By using a questionnaire and a personal interview, we asked all Slovenia municipal authorities how many sports clubs in their municipality were financed from the municipality budget and how many members they had in 2009 (interviews were conducted in April and May

- XVIII - Simptomi, znakovi i abnormalni klinički i laboratorijski nalazi, koji nisu klasifikovani;
- XIX - Povrede, trovanja i određene druge posljedice s spoljašnjim uzrokom.

Statistički Godišnjak 2009. prezentovao je podatke o broju stanovnika po regijama i o prosječnom primanju zaposlenih osoba. Agencija Republike Slovenije za javne pravne evidencije i srodne službe obezbijedila je podatke o javnom finansiranju, usmjerenom na organizovani sport po regijama u 2009. godini. Koristeći metode upitnika i intervjua, pitali smo sve opštinske vlasti u Sloveniji koliko je sportskih klubova u njihovoj opštini finansirano iz opštinskog budžeta i koliko su članova imali u 2009. godini (intervjui su sprovedeni u aprilu i maju 2010. godine). Od 210 opština, 207 je odgovorilo (99% posto odgo-

TABLE 1

Regions demographic and sport characteristicse

TABELA 1

Demografske i sportske karakteristike regija

| Region | 1 | 2 | 3 | 4 | 5 | 6 |
|-------------------|---------|------|--------|---------|--------|--------|
| Pomurska | 119537 | 313 | 18813 | 157.38 | 73.18 | 784.68 |
| Podravska | 322900 | 617 | 72841 | 225.58 | 85.14 | 933.09 |
| Koroška | 72481 | 218 | 12783 | 176.36 | 176.36 | 806.23 |
| Savinjska | 258845 | 566 | 50148 | 193.74 | 193.74 | 813.35 |
| Zasavska | 44750 | 125 | 7453 | 166.55 | 166.55 | 851.85 |
| Spodnjeposavska | 69900 | 166 | 9030 | 129.18 | 129.18 | 838.46 |
| Jogovzhodna | 141166 | 213 | 17910 | 126.87 | 126.87 | 839.75 |
| Osrednjeslovenska | 521965 | 912 | 87204 | 167.07 | 167.07 | 938.29 |
| Gorenjska | 201779 | 634 | 41450 | 205.42 | 205.42 | 868.03 |
| Notranjsko-Kraška | 51728 | 122 | 6059 | 117.13 | 117.13 | 806.12 |
| Goriška | 118533 | 389 | 22275 | 187.92 | 187.92 | 876.74 |
| Obalno-Kraška | 108778 | 193 | 21508 | 197.29 | 197.29 | 893.69 |
| Σ | 2032362 | 4468 | 367474 | Average | 113.64 | |

Legend: **1** – Number of inhabitants (Broj stanovnika); **2** – Number of sport clubs (Broj sportskih klubova); **3** – Number of sport club members (Broj članova sportskih klubova); **4** – Number of members/1000 inhabitants (Broj članova / 1.000 stanovnika); **5** – Public financies per person in Sport Club per year (EUR) [Godišnja javna potrošnja po članu sportskog kluba (EUR)]; **6** – Average net wage per employedperson per month (EUR) [Prosječna mjesečna neto plata po zaposlenom (EUR)]; **Σ** – Total (Ukupno); Region – Regija.

2010). Out of 210 municipalities 207 responded (99% response which is virtually the whole population of municipalities). Municipal data were than included in regional data. All data was then normalized to 1.000 inhabitants in region. Statistical analyses were conducted with SPSS 17.0. Descriptive statistics and Pearson correlation coefficients were calculated.

vora koji su praktično cijelo stanovništvo opština). Opštinski podaci su potom uključeni u regionalne. Nakon toga, svi podaci su normalizovani u 1000 stanovnika po regionu. Statistička analiza rađena je u programu SPSS 17.0. Izračunata je deskriptivna statistika i Pirsonov koeficijent korelacije. Pirsonov koeficijent je značajan na nivou $p < 0,05$ kada je vrijednost

Pearson correlation coefficient is significant at $p < .05$ when the correlation coefficient value is higher than .506.

RESULTS

Slovenian regions have quite varied basic demographics and sports characteristics (Table 1). Same relate to reasons for attendance on the primary level (Table 2). Very few correlations between demographics, sports variables and reasons for attendance in out-patient health care facilities on the primary level were statistical significant (Table 3).

DISCUSSION

Our results (Table 1) show a slightly different picture to what some previous statistics showed. The biggest difference is in the number of sports clubs and the number of those financed by municipalities (4.468 municipality-financed clubs compared to 6.115 official sport clubs) (Kolar, Jurak, & Kovač, 2010). Sport clubs membership includes 18% of the nation. Podravska and Gorenjska have the highest numbers of members in sport clubs per 1.000 inhabitants, and Notranjsko Kraška, and Jugovzhodna Region the lowest. In comparison with the results by Sila (2010), and Doupona Topič (2010) (data collected via stratified sample of 1.286 persons), 6% of Slovene adults were competing in organized sport and 19.1% participated in organized recreational sport. In other words, 25.1% of the Slovenian population is supposed to be involved in organized sport clubs; our data, however, showed lower numbers. According to Kolar et al. (2010), there are 87.520 registered athletes in Slovenia which represents 4.3% of the population. According to the same source, only 6.4% (state and municipal funding) of the budget (excluding investments in buildings) on the national level is spent on recreational sports, the rest is allocated to high performance sports, athletes with special needs, school sports, educational programs and the operation of sport organizations (mostly on the national level). No person can compete on any level unless he or she is a member of a sport club (sport clubs are included in national competitions and financed by municipalities). It can therefore be concluded 23% of sport clubs members are high performance athletes (this data is similar to Sila (2010), and Doupona Topič (2010). Average municipal financial support per person in sport clubs in Slovenia is €113.64 per annum. In sport clubs, most of the money is spent on high performance athletes. It is obvious that very little (€8.97) is spent on an average

korelacionog koeficijenta veća od 0,506.

REZULTATI

Slovenačke regije imaju prilično različite osnovne demografske i sportske karakteristike (Tabela 1). Neke se odnose na razloge prisustva na primarnom nivou (Tabela 2). Samo nekoliko korelacija među demografskim, sportskim varijablama i razlozima za posjetu ambulantnim zdravstvenim ustanovama na primarnom nivou bili su statistički značajni (Tabela 3).

DISKUSIJA

Naši rezultati (Tabela 1) pokazuju malo drugačiju sliku od one koju su dobila neka prethodna istraživanja. Najveća razlika je u broju sportskih klubova i u broju onih koje finansiraju opštine (4.468 opštinski-finansiranih klubova u odnosu na 6.115 zvaničnih sportskih klubova (Kolar, Jurak i Kovač, 2010). U sportskom klubu 18% nacije ima članstvo. Podravska i Gorenjska regija imaju najveći broj članova sportskog kluba na 1000 stanovnika, a Notranjsko kraška i Jugovzhodna regija najmanji. U poređenju sa rezultatima Sila (2010) i Doupona Topič (2010) (podaci prikupljeni stratifikovanim uzorkom od 1286 osoba), 6% odraslih Slovena takmiče se u organizovanom sportu, a 19,1% učestvuje u organizovanom rekreativnom sportu. Drugim riječima: 25,1% odraslih stanovnika Slovenije trebalo bi biti uključeno u organizovane sportske klubove. Međutim, naši podaci pokazuju manji postotak. Prema Kolar i saradnici (2010), postoji 87.520 registrovanih sportista u Sloveniji, koji predstavljaju 4,3% ukupne populacije. Prema istom izvoru, samo 6,4% (državnih i opštinskih sredstava) sredstava iz budžeta (isključujući ulaganja u objekte) na državnom nivou troši se na rekreativni sport, ostalo je usmjereno na vrhunski sport, sportiste sa posebnim potrebama, školski sport, obrazovne programe i funkcionisanje sportskih organizacija (uglavnom na državnom nivou). Ni jedna osoba ne može se takmičiti na bilo kom nivou ukoliko nije član sportskog kluba (sportski klubovi su uključeni u državna takmičenja i finansiraju ih opštine). Zbog toga se može zaključiti da su 23% članova sportskih klubova vrhunski sportisti. Ovaj podatak je sličan onome koji je dobio Sila (2010) i Doupona Topič (2010). Prosječno opštinsko ulaganje po osobi u sportskom klubu u Sloveniji je 113,64 € godišnje. U klubovima, većina novca troši se na vrhunske sportiste. Sasvim je jasno da se jako malo (8,97 €) novca troši na prosječne osobe uključene u rekreativni sport. Prosječna mjesečna neto plata po zaposlenom u regiji kreće se između 784,68 € (Pomurska regija) i

TABLE 2

Regions causes for attendances in out-patient health care at primary level by ICD-10 chapters (per1000 inhabitants)

TABELA 2

Regionalni razložji za posjete ambulantnim zdravstvenim ustanovama na primarnom nivou po poglavljima MKB –10 (na 1.000 stanovnika)

| Region/Diagnosis | I | II | III | IV | V | VI | VII | VIII | IX | X | XI | XII | XIII | XIV | XV | XVI | XVII | XVIII | XIX |
|-------------------|-------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|------|-----|-------|-------|-----|
| Pomurska | 172.7 | 42.8 | 12.2 | 57.6 | 68.5 | 23.1 | 64.5 | 95.2 | 252.7 | 513.1 | 115.9 | 135.3 | 262.5 | 146.5 | 11.8 | .6 | 142.3 | 198.0 | |
| Podravska | 196.8 | 33.7 | 8.1 | 43.2 | 42.0 | 16.4 | 54.4 | 93.7 | 149.3 | 379.0 | 89.8 | 114.0 | 206.2 | 113.8 | 8.8 | 1.5 | 142.7 | 179.3 | |
| Koroška | 141.9 | 33.0 | 8.4 | 33.7 | 44.8 | 23.1 | 65.9 | 99.2 | 142.1 | 457.5 | 103.8 | 145.3 | 233.9 | 118.8 | 11.4 | 1.2 | 165.1 | 231.0 | |
| Savinjska | 150.1 | 39.2 | 7.7 | 34.5 | 41.1 | 20.8 | 60.6 | 99.9 | 145.0 | 428.1 | 93.4 | 120.6 | 230.5 | 147.0 | 14.5 | 4.4 | 150.9 | 249.9 | |
| Zasavska | 170.9 | 49.0 | 10.1 | 57.7 | 70.7 | 22.3 | 67.8 | 95.4 | 212.7 | 390.3 | 108.9 | 144.0 | 231.5 | 204.3 | 18.5 | .5 | 205.8 | 211.6 | |
| Srednjeposavska | 131.0 | 34.6 | 7.4 | 41.4 | 40.0 | 21.3 | 60.4 | 87.8 | 158.7 | 456.8 | 95.1 | 130.0 | 209.8 | 117.8 | 9.0 | 3.5 | 232.4 | 233.2 | |
| Jugovzhodna | 199.4 | 35.0 | 9.1 | 32.9 | 44.5 | 19.1 | 61.7 | 89.9 | 184.8 | 386.3 | 103.6 | 128.3 | 211.6 | 125.8 | 11.6 | 2.2 | 163.1 | 227.3 | |
| Osrednjeslovenska | 203.3 | 45.4 | 10.3 | 56.2 | 44.1 | 22.2 | 76.8 | 92.3 | 153.1 | 358.4 | 93.3 | 129.2 | 202.1 | 130.6 | 12.3 | 4.8 | 208.4 | 143.4 | |
| Gorenjska | 212.6 | 45.4 | 9.9 | 40.9 | 40.6 | 20.8 | 59.1 | 85.1 | 152.6 | 333.4 | 96.6 | 119.7 | 208.0 | 149.4 | 17.4 | .5 | 159.5 | 219.7 | |
| Notranjsko-Kraška | 216.7 | 46.8 | 10.6 | 47.6 | 56.8 | 23.0 | 81.3 | 102.0 | 138.0 | 454.8 | 87.3 | 146.7 | 230.8 | 177.7 | 11.5 | 1.9 | 188.8 | 236.2 | |
| Goriška | 200.9 | 42.2 | 10.3 | 45.2 | 50.7 | 23.5 | 64.2 | 95.4 | 191.8 | 381.6 | 84.1 | 129.9 | 221.6 | 131.9 | 15.6 | .9 | 191.9 | 246.3 | |
| Obalno-Kraška | 184.3 | 48.4 | 10.6 | 61.0 | 51.1 | 24.6 | 74.3 | 98.8 | 154.5 | 348.2 | 101.7 | 136.3 | 243.3 | 146.6 | 14.4 | .7 | 202.9 | 174.1 | |

Legend: **I** – Certain infectious and parasitic diseases (Infekcijske i parazitne bolezni); **II** – Neoplasms (Neoplazme);

III – Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (Bolesti krvi i krvotvornih organa i određeni poremećaji u vezi sa imunim sistemom); **IV** – Endocrine, nutritional and metabolic diseases (Endokrine, nutritivne i metaboličke bolezni); **V** – Mental and behavioural disorders (Mentalni poremećaji i poremećaji ponašanja); **VI** – Diseases of the nervous system (Bolesti nervnog sistema); **VII** – Diseases of the eye and adnexa (Bolesti oka i adnexa); **VIII** – Diseases of the ear and mastoid process (Bolesti uha i mastoidnih procesa); **IX** – Diseases of the circulatory system (Bolesti sistema za cirkulaciju); **X** – Diseases of the respiratory system (Bolesti respiratornog sistema); **XI** – Diseases of the digestive system (Bolesti probavnog sistema); **XII** – Diseases of the skin and subcutaneous tissue (Bolesti kože i potkožnog tkiva); **XIII** – Diseases of the musculoskeletal system and connective tissue (Bolesti mišićno koštanog sistema i vezivnog tkiva); **XIV** – Diseases of the genitourinary system (Bolesti genitalno urinarnog sistema); **XV** – Pregnancy, childbirth and the puerperium (Trudnoća i porođaj); **XVI** – Certain conditions originating in the perinatal period (Određena stanja porođajnog perioda); **XVII** – Congenital malformations, deformations and chromosomal abnormalities (imptom, znakovi i abnormalni klinički i laboratorijski nalazi, koji nisu klasifikovani); **XVIII** – Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (Urodne malformacije, deformacije i hromozomske abnormalnosti); **XIX** – Injury, poisoning and certain other consequences of external causes (Povrede, trovanja i određene druge posledice s spoljašnjim uzrokom.); Region – Regija; Diagnosis – Dijagnoza.

person involved in recreational sports. Average net wage per employed person per month in regions is between €784.68 (Pomurska region) and €938.29 (Osrednjeslovenska region). Bednarik, Kolar, and Jurak (2010) report in 2005 the average Slovene household spent €496 on sport per year, of that €375 Euros on sports goods and €121 Euros on services. As there are differences in average wages between regions it can be presumed that differences also exist in the ratio of spending on sports goods and services.

The highest rate of reasons for attendance in out-patient health care on the primary level (Table 2) is due to diseases of the respiratory system, followed by diseases of the musculoskeletal system and connecti-

938,29 € (Osrednjeslovenska regija). Bednarik, Kolar i Jurak (2010) izvještavaju da prosječno slovensko domaćinstvo potroši 496 € godišnje na sport, od čega 375 € na opremu, a 121 € na sportske usluge. Kako postoje razlike u platama po regijama, može se pretpostaviti da takođe postoje razlike i u sredstvima potrošenim na sportsku opremu i sportske usluge.

Najveći postotak razloga za posjetu ambulantnim zdravstvenim ustanovama na primarnom nivou (Tabela 2) jesu bolesti respiratornog sistema, a odmah za njima bolesti mišićno - koštanog sistema i vezivnog tkiva i ozljede, trovanja i određene druge posljedice s spoljnim uzrokom, a najmanji postotak stvarala su određena stanja perinatalnog perioda.

TABLE 3

Person Correlation Coefficient between demographic, sport characteristics and causes for attendances in out-patient health care at primary level by ICD-10 chapters (only significant correlations $p < .05$)

TABELA 3

Pirsonov koeficijent korelacije između demografskih, sportskih karakteristika i razloga za posjetu ambulantnim zdravstvenim ustanovama na primarnom nivou po poglavljima MKB–10 (jedine značajne korelacije $p < 0,05$)

| Diagnosis | 4 | 5 | 6 |
|-----------|-------|------|-------|
| VI | | .512 | |
| X | -.508 | | -.806 |
| XII | -.553 | | |
| XIII | | | -.507 |
| VIII | | .812 | .533 |
| IX | | | -.570 |

Legend: **4** – Number of members / 1000 inhabitants (Broj članova klubova / 1.000 stanovnika); **5** – Public financies per person in Sport Club per year (EUR) [Godišnja javna potrošnja po članu sportskih klubova (EUR)]; **6** – Average net wage per employed person per month (EUR) [Prosječna mjesečna neto plata po zaposlenom (EUR)]; **IV** – Endocrine, nutritional and metabolic diseases (Endokrine, nutritivne i metaboličke bolesti); **X** – Diseases of the respiratory system (Bolesti respiratornog sistema); **XII** – Diseases of the skin and subcutaneous tissue (Bolesti kože i potkožnog tkiva); **XIII** – Diseases of the musculoskeletal system and connective tissue (Bolesti mišićno koštanog sistema i vezivnog tkiva); **XVIII** – Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (Simptomi, znakovi i abnormalni klinički i laboratorijski nalazi, koji nisu klasifikovani); **XIX** – Injury, poisoning and certain other consequences of external causes (Povrede, trovanja i određene druge posledice s spoljašnjim uzrokom); Diagnosis – Diajgnoza.

ve tissue and injury, poisoning and certain other consequences of external causes, and the lowest rate was due to certain conditions originating in the perinatal period.

The correlation between the number of club members/ 1.000 inhabitants and diseases of the respiratory system was negative which means that the region with more sport clubs members had less treatment for diseases of respiratory system. The three main dia-

Korelacija među brojem članova sportskog kluba na 1.000 stanovnika i bolesti respiratornog sistema je negativna, što znači da su regioni sa više članova sportskih klubova imali manje potrebe za liječenjem bolesti respiratornog sistema. Tri glavne dijagnoze kod respiratornog sistema uključuju akutnu infekciju gornjih respiratornih organa, skutni tonzilitis i faringitis. Generalna otpornost na akutne respiratorne infekcije veća je kod onih koji aktivno učestvuju u

gnoses of respiratory system include acute infection of upper respiratory organs, acute tonsillitis and acute pharyngitis. General resistance to acute respiratory infections is higher among those who actively participate in sports (Karacabey, 2005; Viru & Smirnova, 1995; Vuori, 2004). Higher club member numbers indicate fewer occurrences of diseases of the skin and subcutaneous tissue. The three main diagnoses of the skin and subcutaneous tissue include dermatitis (L30), urticaria and unspecified contact dermatitis. It seems that sport clubs members actively involved in sports are more aware of skin maintenance.

Public funding per person in sport clubs is positively correlated to diseases of the nervous system (VI) and symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (XVIII). The three main diagnoses in this group include mononeuropathies of upper limbs, epilepsy and migraine. The three main diagnoses in group XVIII include pains in abdomen, headache and high body temperature for no known reason. It seems that money spent on and by clubs is not used effectively to have a positive impact on health. One reason for such correlations can be relatively low budgeting for recreational sports and high budgeting for competitive sports. Redistribution and a better control of municipal financing in sport clubs should be one of the aims of municipal sports and health authorities.

Average net wage per person in region is of all demographic and sport variables the one that is most closely related to the health status. The higher the earnings, the lower the occurrence of diseases of the respiratory system; diseases of the musculoskeletal system and connective tissue; and injuries, poisoning and certain other consequences of external causes. Those who have money seem to care about their life and adopt a healthy lifestyle. It is obvious that they have fewer respiratory diseases as they probably spend more free time engaged in indoor and outdoor sports activities and they have very high level general resistance to acute infections. More sport activity does not equal more problems with musculoskeletal system and connective tissue; on the contrary, a well prepared human body has fewer problems in general. In other words, a reverse U-curve is important for good body fitness: too low (no activity) or too high (high performance sport) loads may be damaging to human body, whereas everything in between is beneficial. Good fitness means fewer injuries due to external causes. Our findings are in agreement with Powell et al. (2006), and Lambert et al. (2009). However, there is positive correlation with symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (PXVIII), that could be connected to stress factors.

sportu (Karacabey, 2005; Viru i Smirnova, 1995; Vuori, 2004). Povećanje broja članova sportskih klubova ukazuje na smanjenje pojave bolesti kože i potkožnog tkiva. Tri glavne dijagnoze kod bolesti kože i potkožnog tkiva uključuju dermatitis (L30), urtikariju i neodređeni kontaktni dermatitis. Izgleda da su oni aktivno uključeni u sport više svjesni održavanja higijene kože.

Javno finansiranje po osobi u sportskom klubu je u pozitivnoj korelaciji sa bolestima nervnog sistema (VI) i sa simptomima, znakovima i abnormalnim kliničkim i laboratorijskim nalazima, ne drugdje klasifikovanim (XVIII). Tri glavne dijagnoze u ovoj grupi uključuju mononeuropatije gornjih udova, epilepsiju i migrene. Tri glavne dijagnoze u grupi XVIII uključuju bolove u abdomenu, glavobolje i visoku temperaturu iz nepoznatih razloga. Izgleda da novac potrošen na sportske klubove i od strane klubova nije korišten efektivno u pravcu pozitivnog učinka na zdravlje. Jedan od razloga takve korelacije moglo bi biti relativno malo ulaganje u rekreativni, a znatno u takmičarski sport. Redistribucija i bolja kontrola opštinskih ulaganja u sportske klubove trebala bi biti jedan od ciljeva opštinskih, sportskih i zdravstvenih vlasti.

Prosječna plata po osobi je od svih demografskih i sportskih varijabli najpovezanija sa zdravstvenim statusom. Što su veća primanja, manja je pojava bolesti respiratornog sistema; bolesti mišićno - koštanog sistema i vezivnog tkiva; i povreda, trovanja i određenih drugih posljedica s spoljnim uzrokom. Čini se da oni koji imaju novca više brinu o svom životu i prihvataju zdrav način življenja. Očito je da oni imaju manje problema sa respiratornim bolestima, jer, vjerovatno, provode više slobodnog vremena u sportskim aktivnostima na otvorenom i zatvorenom prostoru, i imaju veoma visok stepen otpornosti na akutne infekcije. Više sportskih aktivnosti ne izaziva i više problema sa mišićno - skeletnim sistemom i vezivnim tkivom. Naprotiv, dobro pripremljen organizam generalno ima manje problema. Drugim riječima: obrnuta U – kriva je veoma važna za dobru spremnost organizma: prenisko (nema aktivnosti) ili previsoko (vrhunski sport) opterećenje mogu biti štetni po ljudsko tijelo, dok je sve između toga korisno. Dobra forma znači manje povreda izazvanih vanjskim uzrokom. Naši zaključci slažu se sa onima Powell i saradnici. (2006) i Lambert i saradnici (2009). Međutim, postoji pozitivna korelacija sa simptomima, znakovima i abnormalnim kliničkim i laboratorijskim nalazima, ne drugdje klasifikovanim (PXVIII), što bi se moglo dovesti u vezu sa faktorima stresa.

CONCLUSIONS

According to our analysis, the following can be concluded for 2009:

- higher numbers of sport members in clubs mean fewer respiratory diseases and diseases of the skin and subcutaneous tissue;
- municipal finances for sport clubs are from the national health perspective wasted and not based on any concept;
- financial support for sports clubs should take more account of recreational sports and health-promoting sports than it does at the moment;
- high wages are a pre-condition for fewer occurrences of diseases as those with higher socio-economical status live a healthier lifestyle (sport activity, free time activity, better housing, diet, etc.);
- higher numbers of members in sports clubs are important for disease prevention on the national level;
- if recreational sports and health-promoting sports fully follow the user-pay concept with no public support, higher occurrences of diseases can be expected;
- sport clubs might act as natural pharmacies.

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ZAKLJUČAK

Prema našoj analizi, može se doći do sledećih zaključaka za 2009. godinu:

- veći broj članova sportskih klubova znači manje respiratornih bolesti i bolesti kože i potkožnog tkiva;
- opštinska ulaganja u sportske klubove iz zdravstvene perspektive predstavljaju uzaludno utrošen novac koji nije baziran ni na jedan određen koncept;
- finansijska podrška sportskim klubovima trebala bi biti usmjerena više na rekreativni sport i sport koji promoviše zdravlje nego što je to trenutno;
- visoka primanja su preduslov za smanjenu pojavu bolesti, s obzirom da ljudi višeg socijalno-ekonomskog statusa vode zdraviji život (sportska aktivnost, slobodno vrijeme, bolji stambeni uslovi, ishrana, itd.);
- veći broj članova sportskih klubova važan je za prevenciju bolesti na nacionalnom nivou;
- ako rekreativni sport i sport koji promoviše zdravlje u potpunosti počivaju na konceptu plati – pa – koristi, bez javne podrške, može se očekivati veća pojava bolesti;
- sportski klubovi mogu djelovati kao prirodne apoteke.

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Correspondence to:

Prof. Ivan Čuk, PhD

Faculty of Sport

Gortanova 22

1000 Ljubljana

Slovenija

e-mail: ivan.cuk@fsp.uni-lj.si

Phone: 00386 1 52 70 77 00

Fax: 00386 1 52 07 740

Correspondence to:

Prof. dr Ivan Čuk

Fakultet za šport

Gortanova 22

1000 Ljubljana

Slovenija

e-mail: ivan.cuk@fsp.uni-lj.si

Telefon: 00386 1 52 70 77 00

Fax: 00386 1 52 07 740

ŠPORT IN ZDRAVJE V SLOVENIJI LETA 2009

Ivan Čuk¹, Maja Bučar Pajek¹, Jernej Pajek² in Mojca Peček³

¹Fakulteta za šport, Univerza v Ljubljani, Slovenija

²Medicinska fakulteta, Univerza v Ljubljani, Slovenija

³Pedagoška fakulteta, Univerza v Ljubljani, Slovenija

Šport in zdravje sta velikokrat omenjena v medsebojni povezavi. Dejstvo je, da so posamezne razi-

skave potrdile da posamezna športna dejavnost (tek, plavanje, kolesarjenje, veslanje ipd.) vpliva na izbolj-

šanje delovanja srčno žilnega sistema, prav tako je mnogo raziskav, ki ugotavljajo da gimnastika povečuje mineralizacijo kostnega tkiva in tako postajajo kosti trdnjše, kar je pomembno predvsem v starosti kot obramba pred osteoporozo. Žal na ravni države ali nacije, oz. regije, na splošno nimamo ugotovljenih povezav med športno aktivnimi in zdravjem. V okviru OKS-ZŠZ odbora športa za smo želeli ugotoviti ali ima delež organiziranih športno aktivnih prebivalcev regije kašen vpliv na delež obolelosti po posameznih kategorijah bolezni. Od občinskih organov smo pridobili podatke o številu društev in številu članov v občini v letu 2009, od Statističnega urada Republike Slovenije smo vzeli statistični letopis in demografsko socialne podatke o občinah za leto 2009. Od AJPES smo pridobili podatke o financiranju programov športa v občinah v letu 2009. Vse prej omenjene podatke smo nato združili glede na uvrstitev posamezne občine v določeno statistično regijo. Od Inštituta za varovanje zdravja (Zdravstveni statistični letopis 2009) smo povzeli podatke o obravnavah posameznih bolezni na primarni ravni razdeljenih po diagnozah v skladu z mednarodno razvrstitvijo MBK10. Deleži so bili že razvrščeni glede na statistične pokrajine. Med spremenljivkami smo izračunali Pearsonove korelacijske koeficienti, ki so značilni pri $p < 0,05$ kadar je korelacijski koeficient $> 0,506$ ($N=12$). Med deležem športno aktivnih v društvih in deležem skupine obravnav na primarni ravni na 1000 prebivalcev je bila značilna negativna povezava z obravnavami dihal (MBK10- X) in bolezni kože in podkožja, kar pomeni, več je aktivnih v društvih manjša je število obravnav bolezni dihal in kože ter podkožja. Med

spremenljivkami višine sredstev občine za posameznega člana športnega društva in deležem skupine obravnav na primarni ravni na 1000 prebivalcev je bila pozitivna korelacija z boleznimi živčevja (MBK10- VI) ter pozitivna s simptomi, znaki ter nenormalnimi izvidi, neuvrščeni drugje (MBK10- XVIII). Med povprečno plačo na zaposlenega v regiji in in deležem skupine obravnav na primarni ravni na 1000 prebivalcev je visoka negativna korelacija z obravnavami dihal (MBK10- X), boleznimi mišično skeletnega sistema in veziva (MBK10- XIII) ter obravnavami poškodbe, zastrupitve in posledice zunanjih vzrokov (MBK10- XIX); pozitivna značilna korelacija pa je s simptomi, znaki ter nenormalnimi izvidi, neuvrščeni drugje (MBK10- XVIII). Razlogi za omenjene povezave so lahko zelo različni vendar ne glede na vzroke se posledično kaže, da več kot je športno organiziranih občanov bolj se zmanjšuje obolevnost (kot so pokazale povezave obolevnost dihal), delež javnih sredstev na člana društva zmanjšuje tudi obolevnost z infekcijskimi in parazitskimi boleznimi, večja višina plače na zaposlenega pa vpliva tudi na zmanjševanje bolezni dihal, mišično skeletnega sistema in veziva, bolezni prebavil ter obravnavami zaradi posledic poškodb in zastrupitev zaradi zunanjih vzrokov. Navedeni rezultati potrjujejo tezo o možnosti športnih društev kot naravni lekarni in ob povečanem in poudarjenem financiranju športnih društev bi verjetno lahko slovenski narod še izboljšal svoje zdravje ter prihranil sredstva za zdravljenje.

Ključne besede: športne organizacije, financiranje, diagnosticiranje.

REFLEKSIJA MENADŽMENTA OLIMPIJSKIH PROGRAMA NA SISTEM SPORTA SRBIJE

REFLECTION OF THE OLYMPIC PROGRAMME MANAGEMENT ON THE SPORTS SYSTEM OF SERBIA

Branislav Jevtić¹

¹Fakultet sporta i fizičkog vaspitanja, Univerzitet Beograd, Srbija
Olimpijski komitet Srbije
Faculty of Sport and Physical Education, University Belgrade, Serbia
The Olympic Committee of Serbia

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SUMMARY

As a process of planning, organizing, managing, coordination and control, or management theory, management has its place and importance in the study and development of the national sports system, as well as in managing programmes for participation in a mega sports event such as the Olympic Games (the aim of the study). Analyzing the Olympic programme implemented by the Olympic Committee of Serbia (OCS), their instrumentalized value and impact on the sports system have been determined, knowledge about the process and experiences relevant to the management of Serbian athletes participating in the Olympic Games preparation (the aim of the study) have been acquired. The Olympic programmes and the desire for participation and success at the Games motivate athletes, engage the environment, and determine the strategy, which includes a paradigm for future development based on scientific knowledge, educated and experienced staff.

Key words: the Olympic programmes, Serbian sport system, the Olympic Games, reflection.

SAŽETAK

Menadžment kao proces planiranja, organizovanja, rukovođenja, koordinacije i kontrole, ili kao teorija upravljanja, svoje puno mjesto i značaj ima i u izučavanju i razvoju nacionalnog sistema sporta, kao i u upravljanju programima za učešće na velikim sportskim takmičenjima, kakve su olimpijske igre (predmet rada). Analizom olimpijskih programa koje realizuje Olimpijski komitet Srbije (OKS), utvrđena je njihova instrumentalizovana vrijednost i uticaj na sistem sporta, stečena su znanja o procesu i iskustvima za upravljanje pripremama i učešćem sportista Srbije na olimpijskim igrama (cilj rada). Olimpijski programi i želja za učešćem i uspjehom na olimpijadi motivišu sportiste, angažuju okruženje, opredjeljuju strategiju kojoj pripada i paradigma budućeg razvoja, zasnovana na naučnim znanjima, te obrazovanom iiskusnom kadru.

Ključne riječi: olimpijski programi, sistem sporta Srbije, Olimpijske igre, refleksija.

THE SPORTS SYSTEM OF SERBIA IN THE FIRST DECADE OF 21ST CENTURY

The sports system is a whole unit of sport within a state that leads to progress in the areas of manifestations, such as sport, physical education and sport for all. It is a complex entity of relationships, lines of action of greater number of factors, for which it can be said that

SISTEM SPORTA SRBIJE U PRVOJ DEKADI 21. VIJEKA

Sistem sporta je cjelishodna cjelina sporta unutar jedne države koja vodi napretku u pojavnim oblastima, kakve su sport, fizičko vaspitanje i sport za sve. On je kompleksna cjelina odnosa, pravaca djelovanja većeg broja činilaca, za koju se može reći i da je jedinstvo

they are a unity of diversities (Jevtić, 2010). The system is a form of organizing sport actors in a function of optimizing qualitative and quantitative possibilities of a country's sports movement. Since it has its foundation in the very being and valuable, cultural and historical context, the change of the system brings out many questions, among which the dominant ones are those related to the significance of changes, a new structure, the feasibility of the proclaimed goals, engagement of resources, quality of leadership, dynamics and scope of organizational changes, character and efficiency of the new administration, status of volunteers, expectations, and the like (Camy & Robinson, 2007).

Experience, both practical and theoretical, indicates that the change of parts or the whole sports system, ratios and relationships, culture of organization and the like can be realized only through consensus of all actors and with the belief that the process of changes will be beneficial to the future status of sport, athletes, and coaches. Since physical education and school sport, sport for all, sports science, engagement and the role of volunteers, employees of the sports organization, scientists, and various associations and institutions, legislation, military training centres, sports and heritage...belong to the sports system of a country, every change of the sports system or its related structures must be designed and carried as a professional and research activity comprised by at least three groups of activities, and these are (Jevtić, 2006a):

- Preparation of the conceptual framework of a new system – a prototype.
- “Life” of a new system together with the search for answers about power, problems in the implementation and expected results (monitoring and testing the effectiveness of a system), and
- Plan and programme of work aimed at further development of the system.

There are activities in Serbia going on since 2001 that should improve all actors of the sports system, which continuously engage them in activities meaningful to athletes (sports function of a sports organization), and business and management in a sports organization (business function of a sports organization). Striving to improve business and sporting functions is a recognized way to bring prosperity to the whole system. The Olympic Committee of Serbia (OCS) is recognized as a leader of the sports system healing and its development. The starting point for this role is found in the OCS Statute, the Charter of the International Olympic Committee (IOC), as well as the Olympic Games (OG) exclusiveness in the system of value preferences of athletes, sports officials, and all citizens.

“The conceptual framework of the new sports system of Serbia” is the first document that is promoted publicly after the period of the nineties, dying out of the

različitosti (Jevtić, 2010). Sistem je forma organizovanja činilaca sporta (stakeholders) u funkciji optimizacije kvalitetnih i kvantitativnih mogućnosti sportskog pokreta jedne zemlje. Kako ima utemeljenje u samom biću i vrijednosnom-kulturnom-istorijskom kontekstu, to promjene sistema pokreću mnoga pitanja, među kojima dominiraju ona koja se odnose na značaj promjena, nove strukture, ostvarivost proklamovanih ciljeva, angažovanje resursa, način rukovođenja, dinamiku i obim organizacionih promjena, karakter i efikasnost nove administracije, status volontera, očekivanja i slično (Camy & Robinson, 2007).

Iskustvo, kako ono praktično, tako i teorijsko, govori da se promjene djelova ili cjeline sistema sporta, odnosa i relacija, kulture organizovanja i sl. mogu realizovati samo kroz konsenzus svih činilaca i uz vjerovanje da će proces promjena biti blagorodan prema budućem statusu sporta, sportista i trenera. Kako sistemu sporta jedne zemlje pripadaju fizičko vaspitanje i školski sport, sport za sve, nauke sporta, angažovanost i uloga volontera, zaposleni u sportskoj organizaciji, naučnici, ali i razna udruženja i institucije, legislativa, trenažni centri, sportsko nasljeđe..., to se svaka promjena sistema sporta ili njegovih pripadajućih struktura mora planirati i izvesti kao stručna i istraživačka delatnost koju čine najmanje tri grupe aktivnosti, i to (Jevtić, 2006a):

- Izrada idejnog okvira novog sistema – prototip;
- “Život” novog sistema uz traganje za odgovorima o snazi, problemima u implementaciji i očekivanim rezultatima (praćenje i testiranje efikasnosti sistema); i
- Plan i program rada usmjerenog ka daljoj izgradnji sistema.

U Srbiji se od 2001. godine odvijaju aktivnosti koje treba da usavrše sve činioce sistema sporta, koje ih kontinuirano mobilizuju na aktivnosti svrsishodne sportistima (sportska funkcija sportske organizacije) poslovanju i rukovođenju u sportskoj organizaciji (poslovna funkcija sportske organizacije). Nastojanje za unapređenjem poslovne i sportske funkcije je način koji treba da dovede do boljitka cjeline sistema. Olimpijski komitet Srbije (OKS) je prepoznat kao lider i vođa ozdravljenja sistema sporta i njegovog usavršavanja. Polazište za ovu ulogu se našlo u Statutu OKS, Povelji međunarodnog olimpijskog komiteta (MOK), kao i u ekskluzivnosti olimpijskih igara (OI) u sistemu vrijednosnih preferenci sportista, sportskih radnika i svih građana.

“Idejni okvir Novog sistema sporta Srbije” je prvi dokument koji je promovisan nakon 90-ih godina prošlog vijeka, odumiranja tadašnje SOFK-e i

AOPC (the Association of Organizations for Physical Culture) and the change of the overall social relations. Proposed by profession and adopted by the OCS bodies, the framework contains a proposal for modifications of the sports system organizational structure, new strategic plans, objectives, roles, and responsibilities of all actors-factors of the sports system. The path to the framework has gone through the study of existing organizational structures and analyses of the relationships and the needs of sport and the society of Serbia with the aim of meeting the expectations of physical education, school, mass and professional sport in 21st century (Jevtić, 2006a).

As a process of planning, organizing, managing, coordination and control, or management theory, management has its place and importance in the study and development of the national system of sport, as well as in managing programmes for participation in a mega sports event such as the Olympic Games (the aim of the study). By analyzing the Olympic programme, implemented by the Olympic Committee of Serbia (OCS), their instrumentalized value and impact on the system of sport have been determined, knowledge about the process and experiences relevant to the management of the Serbian athlete's preparation for participation in the Olympic Games (the aim of the study) have been acquired.

Initiative in 2006 have resulted in the integration of sport in the Constitution of the Republic of Serbia, the decision on granting the National awards and rewards for sports development and the establishment of the Ministry of Sport (Ministry of Youth and Sport). At a joint meeting of all actors of sport of Serbia, held in July 2006, the Framework of the new sports system was adopted and a step forward in creating the environment for further development of sport in the Republic of Serbia was made (Jevtić, 2011a). By adopting the National Strategy for Sport (2009), the process of planning sport and its environment continued. However, even today, several years after the start of intensive changes, the absence of many documents and actions in terms of full implementation of the Framework, and then the Strategy is noted. Many factors of the sports system, identified in these documents, and above all professional organizations, have not been formed yet. A similar situation can be seen in the work of sports and medical care, technology, training, coaching structure.

METHOD OF WORK

In the process of learning, context development and the way of making conclusions, the method of reflections was used. Reflection as a cognitive method is used in studies of natural phenomena, knowledge, and experience associated with this phenomenon. It is used when estimated that the existing solutions are incomplete, or when searching for a new context – more effective practice (Edwards & Skinner, 2009).

promjena ukupnih društvenih odnosa. Predložila ga je struka a usvojio OKS, Okvir sadrži prijedlog modifikacije organizacione strukture sistema sporta, nove strateške planove, ciljeve, ulogu i odgovornost svih aktera sistema sporta. Put do Okvira je tekao kroz izučavanja postojeće organizacione strukture sporta i analiza odnosa i potreba sporta i društva Srbije u cilju susretanja sa očekivanjima fizičkog vaspitanja, školskog, masovnog i vrhunskog sporta u 21. vijeku (Jevtić 2006a).

Menadžment kao proces planiranja, organizovanja, rukovođenja, koordinacije i kontrole, ili kao teorija upravljanja, svoje puno mjesto i značaj ima i u izučavanju i razvoju nacionalnog sistema sporta, kao i u upravljanju programima za učešće na velikom sportskom događaju, kakav su olimpijske igre (predmet rada). Analizom olimpijskih programa koje realizuje Olimpijski komitet Srbije (OKS), utvrđena je njihova instrumentalizovana vrijednost i uticaj na sistem sporta, stečena su znanja o procesu i iskustvima od značaja za upravljanje pripremama i učešćem sportista Srbije na Olimpijskim igrama (cilj rada).

Inicijative u 2006. godini su za rezultat imale i integrisanje sporta u Ustav Republike Srbije, odluke o dodjeljivanju nacionalnih priznanja i nagrada za razvoj sporta, kao i osnivanje ministarstva sporta (Ministarstvo omladine i sporta). Na zajedničkoj sjednici svih činilaca sporta Srbije, održane u julu 2006. godine, usvojen je Okvir novog sistema sporta i učinjen iskorak u kreiranju okruženja za dalji razvoj sporta u Republici Srbiji (Jevtić, 2011a). Usvajanjem Nacionalne strategije sporta (2009), nastavljeno je sa procesom uređenja samog sporta i njegovog okruženja. Danas, nekoliko godina od početka intenzivnih promjena, registruje se nedostatak mnogih dokumenata i aktivnosti u smislu pune implementacije Okvira, a potom i Strategije. Mnogi činoci sistema sporta, koji su prepoznati ovim dokumentima, a prije svih strukovne organizacije, još nisu formirane. Slična situacija se registruje i u dijelu sportsko-medicinske zaštite, tehnologije treninga, trenerske strukture...

METOD RADA

U procesu saznanja, razradi konteksta i na putu dolaska do zaključaka korišćen je metod refleksije. Refleksija kao saznajni metod se koristi u istraživanjima prirode fenomena, znanja i iskustva koja su povezana sa tim fenomenom. Koristi se kada se procijeni da su postojeća rješenja nekompletna, ili kada se traga za kontekstom nove – efikasnije prakse (Edwards i Skinner, 2009).

MANAGEMENT OF THE OLYMPIC DELEGATION – REFLECTION OF ACTIVITIES

Participation in the OG is only possible through the National Olympic Committee (NOC). Within participation, the NOC Mission aims at forming a sense of belonging and togetherness in Olympism, exclusivity, superiority and excellence of sports and athletes, the delegations and the Games itself. To participate in the Games, it is necessary to provide operation of the delegation and of each individual in a complex environment. The trip to the Games is a special event management (the Olympic delegation management – ODM) containing planning, identification of the structure, the cast, staff, management, control, and decision-making.

Today, at the end of the Olympic cycle, and nearly six years of work on improving the OCS sport functions, one can conclude that the management of the Olympic delegation of Serbia is specific in several aspects: (1) The period of the OCS engagement (long-term planning that extended from 18 months for the Olympics in Beijing to 36 months for London, or to 12 months for the OG programmes in Rio, 2016, so far); (2) A long list of priorities and a vision to provide the changes that will be of importance for the whole sport in Serbia through preparation and participation of delegations at the Olympic Games; (3) Functions in the integration of sports results (team and individual), the OG and OCS brand, society, government and sponsors; (4) The budget for training programme preparation through long periods of planning and development of sports results; (5) The legacy of the Olympic cycle, which has been measured by good relations in the Olympic sports family, new equipment, sophisticated programmes, the application of science, measuring and other equipment procurement for sports and medical diagnostics, prevention and treatment since the Beijing Olympics. The legacy is programme-oriented towards young athletes, whose talent is recognized, supported, and associated with the wholeness of a sports career and the next Olympic cycle.

Reflection is carried out over the theoretical, practical, and technical knowledge. Through a form of reflection, we have reached the previous point of organization, practices, guidance, and control of future activities. Therefore, reflection has been conducted over the Olympic delegation of management practices (MOD) and driven by its routine. The path of knowledge in this study was designed as a way from experience through reconstruction of practice to conclusions that should confirm or build a foundation for building new and more perfect practice. In recognition of the previous statements, respecting the rules of reflection, a number of factors analyses of the structure of the Olympic programme were made as follows:

MENADŽMENT OLIMPIJSKE DELEGACIJE – REFLEKSIJA AKTIVNOSTI

Učešće na OI je moguće samo kroz Nacionalni olimpijski komitet (NOK). Misija NOK u dijelu učešća za cilj ima formiranje osjećaja pripadnosti i zajedništva olimpizmu, ekskluzivnost, uzvišenost i izuzetnost sporta i sportista, delegacije i samih igara. Za učešće na igrama je neophodno obezbijediti funkcionisanje delegacije i svakog pojedinca u kompleksnom okruženju. Put je menadžment specijalnog događaja (menadžment olimpijske delegacije - MOD) koji sadrži planiranja, identifikaciju strukture, podjelu uloga, kadar, rukovođenje, kontrolu, odlučivanje.

Danas, na kraju drugog olimpijskog ciklusa i skoro šest godina rada na usavršavanju sportske funkcije OKS, može se zaključiti da je menadžment olimpijske delegacije Srbije specifičan u više aspekata: (1) Po trajanju angažovanosti OKS (višegodišnje planiranje koje se od 18 mjeseci za OI u Peking u produžilo na 36 za London, odnosno već 12 mjeseci traju programi za OI u Riju 2016). (2) Dugu listu prioriteta i viziju da se kroz pripremu i učešće delegacije na OI obezbijede promjene koje će biti od značaja za cjelinu sporta u Srbiji. (3) Funkciji u integraciji sportskih rezultata (timova i pojedinaca), brenda OI i OKS, društva, države i sponzora; (4) Budžet za odvijanje programa priprema kroz višegodišnje planiranje i periode razvoja sportskog rezultata; (5) Nasljeđe olimpijskog ciklusa koje se od OI u Peking u mjeri dobrim odnosima u porodici olimpijskih sportova, zanovljenoj opremi, usavršenim programima, primjeni nauke, nabavci mjerne i opreme u funkciji sportsko-medicinske dijagnostike, preventivi i liječenju. Nasljeđe su programi koji su orijentisani prema mladim sportistima, čiji se talenat prepoznaje, podržava i programski povezuje sa cjelinom sportske karijere i narednim olimpijskim ciklusom.

Refleksija je sprovedena nad teorijskim, praktičnim i tehničkim – know how znanjima. Kroz forme refleksije se došlo do smisla dosadašnjeg organizovanja, prakse, usmjeravanja i kontrole budućih aktivnosti. Dakle, refleksija je sprovedena nad praksom menadžmenta olimpijske delegacije (MOD) i rutinom njenog rukovođenja. Put saznanja u ovoj studiji je oblikovan kao put od iskustva kroz rekonstrukciju prakse do zaključaka koji treba da potvrde ili izgrade polazište za izgradnju nove i savršenije prakse. U afirmaciji prethodnih navoda, poštujući pravila refleksije, veći broj analiza činilaca strukture olimpijskih programa je učinjen, kako slijedi:

Period of the Olympic delegation building analysis

The Olympic delegation is different from the delegation participating in individual sports competitions. Its specificity is determined by a number of different sports, individual characteristics of particular disciplines (speed, power, endurance, technique...), the participation of both genders, different ages and experience, international ranking of athletes and results. Programme of the competition takes place over 16 days, in 35 sports branches and 303 disciplines, led by 28 International Sports Federations (ISF). In addition to the competition, the Games are dominated by three special events: welcome and raising the flag of each of NOC, Opening and Closing Ceremonies of the Games. Building of a delegation for participation at the Olympic Games takes place as a multi-year process, divided into five periods (conception, birth, childhood, adulthood, old age and inheritance) and that takes place as the ODM (Jevtić, 2011c).

The Olympism is based on the principle that sport promotes optimal development of a man and the society; the games are a primary event based on values, ethics, ideals (Jevtić, 2011b). However, when thinking about the Olympics, then it is thought about sports event that is the goal of every athlete, a motive that drives him to train hard. The Olympic Games are an event that affirms the individual values and integrates them through joint activities (competition, training, social contacts, cultural and educational programmes...). In evaluative framework of the Olympic idea, there are a number of ideals of the Olympic Movement, to which people strive in their readiness to encourage, through physical exertion and competition, harmonious development of an individual, excellence and achievement, respect for others, justice and equality, friendship, peace, tolerance, understanding, and connection of cultural diversities (Jevtić, 2011e, 2011f).

Team integration and construction process planning is one of the priorities of preparations in the country, and of the effective leadership during the Games. Symbolic integration is carried out during the most of the Olympic cycle. It is dominated by the activities and messages sent to the athletes that are filled with value preferences. The Cyrillic alphabet, logo, mascot, competition, formal and the daily activities equipment, memorabilia... are just some of the forms of support at this stage integration (Jevtić, 2011e).

Structural integration is the final part of this process, which provides a solid basis for the operation of the Delegation as a team. The flow of structural integration takes place in the period of full maturity of the delegation, which is achieved in the period of the Games. This integration can be reached through a multidimensional space, in which the horizontal dimension is the connection

Analiza perioda izgradnje olimpijske delegacija

Olimpijska delegacija se razlikuje od delegacije koja učestvuje na takmičenjima u pojedinačnim sportovima. Njena specifičnost je određena brojem različitih sportova, karakteristikama pojedinih disciplina (brzinskih, snažnih, izdržljivosti, tehničkih...), učešću oba pola, različitim uzrastima i iskustvom, međunarodnim rangom sportista i rezultata. Program takmičenja se odvija u 16 dana, u 35 sportskih grana, 303 discipline, pod rukovodstvom 28 Međunarodnih sportskih federacija (MSF). Igrama, pored takmičenja, dominiraju tri specijalna događaja: dobrodošlica i podizanje zastave svakog od NOKa, otvaranje i zatvaranje igara. Izgradnja delegacija za učešće na OI se odvija kao višegodišnji proces, koji je podijeljen na pet perioda (začeće, rađanje, detinjstvo, zrelo doba, starost i nasljeđe) i koji se odvija kao MOD (Jevtić, 2011c).

Olimpizam polazi od načela da sport podstiče optimalni razvoj čoveka i društva, da su igre primarni događaj koji je zasnovan na vrijednostima, etici, idealima (Jevtić, 2011b). Međutim, kada se razmišlja o olimpijskim igrama, tada se isključivo misli o sportskom događaju koji je svakom sportisti cilj, ali i motiv koji ga pokreće da naporno trenira. Olimpijske igre su događaj koji afirmiše individualne vrijednosti i integriše ih kroz zajedničke aktivnosti (takmičenje, trening, socijalni kontakti, kulturni i obrazovni programi...). U vrijednosnom okviru olimpijske ideje nalazi se veći broj ideala olimpijskog pokreta kojima se teži: spremnost na fizički napor i takmičenje podstiču harmonijski razvoj pojedinca, savršenstvo i postignuće, poštovanje drugih, pravdu i jednakost, prijateljstvo, mir, toleranciju, razumevanje, povezanost kulturne različitosti (Jevtić, 2011e, 2011f).

Planiranje procesa integracije i izgradnje tima je jedan od prioriteta priprema u zemlji i efikasnog rukovođenja u periodu igara. Simbolička integracija se odvija tokom najvećeg dijela olimpijskog ciklusa. Njome dominiraju aktivnosti i poruke koje se upućuju sportistima i koje su ispunjene vrijednosnim preferencama. Ćirilčno pismo, logo, maskota, takmičarska, svečana i oprema za dnevne aktivnosti, memorabilije - samo su neke od formi podrške ovoj fazi integracije (Jevtić, 2011e).

Strukturalna integracija je završni dio ovog procesa koji daje čvrste osnove za djelovanje delegacije kao tima. Tok strukturalne integracije se odvija u periodu pune zrelosti delegacije koja se postiže u periodu igara. Do ove integracije se stiže kroz višedimenzionalni prostor, u kome horizontalnu dimenziju ispunjava povezivanja članova delegacije u odnosu na sport,

of the Delegation members in relation to sport, age, gender, sports character, expectations, motives, idols, previous results, hobbies, etc. The vertical dimension comprises social contacts and relationships, openness of a person, attitudes, the degree of tolerance and trust, and the presence of balanced and realistic goals, openness to participate in solving common and individual problems, a sense of belonging, personal enjoyment, and the trust of an individual to the rest of the delegation... (Kobi, 1994).

The goal is that individuals and groups who value themselves and others through the vertical dimension achieve “deep integration dimension” in the games that determines the strength and unity of the national Olympic team and the strength of individual sports teams. The management of structural and symbolic integration of the OCS realizes *actions, Olympic programmes, events* (celebrations, promotions, seeing off and welcoming team) using *modern technology* (digital media, publications, advertising) (Jevtić, 2011c).

In the example of participation in the First Youth Olympic Games (2010), a comprehensive programme of integration of athletes and their environment (family, school, club, personal trainer) with the members and leadership of the Delegation was realized. Techniques of sports psychology were used as well, so that during preparation, transport, entry into the Olympic Village, training, competition, the state of sports anxiety was monitored (Inventory of the state of competitive anxiety – CSAI-2; Martins et al. 1983 and adaptations for the need of athletes of Serbia) (Lazarević, Juhas, & Bačanac, 1996). In Figure 1 example, we see that the young players had lower levels of cognitive anxiety before the first match of the tournament (below the standard of 15.35), that the level of somatic anxiety decreased before the final match to 11.75 units (the standard is 18.55; 2 hours before the match), and that self-confidence increased from 12.75 before the first match, to 31.50 before the final match (max value is 32). Despite many challenges (climate, the surface of the court, injuries...) basketball players and their coach, medical team, other athletes and coaches as well as the leaders of the delegation made efforts and supported the match in which gold, and it can be said, a historic Olympic medal in basketball was won 3:3, for the team to start the match as a team with a controlled level of anxiety and faith of individuals in their own quality and strength of the team.

Value framework of the Olympic programmes analysis

Since 2007, the Olympic Committee of Serbia Olympic has been realizing programmes that take place through the preparation of all actors of the Olympic delegation (athletes, professionals, managers, agencies, sponsors...), building a team for participation in the Olympics. These

uzrast, pol, karakter sporta, očekivanja, motive, idole, prethodne rezultate, hobi... Vertikalnoj dimenziji pripadaju socijalni kontakti i relacije, otvorenost pojedinca, stavovi, stepen tolerancije i povjerenja, prisustvo izbalansiranih i realnih ciljeva, otvorenost za učešće u rješavanju zajedničkih i pojedinačnih problema, osećaj pripadnost, lično uživanje i povjerenje pojedinca prema ostatku delegacije... (Kobi, 1994). Cilj je da pojedinci i grupe koji sebe i druge vrednuju kroz vertikalnu dimenziju ostvare „duboku dimenziju integracije“ koja na igrama opredjeljuje čvrstinu i jedinstvo nacionalnog olimpijskog tima, odnosno čvrstinu timova i ekipa pojedinačnih sportova. Menadžment strukturne i simboličke integracije OKS realizuje korišćenjem *savremene tehnologije* (digitalni mediji, publikacije, advertajzing); *akcije, olimpijske programe, događaje* (proslave, promocije, ispraćaji i doček tima) (Jevtić, 2011c).

U primjeru učešća na I olimpijskim igrama mladih (2010) realizovan je program cjelovite integracije sportista i njihovog okruženja (porodica, škola, klub, lični trener) sa članovima i rukovodstvom delegacije. Korišćene su i tehnike sportske psihologije, tako da se tokom perioda priprema, transporta, ulaska u olimpijsko selo, treninga i takmičenja pratilo stanje sportske anksioznosti (Inventar stanja takmičarske anksioznosti – CSAI-2; Martins i sar. 1983 i adaptacije za potrebe sportista Srbije) (Lazarević, Juhas i Bačanac, 1996). U primjeru na Slici 1, vidi se da su mladi košarkaši imali niži nivo kognitivne anksioznosti pred prvi meč na turniru (niži od standarda od 15,35), da se nivo somatske anksioznosti smanjio prije finalne utakmice na 11,75 jedinica (standard je 18,55 za 2 sata prije utakmice), kao i da je samopouzdanje poraslo od 12,75, prije prve utakmice, na 31,50 prije finalne utakmice (maksimalna vrijednost je 32). I pored velikog broja izazova (klima, podloga, povrede), sami košarkaši i njihov trener, medicinski tim, ostali sportisti i treneri, kao i rukovodstvo delegacije, činili su napor i davali podršku da se u meču u kome je osvojena zlatna, a može se reći i istorijska olimpijska medalja u basketu 3:3, uđe kao tim sa kontrolisanim nivoom sportske anksioznosti i vjerom pojedinaca u sopstvene kvalitet i snagu tima.

Analiza vrijednosnog okvira olimpijskih programa

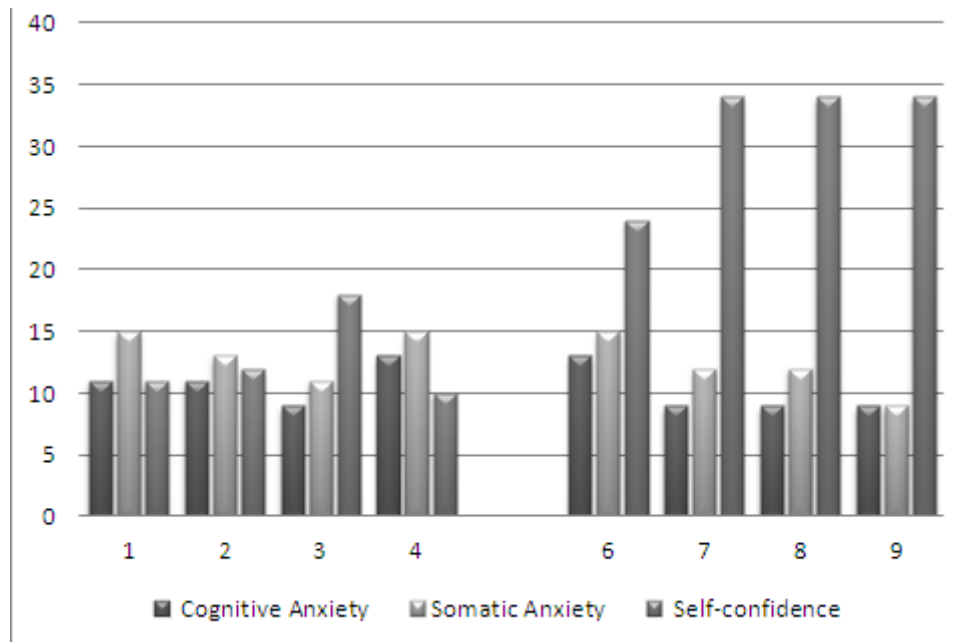
Od 2007. godine, Olimpijski komitet Srbije realizuje olimpijske programe kroz koje se odvijaju pripreme svih aktera olimpijske delegacije (sportisti, stručna lica, rukovodioci, agencije, sponzori...), te gradi tim za učešće na OI. Ovo su višegodišnji programi koji

FIGURE 1

The condition of sports anxiety at the beginning (1 to 4) and the end of the Olympic basketball tournament (6-9)

SLIKA 1

Stanje sportske anksioznosti na početku i kraju olimpijskog turnira u basketu



Legend: Cognitive Anxiety – Kongitivna anksioznost; Somatic Anxiety – Somatska anksioznost; Self-confidence – Samopouzdanje.

multi-year programmes are aimed at developing athletes (individual and teams) and their environment, but also all actors of the system of sport in Serbia. In other words, the OCS programmes are implemented as a technological innovation that creates a product (a result, a team, participation, a competent sports organization, an individual) and implies the long-term management of the processes of changes. After four years of realization within two Olympic Cycles (for the OG in Beijing and London), it can be concluded that the programmes have reached the consensus of all factors of sport system of Serbia on the necessity of continuous changes (Jevtić, 2011d).

An athlete (team – individual) strives to compete and compare his sports identity with a standard, which is very high for participation in the Games. This is the point in which the participation in the OCS programmes is established, i.e. from the assessment of the competitiveness to the development and prosperity of results. The Olympic programmes are a support to development of a larger number of competencies which ensure the maintenance and further development of athletes' and the OCS delegation's competitiveness. Although the immediate goal is preparation for the Games, the context of these programmes is wider and the following belongs to it: *Encouraging* spiritual and physical harmony of an individual, his aspiration for perfection and achievement; *Nurturing* relationships, equality, friendship, tolerance,

su usmjereni ka razvoju sportiste (pojedinaac i timovi) i njegovog okruženja, ali i svih činilaca sistema sporta Srbije. Drugim riječima: programi OKS se realizuju kao tehnološka inovacija koja stvara proizvod (rezultat, tim, učešće, kompetentna sportska organizacija, pojedinac) i porazumijeva višegodišnje upravljanje procesima promjena. Nakon četiri godine i unutar dva olimpijska ciklusa (olimpijske igre u Pekingu i Londonu), može se zaključiti da su programi doveli do konsenzusa svih činilaca sistema i okruženja sporta Srbije o neophodnosti kontinualnih promjena (Jevtić, 2011d).

Sportista (tim-pojedinac) teži da se takmiči i uporedi svoj sportski kapacitet sa standardom koji je za učešće na olimpijskim igrama visok. Ovo je mjesto oko koga se uspostavlja učešće u programima OKS, odnosno od procjene konkurentnost ka razvoju i prosperitetnost rezultata. Olimpijski programi su podrška razvoju većeg broja kompetentnosti koje obezbjeđuju održavanje i dalji razvoj konkurentnost svih sportista i cjeline delegacije. Iako se kao neposredan cilj nameće priprema za učešće na igrama, ipak kontekst ovih programa je širi i njemu pripadaju: *podsticanje* duhovne i fizičke harmonije pojedinca, *njegove* aspiracije prema savršenstvu i postignuću; njegovanje odnosa: jednakosti, prijateljstva, tolerancije, razumijevanja; *zaštita* identiteta sportiste,

understanding; *Protection* of identity of an athlete, team, delegation, sport itself and Olympism; *Construction* of competition preferences and a high degree of competitiveness; *Improving* the environment and its effectiveness in meeting the athlete preferences; *Social security* of an athlete; *Zero tolerance* to doping (Jevtić, 2011e).

The peculiarity of these programmes is a value framework explicitly defined in the OCS documents since 2006 (left column in Table 1). Analyzing and comparing these documents which occurred by studying the value framework fostered by the OCS with the theoretical concept of Rokeach (1973) and the IOC itself, we got the individual and group values that spread to the whole environment of the Olympic delegation, the OCS, the system of sport and society in Serbia (Table 1) (Jevtić, 2011c, 2011e). Value context is in some sense the aim of the Olympic delegation management at all periods of construction and management.

The Olympic programmes analysis

The Olympic programmes are multi-year projects of preparing athletes of Serbia for participation in the OG, established on strong practice and science postulates. Implementation of these programmes emphasizes skills that associate knowledge with planning, organizations, directing, controlling, budgeting, management, and evaluations (ASC, 2004; Blouce & Smith, 2010; Camy & Robinson, 2007; De Sensi, 1990). Making of a programme is followed by its segmentation, leading to operational groups and tasks, according to the existing results of athletes (classification), the system of qualifications, technology of training, training facilities, social care, sports and medical care, and anti-doping prevention, the OCS programme effectiveness and national sport federations (NSF), sponsors, media, finances (Jevtić, 2011b).

The classification into smaller operating units that can be managed aims at more efficient realization of this process and its control in accordance with the standards, rules and numerous guidelines. Stages and periods that cover the entire life cycle of the Olympic programmes including participation in the Games are indicated by operational work.

After the first cycle of the Olympic Games in Athens (2004), an analysis of participation was made and a project directed toward a system of sport participation at the OG in Beijing was created. After the Games in Beijing, the OCS and state bodies of Serbia accepted the reports (Jevtić, 2008) in which, among other things, it was concluded that the project “Beijing 2008” did not have the capacity to influence all actors that determined the quality of the competition results (*weakness of the project which emerged from the weaknesses of the sport system*), and above all, the following (Jevtić, 2009):

tima, delegacije, samog sporta i olimpizma; *izgradnja* preferenci za takmičenje i visok stepen konkurentnosti; *usavršavanje* okruženja i njegova efikasnost u susretanju preferenci sportiste; socijalna *sigurnost* sportiste; nulta *tolerancija* na doping (Jevtić, 2011e).

Karakteristika ovih programa je vrijednosni okvir koji se u dokumentima OKS eksplicitno definiše od 2006. godine (lijeva kolona u Tabeli 1). Analizom ovih dokumenta i komparacijom vrijednosnog okvira koga njeguje OKS, sa teorijskim konceptom Rokeacha (1973) i samog MOK-a, dobijene se pojedinačne i grupne vrijednosti koje se odnose na cjelokupno okruženje olimpijske delegacije, OKS, sistem sporta i društva Srbije (Tabela 1) (Jevtić, 2011c, 2011e). Vrijednosni kontekst je, u neku ruku, ishodište menadžmenta olimpijske delegacije u svim periodima izgradnje i rukovođenja.

Analiza olimpijskih programa

Olimpijski programi su višegodišnji projekat pripreme sportista Srbije za učešće na OI, uspostavljeni na postulatima struke i nauke. Realizacija ovih programa potencira vještine kojima se povezuju znanja sa planom, organizacijom, usmjeravanjem, kontrolom, budžetiranjem, rukovođenjem i evaluacijom (ASC, 2004; Blouce i Smith, 2010; Camy i Robinson, 2007; De Sensi, 1990). Nakon sačinjavanja programa, slijedi njegovo segmentiranje koje vodi do operativnih grupa i zadataka, prema postojećim rezultatima sportista (kategorizacija), sistemu kvalifikacija, tehnologiji treninga, trenaznim objektima, socijalnoj brizi sportsko-medicinskoj zaštiti i antidoping preventivi, programskoj efikasnosti OKS i nacionalnih sportskih federacija (NSF), sponzorima, medijima, finansijama (Jevtić 2011, b).

Razvrstavanje u manje operativne jedinice kojima je moguće upravljati ima za ciljeve efikasniju realizaciju ovog procesa i njegovu kontrolu u skladu sa standardima, pravilima i mnogobrojnim uputstvima. Operativnim dijelom su naznačene etape i periodi koji pokrivaju cijeli životni ciklus olimpijskih programa, uključujući učešće na igrama.

Nakon prvog ciklusa olimpijskih programa za igre u Atini (2004), sačinjena je analiza učešća i kreiran je projekat koji je usmjeravao sistem sporta prema učešću na Olimpijskim igrama u Pekingu. Nakon igara u Pekingu, tijela OKS i države Srbije su prihvatila izvještaje (Jevtić, 2008) u kojima se, između ostalog, zaključuje da sam projekat „Peking 2008“ nije imao kapacitet da utiče na sve činioce koji opredjeljuju kvalitet takmičarskog rezultata (*slabost projekta koja je proistekla iz slabosti sistema sporta*), a prije svih na (Jevtić, 2009):

- voljnu i psihološku pripremu sportista

TABLE 1*The OCS programme value framework***TABELA 1***Vrijednosni okvir programa OKS*

| NOC Serbia Programmes Value Framework (2006, 2009) | Groups of Final and Instrumentalized values |
|---|--|
| Equal possibilities for all athletes and NSF to participate in the project | Universality, unity, independence |
| Part of NOC Serbia and NSF long-term plans | Security, stimulation, social recognition |
| Maintaining competitiveness of results of the athletes of Serbia, personal advancement | Accomplishment, hedonism, inner harmony, satisfaction, self respect |
| Building up the Olympic Team and the Olympic Spirit | Benevolence-kindness, affiliation |
| Accompanying plans (health prevention and protection, information system, insurance of athletes, etc.), complementary programmes (specific forms of trainings, supplementation, etc.) | Security, stability of relations and rapports, health, safety |
| Professionalization of athletes and their coaches, image | Power, social status, prestige, self-respect, independence |
| Partnership of stakeholders of the system of sport and the society of Serbia = <i>Olympic Serbia</i> | Affiliation, true friendship, support, wide understanding, support, help |
| Respect of the authenticity of single sports and general character of the Olympic Games in organizational sense | Adaptability, responsibility, acceptance |
| Openness of projects for participants and initiatives | Universality, equality |
| Focus on the athlete (all athletes are negative in anti-doping testing) | Focus on oneself |
| Realistic and attainable goals | Stimulation, performance, inner harmony, independence, responsibility |
| Clear concept and resources | Performance, stability, adaptability |

Legend: NOC Serbia Programmes Value Framework (2006, 2009) – Vrijednosni okvir programa OKS (2006, 2009); Groups of Final and Instrumentalized values – Grupe finalnih i instrumentalizovanih vrednosti; Equal possibilities for all athletes and NSF to participate in the project – Jednake mogućnosti za sve sportiste i NSF da učestvuju u projektu; Universality, unity, independence – Univerzalnost, jednakost, nezavisnost; Part of NOC Serbia and NSF long-term plans – Dio dugogodišnjih planova OKS-a i NF-a; Security, stimulation, social recognition – Sigurnost, stimulacija, društveno prepoznavanje; Maintaining competitiveness of results of the athletes of Serbia, personal advancement – Očuvanje konkurentnosti rezultata sportista Srbije, lično napredovanje; Accomplishment, hedonism, inner harmony, satisfaction, self respect – Postignuće, hedonizam, unutrašnja harmonija, zadovoljstvo, samopoštovanje, sponoban; Building up the Olympic Team and the Olympic Spirit – Izgradnja olimpijskog tima i duha; Benevolence-kindness, affiliation – Benevolentnost-blagonaklonost, afilijacija; Accompanying plans (health prevention and protection, information system, insurance of athletes, etc.), complementary programmes (specific forms of trainings, supplementation, etc. – Prateći planovi (zdravstvena preventiva i zaštita, informacioni sistem, osiguranje sportista...), komplementarni programi (specifične forme treninga, suplementacija...); Security, stability of relations and rapports, health, safety – Sigurnost, stabilnost realcija i odnosa, zdravlje, sigurnost; Professionalization of athletes and their coaches, image – Profesionalizacija sportista i njihovih trenera, imidž; Power, social status, prestige, self-respect, independence – Moć, socijalni status, prestiž, samopoštovanje, nezavisnost; Partnership of stakeholders of the system of sport and the society of Serbia = *Olympic Serbia* – Partnerstvo činilaca sistema sporta i Društva Srbije = *Olimpijska Srbija*; Affiliation, true friendship, support, wide understanding, support, help – Afilijacija, iskreno prijateljstvo, podrška, široko razumevanje, pomoć; Respect of the authenticity of single sports and general character of the Olympic Games in organizational sense – Poštovanje osobenosti pojedinačnih sportava i opštosti olimpijskih igara u organizacionom smislu; Adaptability, responsibility, acceptance – Prilagodljivost, logičnost, odgovornost, prihvatanje; Openness of projects for participants and initiatives – Otvorenost projekta za učesnike i inicijative; Universality, equality – Univerzalnost, jednakost; Focus on the athlete (all athletes are negative in anti-doping testing) – Usmerenost ka sportisti (svi sportisti su negativni na antidoping); Focus on oneself – Usmerenost ka sebi; Realistic and attainable goals – Realni i ostvarivi ciljevi; Stimulation, performance, inner harmony, independence, responsibility – Stimulacija, postignuće, unutrašnja harmonija, nezavisnost, odgovornost; Clear concept and resources – Jasne postavke i resursi; Performance, stability, adaptability – Postignuće, stabilnost, prilagodljivost.

- voluntary and psychological preparation of athletes
- resources from programmes and the area of sports science and sports medicine
- rivals and training partners (partly)
- a large number of competitions and overtraining
- long-term qualifications
- management of sports fitness
- the number of sports in which results for participation in the OG are made
- the state of sports clubs
- timely and full funding of all programmes
- athletes' environment (NF, logistics)
- conflicts
- control of training in the area of :
 - quality and quantity of training
 - methodology of training, training periodization
 - training, health and anti-doping documentation and protocols
- methods for fast, efficient and safe assessment of training status
- number of individuals and teams that won World and European Championships
- competence of trainers and managers for the ultimate sports result
- requirements for training and competition
- resurse iz programa i prostora sportskih nauka i sportske medicine
- rivale i trening partneri (delimično)
- veliki broj takmičenja i pretreniranost
- dugotrajne kvalifikacije
- upravljanje sportskom formom
- broj sportova u kojima se postižu rezultati za učešće na OI
- stanje u sportskim klubovima
- pravovremeno i cjelovito finansiranje svih programa
- okruženje sportista (NF, logistika...)
- konflikte
- kontrolu trenažnog rada u prostoru:
 - kvaliteta i kvantiteta treninga
 - metodiku treninga i periodizaciju treninga
 - trenažnu, zdravstvenu i anti-doping dokumentaciju i protokole
- metode za brzu, efikasnu i sigurnu procjenu trenažnog stanja
- broj pojedinaca i timova koji osvajaju svjetska i evropska prvenstva
- kompetentnost trenera i menadžera za vrhunsko sportski rezultat
- uslove za trening i takmičenje

These allegations have been transformed into the challenges of the Olympic Programmes for the Olympic Games in London (2012) (*Project of Beijing as a force*) (Jevtić, 2009), because of which multi-year strategy is defined that is expected to resolve the following problems, estimated to make achieving the goal¹ more difficult (*Threats*):

- financial problems and possibly decreased interest of sponsors for sport,
- increased expenses of qualifications,
- accurate price, timely supply, and application of new training technological achievements of athletes of Serbia preparation,
- partnership with NSF in programme preparation and problem solving, new instruments in creating relationships, training control, and programme preparation,
- flow of information,
- activity of professional associations (coaches, managers) and programme directors,
- researches of sport system and its development strategies after 2012,
- health care and anti doping protocols.

As with other Olympic organizations, so is the programme orientation of OCS accompanied by a risk

Ovi navodi su pretočeni u izazove olimpijskih programa za igre u Londonu (2012) (*Projekat: Peking kao snaga*) (Jevtić, 2009), zbog čega je definisana višegodišnja strategija od koje se očekuje da razriješi sljedeće probleme za koje je procijenjeno da će otežati dolazak do cilja¹ (*Prijetnje*):

- finansijske probleme i moguću manju zainteresovanost sponzora za sport,
- uvećane troškove kvalifikacija,
- cijenu koštanja i blagovremenu nabavku i primjenu novih dostignuća tehnologije treninga u pripremi sportista Srbije,
- partnerstvo sa NSFa u pripremi programa i rješavanju problema, nove instrumente u kreiranju odnosa i kontroli treninga i programa priprema.
- protok informacija,
- aktivnost strukovnih udruženja (treneri i menadžeri) i profesije programskih direktora,
- istraživanja sistema sporta i strategija njegovog razvoja nakon 2012.godine,
- zdravstvenu brigu i antidoping protokole.

Kao i kod drugih olimpijskih organizacija, tako je i programska orijentacija OKS praćena rizikom i

¹Sustainability of results regarding high international standard, the largest possible number of athletes (teams and individuals) qualified for the Olympic games of London

¹Održivost rezultata visokog međunarodnog standarda. Što veći broj sportista (timova i pojedinaca) i sportova da se kvalifikuje za učešće na OI u Londonu.

and uncertainty, because the decisions are made based on currently available data, for an event that will take place in the future. Decisions are made in relation to the current state of an athlete who is known little about (Rubingh, 1996). Programmes associate knowledge with the plan, organizations, directing, controlling, budgeting,

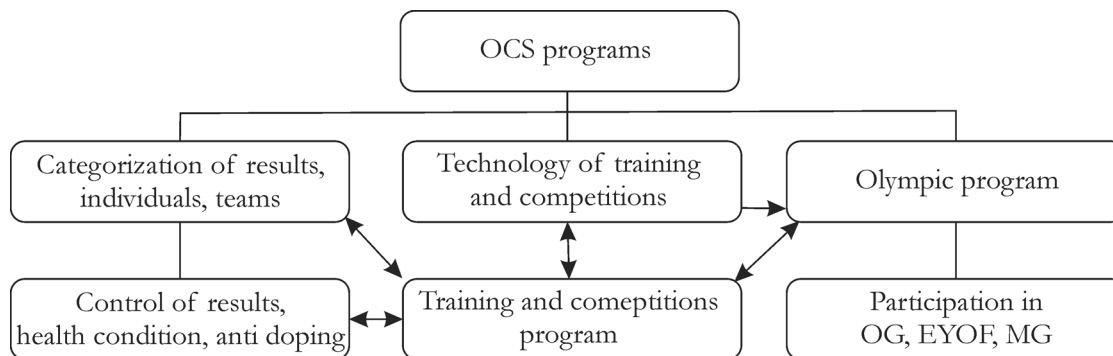
nesigurnošću, jer se odluke donose na osnovu danas raspoloživih podataka za događaj koji će se odigrati u budućnosti. Odluke se donose na osnovu trenutnog stanja rezultata sportiste o kome se malo zna (Rubingh, 1996). Programi povezuju znanja sa planom, organizacijom, usmjeravanjem, kontrolom, budžetiranjem,

FIGURE 2

Analytical model for OCS programme making (Source: Jevtić, 2011a)

SLIKA 2

Analitički model za izradu programa OKS (Izvor: Jevtić, 2011a)



Legend: OCS programs – Programi OKS; Categorization of results, individuals, teams – Kategorizacija rezultata, pojedinaca i timova; Technology of training and competitions – Tehnologija treninga i takmičenja; Olympic program – Control of results, health condition, anti doping – Kontrola rezultata, zdravstvenog stanja, antidoping; Training and competitions program – Program treninga i takmičenja; Participation in OG, EYOF, MG – Učešće na OI, EYOF, MI.

management and evaluations (Jevtić, 2011d) (Figure 2).

Reflection of an activity such as management of the Olympic delegation indicates that the Olympic OCS programmes acquire elements that are more academic because they are based on examples of practice, principles of science in sport, and the effort to enrich the whole process by cooperation with the experts. The result is a rich heritage of the Olympic cycle, to which management of changes and continuous adaptation with the aim of developing of both the OCS performances, and the whole sport system of Serbia belong (Jevtić, 2008; Jevtić, 2011d). Today, the Olympic programmes are monitored and supported by all actors of the system of sport and its environment (the state). They have become a national system of innovations and values.

Analysis and monitoring of results of the athletes of Serbia

By recording the results achieved at the criterion competitions, the process of qualifying athletes (individuals and teams) for participation in the OCS programme begins. After two cycles of monitoring, analyses suggest that Serbia maintains the number of sports that “gave up their Olympic tradition and vision,” and that there are more sports that meet the criteria by fulfilling only

rukovođenjem i evaluacijom (Jevtić, 2011d) (Slika 2).

Refleksija na aktivnost kakva je menadžment olimpijske delegacije, upućuje da olimpijski programi OKS sve više poprimaju elemente akademizma jer su zasnovani na primjerima prakse, principima nauka u sportu i nastojanje da se cjelokupan proces obogati saradnjom sa ekspertima. Rezultat je bogato nasljeđe olimpijskog ciklusa kome pripadaju i upravljanje promjenama i kontinuirane adaptacije sa ciljem razvoja - kako performansi OKS, tako i cjeline sistema sporta Srbije (Jevtić, 2008; Jevtić 2011d). Danas, olimpijske programe prate i podržavaju svi činioци sistema sporta i njegovog okruženja (država). Oni su postali nacionalni sistem inovacija i vrijednost.

Analiza i praćenje rezultata sportista Srbije

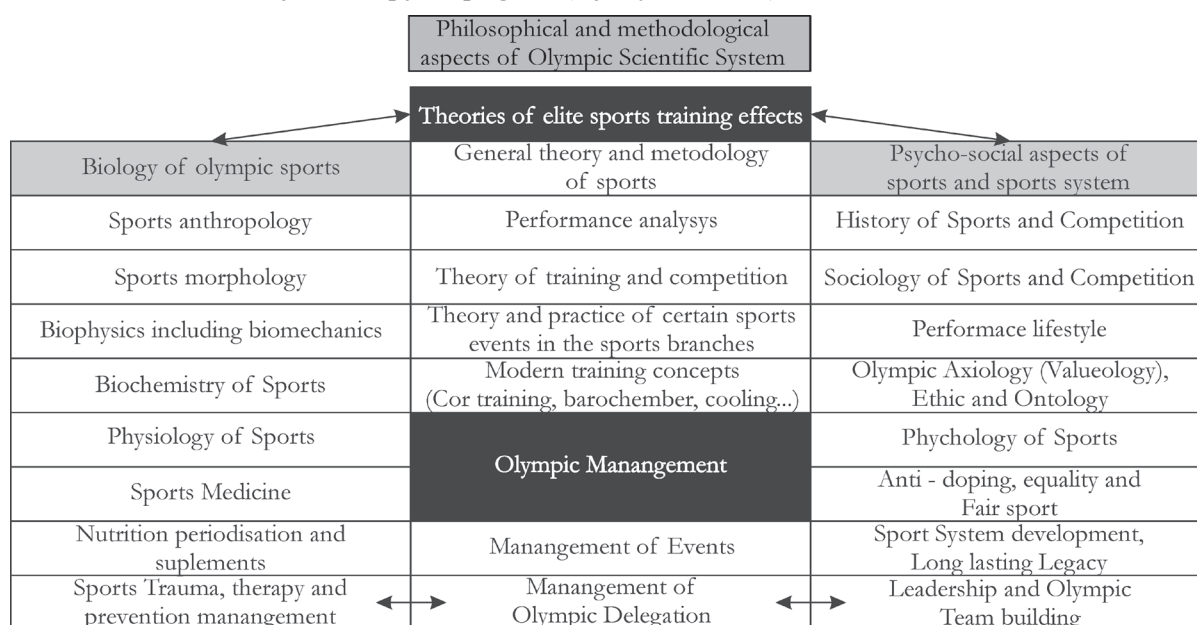
Evidentiranjem rezultata postignutih na kriterijumskim takmičenjima, otpočinje proces kvalifikovanja sportista (pojedinaца i timova) za učešće u programima OKS. Nakon dva ciklusa praćenja, analize upućuju da se u Srbiji održava broj sportova koji su „odustali od svoje olimpijske tradicije ili vizije“, kao i da sve više ima sportova koji se zadovoljavaju ispun-

FIGURE 3

The scientific system in the Olympic programme management (Source: Jevtic, 2011a)

SLIKA 3

Naučni sistem u menadžmentu olimpijskih programa (Izvor: Jevtić, 2011a)



Legend: Philosophical and methodological aspects of Olympic Scientific System – Filozofski i metodološki aspekti olimpijskog naučnog sistema; Theories of elite sports training effects – Teorije efekata treninga vrhunskog sporta; Biology of olympic sports – Biologija olimpijskih sportova; General theory and methodology of sports – Opšta teorija i metodologija sporta; Psycho-social aspects of sports and sports system – Psihosocijalni aspekti sporta i sportski sistem; Sports anthropology – Antropologija sporta; Performance analysys – Analiza sporta; History of Sports and Competition – Istorija sporta i takmičenja; Sports morphology – Morfologija sporta; Theory of training and competition – Teorija treninga i takmičenja; Sociology of Sports and Competition – Sociologija sporta i takmičenja; Biophysics including biomechanics – Biofizika uključujući i bomehaniku; Theory and practice of certain sports events in the sports branches – Teorija i praksa pojedinig sportskih takmičenja u sportskim granama; Performance lifestyle – Životne vještine sportista; Biochemistry of Sports – Biohemija sporta; Modern training concepts (Cor training, barochamber, cooling...) – Savremeni trenazni koncepti (Cor trening, hipobarična komora, hlađenja...); Olympic Axiology (Valueology), Ethic and Ontology – Olimpijska aksiologija (valueologija), etika i ontologija; Physiology of Sports – Fiziologija sporta; Sports Medicine – Sportska medicina; Olympic Management – Olimpijski menadžment; Phychology of Sports – Psihologija sporta; Anti doping, Equality and Fair sport – Antidoping, jednakost i fer plej; Nutrition periodisation and suplements – Sportska ishrana, periodizacija i suplementacija; Manangement of Evetnts – Menadžment sportskih takmičenja; Sport System development, Long lasting Legacy – Razvoj sistema sporta, trajno nasljeđe; Sports Trauma, therapy and prevention manangement – Sportska trauma, terapija i menadžment prvcenije; Manangement of Olympic Delegation – Menadžment olimpijske delegacije; Ledaership and Olympic Team building – Izgradnja i rukovođenje olimpijskom delegacijom.

one participant's criterion. Accordingly, the number of sports in which athletes from Serbia will compete in London OG this year remains unchanged compared to Beijing², but it raises the question of the total number of athletes and the size of the delegation (91 athletes in

² Out of 28 sports from the Summer Olympics programme, only 10 NSF had their representatives in Beijing. The simulation for the Games in London, conducted on the results of Serbian athletes in 2010, indicates the trend of declining competitiveness and the number of sports. Of 26 sports from the Programme of The first Youth Olym-

javanjem samo učesničkog kriterijuma. Shodno navedenom, broj sportova u kojima će sportisti Srbije takmičiti na OI u Londonu ostaće nepromijenjen u odnosu na Peking, ali se otvara i pitanje ukupnog broja sportista i veličine delegacije (u Pekingu 91 sportista)². Broj žena u olimpijskim programima i

² U delegaciji Srbije na Igram u Pekingu je bilo deset sportova. Simulacija za Igre u Londonu, sprovedena na osnovu rezultata sportista u 2010. godini, ukazuje na trend opadanja konkurentnosti i broja sportova. Od 26 sporta na Programu Prvih olimpijskih igara mladih (YOG) u Singa-

Beijing). The number of women in the Olympic programme and the delegations is variable (currently there are 27 women or 34.6% of the delegation for London OG), and there are more and more athletes who are prone to doping (4 positive findings among 70 athletes identified in 2010). In order to stop the process of declining competitiveness of results of Serbian individuals and teams, and to direct the system of sport towards zero-tolerance to doping, the OCS has provided a number of programmes for project management development of results, and these are: (1) *Olympic participations standard* (athletics, rowing, cycling, judo, wrestling, swimming, triathlon, volleyball, taekwondo, boxing); (2) *Finalist and medals at the OG – Top 10* (shooting, kayaking, rowing, swimming, athletics, volleyball, tennis); (3) *sustaining the elite results and gold medal winning – “Golden Olympic Club”* (tennis, water polo, shooting) (Table 2). Within this classification, a few months before the end of qualifications, a group of athletes is being monitored, for whom the simulation of results and ranking indicate that they are able to meet

delegacijama je promjenjiv (trenutno za London 27 žena, ili 34,6% delegacije), a sve je više sportista koji pribegavaju doping (4 pozitivna nalaza među 70 identifikovanih sportista u 2010. godini). Da bi se proces opadanja konkurentnosti rezultata pojedinaca i timova Srbije zaustavio i da bi se sistem sporta usmjerio ka nultoj toleranciji dopinga, OKS je predvidio veći broj programa za projektno upravljanje razvojem rezultata do: (1) *olimpijske norme* (atletika, veslanje, boks, biciklizam, džudo, rvanje, plivanje, triatlon, rukomet, tekvondo, boks) (2) *finala i medalje na OI – Top 10* (streljaštvo, kajak, veslanje, plivanje, atletika, odbojka, tenis); (3) održavanje elitnih rezultata i osvajanje zlatne medalje – „Zlatni olimpijski klub“ (tenis, vaterpolo, streljaštvo) (Tabela 2). Unutar ove kategorizacije, nekoliko mjeseci prije kraja kvalifikacija, prati se grupa sportista za koje simulacija rezultata i plasman ukazuju da su kadri da ispune učesnički

TABLE 2

Categorization of athletes' results for participation in the OG “London 2012” (cross-section September 2011)

TABELA 2

Kategorizacija rezultata sportista za učesće na OI „London 2012“ (presjek septembar 2011)

| Sports | GOC | | | | MC T10 | | | | PG | | | | PP | | | |
|--------|------|------|------|------|--------|------|------|------|------|------|------|------|------|------|------|------|
| | W | | M | | W | | M | | W | | M | | W | | M | |
| | 2010 | 2011 | 2010 | 2011 | 2010 | 2011 | 2010 | 2011 | 2010 | 2011 | 2010 | 2011 | 2010 | 2011 | 2010 | 2011 |
| 1. | | | | | | 1 | | 2 | 4 | 3 | 1 | 3 | 1 | 1 | 1 | 2 |
| 2. | | | | | | | | | | | | | | | 2 | 2 |
| 3. | | | 13 | 13 | | | | | | | | | | | | |
| 4. | | | | | 1 | | 2 | 2 | | | 10 | 4 | | 2 | | 6 |
| 5. | | | | | 6 | 4 | 6 | 5 | 6 | | 2 | | | 2 | | 2 |
| 6. | | | | | 12 | 12 | 12 | 12 | | | | | | | | |
| 7. | 1 | | 1 | | | 1 | 1 | | | | | | 2 | 1 | 3 | 3 |
| 8. | | | | | | | 1 | | | | | | | | 1 | 2 |
| 9. | | | | | | | | | | | | | | | 14 | |
| 10. | 1 | | 1 | 1 | 2 | 1 | 2 | 2 | | 2 | | 1 | | 2 | | 1 |
| 11. | | | | | | | 2 | | | | | | 1 | 1 | 1 | 3 |
| 12. | | | 1 | 1 | 1 | | | | 3 | 3 | 3 | 3 | | | | |
| 13. | | | | | | | 2 | 1 | | | | | | | | |
| Total | 2 | 0 | 16 | 15 | 22 | 19 | 28 | 25 | 13 | 8 | 16 | 11 | 4 | 9 | 22 | 21 |

Legend: **GOC** – »Golden Olympic Club« (»Zlatni olimpijski klub«); **MC T10** - Medal candidate »Top 10« (Kandidat za medalju »Top 10«); **PG** - »Participant of the Games« (»Učesnik igara«); **PP** - »Potential Participant« (»Potencijalni učesnik«); **W** - Women (Žene); **M** - Men (Muškarci); **1.** - Athletics (Atletika); **2.** - Cycling (Biciklizam); **3.** - Water polo (Vaterpolo); **4.** - Rowing (Veslanje); **5.** - Kayaking (Kajak); **6.** - Volleyball (Odbojka); **7.** - Swimming

(Plivanje); **8.** - Wrestling (Rvanje); **9.** - Handball (Rukomet); **10.** - Shooting (Streljaštvo); **11.** - Taekwondo (Tekvondo); **12.** - Tennis (Tenis); **13.** - Boxing (Boks).
 pic Games (YOG) in Singapore in 2010, individuals and teams participated in 8 sports.
 puru u 2010. godini, pojedinci i timovi su nastupili u 8 sportova.

the participatory criterion (*Potential OG participants*).

Analysis of Table 3 shows the visible and hidden data. The visible ones are related to results in 2011 compared to 2010. Results of women, as those of men, moved towards the lower classes and lower level of competitiveness. Hidden data indicate that the index of competitiveness of Serbian female athletes' results fell from the share 0:03 in 2010 (calculated in relation to the number of Olympic events in which athletes from Serbia will compete) to 12:02 in 2011 and that the decline occurred in men from 0:46 in 2010 to 0.040 in 2011. Gross-share of the Serbian Olympic index of competitiveness in 2011 was reduced to 0.076 compared to 0.093 as it was in 2010. Top results (medals at criterion competitions) in two consecutive years (the elite score) in women's competition in 2011 is not repeated!

The agency "Infostrada Sports" analysis (2011) reported the movement of results in the professional sport in Serbia in 2011 compared to 2010, in respect of participation at the Olympic Games in London. In the analysis, inter alia, the following is shown:

- Index of change in the results of Serbian athletes increased from 27% to 54% over the entire period of 2010.
- However, if the results of tennis are subtracted from this index, Serbian athletes declined in the Olympic disciplines by 78% compared to 2009 (year of cross-section for the analysis of success in 2010). The decline in swimming, archery, and athletics was recorded.
- Compared to 2007, the competitiveness of the results of Serbian athletes for participation in the SOG in London (2012) has fallen by 7%, i.e. if from the observed state of the sport the results of women's tennis are subtracted; we can say that there is a rise for Serbia by 4%.
- Results in the shooting have fallen by 71%, but they remained above the results in 2007.
- In 2008, women made 59% of all winning athletes of Serbia. In 2011, there are no recorded victories and won medals in women's competition.
- Based on the results that the athletes of Serbia accomplished in 2011, at the World Championships and competitions equivalent to those at the OG, Serbia would win seven medals in London – shooting (4), water polo (1) tennis (1) and volleyball (1).

Sports-medical care analysis

The Olympic Games are the identity of a modern civilization, which has developed respecting the natural, social, and economic laws. Natural laws belong to the biology of a man – an athlete, because an individual in the contemporary society expresses himself through the movement of the body (sport as a symbolic move) (Tasato, 2003).

Body movement and physical activity, continuously

kriterijum (*potencijalni učesnici*).

Analiza Tabele 3 ukazuje na vidljive i skrivene podatke. Vidljivi podaci se odnose na rezultate u 2011. godini u odnosu na 2010. godinu. Rezultati žena su se kao i rezultati muškaraca pomjerali ka nižim kategorijama i nižem stepenu konkurentnosti. Skriveni podaci upućuju da je indeks konkurentnosti rezultata sportista Srbije pao u 2011. u odnosu na 2010. Vrhunski rezultat (medalja na kriterijumskim takmičenjima) u dvije uzastopne godine (elitni rezultat) u konkurenciji žena u 2011. godini nije ponovljen!

Analiza agencije "Infostrada sport" (2011) saopštila je kretanje rezultata unutar vrhunskog sporta Srbije u 2011. godini u odnosu na 2010. godinu, a u odnosu učešća na Olimpijskim igrama u Londonu. U analizi se, između ostalog, navodi sljedeće:

- Indeks promjena rezultata sportista Srbije su porasli sa 27% na 54% u odnosu na cjelokupan period 2010.
- Ipak, ako se ovom indeksu oduzmu rezultati tenisa, to su sportisti Srbije u olimpijskim disciplinama zabilježili pad za 78% u odnosu na 2009. (godina presjeka za analizu uspjeha 2010. godine). Evidentan je pad rezultata u plivanju, streljaštvu, atletici
- U odnosu na stanje iz 2007. godine, konkurentnost rezultata sportista Srbije za učešće na Ljetnjim olimpijskim igrama u Londonu (2012) je pala za 7%, odnosno ako se iz posmatranog stanja sporta oduzmu rezultati žena u tenisu, tada se može reći da Srbija bilježi rast od 4%.
- Rezultati u streljaštvu su pali za 71%, ali su i dalje iznad rezultata u 2007. godini.
- U 2008. godini, žene su nosile 59% svih pobjeda sportista Srbije. U 2011. godini, ne bilježe se pobjede i osvajanje medalja u konkurenciji žena.
- Na osnovu rezultata koje su sportisti Srbije postigli u 2011. godini na svjetskim prvenstvima i takmičenjima ekvivalentnim konkurenciji na OI, Srbija bi u Londonu osvojila 7 medalja - streljaštvo (4), vaterpolo (1), tenis (1) i odbojka (1).

Analiza sportsko-medicinske zaštite

Olimpijske igre su identitet savremene civilizacije koji se razvijao poštovanjem prirodnih, društvenih i ekonomskih zakonitosti. Prirodne zakonitosti pripadaju biologiji čovjeka sportiste, jer se pojedinac u savremenom društvu iskazuje i kroz kretanje tijela (sport kao simboličko kretanje) (Tasato, 2003).

Kretanje tijela - fizička aktivnost, kontinuirano stimuliše motorne, kognitivne, konativne i visceralne

stimulate motor, cognitive, conative, visceral centres, changes the individual, develops and perfects many values highly appreciated and supported by all societies (Jevtić, 2011c). Human body during physical activity, as well as the body of an athlete, is the first natural element nurtured and developed in accordance with needs and natural limits, according to which health care of athletes is a priority, both for the national sport system, and the IOC and international sports federations (Vasić, Jevtić, Mitrović, & Radovanović, 2011).

In preparation for participation in the OCS delegations, working for the best athletes of Serbia, it is evident that the care for training, competition, health, social and professional status of many athletes is transferred to themselves or to their nearest environment (coaches, parents) and it is often carried without any kind of expert and professional control. This fact is confirmed by the data that 41% of athletes from 34 sports associations of Serbia (with about 250.000 athletes in 4.365 distributed teams) carry out their medical examinations and pass their health certificates independently, 12% of them do not perform medical examinations at all, while 47% perform them in the organization of their association (Dikić, 2008).

In 2009, in cooperation with the British Journal of Sports Medicine, the IOC published a supplement on the topic of a sudden death in athletes. This is a continuation of this organization's activities in the field of medicine and science prompted by statistics that comes from the United States, Canada and Italy, which suggests that the incidence of sudden cardiac death in young athletes (persons aged 12 – 35) is 1:28.000 of registered athletes per year (Dreyner, Oluims, & Engebretsen, 2009). Regardless of the quality of the sports system, it can be concluded that never has been sufficiently done for the development of sports and medical care of athletes, and that each sport has its own "Achilles tendon" or a specific mechanism of injury and health risks for athletes. Athletes' injuries happen in both sports trainings and competitions, and the same can be reduced by appropriate training, customized competitive programme, the proper use of devices and equipment, adequate equipment, education of coaches and athletes (Vasić et al., 2011). One of the ways in which it is possible to influence further reduction of incidents that endanger the athletes' health is the regularity of medical checkups and monitoring athletes' training status.

Medical examinations are the best way to remove the suddenness of cardiac death, which was emphasized in a special edition by IOC. The practice applied by OCS corresponds to these efforts, for the strategy is implemented in the direction of compulsory preventive examinations in order to identify possible problems in the work of the heart muscle (cardiomyopathy, diseases of the vascular system of the heart). This is a standard adopted and

centre, mijenja pojedinca, razvija i usavršava veliki broj vrijednosti koje sva društva cijene i podržavaju (Jevtić, 2011c). Tijelo čovjeka u toku fizičke aktivnosti, kao i tijelo sportiste, jeste prvi prirodni element koji se njeguje i razvija u skladu sa prirodnim potrebama i limitima. Shodno tome, briga o zdravstvenom stanju sportiste je prioritet, kako nacionalnog sistema sporta, tako i MOK -a i međunarodnih sportskih federacija (Vasić, Jevtić, Mitrović i Radovanović, 2011).

U pripremi za učešće u delegacijama OKS, radeći za najbolje sportiste Srbije, uočava se da je briga o trenažnom, takmičarskom, zdravstvenom, socijalnom i profesionalnom stanju mnogih sportista prenesena na njih same, ili na njihovo najbliže okruženje (treneri, roditelji) i da se često odvija van bilo kog oblika stručne i profesionalne kontrole. Da je to tako govore i podaci da 41% sportista iz 34 sportske federacije Srbije (sa oko 250.000 sportista raspoređenih u 4.365 klubova) samostalno obavlja lekarske preglede i donosi uvjerenja o zdravstvenom stanju, njih 12% uopšte ne obavlja zdravstvene preglede, dok njih 47% obavlja preglede u organizaciji saveza (Dikić, 2008).

U 2009. godini, MOK je u saradnji sa Britanskim žurnalom sportske medicine objavio dodatak na temu iznenadne smrti kod sportista. Ovo je nastavak aktivnosti ove organizacije na polju medicine i nauke, podstaknute statistikom koja dolazi iz SAD, Kanade i Italije i koja govori da je incidentnost iznenadne srčane smrti kod mladih sportista (osobe uzrasta 12-35 godina) 1:28.000 registrovanih sportista godišnje (Dreyner, Oluims i Engebretsen, 2009). Bez obzira na kvalitet sistema sporta, može se zaključiti da nije dovoljno učinjeno na usavršavanju sportsko-medicinske zaštite sportista, kao i da svaki od sportova ima svoju "Ahilovu tetivu", ili specifičan mehanizam povreda i rizika po zdravlje sportiste. Povrede sportista se dešavaju na treningu i takmičenjima, ali mogu biti smanjene primjenom odgovarajućeg treninga, prilagođenim takmičarskim programom, pravilnim korišćenjem sprava i rekvizita, upotrebom adekvatne opreme, obrazovanjem trenera i sportista (Vasić i saradnici, 2011). Jedan od načina kojim je moguće uticati na dalje smanjenje incidentnosti koja ugrožava zdravlje sportista je redovnost zdravstvenih pregleda i praćenje trenažnog stanja sportiste.

Zdravstveni pregledi su najbolji način da se otkloni iznenadnost srčane smrti, naglašeno je u specijalnom izdanju MOK-a. Praksa kojoj je pribegao OKS odgovara ovim naporima, jer se strategija realizuje u pravcu obaveznih preventivnih pregleda, sa ciljem da se identifikuju mogući probleme u radu srčanog mišića (kardiomiopatije, bolesti provodnog sistema srca...). Ovo je standard koji je prihvaćen i propisan od

TABLE 3*Numerical display of the medical team and preventive examinations of athletes, delegation***TABELA 3***Brojčani prikaz medicinskog tima i preventivnih pregleda sportista*

| Games | The size of the medical team (doctor+ physiotherapist) | Number of athletes in the Delegation | Number of medically examined athletes at the Republic Institute | Number of healthy ones able to compete | Fulfillment of the Decision (%) |
|---------------------|--|--------------------------------------|---|--|---------------------------------|
| Beijing - 2008 | 5+8 | 92 | 66 | 91 | 98 |
| Vancouver - 2010 | 1+1 | 10 | 12 | 12 | 100 |
| Singapore - 2010 | 1+1 | 32 | 32 | 32 | 100 |
| WEYOF - 09 | 1+1 | 11 | 11 | 11 | 100 |
| SEYOF - 09 | 1+6 | 99 | 99 | 99 | 100 |
| WEYOF - 11 | 1+0 | 4 | 4 | 4 | 100 |
| SEYOF - 11 | 1+5 | 100 | 100 | 100 | 100 |
| Mediterranean Games | 6+8 | 157 | 155 | 155 | 99 |
| Total | 17+28 | 505 | 479 | 504 | |

Legend: Games – Igre; The size of the medical team (doctors + physiotherapist) – Veličina medicinskog tima (ljekar + fizioterapeut); Number of athletes in the Delegation – Broj sportista u Delegaciji; Number of medically examined athletes at the Republic Institute – Broj pregledanih sportista u Republičkom zavodu; Number of healthy ones able to compete – Broj zdravih i sposobnih za takmičenje; Fulfillment of the Decision (%) – Ispunjenost odluke (%); Beijing - 2008 – Peking - 2008; Vancouver - 2010 – Vankuver - 2010; Singapore - 2010 – Singapur - 2010; Mediterranean Games – Mediteranske igre.

regulated by the Presidency of the OCS (2008) as a measure of protection compulsory for all athletes who compete within the delegation of the OCS. Thus, since 2008, more than 470 athletes performed maximal cardiac stress test (Table 3).

In this area, the goal of the OCS is versatile, allocated in time and in line with the priorities that include technological line and staff development. However, evaluation of the athletes' health within the Olympic delegation, registration of possible injuries and the course of treatment, assessment of the effects of training and competition, defining risk factors, health education and building conditions for reliable diagnosis and effective treatment may be cited as priorities that are not feasible yet, but are intensively worked at.

Health care value per se

The Olympic Committee of Serbia is not directly responsible for health care of athletes. Nevertheless, it is an organization that has a pronounced sensitivity to the need for health care of athletes in its programmes,

Predsedništva OKS (2008) kao obavezna mjera zaštite za sve sportiste koji se takmiče u okviru delegacija OKS. Tako je od 2008. godine više od 470 sportista obavilo test maksimalnog srčanog opterećenja (Tabela 3).

Cilj OKS u ovom prostoru je višestran, vremenski je raspoređen i usaglašen sa prioritetima koji podrazumijevaju tehnološku liniju i razvoj kadra. Ipak, ocjena stanja zdravlja sportista unutar olimpijskih delegacija, registracija eventualnih povreda i toka liječenja, ocjena efekata treninga i takmičenja, definisanje faktora rizika, zdravstvene edukacija i izgradnja uslova za reliabilnu dijagnostiku i efikasno liječenje, mogu se navesti kao prioriteti koji još nisu ostvarivi, ali na kojima se intenzivno radi.

Zdravstvena zaštita vrednost per se

Olimpijski komitet Srbije nije direktno nadležan za brigu o zdravstvenom stanju sportista. I pored toga, on je organizacija koja u svojim programima ima naglašenu osjetljivost prema potrebi zdravstvene zaštite

and 8.3% of the budget is planned for the programme “LOG in London 2012” in individual and 9.5% in team sports fields in 2011 (Jevtić, 2009). This budget does not cover the insurance of athletes and coaches (accident insurance and travel insurance) which the OCS provides through the sponsorship agreement. The OCS programmes are not a substitute for regular health care programmes that must be implemented at the club and the NSF; they are an addition, a corrective measure, and a technological step forward. Agreements with hospitals are made for an efficient healing of athletes through the process of sports medicine polyclinic system, modern analytics and diagnostics within optimal standards of health, sports, and medical care of athletes. The specificity of the Olympic sports system in Serbia lies in the fact that, out of 139 athletes who are in a broader list of the OG participants, nearly 100 of them do not train and compete in Serbia, according to which they are not entitled to compulsory health care.

The OCS, as a non-profit sports organization, finds the normative side to engage in the area of health care of athletes, analytics, and science, in the Charter of the International Olympic Committee. The OCS is given support in these aspirations by the documents of professional organization of the EU and international sports organizations, which have concerns about the health of athletes in the centre of their interests (Bergsgard, Houlihan, Mangset, Nodland, & Rommetvedt, 2007). However, the most significant importance and value for the OCS has a strategy of its professional bodies and indigenous decisions that place an athlete in front of the sport, i.e. by which the athletes that are active participants in the acquisition of sports experience. In this model, some would say the philosophy of the organization (Kerr & Stirling, 2008), coaches, administration and professional services have a responsibility to protect and improve the good health of athletes, and are required to perceive all the health issues in front of the sports career questions. It can be concluded that the OCS strategy is realized through getting an answer to the question: “How will the decisions we make today affect the athlete during and after the end of his sports career?” Athletes’ welfare comes before results in this model and philosophy; it is the centre of policy, programmes, and procedures implemented by the organization or the system (Radojević & Jevtić, 2011).

CONCLUSIONS

As a method in this study, reflection has not had generalization of a theory as a goal, but striving for a synthesis that can be applied in new – similar situations (reflection for activities) through analysis of the structure and relationship in the Olympic delegation management process. The result is a larger number of conclusions in relation to the object and purpose of work, and these

sportista, i za šta je u 2011. godini planirala 8,3% budžeta programa “LOI London 2012” u individualnim i 9,5% u timskim sportskim granama (Jevtić, 2009). Ovim budžetom nije obuhvaćeno osiguranje sportista i trenera (osiguranje od nesreće i putno osiguranje) koje OKS obezbjeđuje kroz sponzorski ugovor. Programi OKS nisu zamjena za redovne programe zdravstvene zaštite koji moraju da se sprovode na nivou kluba i NSF: oni su dopuna, korektivna mjera i tehnološki iskorak. Sporazumi sa bolnicima obezbjeđuju efikasno liječenje sportista kroz sistem polikliničke medicine, savremenu analitiku i dijagnostiku unutar optimalnih standarda zdravstvene i sportsko-medicinske zaštite sportista. Jer, zašto ne navesti specifičnost sistema olimpijskog sporta u Srbiji - a to je da od 139 sportista na širem spisku učesća na OI, njih skoro 100 ne trenira i ne takmiči se u Srbiji, shodno čemu nisu nosioci prava na obaveznu zdravstvenu zaštitu.

Normativnu stranu za angažovanje u dijelu zdravstvene brige o sportistima, analitici i nauci, OKS, kao nevladina i neprofitna sportska organizacija, nalazi u Povelji Međunarodnog olimpijskog komiteta. Podršku ovakvim stremljenjima OKS daju i dokumenta profesionalnih organizacija EU i međunarodnih sportskih organizacija, koje u centru svog interesovanja imaju brigu o zdravstvenom stanju sportiste (Bergsgard, Houlihan, Mangset, Nodland i Rommetvedt, 2007). Ipak, najveći značaj i vrijednost za OKS ima strategija njegovih stručnih tela i autohtone odluke koje sportistu vidi ispred samog sporta, odnosno po kojoj su sportisti aktivni učesnici sticanja sportskog iskustva. U ovom modelu, neki bi rekli i filozofiji organizovanja (Kerr i Stirling, 2008), treneri, administracija i stručne službe imaju odgovornost u zaštiti i unapređenju dobrog zdravlja sportista, i imaju obavezu da sva zdravstvena pitanja sagledavaju ispred pitanja sportske karijere. Može se zaključiti da se strategija OKS realizuje u pravcu traženja odgovora na pitanje: “Kako će odluke koje donosimo danas imati uticaja na sportistu u toku i nakon okončanja njegove sportske karijere?” Briga o dobru sportiste je po ovom modelu i filozofiji ispred rezultata, ona je centar politike, programa i procedura koje sprovodi organizacija ili sistem (Radojević i Jevtić, 2011).

ZAKLJUČAK

Refleksija kao metod u ovom radu nije imala za cilj generalizaciju prema teoriji, već da kroz analizu strukture i odnosa u procesu menadžmenta olimpijske delegacije, dovede do sinteze koja se može primijeniti u novim - sličnim situacijama (refleksija za aktivnost). Rezultat je veći broj zaključaka u odnosu na predmet i cilj rada, a to su:

are:

I *Group of conclusions about the sports system of Serbia*

- Analysis of sports system is a complex cognitive process, which is mainly carried out by using qualitative research methods. Methods of research in the process sociology (process analysis of management in sport) and sports management are used in order to describe phenomena, discover relationships, and formulate conclusions about the system as a case analysis.
- The analysis that preceded the development of the OCS project “Beijing 2008” pointed out that the sports system in Serbia is neutral, as well as restrictive in some areas. Neutrality and restrictiveness of the system result from the organizational model and value framework that is fostered. A high degree of neutrality in a part of the orientation towards athletes and their needs is observed, while restriction is observed in training innovations. It is not difficult to describe the restrictive system of Serbian sport. We live there. It refers primarily to the conditions and the quality of training, the width of a sports foundation and talent development path, quality and quantity of coaching structure, health care, and the application of science in training, but also our attitudes and lack of readiness for change. It is so strong, that it threatens the status quo of the forms (mass, children, school, national, elite...) of Serbian sport at the time of the rapid development of world sport.
- The general assessment is that changes within the sports system of Serbia are not small, they are in progress today, as if the order, and even to the extent of those in most of European sports systems of the eighties of the previous century. Nevertheless, each of the professions, and each member of the sports system, implicitly or explicitly, finds problems in the area of its activities and responsibilities. All forms of sport (mass, children, school, sport specific groups, Paralympics, national, elite) are full of problems, and so is the management that operates on the principle of action from multiple centres (non-consolidated model) of both formal and informal groups.

II *Group of conclusions in the direction to the Olympic programme management*

- Characteristic of the OCS programmes for participation in the OG is planning which sets clear, understandable, measurable objectives, a selected course of action, and the way of achieving the set goal. As with other Olympic organizations, so is the programme orientation of the OCS accompanied by risk and uncertainty, because the decisions concerning the future event are based on currently available data. Decisions are

I *Grupa zaključaka o sistemu sporta Srbije*

- Analiza sistema sporta je složen saznajni proces koji se, uglavnom, sprovodi korišćenjem kvalitativnih metoda istraživanja. Metode istraživanja iz procesne sociologije (analiza procesa upravljanja u sportu) i menadžmenta u sportu se koriste u cilju opisa fenomena, otkrivanja veza, i formiranju zaključaka o sistemu sporta kao predmetu analize.
- Analiza koja je prethodila izradi projekta OKS „Peking 2008“, ukazala je na činjenicu da je sistem sporta u Srbije neutralan, kao i da je u nekim prostorima i restriktivan. Neutralnost i restriktivnost sistema proističu iz organizacionog modela i vrijednosnog okvira koji se njeguje. Uočen je visok stepen neutralnost u dijelu orijentacije prema sportistima i njihovim potrebama, dok je restriktivnost uočena prema inovacijama u treningu. Opisati restriktivnost sistema sporta Srbije nije teško. Ona se živi. Odnosi se, prije svega, na uslove i kvalitet treninga, širinu sportske baze i put razvoja talenta, kvalitet i kvantitet trenerske strukture, zdravstvenu brigu, primjenu nauke u treningu, ali i naše stavove i odsustvo spremnosti za promjene. Ona je toliko jaka, tako da ugrožava status quo svih formi (masovnog, dječijeg, školskog, nacionalnog, vrhunskog...) srpskog sporta u momentu ubrzanog razvoja svjetskog sporta.
- Opšta ocjena je da promjene unutar sistema sporta Srbije nisu male, da one teku i danas, kao i da se odvijaju po redoslijedu, pa čak i obimu kako je to 80-ih godina prošlog vijeka teklo u većini evropskih sistema sporta. Ipak, i pored toga, svaka od profesija-struka, kao i svaka od članica sistema sporta, implicitno ili eksplicitno, konstatuje probleme u oblasti svog djelovanja i nadležnosti. Problemima su ispunjene sve forme sporta (masovni, dječiji, školski, sport posebnih grupa, paraolimpijski, nacionalni, vrhunski), ali i samo rukovođenje koje se odvijaju po principu djelovanja iz više centara (nekonsolidovan model): kako formalnih, tako i neformalnih grupa.

II *Grupa zaključaka u pravcu menadžmenta olimpijskih programa*

- Karakteristika programa OKS za učešće na OI je planiranje kojim su postavljeni jasni, razumljivi i mjerljivi ciljevi, izabran pravac djelovanja i način ostvarenja postavljenog cilja. Kao i kod drugih olimpijskih organizacija, tako je i programska orijentacija OKS praćena rizikom i nesigurnošću, jer se odluke za događaj koji će se

made in relation to the results of the current state of the athlete's results that is little known about and that is variable. In this regard, a multi-year OCS plan, which implements the way of team building and participation in the OG, can be described as a business innovation inclined towards the NSF and the clubs performance in which the Olympic athletes of Serbia train, the results of the athletes, their maintenance, and development!

- In the case of Serbia, changes in the sports system have been started by the National Olympic Committee for which the participation in the Olympic Games is the meaning of development, change, learning. The management of the OCS Olympic cycle 2004 – 2008 committed themselves to innovation, expertise and their connection with the process of changes and development of organizational capacity, which made the OCS a learning organization, which changes both itself and sports system. This was the beginning of the cognitive phase, during which the OCS started with the changes that are taking place in two directions today: (i) towards the efficiency of the organization itself, and (II) towards the whole sports system of Serbia. For the direction of changes the preferences have been selected which would, as in the previous, in the XXX Olympiad cycle as well, lead to a new value framework of the OCS system and a whole of sports system of Serbia.

III *Group of conclusions related to future activities*

- Participation in the Olympic Games belongs to the field of management of special events, which belongs to the science of management. In the example of the OCS, the Olympic programmes are realized as a multi-year project established on the principles of good governance in sport that has a good athlete (athlete-oriented system) as a centre of its interest.
- After six years of realization, within two Olympic cycles (for the OG in Beijing and London), one can conclude that the Olympic programmes led to a consensus of all actors of the sports system of Serbia on the need for continuous change. Organizational and institutional consolidation, cooperation, mobility of knowledge, ideas, people, and capacities are a way or path that will have a role in improving the state of the system and of sport in Serbia, as a whole.
- Reflection of the management of the Olympic delegation raises many questions of the present and future, provides a basis for building a new organizational context, a higher level of practice and multi-level impact on changes of the sports system of Serbia and/or its evolution.

odigrati u budućnosti donose na osnovu danas raspoloživih podataka. Odluke se donose i u odnosu na trenutno stanje rezultata sportiste o kome se malo zna i koji je promjenjiv. S tim u vezi, višegodišnji plan koga OKS realizuje na putu izgradnje tima i učešća na OI može se opisati kao poslovna inovativnost koja je usmjerena i ka performansama NSF i klubovima u kojima treniraju olimpijci Srbije, rezultatima sportista, njihovom održavanju i razvoju!

- U slučaju Srbije, promjene sistema sporta je otpočeo Nacionalni olimpijski komitet za koga je učešće na olimpijskim igrama smisao razvoja, promjena, učenje. Rukovodstvo OKS iz olimpijskog ciklusa 2004 -2008. opredijelilo se prema inovacijama, ekspertskim znanjima i njihovom povezivanju sa procesom promjena i usavršavanja organizacionih kapaciteta, čime je OKS postao organizacija koja uči, koja mijenja sebe i sistem sporta. Ovo je početak kognitivne faze u toku koje je OKS otpočeo sa promjenama koje se i danas odvijaju u dva pravca: (I) prema efikasnosti same organizacije, i (II) prema cjelini sistema sporta Srbije. Za pravac promjena su odabrane one preferense koje, kako u prethodnom, tako i u ciklusu XXX olimpijade, treba da dovedu do novog vrijednosnog okvira OKS i cjeline sistema sporta Srbije.

III *Grupa zaključaka u odnosu na buduću aktivnost*

- Učešće na olimpijskim igrama pripada oblasti menadžmenta specijalnog događaja, koji pripada naukama o upravljanju. U primeru OKS, olimpijski programi se realizuju kao višegodišnji projekat, uspostavljen na principima dobrog rukovođenja u sportu koji u centru svog interesovanja ima dobro sportiste (sportocentričnost sistema).
- Nakon šest godine realizovanja unutar dva olimpijska ciklusa (za OI u Pekingu i Londonu), može se zaključiti da su olimpijski programi doveli do konsenzusa svih činilaca sistema sporta Srbije o potrebi kontinualnih promjena. Organizaciona i institucionalna konsolidacija, kooperacija, mobilnosti znanja, ideja, ljudi i kapaciteta su način, ili put, koji će imati ulogu u poboljšanju stanja sistema i sporta u Srbiji ukupno.
- Refleksija nad menadžmentom olimpijske delegacije otvara mnoga pitanja sadašnjosti i budućnosti, daje osnove za izgradnju novog organizacionog konteksta, viši nivo prakse i višestepeni uticaj na promjene sistema sporta Srbije i/ili njegovu evoluciju.

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Correspondence to:

Prof. Branislav Jevtić, PhD

Sports Director of OCS

Head of Mission of Serbia at the OG

Generala Vasića 5

11000 Belgrade

Serbia

E-mail: branislav.jevtic@OCS.org.rs

Phone: 00381 64 118 04 81

Korespodencija:

Prof. dr Branislav Jevtić

Sportski direktor OKS

Šef delegacija Srbije na OI

Generala Vasića 11

11000 Beogard

Srbija

E-mail: branislav.jevtic@OCS.org.rs

Telefon: 00381 64 118 04 81

REFLEXION SUR LE MANAGEMENT DES PROGRAMMES OLYMPIQUES PAR RAPPORT AU SYSTÈME SPORTIF SERBE

Branislav Jevtić¹

¹La faculté des sports et de l'éducation physique, Université de Belgrade, la Serbie

L'intérêt du management de la délégation olympique (MOD) comme un processus de planification, d'organisation, de gestion, de contrôle et de coordination ou comme une théorie de gestion est pleinement visible quand il s'agit de préparer et de gérer une délégation qui participe à un événement sportif tel que les Jeux Olympiques. Le management des programmes olympiques (MOP) dont le but est de préparer les sportifs pour les Jeux Olympiques est

réalisé par les fédérations nationales sportives. Dans le cas de Serbie, c'est la tâche du comité olympique national (Le Comité Olympique de Serbie, OKS) de réaliser et de planifier ces programmes.

Ce travail se propose d'analyser des activités de l'OKS dans l'espace du MOP. Les dirigeants du OKS du cycle olympique 2005-2008 ont opté pour la transformation de l'organisation du OKS et du système sportif serbe en général. La stratégie de changement

est réalisée à travers des innovations, du savoir-faire des experts et du perfectionnement du système sportif en général. Dans cette façon, l'OKS est devenu une organisation prête à apprendre, à changer soi-même aussi bien qu'à changer le système sportif en général.

En ce qui concerne la méthodologie, nous avons pris la réflexion comme méthode parce que cette méthode cognitive est utilisée dans les études ayant pour l'objet la nature des phénomènes et les connaissances, aussi bien que les expériences relatives à ces phénomènes. Nous avons utilisé toutes les trois formes de réflexion, c'est-à-dire la réflexion sur l'activité, la réflexion dans l'activité et la réflexion pour l'activité.

La réflexion sur l'activité nous a amené à la conclusion suivante: L'OKS représente une organisation spécifique au regard de: (1) la durée des programmes olympiques de plusieurs années (la planification des Jeux Olympiques s'étendait de 18 mois pour les Jeux Olympiques à Beijing à 36 mois pour ceux à Londres et à présent nous voyons déjà 12 mois de planification des Jeux Olympiques à Rio en 2016). (2) au regard de la liste des priorités et de l'espoir que la préparation et la participation de la délégation aux Jeux puisse apporter des changements fondamentaux dans le domaine de sport en général en Serbie; (3) au regard de l'association des résultats sportifs (par équipes et individuels) à la marque de Jeux Olympiques et de l'OKS, à la société, à l'état et au parrainage; (4) au regard du budget prévu pour le déroulement des programmes en accord avec les périodes et les particularités du développement des résultats sportifs; (5) au regard de l'héritage du cycle olympique.

La réflexion dans l'activité est conduite par rapport à un grand nombre des éléments qui contribuent à un résultat sportif de haut niveau. Dans ce travail, nous avons analysé le développement des résultats sportifs dans la période de 2010 à 2011, le système de suivi, la protection sportive et médicale et l'application de la science. Cette analyse a apporté l'élaboration du cadre des valeurs à respecter dans le travail avec les sportifs pendant la préparation et la participation aux Jeux Olympiques.

La réflexion en tant que la méthode du présent travail n'avait pas le but de faire les généralisations à partir d'une théorie. Elle devait au contraire analyser la structure et les rapports existants dans le processus du management de la délégation olympique et apporter par conséquent une synthèse applicable aux nou-

velles situations similaires (réflexion pour l'activité). Elle nous a apporté de nombreuses conclusions relatives à l'objet aussi bien qu'au but du travail notées comme suit:

I *Les conclusions relatives au système sportif en Serbie*

- Le système sportif en Serbie peut être caractérisé comme neutre, même restrictif, dans certains aspects de l'analyse.
- Les changements à l'intérieur du système sportif ne sont pas mineurs. Ces changements sont encore en train de se dérouler selon l'ordre et l'étendue caractéristiques pour la majorité des systèmes sportifs européens dans les années 80 du siècle dernier.
- A l'intérieur de toutes les professions – spécialités et de tous les membres du système sportif un nombre des problèmes relatifs à leur domaine et leur compétences étaient constatés, d'une manière plus ou moins explicite.

II *Les conclusions relatives au management des programmes olympiques*

- Les programmes de l'OKS sont réalisés comme une innovation technologique orientée aussi vers les performances du NSF et des équipes dans lesquelles s'entraînent les sportifs participant aux Jeux Olympiques.

III *Les conclusions relatives à l'activité future*

- La participation aux Jeux Olympiques appartient au domaine du management des événements spéciaux, c'est-à-dire à la science de gestion. Dans le cas de l'OKS, les programmes olympiques sont réalisés comme projets qui durent plusieurs années et qui sont fondés sur les principes de bonne gestion de sport ayant pour le but le respect des intérêts du sportif (le système orienté vers le bien-être du sportif).
- Grâce au MOP, tous les facteurs composant le système sportif en Serbie ont atteint le consensus sur la nécessité des changements continuels. La consolidation organisationnelle aussi bien qu'institutionnelle, la coopération, la mobilité des connaissances, des idées, des gens et des capacités sont les moyens les plus importants pour assurer l'amélioration du système sportif et du sport en général en Serbie.

Les mots-clés: les programmes olympiques, le système sportif en Serbie, les Jeux Olympiques, la réflexion

NEKE RAZLIKE U SPORTSKOJ MOTIVACIJI MLADIH FUDBALERA RUSIJE, SRBIJE I CRNE GORE

SOME DIFFERENCES IN SPORTS MOTIVATION OF YOUNG FOOTBALL PLAYERS FROM RUSSIA, SERBIA AND MONTENEGRO

Marijana Mladenović¹ and Aleksandar Marjanović²

¹Visoka sportska i zdravstvena škola, Beograd, Srbija
College of Sports & Health, Belgrade, Serbia

²Visoka sportska i zdravstvena škola, Beograd, Srbija
Fudbalska akademija "Krasnodar", Krasnodar, Rusija
College of Sports & Health, Belgrade, Serbia
Krasnodar Football Academy, Krasnodar, Russia

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SUMMARY

In accordance with the conceptual framework of self-determination theory, sports motivation in this research was operationalized as intrinsic motivation (to know, to accomplish and to experience stimulation), extrinsic motivation (by identification, introjection and external regulation) and amotivation for sport (Deci & Ryan, 2000). The aim of this exploratory research was to test such concept of sports motivation on a sample of young football players from different countries (Russia, Serbia, and Montenegro). It was assumed that young football players did not differ with respect to intrinsic motivation regardless of their age and country. Major differences were assumed to exist in extrinsic aspects of sports motivation which may indicate a potential specificity of social influences in various countries or different development-related levels of internalization of extrinsic reasons for engaging in sports activity. The research included 178 young football players aged 12 to 15. The Sport Motivation Scale (SMS-28; Pelleiter, Fortier, Vallerand, Briere, Tuson, & Blais, 1995) was used. *t*-test, ANOVA and MANOVA were applied. Significant differences were found between young football players from Russia and from Serbia and Montenegro regarding intrinsic motivation to accomplish and all aspects of extrinsic motivation. The twelve-year-olds differ from other tested ages by amotivation, and there are important differences between the football players aged 13 and 14 regarding extrinsic motivation by identification, introjected extrinsic motivation and extrinsic motivation by external regulation. When the country and age of young football players are taken into account at the same time by the motivation analysis, the major difference is spotted only in introjected extrinsic motivation.

Key words: sports motivation, intrinsic motivation, extrinsic motivation, football.

SAŽETAK

U ovom radu sportska motivacija je operacionalizovana u skladu sa konceptualnim okvirom teorije samodeterminacije kao intrinzička motivacija (za saznanjem, ostvarenjem i stimulacijom) i ekstrinzička motivacija (identifikacijom, introjeksijom, eksternom regulacijom) i amotivacija (Deci i Ryan, 2000). Cilj ovog eksplorativnog istraživanja bio je da takav koncept sportske motivacije provjeri na uzorku mladih fudbalera iz različitih zemalja (Rusija, Srbija, Crna Gora). Pretpostavljeno je da se mladi fudbaleri ne razlikuju u pogledu intrinzičke motivacije bez obzira na uzrast i zemlju iz koje dolaze. Takođe, pretpostavljeno je da postoje značajne razlike u ekstrinzičkim aspektima sportske motivacije, što može da ukaže na potencijalnu specifičnost socijalnih uticaja u različitim zemljama, ili na razvojno uslovljen različit stepen internalizacije spoljašnjih razloga za aktivnost. Ispitano je 178 mladih fudbalera, uzrasta od 12 do 15 godina. Iskorišćena je skala sportske motivacije – SMS 28 (Pelleiter, Fortier, Vallerand, Briere, Tuson i Blais, 1995). Primijenjen je *t*-test, ANOVA i MANOVA. Pokazalo se da postoje značajne razlike između mladih fudbalera iz Rusije i iz Srbije i Crne Gore u pogledu intrinzičke motivacije za ostvarenjem i svih aspekata ekstrinzičke motivacije. Dvanaestogodišnjaci se razlikuju od ostalih ispitivanih uzrasta po amotivaciji, a značajne razlike postoje između uzrasta od 13 i 14 godina u pogledu ekstrinzičke motivacije identifikacijom, introjeksijom i eksternom regulacijom. Kada se u analizi motivacije istovremeno uzme u obzir zemlja iz koje dolaze mladi fudbaleri i uzrast, pokaže se da je značajna samo razlika u pogledu ekstrinzičke motivacije introjeksijom.

Ključne riječi: sportska motivacija, intrinzička motivacija, ekstrinzička motivacija, fudbal.

INTRODUCTION

According to self-determination theory, extrinsic and intrinsic motivations are not discrete categories, but a unique continuum. On one side of the continuum is intrinsic motivation, while on the other side is amotivation. Various forms of extrinsic motivation are set between intrinsic motivation and amotivation (Deci & Ryan, 2000).

Children engage in all kinds of sports, including football, because they take interest and pleasure in the activity itself (Marjanović, 2010). Coaches use extrinsic rewards to additionally encourage young athletes in their efforts, although there is empirical data that, contrary to the expectations of coaches, using external stimulations causes a negative effect and additionally “undermines” intrinsic interest and enjoyment in the sport instead of contributing to intrinsic motivation (Lazarević, 2001). However, using extrinsic forms of stimulation is unavoidable in sports. The more fully an extrinsic stimulation is internalized and more successfully integrated in one’s self, the better basis for self-determination of behaviour and self-motivation will be (Mladenović, 2010a).

In different cultures, various aims and values in general are internalized through the socialization process, particularly the aims and values promoted in and through sports (Pelletier, Vallerand, & Sarrazin, 2007). During the adolescent age, which is especially sensitive to the social influences, it can be presumed that major differences in sports motivation will be found exactly in the aspects of extrinsic motivation reflecting social influences in different cultures. *External regulation*, as a form of extrinsic motivation, is a classic example of motivation by reward and punishment. Even though material rewards are inseparable from the success in modern football, it can be assumed that in different cultures or just in different social environments, material rewards as motivational instruments can be given emphasis to various degrees while working with young football players. *Introjected extrinsic motivation* refers to incomplete internalization of aims or values highly appreciated and promoted by a social environment. Introjection, as an internalization mechanism, is manifested in sports in several ways – as dedication resulting from a sense of duty or guilt, motivation not to fail the expectations of a coach or parents, self-respect depending on the current perception of one’s own accomplishment on the field, etc. The motivation based on introjection can contribute to exceptional perseverance and dedication which is very similar to intrinsic motivation on the behavioral level (Vansteenkiste & Deci, 2003). However, although we can presume that this form of extrinsic motivation is developmentally appropriate in adolescence, the optimal mental and sports development of young

UVOD

Prema teoriji samodeterminacije spoljašnja i unutrašnja motivacija nisu diskretne kategorije, već jedinstven kontinuum na čijem jednom kraju se nalazi intrinzička motivacija, a na drugom amotivacija. Između intrinzičke motivacije i amotivacije raspoređuju se različite forme ekstrinzičke motivacije (Deci i Ryan, 2000).

Djeca se u svaki sport, pa tako i u fudbal, uključuju usljed interesovanja i uživanja u samoj aktivnosti (Марьянович, 2010). Treneri koriste spoljašnje nagrade da bi mlade sportiste dodatno podstakli na zalaganje, mada postoje empirijski podaci da suprotno očekivanjima trenera, korišćenje spoljašnjih podsticaja umjesto da doprinese unutrašnjoj motivaciji, izaziva negativan efekat i dodatno “potkopava” unutrašnje interesovanje i uživanje u sportu (Lazarević, 2001). Međutim, korišćenje spoljašnjih podsticaja neizbježno je u sportu. Što je neki spoljašnji podsticaj potpunije pounutren i uspješnije integrisan u self, predstavljaće bolju osnovu za samodeterminisanost ponašanja i samomotivaciju (Mladenović, 2010a).

U različitim kulturama procesom socijalizacije internalizuju se različiti ciljevi i vrijednosti uopšte, a naročito različiti ciljevi i vrijednosti koje se promovišu u sportu i kroz sport (Pelletier, Vallerand i Sarrazin, 2007). U adolescentnom uzrastu, posebno osjetljivom na socijalne uticaje, može se pretpostaviti da će razlike u sportskoj motivaciji biti značajne upravo u aspektima ekstrinzičke motivacije, a koji odražavaju socijalne uticaje u različitim kulturama. *Eksterna regulacija*, kao jedan vid ekstrinzičke motivacije, predstavlja klasičan primjer motivacije nagradama i kaznama. Iako su materijalne nagrade neodvojive od uspješnosti u savremenom fudbalu, može se pretpostaviti da u različitim kulturama, ili samo u različitim socijalnim sredinama, materijalne nagrade kao motivaciono sredstvo mogu biti potencirane u različitoj mjeri u radu sa mladim fudbalerima. *Ekstrinzička motivacija introjeksijom* odnosi se na nepotpunu internalizovanost ciljeva ili vrijednosti koje neka socijalna sredina visoko cijeni i promovise. Introjeksija, kao mehanizam internalizacije, u sportu se manifestuje kao npr. zalaganje usljed osjećanja dužnosti ili osjećanja krivice, motivisanost da se ne iznevjere očekivanja trenera ili roditelja, samopoštovanje koje zavisi od trenutne percepcije sopstvene uspješnosti na terenu itd. Motivacija koja počiva na introjeksiji može da doprinese izuzetnoj istrajnosti i zalaganju koje je na bihevioralnom planu vrlo slično intrinzičkoj motivisanosti (Vansteenkiste i Deci, 2003). Međutim, iako se kod adolescentnog uzrasta može pretpostaviti da je ovaj vid ekstrinzičke motivacije razvojno primjeren za optimalan psihički i sportski razvoj mla-

athletes requires an internalization process that is more complete and contributory to a higher degree of integration of social influences into one's self. The next level in the internalization of the social environment rules is called identification. An individual consciously values and accepts the rules and demands imposed by the society even though on a deeper level he/she need not feel these demands as his/her own. In sport, an individual is driven by *extrinsic motivation by identification* when he/she accepts all his/her sports duties professionally and responsibly. From the psychological point of view, the success in football, as in sport in general, involves long hours of training, repetition of the same motor movements in order to acquire necessary skills, commitment and perseverance in fulfilling boring and monotonous duties, etc. The sense of duty and professionalism in future successful athletes is developed through identification. This aspect of extrinsic motivation is important both in formative years and later in adult life. Promotion of the personal responsibility and professionalism in performing chosen activities in a specific culture or social environment will influence the extent to which an individual will adopt such attitude towards work and duties during the socialization process.

Intrinsic motivation in sport is defined as enjoyment from just taking part in the favourite sport. There are three types of *intrinsic motivation – to know, to accomplish and to experience stimulation*. Striving to broaden one's knowledge is most prominent in education, while the motivation to accomplish something, to reach personal achievement standards and to experience the sports activity itself as stimulative and encouraging (Pelletier et al., 2007) is more dominant in sport.

The aim of this research was to test the concept of sports motivation based on the principles of self-determination theory on football players coming from different countries, that is, to find out if there are major differences in the sports motivation defined in such a way between young football players from Russia and from Serbia and Montenegro. Some previously conducted researches show that the basic principles of self-determined motivation are independent of the culture although cultural specificities can be discussed as well (Chirkov & Ryan, 2001; Chirkov, Ryan, & Wellness, 2005). A special task was to determine if there are any development-related differences in the level of internalization of extrinsic motivation in young athletes of different ages. It was also important to examine if the athletes' age combined with the environment they come from can cast additional light on differences in sports motivation.

The main hypothesis proposed that there were certain considerable differences between Russian football players on one side and football players coming from

dih sportista, važno je da proces internalizacije bude potpuniji i doprinese većoj integraciji socijalnih uticaja u self. Sljedeći stepen u internalizaciji regula socijalne sredine naziva se identifikacija. Pojedinaac svjesno vrednuje i prihvata pravila i zahtjeve socijalne sredine, iako na jednom dubljem nivou ne mora da osjeća te zahtjeve kao svoje sopstvene. U sportu, pojedinca pokreće *ekstrinzička motivacija identifikacijom* kada profesionalno i odgovorno prihvata sve svoje sportske obaveze. Sa psihološkog aspekta, uspješnost u fudbalu, kao i u sportu uopšte, podrazumijeva duge časove treninga, ponavljanje istih motornih radnji kako bi se stekle potrebne vještine, posvećenost i upornost u ispunjavanju nezanimljivih i jednoličnih obaveza i sl. Razvoj osjećanja odgovornosti i profesionalnosti budućih afirmisanih sportista odvija se mehanizmom identifikacije. Taj aspekt ekstrinzičke motivacije važan je kako tokom formativnih godina, tako i kasnije na seniorskom nivou. U kojoj mjeri je u određenoj kulturi ili socijalnoj sredini promovisana lična odgovornost pojedinca i profesionalnost u obavljanju odabranih aktivnosti, u tolikoj mjeri će i individue tokom procesa socijalizacije usvojiti takav odnos prema radu i obavezama.

Intrinzička motivacija u sportu određuje se kao uživanje usljed samog učestvovanja u omiljenom sportu. Moguće je razlikovati *intrinzičku motivaciju za saznanjem, za ostvarenjem i za stimulacijom*. Težnja ka širenju saznanja u nekoj oblasti najizraženija je u obrazovanju, dok je u sportu prisutnija motivacija da se nešto ostvari, da se dostignu i ostvare lični standardi postignuća, kao i da se sama sportska aktivnost doživljava kao nešto stimulatívno i podsticajno po sebi (Pelletier i saradnici, 2007).

Cilj ovog istraživanja bio je da se koncept sportske motivacije, nastao na principima teorije samodeterminacije, provjeri na fudbalerima iz različitih država, odnosno da se ispita da li postoje značajne razlike u tako definisanoj sportskoj motivaciji između mladih fudbalera iz Rusije, Srbije i Crne Gore. Neka ranija istraživanja pokazuju da su osnovne postavke samodeterminisane motivacije nezavisne od kulture iako je moguće diskutovati o kulturnim specifičnostima (Chirkov i Ryan, 2001; Chirkov, Ryan i Wellness, 2005). Poseban zadatak bio je da se ustanovi da li postoje razvojno uslovljene razlike u stepenu internalizacije ekstrinzičke motivacije kod mladih sportista različitog uzrasta. Značajno je bilo ispitati i da li uzrast sportista, povezan sa podnebljem iz kog mladi sportisti dolaze, može dodatno da rasvijetli razlike u sportskoj motivaciji.

Glavna hipoteza bila je da postoje neke značajne razlike između, s jedne strane, fudbalera iz Rusije i sa

Serbia and Montenegro on the other side. It was assumed there were no major differences regarding intrinsic motivation and that diversity of social influences reflected primarily in extrinsic motivation. It was also presumed that certain development-related differences in the level of internalization of extrinsic motivation could be expected. There was an assumption that football players aged 14 and 15 could significantly differ from 12- and 13-year-old ones regarding extrinsic motivation by identification.

METHOD

Sample

The sample included 178 respondents, aged 12 to 15. The 12-year-olds accounted for 18%, 13-year-olds 16.9%, while 14- and 15-year-olds participated with a somewhat bigger share: 34.8% and 30.3% respectively. A little over half of the tested sample (54.5%) included the athletes from the Krasnodar football academy in Russia. The respondents from Serbia and Montenegro were merged into one category and accounted for 45.5% of the sample. They belong to different football schools. Structure of the sample by age and nationality is given in Table 1.

TABLE 1

Structure of the sample by age and nationality (N = 178)

TABELA 1

Prikaz uzorka ispitanika prema uzrastu i nacionalnosti (N = 178)

| Age | Nationality | | χ^2 | df | p |
|--------------|-------------|----------------|----------|----|------|
| | RUS n | SRB / MNE n | | | |
| 12 years old | 27 | 5 | 37.198 | 3 | .000 |
| 13 years old | 26 | 4 | | | |
| 14 years old | 22 | 40 | | | |
| 15 years old | 22 | 32 | | | |
| Total | 97 | 81 | | | |

Legend: Nationality – Nacionalnost; Age – Uzrast; 12 years old – 12 godina; 13 years old – 13 godina; 14 years old – 14 godina; 15 years old – 15 godina; **RUS** – Russia (Rusija); **SRB** – Serbia (Srbija); **MNE** – Montenegro (Crna Gora); **n** – Number of subjects (Broj ispitanika); χ^2 – The chi-square distribution (Hi-kvadrat raspodjela); **df** – Degrees of freedom (Stepeni slobode); **p** – Probability (Vjerovatnoća).

Variables

Two independent variables were used: the nationality (whether the respondents came from Russia or from Serbia and Montenegro) and the age (12, 13, 14 or 15 years). There were also seven dependent variables referring to different aspects of sports motivation.

druge strane – fudbalera iz Srbije i Crne Gore. Pretpostavljeno je da ne postoje značajne razlike u pogledu intrinzičke motivacije, već da se različitost socijalnih uticaja ogleda, prije svega, u ekstrinzičkoj motivaciji. Takođe je pretpostavljeno da se mogu očekivati i neke razvojno uslovljene razlike u stepenu internalizacije ekstrinzičke motivacije. Pretpostavljeno je da bi fudbaleri od 14 i 15 godina mogli značajno da se razlikuju od fudbalera od 12 i 13 godina u pogledu ekstrinzičke motivacije identifikacijom.

METOD

Uzorak

Uzorak se sastojao od 178 ispitanika, uzrasta od 12 do 15 godina. Ispitanika uzrasta od 12 godina bilo je 18%, od 13 godina 16,9%, a ispitanika starijih 14, odnosno 15 godina, bilo je nešto više: 34,8%, odnosno 30,3%. Malo više od polovine ispitanog uzorka (54,5%) činili su polaznici fudbalske akademije “Krasnodar” iz Rusije. Ispitanici iz Srbije i Crne Gore objedinjeni su u jednu kategoriju, i činili su 45,5% uzorka. Oni pripadaju različitim fudbalskim školama. Prikaz uzorka prema uzrastu i nacionalnosti dat je u Tabeli 1.

Varijable

Korišćene su dvije nezavisne varijable: nacionalnost (da li ispitanici dolaze iz Rusije ili iz Srbije, tj. Crne Gore) i uzrast ispitanika (12, 13, 14 ili 15 godina) i sedam zavisnih varijabli koje se odnose na različite

These dependent variables were operationalized according to self-determination theory as intrinsic motivation to know, to accomplish and to experience stimulation; extrinsic motivation by identification, introjected extrinsic motivation and extrinsic motivation by external regulation, and amotivation.

Procedure

The questionnaires for this research were filled in during other testings that the respondents had to undergo. They participated voluntarily with the consent of the clubs they train in.

Instruments

The Sport Motivation Scale (SMS-28; Pelletier et al, 1995) was used. This was one of the exploratory testings of the scale on a Serbian and Montenegrin sample, and the first testing of such kind on a Russian sample. The Serbian and Montenegrin version and the Russian version of the SMS-28 scale were first translated from English into Serbian and Russian, and then they were translated back into English in order to spot redundancies and inconsistencies in the translation, if any. The translations of the scale into Serbian and Russian were tested on the 12-year-old respondents during a preliminary research. Twenty respondents from each category were asked to mark language dilemmas, if any, on the Serbian and the Russian version of the scale. The respondents who participated in the preliminary research made no critical remarks.

The Sport Motivation Scale (SMS-28) includes 28 items in total which are assessed by the respondents on a 7-point Likert-type scale. Four items each measure the aspects of intrinsic motivation (to know, to accomplish and to experience stimulation), the aspects of extrinsic motivation (by identification, introjection and external regulation) and amotivation for sports.

Statistical Analysis

The reliability of instruments was tested with Cronbach's alpha. Mean values and standard deviations were calculated for each aspect of intrinsic and extrinsic motivations and for amotivation as well t-test was used to determine the importance of differences between the aspects of sports motivation in young football players from Serbia and Montenegro and from Russia. ANOVA was performed to detect potential differences in sports motivation by the age of participants. However, in order to additionally analyze the differences between young football players, at the same time including the respondents' background (country) and age, a two-way MANOVA was performed with two independent variables (nationality and age), and seven dependent variables

aspekte sportske motivacije. Zavisne varijable operacionalizovane su u skladu sa teorijom samodeterminacije kao intrinzička motivacija za saznanjem, ostvarenjem i stimulacijom, ekstrinzička motivacija identifikacijom, introjeksijom i eksternom regulacijom i amotivacija..

Procedure

Popunjavanje upitnika za ovo istraživanje sprovedeno je u sklopu drugih ispitivanja kojima su ispitanici bili podvrgnuti. Ispitanici su učestvovali dobrovoljno, uz saglasnost matičnih klubova u kojima treniraju.

Instrumenti

Korišćena je skala sportske motivacije - SMS-28 (Pelletier i saradnici, 1995). Ovo je jedno od eksplorativnih ispitivanja skale na srpsko-crnogorskom uzorku, a prvo takvo ispitivanje na ruskom uzorku. Srpsko-crnogorska i ruska verzija skale SMS-28 dobijene su prevođenjem skale sa engleskog jezika na srpski i ruski, pa ponovo na engleski, da bi se uočile eventualne redundantnosti i nedosljednosti u prevodu. Prevodi skale na srpski i ruski podvrgnuti su preliminarnim istraživanjem provjeri na ispitanicima uzrasta od 12 godina. Po 20 ispitanika imalo je zadatak da označi eventualne jezičke nedoumice na srpskoj, odnosno ruskoj verziji skale. Ispitanici iz preliminarnog istraživanja nisu imali ozbiljnije primjedbe.

Skala sportske motivacije (SMS-28) ima ukupno 28 ajtema, koje ispitanici procjenjuju na sedmostepenoj skali Likertovog tipa. Po četiri ajtema mjere aspekte intrinzičke motivacije (za saznanjem, ostvarenjem i stimulacijom), aspekte ekstrinzičke motivacije (identifikacijom, introjeksijom i eksternom regulacijom) i amotivaciju.

Statistička analiza

Pouzdanost instrumenta provjeravana je Kronbachovom alfa. Za svaki aspekt intrinzičke i ekstrinzičke motivacije, kao i za nemotivisanost izračunavane su aritmetičke sredine i standardne devijacije. Za ispitivanje značajnosti razlika između aspekata sportske motivacije kod mladih fudbalera Srbije, Crne Gore i Rusije primijenjen je t-test. Za ispitivanje potencijalnih razlika u sportskoj motivaciji prema uzrastu, sprovedena je ANOVA. Međutim, da bi se dodatno ispitala razlike između mladih fudbalera koje istovremeno uzimaju u obzir podneblje (zemlju) iz kojeg ispitanici dolaze i uzrast ispitanika, sprovedena je dvofaktorska MANOVA, sa dvije nezavisne varijable (nacionalnost i uzrast) i sedam zavisnih varijabli (svaki aspekt sport-

(each aspect of sports motivation was treated as a separate variable). Data was processed by SPSS 8.0.

ske motivacije tretiran je kao posebna varijabla). Podaci su obrađeni programom SPSS 8.0.

RESULTS

Reliability of SMS-28 was tested by calculating Cronbach's alpha. For the scale as a whole, the lowest reliability in this research was produced for the subscale measuring amotivation for sports (.44), whereas the highest individual value of Cronbach's alpha was recorded on the subscale measuring extrinsic motivation by identification (.79). Table 2 shows values of Cronbach's alpha for all subscales, and by age and nationality of respondents.

TABLE 2

Cronbach's alpha values for SMS-28 subscales, and by age and nationality of respondents

TABELA 2

Vrijednosti Kronbahove alfe za SMS-28 po subskalama, uzrastu i nacionalnosti ispitanika

| | Whole sample (<i>N</i> = 178) | Age of 12 (<i>n</i> = 32) | Age of 13 (<i>n</i> = 29) | Age of 14 (<i>n</i> = 60) | Age of 15 (<i>n</i> = 54) | RUS (<i>n</i> = 97) | SRB/MNE (<i>n</i> = 81) |
|--|-----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------|-----------------------------|
| Intrinsic motivation to know | .73 | .63 | .75 | .73 | .72 | .73 | .70 |
| Intrinsic motivation to accomplish | .60 | .57 | .44 | .72 | .63 | .48 | .74 |
| Intrinsic motivation to experience stimulation | .53 | .31 | .45 | .68 | .55 | .46 | .61 |
| Extrinsic motivation by identification | .79 | .76 | .76 | .65 | .87 | .76 | .75 |
| Introjected extrinsic motivation | .74 | .69 | .68 | .73 | .79 | .68 | .72 |
| Extrinsic motivation by external regulation | .78 | .76 | .68 | .67 | .86 | .70 | .67 |
| Amotivation | .44 | .34 | .43 | .47 | .42 | .31 | .54 |

Legend: Whole sample – Cijeli uzorak; Age of 12 – Uzrast od 12 godina; Age of 13 – Uzrast od 13 godina; Age of 14 – Uzrast od 14 godina; Age of 15 – Uzrast od 15 godina; **RUS** – Russia (Rusija); **SRB** – Serbia (Srbija); **MNE** – Montenegro (Crna Gora); **N**, **n** – Number of subjects (Broj ispitanika); Intrinsic motivation to know – Intrinzička motivacija za saznanjem; Intrinsic motivation to accomplish – Intrinzička motivacija za ostvarenjem; Intrinsic motivation to experience stimulation – Intrinzička motivacija za stimulacijom; Extrinsic motivation by identification – Ekstrinzička motivacija identifikacijom; Introjected extrinsic motivation – Ekstrinzička motivacija introjekcijom; Extrinsic motivation by external regulation – Ekstrinzička motivacija eksternom regulacijom; Amotivation – Amotivacija.

Table 3 shows that young football players from Russia differ from their peers from Serbia and Montenegro in their intrinsic motivation to accomplish and in all aspects of extrinsic motivation.

After the analysis included the respondents' age, some major differences were found in sports moti-

REZULTATI

Pouzdanost skale SMS-28 ispitivana je Kronbahovom alfa. Uzimajući u obzir uzorak u cjelini, najniža pouzdanost u ovom istraživanju dobijena je za podskalu koja mjeri amotivaciju za sport (0,44), dok je najviša pojedinačna vrijednost Kronbahove alfe, dobijena na podskali koja mjeri ekstrinzičku motivaciju identifikacijom (0,79). U Tabeli 2 prikazane su vrijednosti Kronbahove alfe po podskalama, kao i u odnosu na uzrast i nacionalnost ispitanika.

Kako se može vidjeti iz Tabele 3, mladi fudbaleri iz Rusije razlikuju se od svojih vršnjaka iz Srbije i Crne Gore u pogledu intrinzičke motivacije za ostvarenjem i svih aspekata ekstrinzičke motivacije.

Kada se u analizu uvedu godine starosti ispitanika, pokazalo se da postoje neke značajne razlike u sport-

TABLE 3

Significant differences among aspects of sports motivation in young football players from Russia, Serbia and Montenegro

TABELA 3

Značajnost razlika između aspekata sportske motivacije, kod mladih fudbalera Rusije, Srbije i Crne Gore

| Sports motivation | Nationality | <i>M</i> | <i>SD</i> | <i>t</i> |
|--|-------------|----------|-----------|---------------|
| Intrinsic motivation to know | RUS | 5.43 | 1.22 | -1.900 |
| | SRB/MNE | 5.75 | .99 | |
| Intrinsic motivation to accomplish | RUS | 5.14 | 1.09 | -4.045 |
| | SRB/MNE | 5.77 | .95 | |
| Intrinsic motivation to experience stimulation | RUS | 5.62 | .93 | -.146 |
| | SRB/MNE | 5.60 | 1.06 | |
| Extrinsic motivation by identification | RUS | 3.85 | 1.31 | -7.623 |
| | SRB/MNE | 5.29 | 1.19 | |
| Introjected extrinsic motivation | RUS | 4.29 | 1.48 | -5.948 |
| | SRB/MNE | 5.50 | 1.19 | |
| Extrinsic motivation by external regulation | RUS | 2.82 | 1.39 | -7.537 |
| | SRB/MNE | 4.34 | 1.28 | |
| Amotivation | RUS | 2.31 | .87 | -1.145 |
| | SRB/MNE | 2.47 | 1.01 | |

Legend: Sports motivation – Sportska motivacija; Nationality – Nacionalnost; **RUS** – Russia (Rusija); **SRB** – Serbia (Srbija); **MNE** – Montenegro (Crna Gora); **M** – Mean (Aritmetička sredina); **SD** – Standard deviation (Standardna devijacija); **t** – Student's *t* distribution (Studentova *t* distribucija); $p < .01$; Intrinsic motivation to know – Intrinzička motivacija za saznanjem; Intrinsic motivation to accomplish – Intrinzička motivacija za ostvarenjem; Intrinsic motivation to experience stimulation – Intrinzička motivacija za stimulacijom; Extrinsic motivation by identification – Ekstrinzička motivacija identifikacijom; Introjected extrinsic motivation – Ekstrinzička motivacija introjektivacijom; Extrinsic motivation by external regulation – Ekstrinzička motivacija eksternom regulacijom; Amotivation – Amotivacija.

variation of the athletes of different age. Figures 1 to 4 shows the presence of all examined aspects of sports motivation in the respondents aged 12, 13, 14 and 15. The results of variance analysis showed differences in extrinsic motivation by identification ($F = 3.111$; $df = 3$; $p < .05$), by external regulation ($F = 3.520$; $df = 3$; $p < .01$) and amotivation ($F = 6.344$; $df = 3$; $p < .01$).

Series of *t*-tests showed considerable differences between the twelve-year-olds and young athletes of other ages in amotivation ($M_{12} = 2.97$; $M_{13} = 2.16$; t -test = 3.292; $M_{14} = 2.40$; t -test = 2.644; $M_{15} = 2.17$; t -test = 4.207; all significant at $p < .01$).

Differences were also detected between 13- and 14-year olds in extrinsic motivation by identification ($M_{13} = 3.94$; $M_{14} = 4.90$; t -test = -3.418; $p < .01$), introjected extrinsic motivation ($M_{13} = 4.42$; $M_{14} = 5.13$; t -test = -2.217; $p < .05$) and in extrinsic motivation

skoj motivaciji kod ispitanika različitog uzrasta. Na Slikama 1 do 4, vidi se zastupljenost svih ispitanih aspekata sportske motivacije kod ispitanika uzrasta od 12, 13, 14 i 15 godina. Rezultati analize varijanse pokazali su da postoje razlike u pogledu ekstrinzičke motivacije identifikacijom ($F = 3,111$; $df = 3$; $p < 0,05$), eksternom regulacijom ($F = 3,520$; $df = 3$; $p < 0,01$) i amotivacije ($F = 6,344$; $df = 3$; $p < 0,01$).

Sprovođenjem niza *t*-testova, pokazalo se da značajne razlike postoje između dvanaestogodišnjaka i ostalih uzrasta u pogledu amotivacije ($AS_{12} = 2,97$; $AS_{13} = 2,16$; t -test = 3,292; $AS_{14} = 2,40$; t -test = 2,644; $AS_{15} = 2,17$; t -test = 4,207; sve značajno na $p < 0,01$).

Razlike postoje i između trinaestogodišnjaka i četrnaestogodišnjaka i to u pogledu ekstrinzičke motivacije identifikacijom ($AS_{13} = 3,94$; $AS_{14} = 4,90$; t -test = -3,418; $p < 0,01$), introjektivacijom ($AS_{13} = 4,42$; $AS_{14} = 5,13$; t -test = -2,217; $p < 0,05$) i eksternom

by external regulation ($M_{13} = 2.84$; $M_{14} = 3.98$; t -test = -3.754 ; $p < .01$).

In order to test if the differences still exist when the data analysis additionally includes the respondents' background (Russian or Serbian and Montenegrin sample) and the "age" variable, a two-way MANOVA was performed. The assumptions about linearity,

regulacijom ($AS_{13} = 2,84$; $AS_{14} = 3,98$; t -test = $-3,754$; $p < 0,01$).

Da bi se ispitalo da li razlike u navedenim aspektima sportske motivacije postoje i kada se prilikom analize podataka istovremeno uzme u obzir da li ispitanici pripadaju ruskom ili srpsko-crnogorskom uzorku i varijabla "uzrast", primijenjena je dvofaktor-

FIGURE 1

Sports motivation for 12-year-olds (n = 32)

SLIKA 1

Sportska motivacija za uzrast od 12 god. (n = 32)

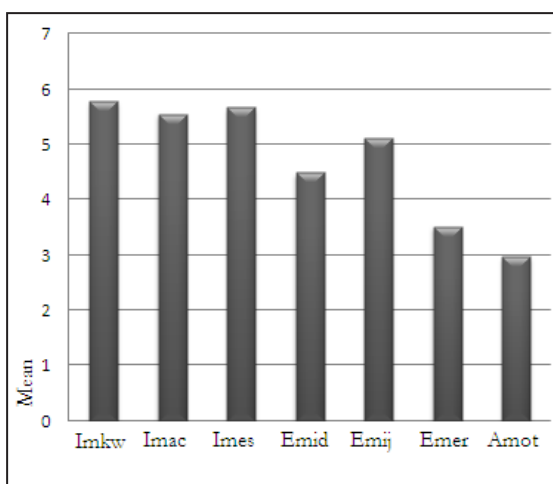


FIGURE 3

Sports motivation for 14-year-olds (n = 60)

SLIKA 3

Sportska motivacija za uzrast od 14 god. (n = 60)

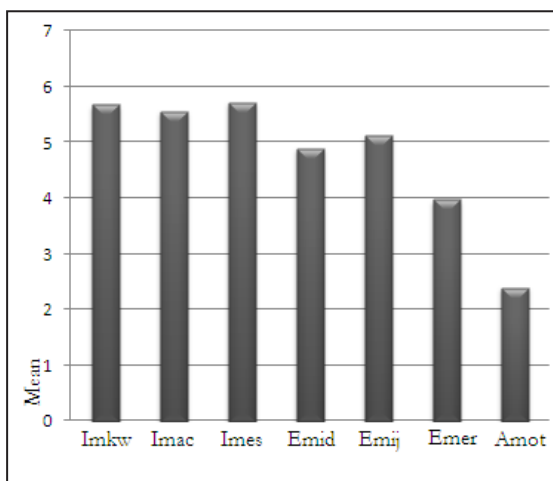


FIGURE 2

Sports motivation for 13-year-olds (n = 29)

SLIKA 2

Sportska motivacija za uzrast od 13 god. (n = 29)

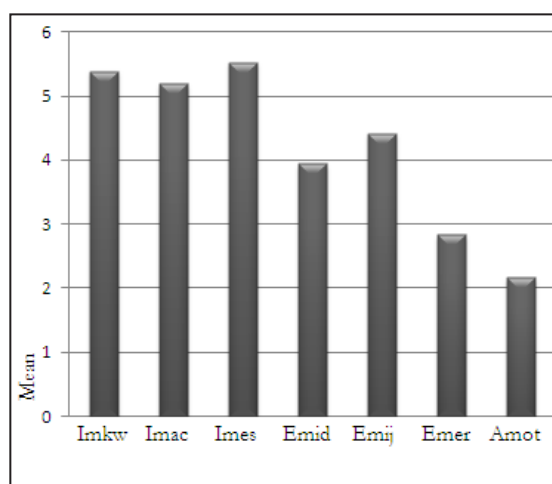
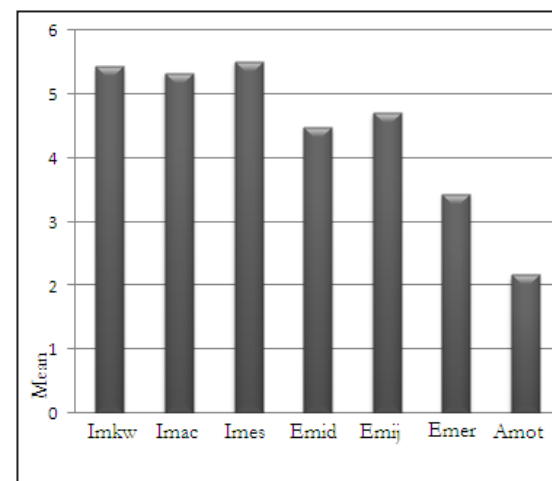


FIGURE 4

Sports motivation for 15-year-olds (n = 54)

SLIKA 4

Sportska motivacija za uzrast od 15 god. (n = 54)



Legend: **Imkw** – Intrinsic motivation to know (Intrinzička motivacija za saznanjem); **Imac** – Intrinsic motivation to accomplish (Intrinzička motivacija za ostvarenjem); **Imes** – Intrinsic motivation to experience stimulation (Intrinzička motivacija za stimulacijom); **Emid** – Extrinsic motivation by identification (Ekstrinzička motivacija identifikacijom); **Emij** – Introjected extrinsic motivation (Ekstrinzička motivacija introjeksijom); **Emer** – Extrinsic motivation by external regulation (Ekstrinzička motivacija eksternom regulacijom); **Amot** – Amotivation (Amotivacija).

normality, atypical points and homogeneity of variance-covariance matrices were checked by preliminary tests and no major disturbance of assumptions was recorded. Calculation of Mahalanobis distances excluded three respondents from further analysis.

Contrary to the preliminary testing of assumptions about equality of variances, Levene's test for equality of variances performed within MANOVA showed disturbance of the assumption about equality of variances with the "amotivation" variable. For this reason and also due to the unequal number of respondents in certain cells, while testing the importance of differences among the groups with reference to the combination of dependent variables, apart from Wilk's lambda, other tests – sensitive exactly to the above mentioned deviations – were considered as well (Table 4).

Table 4 shows the differences in sports motivation by the countries the respondents come from (nationality). Yet, when only their ages were consid-

erred, MANOVA. Preliminarnim ispitivanjem provjere su pretpostavke o linearnosti, normalnosti, netipičnim tačkama, homogenosti matrica varijanse-kovarijanse i nije registrovano ozbiljnije narušavanje pretpostavki. Izračunavanje Mahalanobisovih distanci isključilo je iz dalje analize 3 ispitanika.

Levenov test jednakosti varijansi, sproveden u okviru MANOVA-e, pokazao je, za razliku od preliminarnih provjera pretpostavki o jednakosti varijansi, da je narušena pretpostavka o jednakosti varijansi kod varijable "amotivacija". Iz tog razloga, kao i zbog nejednakog broja ispitanika u pojedinim ćelijama, prilikom provjere značajnosti razlika između grupa u pogledu kombinacije zavisnih varijabli uzeti su u obzir i drugi testovi, osim Vilksove lambde, osjetljivi upravo na navedena odstupanja (Tabela 4).

Kako se može vidjeti u Tabeli 4, postoje razlike u sportskoj motivaciji u odnosu na zemlju iz koje ispitanici dolaze (nacionalnost), ali kada se uzmu u obzir

TABLE 4

Significant differences in sports motivation by nationality and age of respondents

TABELA 4

Značajnost razlika u sportskoj motivaciji prema nacionalnosti i uzrastu ispitanika

| | Value | F | p | df | ϵ^2 |
|--------------------------|-------|--------|------|-------------|--------------|
| Nationality | | | | | |
| V | .311 | 10.394 | .000 | 7; 161 | .311 |
| Λ | .689 | 10.394 | .000 | 7; 161 | .311 |
| T^2 | .452 | 10.394 | .000 | 7; 161 | .311 |
| Θ | .452 | 10.394 | .000 | 7; 161 | .311 |
| Age | | | | | |
| V | .153 | 1.253 | .202 | 21; 489.000 | .051 |
| Λ | .851 | 1.271 | .189 | 21; 462.855 | .052 |
| T^2 | .169 | 1.288 | .177 | 21; 479.000 | .053 |
| Θ | .131 | 3.054 | .005 | 7; 163.000 | .116 |
| Nationality / Age | | | | | |
| V | .188 | 1.559 | .055 | 21; 489.000 | .063 |
| Λ | .821 | 1.572 | .052 | 21; 462.855 | .064 |
| T^2 | .208 | 1.583 | .049 | 21; 479.000 | .065 |
| Θ | .143 | 3.322 | .002 | 7; 163.000 | .125 |

Legend: Value – Vrijednost; Nationality – Nacionalnost; Age – Uzrast; V – Pillai-Bartlett multivariate trace criterion (Pillai-Bartlett multivarijantni trag kriterij); Λ – Wilks's multivariate test criterion (Wilksov multivarijantni test kriterij); T^2 – Hotelling's multivariate test for the equality of the mean vector in two multivariate populations (Hotelingov multivarijantni test za jednakost srednje vrijednosti vektora u dvije multivarijantne populacije); Θ – Roy's multivariate test criterion (Royov multivarijantni test kriterij); F – Fisher's F ratio (Fisherov F odnos); p – Probability (Vjerovatnoća); df – Degrees of freedom (Stepeni slobode); ϵ^2 – Measure of strength of relationship in analysis of variance (Mjera snage odnosa u analizi varijanse).

red, no significant differences were found. However, significant differences in sports motivation were spotted when the age of respondents in various countries was taken into account.

Further on, it was important to examine if the respondents of different age from the two samples differed in all aspects of sports motivation or just in some of them. To avoid the conclusion that there are differences when in fact there are no actual differences at all in particular aspects of sports motivation in respondents of different ages from the two samples, Boniferroni correction was applied. The chosen significance level was .007.

Table 5 shows that the results obtained using *t*-test for the sample-related differences were also confirmed with MANOVA. However, when the respondents' age is concurrently introduced into the analysis, significant differences are detected only in introjected extrinsic motivation.

DISCUSSION

As it was assumed, significant differences between the football players coming from various countries were found in all aspects of extrinsic motivation. However, contrary to our hypothesis that there were no differences in intrinsic motivation regardless of the respondents' countries, young football players from Russia were also found to differ from their peers from Serbia and Montenegro in their intrinsic motivation to accomplish something in football.

If various aspects of extrinsic motivation are considered to be the indicators of socialization in sport, young football players from Serbia and Montenegro can be said to "absorb" external influences more than their peers from Russia. This means that young football players are more likely to receive influence, primarily from their coaches and parents, although each influence can produce both positive and negative effects. Higher susceptibility to influence by environment can mean that young football players in Serbia and Montenegro are quicker than their Russian peers to develop individual responsibility and professional attitude to their duties related to football, internalize various kinds of external pressures and respond to material rewards.

On the other hand, contrary to the assumption there were no differences in intrinsic interest in football, young football players from Serbia and Montenegro were found to have a stronger authentic intrinsic desire to accomplish something in football. In general, the relevant literature does not explicitly link intrinsic motivation to accomplish and the achievement

samo razlike u pogledu uzrasta značajnih razlika nema. Međutim, pokazalo se da ima značajnih razlika u sportskoj motivaciji kada se uzme u obzir uzrast ispitanika u različitim zemljama.

Dalje je bilo značajno da se ispita da li se ispitanici različitog uzrasta iz dva uzorka razlikuju po svim aspektima sportske motivacije, ili samo po nekim. Da bi bila izbjegnuta greška prvog tipa, tj. da se zaključi da postoje razlike tamo gdje stvarnih razlika u nekim aspektima sportske motivacije kod ispitanika različitog uzrasta iz dva uzorka nema, primijenjeno je prilagođavanje nivoa značajnosti po Bonferoniju. Kao značajan uzet je nivo od 0,007.

Kako se može vidjeti u Tabeli 5, rezultati dobijeni *t*-testom za razlike u pogledu pripadnosti određenoj nacionalnosti potvrđene su i MANOVA-om. Ali, kada se u analizu istovremeno uvede i uzrast ispitanika, pokaže se da značajne razlike postoje samo u pogledu spoljašnje motivacije introjeksijom.

DISKUSIJA

Kao što je pretpostavljeno, pokazalo se da značajne razlike između fudbalera u različitim zemljama postoje u svim aspektima ekstrinzičke motivacije. Međutim, iako je pretpostavljeno da razlike u intrinzičkoj motivaciji ne postoje bez obzira na zemlju iz koje ispitanici dolaze, pokazalo se da se mladi fudbaleri iz Rusije razlikuju od svojih vršnjaka iz Srbije i Crne Gore i po intrinzičkoj motivaciji da se u fudbalu nešto ostvari.

Ako se različiti aspekti ekstrinzičke motivacije razumiju kao pokazatelji sportske socijalizacije, može se reći da mladi fudbaleri iz Srbije i iz Crne Gore više "upijaju" spoljašnje uticaje u odnosu na svoje vršnjake iz Rusije. To znači veću mogućnost uticaja na mlade fudbalere, u prvom redu trenera i roditelja, iako svaki uticaj može proizvesti i pozitivne i negativne posljedice. Veća otvorenost za uticaje sredine može da znači da su razvoj individualne odgovornosti i profesionalnog pristupa svojim obavezama u fudbalu, pounutrenje različitih vrsta spoljašnjih pritiska i responzivnost na materijalne nagrade, brži kod mladih fudbalera u Srbiji i Crnoj Gori, nego u Rusiji.

S druge strane, iako je pretpostavljeno da nema razlika u intrinzičkoj zainteresovanosti za fudbal, pokazalo se da je kod mladih fudbalera iz Srbije i Crne Gore prisutnija autentična unutrašnja želja da se u fudbalu nešto ostvari. U literaturi se, uglavnom, ne dovode u eksplicitnu vezu pojmovi intrinzičke motivacije za ostvarenjem i motiva za postignućem kako ga je definisao Mecklelland (McClelland, 1987). Intrinzička motivacija za ostvarenjem ukazuje na težnju

motivation as defined by McClelland (1987). Intrinsic motivation to accomplish indicates a tendency referenced in the inner need to develop and achieve one's own competence, while from McClelland to this day, the achievement motivation is defined as striving to reach and exceed the achievement standards set by someone else or the individual itself. Therefore, this is a kind of an external reference. It seems that traditional definitions of the achievement motivation overemphasize the competition with something outside the individual itself whereas intrinsic motivation to accomplish, as defined by self-determination theory, relies more on inner personal achievement standards related in the first place to the development of personal competence.

The difference in intrinsic motivation to accomplish between young football players from Russia and from Serbia and Montenegro indicates the complexity of sport achievement construct which needs to include both inner authentic needs for self-accomplishment which are not stimulated externally and also external achievement standards that are inseparable from competitive aspect of each sport. The importance of further exploration of the sport achievement construct is supported by the findings of this research which suggest that intrinsic motivation to accomplish is more present in young football players from Serbia and Montenegro who are at the same time more responsive to social influences than their peers from Russia.

As far as age differences are concerned, significant differences were mostly found between the 13- and 14-year-olds. The significant differences spotted in all aspects of extrinsic motivation indicate greater personal maturity of the 14-year-old athletes. The socialization processes seem to lead to qualitative changes between the age of 13 and 14. Fourteen-year-olds are substantially more responsible in performing their sports duties, they become more and more conscious of the value of material rewards and are more inclined to link their self-respect and self-worth to an immediate achievement, etc. In other words, at this age external influences are most likely to contribute to a positive sports and personal development of young athletes and yet to make them quit the sport as well. Experience from practice shows that young athletes quit sport exactly at the age of 13 or 14. Some researches carried out on young Serbian athletes indicate that a coach's motivational approach to athletes might play a role toward a higher quality internalization of regulatory mechanisms into self-regulatory ones (Mladenović, 2010b). The coach whose approach is based on supporting autonomy and not on behaviour control is more likely to keep young athletes from quitting sport and contribute to their more optimal personal and sports development (Mladenović, 2010c).

koja ima referencu u unutrašnjoj potrebi da se razviju i ostvare sopstvene kompetencije, dok se motiv za postignućem od Meklilenda pa nadalje definiše kao nastojanje da se dostignu i premaše standardi postignuća koje je postavio neko drugi, ili sama osoba. Dakle, riječ je nekoj vrsti spoljašnje reference. Čini se da tradicionalne definicije motiva postignuća u literaturi previše naglašavaju kompetenciju sa nečim što je izvan same osobe, dok se intrinzička motivacija za postignućem, kako je definisana u okviru teorije samodeterminacije, više oslanja na unutrašnje lične standarde postignuća, koji se, prvenstveno, odnose na razvoj lične komeptentnosti.

Razlika u pogledu intrinzičke motivacije za ostvarenjem između mladih fudbalera iz Rusije, Srbije i Crne Gore ukazuje na kompleksnost konstrukta postignuća u sportu, koji mora da obuhvati i unutrašnje autentične potrebe za samoostvarenjem koje nisu podstaknute spoljašnjim uticajem, ali i spoljašnje standardne postignuća koji su neodvojivi od takmičarskog aspekta svakog sporta. U prilog važnosti takve dalje eksploracije konustrukta postignuća u sportu govore nalazi ovog istraživanja, koji ukazuju da je intrinzička motivacija za ostvarenjem više prisutna kod mladih fudbalera iz Srbije i Crne Gore, koji su istovremeno i reaktivniji na socijalne uticaje od svojih vršnjaka iz Rusije.

Kada je riječ o uzrasnim razlikama, pokazalo se da najviše značajnih razlika ima između trinaestogodišnjaka i četrnaestogodišnjaka. Značajne razlike dobijene na svim aspektima ekstrinzičke motivacije, a ukazuju na veću zrelost ličnosti četrnaestogodišnjih sportista. Izgleda da procesi socijalizacije dovode do kvalitativnih promena između 13. i 14. godine. Četrnaestogodišnjaci su značajno više odgovorni prema svojim sportskim obavezama, postaju svjesniji vrijednosti materijalnih nagrada, ali su i skloniji da svoje samopoštovanje i samovrednovanje vezuju za neposredno ostvareno postignuće, itd. To je, drugim riječima, uzrast kada spoljašnji uticaji najviše mogu da doprinesu pozitivnom sportskom i ličnom razvoju mladih sportista, ali i da dovedu do napuštanja sporta. Iskustva iz prakse pokazuju da je upravo uzrast 13-14 godina vrijeme kada mladi sportisti najviše napuštaju sport. Neka istraživanja sprovedena na mladim srpskim sportistima ukazuju na moguću ulogu trenerovog motivacionog pristupa sportistima u pravcu kvalitetnije internalizacije regulatornih u samoregulatorne mehanizme (Mladenovic 2010b). Trener koji bazira svoj pristup na podržavanju autonomije a ne na kontroli ponašanja, ima veće izgleda da zadrži mlade sportiste da ne napuste sport i da doprinese optimalnom ličnom i sportskom razvoju mladih sportista (Mladenovic, 2010c).

TABLE 5*Significant differences in aspects of sports motivation by nationality and age***TABELA 5***Značajnost razlika u aspektima sportske motivacije prema nacionalnosti i uzrastu*

| Sports motivation | <i>F</i> | <i>p</i> | ϵ^2 |
|--|----------|-------------|--------------|
| Nationality | | | |
| Intrinsic motivation to know | 6.183 | .114 | .036 |
| Intrinsic motivation to accomplish | 12.927 | .000 | .072 |
| Intrinsic motivation to experience stimulation | .107 | .744 | .001 |
| Extrinsic motivation by identification | 43.515 | .000 | .207 |
| Introjected extrinsic motivation | 26.473 | .000 | .137 |
| Extrinsic motivation by external regulation | 33.150 | .000 | .166 |
| Amotivation | 7.322 | .008 | .042 |
| Age | | | |
| Intrinsic motivation to know | 2.248 | .085 | .039 |
| Intrinsic motivation to accomplish | 1.205 | .310 | .021 |
| Intrinsic motivation to experience stimulation | .980 | .404 | .017 |
| Extrinsic motivation by identification | 2.240 | .085 | .039 |
| Introjected extrinsic motivation | 2.605 | .054 | .045 |
| Extrinsic motivation by external regulation | 2.250 | .084 | .039 |
| Amotivation | 4.716 | .003 | .079 |
| Nationality / Age | | | |
| Intrinsic motivation to know | 1.068 | .008 | .068 |
| Intrinsic motivation to accomplish | .928 | .429 | .016 |
| Intrinsic motivation to experience stimulation | 1.792 | .151 | .031 |
| Extrinsic motivation by identification | 4.043 | .008 | .068 |
| Introjected extrinsic motivation | 4.168 | .007 | .070 |
| Extrinsic motivation by external regulation | 1.694 | .170 | .030 |
| Amotivation | 2.081 | .105 | .036 |

Legend: Sports motivation – Sportska motivacija; Nationality – Nacionalnost; Age – Uzrast; ***F*** – Fisher's *F* ratio (Fisherov *F* odnos); ***p*** – Probability (Vjerovatnoća); **ϵ^2** – Measure of strength of relationship in analysis of variance (Mjera snage odnosa u analizi varijanse) Intrinsic motivation to know – Intrinzička motivacija za saznanjem; Intrinsic motivation to accomplish – Intrinzička motivacija za ostvarenjem; Intrinsic motivation to experience stimulation – Intrinzička motivacija za stimulacijom; Extrinsic motivation by identification – Ekstrinzička motivacija identifikacijom; Introjected extrinsic motivation – Ekstrinzička motivacija introjektivacijom; Extrinsic motivation by external regulation – Ekstrinzička motivacija eksternom regulacijom; Amotivation – Amotivacija..

A significant age-related difference in amotivation was found between the 12-year-olds and young football players aged 13, 14 and 15. The question is why is amotivation for sport considerably more present at the age of 12 than in the years to follow? Is it about the fact that compared with the complex and potentially stormy processes of internalization of external influences going on at the age of 13 and 14, 12 years of age is a calm period which can be qualified as a lack of interest

Značajna uzrasna razlika dobijena je i između dvanaestogodišnjaka i mladih fudbalera starih 13, 14 i 15 godina u pogledu amotivacije. Postavlja se pitanje: zašto je na uzrastu od 12 godina značajno više prisutna amotivacija za sport nego na uzrastima koji slede? Da li je riječ o tome da u odnosu na složene i potencijalno burne procese internalizacije spoljašnjih uticaja koji se odvijaju na uzrastu između 13 i 14 godina, uzrast od 12 godina predstavlja miran period

in sport? We provide no answer for that at this point. Further researches will need to examine amotivation for sport. According to self-determination theory, amotivation is defined as a lack of any intention to act because the person is unable to see the link between cause and effect and doubts that his/her involvement can bring about meaningful changes in his/her surroundings (Deci & Ryan, 2000). Such definition is rather pathocentric and seems not to be fully applicable in sport. Athletes can be more or less motivated intrinsically or extrinsically, but the issue is if it is possible to discuss amotivation as a pathocentric category, particularly with reference to young athletes whose initial motivation for taking up sport is most often intrinsic.

Finally, taking into account, at the same time, both the age of respondents and the country they come from, the only significant difference was found in extrinsic motivation based on the introjection mechanism. Introjection, as a stage of internalization of rules imposed by a wider and immediate social environment, seems to be an especially sensitive period in one's personal development. The relevant literature emphasizes that introjected motivation can develop into a positive direction and lead to a more complete internalization. If, during one's own personal development, an individual is passing through such positive form of internalization based on the introjection mechanism, they will feel positive emotions when experiencing achievement – pride, for instance. However, internalization through introjection can take a negative direction as well and lead to development of the sense of shame, guilt and anxiety (Vansteenkiste, Niemiec, & Soenens, 2010). Depending on the form of internalization through introjection dominating in motivation and personal development of young athletes, they may either quit the sport or experience further personal and sports development. This research suggests that individual differences relating primarily to a particular age are not the only important issues but that various socialization agents also play a substantial role in the process of personal and sports development of young athletes.

CONCLUSION

The results of this research indicate the complexity of sports motivation depending both on the process of sports socialization and socialization agents of various degree of influence and generality, and on the individual's personal psychological development which determines the quality and speed of internalization of external influences.

Young football players from Serbia and Montenegro were found to be considerably more motivated than their Russian peers by the intrinsic desire to achieve their sports competence. Additionally, all aspects of

koji se može okarakterisati kao nezainteresovanost za sport? Takav nalaz ostaje na ovom mjestu bez odgovora. Na daljim istraživanjima je da se ispita nemotivisanost za sport. Teorija samodeterminacije određuje amotivaciju kao odsustvo svake intencije za akciju, jer osoba ne vidi povezanost uzroka i posljedice i sumnja da sopstvenim angažovanjem može da izazove smislene promjene u svojoj okolini (Deci i Ryan, 2000). Takva definicija je u priličnoj mjeri patocentrična i čini se da je nije sasvim primjenjiva u sportu. Sportisti mogu biti, u manjoj ili većoj mjeri, motivisani intrinzički ili ekstrinzički, ali se postavlja pitanje da li je moguće govoriti o nemotivisanosti kao patocentričnoj kategoriji, naročito kada je riječ o mladim sportistima čija je inicijalna motivacija za uključivanje u sport najčešće intrinzička.

Na kraju, istovremenim uzimanjem u obzir uzrasta ispitanika i zemlje iz koje dolaze, pokazalo se da je jedina značajna razlika u ekstrinzičkoj motivaciji koja počiva na mehanizmu introjekcije. Izgleda da introjekcija kao stadijum internalizacije regula šire i uže društvene sredine predstavlja posebno osjetljiv period u ličnom razvoju pojedinca. U literaturi se naglašava da motivacija introjekcijom može da se razvija u pozitivnom pravcu i da vodi ka potpunijoj internalizaciji. Ukoliko pojedinac u ličnom razvoju prolazi kroz takav pozitivan vid internalizacije, zasnovane na mehanizmu introjekcije, osjećaje pozitivne emocije u situaciji postignuća, kao što je, na primjer, ponos. Međutim, internalizacija introjekcijom može da se odvija i u negativnom pravcu i da vodi ka razvoju osjećanja stida, krivice i anksioznosti (Vansteenkiste, Niemiec i Soenens, 2010). Moguće je da u zavisnosti od forme internalizacije introjekcijom koja dominira u motivaciji i ličnom razvoju mladih sportista, dolazi ili do napuštanja sporta ili daljeg ličnog i sportskog razvoja. Ovo istraživanje ukazuje da pri tome nisu važne samo individualne razlike, koje se, prije svega, vezuju da određeni uzrast, već i da različiti agensi socijalizacije, imaju značajnu ulogu u procesu ličnog i sportskog sazrijevanju mladih sportista.

ZAKLJUČAK

Rezultati ovog istraživanja ukazuju na kompleksnost sportske motivacije koja zavisi kako od procesa sportske socijalizacije i agenasa socijalizacije različitog nivoa uticaja i opštosti, tako i od ličnog psihološkog razvoja koji uslovljava kvalitet i brzinu internalizacije spoljašnjih uticaja.

Pokazalo se da su mladi fudbaleri iz Srbije i Crne Gore značajno više motivisani intrinzičkom željom za ostvarenjem svojih sportskih kompetencija od svojih vršnjaka iz Rusije. Takođe, kod mladih fudba-

extrinsic motivation were present in young football players from Serbia and Montenegro in a much higher degree than in young athletes from Russia. The twelve-year-old football players were also significantly more amotivated than their peers aged 13, 14 and 15. The majority of age-related differences regarding all aspects of extrinsic motivation were found between thirteen- and fourteen-year-olds.

In the analysis of sports motivation with respect to the respondents' age and country, only extrinsic motivation based on the introjection mechanism proved to be significant.

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Correspondence to:

Marijana Mladenović, PhD

College of Sports & Health

Toše Jovanovića 11

11000 Belgrade

Serbia

E-mail: marijana.mladenovic@vss.edu.rs

Phone: 00381 63 80 89 333

00381 62 21 61 26

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Korespodencija:

dr Marijana Mladenović

Visoka sportska i zdravstvena škola

Toše Jovanovića 11

11000 Beograd

Srbija

E-mail: marijana.mladenovic@vss.edu.rs

Telefon: 00381 63 80 89 333

00381 62 21 61 26

EINIGE UNTERSCHIEDE IN DER SPORTLICHEN MOTIVATION DER JUNGEN FUßBALLSPIELER VON RUSSLAND, SERBIEN UND MONTENEGRO

Marijana Mladenović¹ und Aleksandar Marjanović²

¹Hochschule für Sport-und Gesundheitswissenschaften, Belgrad, Serbien

²Hochschule für Sport-und Gesundheitswissenschaften, Belgrad, Serbien
Fußball - Akademie "Krasnodar", Krasnodar, Rußland

Nach der Selbstbestimmungstheorie sind die externale und internale Motivation keine diskreten Kategorien, sondern ein einmaliges Kontinuum auf dessen einem Ende sich die intrinsische Motivation und auf dem anderen keine Motivation befindet. Zwischen der intrinsischen Motivation und der nicht-Motivation verteilen sich verschiedene Formen der extrinsischen Motivation (Deci & Ryan, 2000).

Wenn die Kinder sich dem Sport ohne der Intervention von äußerlichen Anstößen, sondern wegen dem Interesse für den Sport und dem Genuß in der sportlichen Aktivität selbst anschließen – handelt es sich um einer intrinsischen sportlichen Motivation. Es ist möglich *eine intrinsische Motivation für das Erkenntnis, die Verwirklichung und die Stimulation zu unterscheiden*. In dem Sport ist die Motivation etwas zu verwirklichen, persönliche Standards der Erreichung zu erreichen und zu verwirklichen, sowie auch daß die sportliche Aktivität selbst als etwas stimulatives und schwungvolles in sich selbst (Pelletier et al, 2007) erlebt wird. Es ist auch möglich drei Aspekte der extrinsischen sportlichen Motivation zu unterscheiden: eine *externale Regulation* ist ein klassischer Beispiel der Motivation durch Preise und Strafen; die *extrinsische Motivation durch Introjektion* bezieht sich auf die unvollkommene Internalisation des Einflusses der externalen Umgebung. Der Sportler, der durch den Mechanismus der Introjektion motiviert ist, arbeitet seine sportliche Verpflichtungen ab weil daß so sein „muß“ und „soll“ und nicht weil er ein entwickeltes Bewußtsein über der persönlichen Verantwortung für sein eigenes Engagement und Erreichung hat. Wenn eine persönliche Verantwortung und ein professioneller Zugang zu allen sportlichen Verpflichtungen besteht wird es gesagt daß *eine extrinsische Motivation durch Identifikation* besteht. Keine Motivation für Sport bedeutet die Abwesenheit jedes Wunsches und Willens für den Training und Wettbewerb.

Der Ziel dieser Forschung war zu prüfen ob da bedeutende Unterschiede in einer so definierten sportlichen Motivation zwischen jungen Fußballspielern aus Rußland, Serbien und Montenegro bestehen. Es wurde angenommen daß keine bedeutende Unterschiede hinsichtlich der intrinsischen Motivation bestehen, sondern daß sich die Verschiedenheit der sozialen Einflüssen vor allem in der extrinsischen Motivation erprobt. Es wurde ebenso angenommen daß man auch einige Unterschiede im Grad der Internalisation der extrinsischen Motivation, die durch die Entwicklung bedingt sind, erwarten kann.

Das Muster bestand von 178 Prüflingen, im Alter von 12 bis 15 Jahren. 54.5% waren Schüler der Fußball – Akademie „Krasnodar“ aus Rußland, und die Prüflinge aus Serbien und Montenegro wurden in eine Kategorie konsolidiert und sie stellten 45.5% des Musters dar. Sie gehören zu verschiedenen Fußball – Schulen.

Es wurde der Maßstab der sportlichen Motivation – „SMS-28“ (Pelletier et al, 1995) genutzt. Die Zuverlässigkeit des Instruments, geprüft durch Kronbachs Alpha, war .91. Für jedes Aspekt

der intrinsischen und extrinsischen Motivation sowie auch für keine Motivation wurden die Mittelwert und Standardabweichungen. Für die Prüfung der Relevanz der Unterschiede zwischen den Aspekten der sportlichen Motivation bei den jungen Fußball – Spielern von Serbien, Montenegro und Rußland wurde der t-test angewendet. Für die Prüfung der potentiellen Unterschiede in der sportlichen Motivation nach dem Alter wurde ANOVA durchgeführt. Jedoch, um noch zusätzlich die Unterschiede zwischen den jungen Fußball – Spielern, die gleichzeitig auch das Klima (das Land) aus welchem die Prüflinge kommen und das Alter der Prüflinge unter Berücksichtigung nehmen, wurde die zwei-Faktoren MANOVA, mit zwei unabhängigen Variablen (Muster und Alter) und sieben abhängigen Variablen (jeder Aspekt der sportlichen Motivation wurde als besondere Variabel behandelt) durchgeführt.

Die Ergebnisse weisen auf die Komplexität der sportlichen Motivation, die wie von dem Prozess der sportlichen Eingebundenheit und den Agensen der Eingebundenheit verschiedenes Niveau des Einflusses und der Allgemeinheit, als auch von der persönlichen psychologischen Entwicklung, die die Qualität und Geschwindigkeit der Internalisation der äußerlichen Einflüsse bedingt, abhängig ist.

Es wurde bewiesen daß die jungen Fußball – Spieler aus Serbien und aus Montenegro bedeutend mehr durch den intrinsischen Wunsch für die Verwirklichung ihrer sportlichen Zuständigkeiten motiviert sind als ihre Altersgenossen aus Rußland ($M_{\text{Srb/mn}} = 5.77$; $M_{\text{Ruß}} = 5.14$; $t = -4.045$; $p < .01$). Ebenso, bei den jungen Fußball – Spielern in Serbien und in Montenegro sind alle Aspekte der extrinsischen Motivation bedeutend mehr anwesend als bei den jungen Fußball – Spielern in Rußland (extrinsische Motivation durch externe Regulation: $M_{\text{Srb/mn}} = 4.34$; $M_{\text{Ruß}} = 2.82$; $t = -7.537$; $p < .01$; extrinsische Motivation durch Introjektion: $M_{\text{Srb/mn}} = 5.50$; $M_{\text{Ruß}} = 4.29$; $t = -5.948$; $p < .01$; extrinsische Motivation durch Identifikation: $M_{\text{Srb/mn}} = 5.29$; $M_{\text{Ruß}} = 3.85$; $t = -7.623$; $p < .01$).

Bedeutende Unterschiede bestehen zwischen einem Zwölfjährigen und anderen Altern hinsichtlich keiner Motivation ($M_{12} = 2.97$; $M_{13} = 2.16$; $t = 3.292$; $M_{14} = 2.40$; $t = 2.644$; $M_{15} = 2.17$; $t = 4.207$; alles bedeutend auf $p < .01$). Unterschiede bestehen auch zwischen Dreizehnjährigen und Vierzehnjährigen, und zwar hinsichtlich der extrinsischen Motivation durch Identifikation ($M_{13} = 3.94$; $M_{14} = 4.90$; $t = -3.418$; $p < .01$), Introjektion ($M_{13} = 4.42$; $M_{14} = 5.13$; $t = -2.217$; $p < .05$) und externaler Regulation ($M_{13} = 2.84$; $M_{14} = 3.98$; $t = -3.754$; $p < .01$).

Durch eine Analyse der sportlichen Motivation in Bezug auf das Alter und das Land aus welchem die Prüflinge kommen bewies sich als bedeutend nur die extrinsische Motivation, die auf dem Mechanismus der Introjektion beruht.

Schlüsselwoerter: sportlichen Motivation, intrinsische Motivation, extrinsische Motivation, Fußball

SOCIOEKONOMSKI STATUS I MIKROSOCIJALNA STRUKTURA UNUTAR ŽENSKOG RUKOMETNOG KLUBA

SOCIOECONOMIC STATUS AND MICROSOCIAL STRUCTURE WITHIN FEMALE HANDBALL TEAM

Joško Sindik¹ and Dodi Mihaljević²

¹Institut za antropologiju, Zagreb, Hrvatska
Institute for Anthropological Research, Zagreb, Croatia
²Filozofski fakultet, Sveučilište u Splitu, Hrvatska
Faculty of Philosophy, University of Split, Croatia

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SUMMARY

In a sample of 18 players, members of the senior major league handball team, the correlation between the micro structure of handball in relation to their socioeconomic status, using the sociometric procedure, was analyzed. The research results lead to the acceptance of the hypothesis that the players of the same socioeconomic status, have better mutual emotional acceptance. The hypothesis of a better mutual functional accepting players of the same socioeconomic status, may be only partially accepted, in a field of the trend of cooperation in the game, but not in relation to the selection of players with the authority of leaders or handball knowledge. Hypothesis about the hierarchical microsocial structure of groups can be fully accepted. In relation to sociometric status players are differentiated into four levels of hierarchy, while at the top of this hierarchy is team captain. Selection of team captain by players is directed towards one player ("leader"), according to the functional and emotional criteria.

Key words: handball, sociometry, connection, contingency, hierarchy.

INTRODUCTION

The problem of the micro-structure of a group, the sociometry practically have reduced to determining sociometrical structure of the group and to defining sociometrical status of an individual in a group (Žugić, 1996, 2000). Interpersonal relationships within small

SAŽETAK

Na uzorku od 18 igračica, članica seniorske prvoligaške rukometne ekipe, analizirana je povezanost mikrosocijalne strukture rukometašica u odnosu na njihov socioekonomski status, primjenom sociometrijskog postupka. Rezultati istraživanja navode na prihvaćanje hipoteze da se igračice istog socioekonomskog statusa bolje međusobno emocionalno prihvataju. Hipoteza o boljem međusobnom funkcionalnom prihvaćanju igračica istog socioekonomskog statusa se može samo djelimično prihvatiti, i to u domenu tendencije saradnje u igri, ali ne i u odnosu na izbor igračice s autoritetom vođe ili rukometnog znanja. Hipoteza o hijerarhijskoj mikrosocijalnoj strukturi grupe može se u potpunost prihvatiti. Igračice su u odnosu na sociometrijski status diferencirane u četiri hijerarhijska nivoa, dok je na vrhu te hijerarhije kapiten ekipe. Izbor kapitena ekipe od strane igračica usmjeren je prema jednoj igračici ("lideru"), prema funkcionalnom i prema emocionalnom kriteriju.

Ključne riječi: rukometašice, sociometrija, povezanost, kontingencija, hijerarhija.

UVOD

Problem mikrosocijalne strukture određene grupe sociometrija svodi na utvrđivanje sociometrijske strukture grupe, te sociometrijskog statusa pojedinca u nekoj grupi (Žugić, 1996, 2000). Interpersonalni

groups are determined as the ratio of the attraction and repulsion. Standards for predicting human responses to certain situations on micro-sociological, inside-group level were obtained through the psychological, biological and sociological determinants (Bjelajac, 2006; Tušak, Misja, & Vičić, 2003). The fundamental issues faced by sociologists in the study of social dynamics are: why the studies of small groups in general (a); why the studies of small groups in the field of sport, (b). In answering the first question it is possible to specify the basic pragmatic, socio-psychological, sociological and comparative reasons (Mills, 1966; Mills & Rosenberg, 1970): a collective decisions are often of a crucial influence on the development of small communities and fluctuations in their historical dimension, and therefore the group dynamics significantly affects the way of everyday life of individuals (1), small groups are suitable for experimental interplay of the psychological and sociological elements and from them emerge the interpersonal and collective pressures and charges (2), by studies of small groups we want to know the dynamics of society and individuals (3); finally, small groups are a special case of social systems - they reflect its' particular properties: ethical principles, the division of labor, mythology of the history and everyday life, ideologies, to the ranking depending of a prestige, coordination and subordination, etc. (4) (Milić, 1978). Sport group is of special interest to researchers because it's original (natural) and not artificial or laboratory designed and shaped unit. It is possible to control the variables that represent the microstructure of the component group: group size, group structure, leadership styles, management style. The sport group has a common goal: depending of its realization, we can follow the development of competitive relationships, conflicts and homogenization, conditioned by external or internal reasons. Finally, the studies of sport groups provide accurate and efficient measurement of a group's result, that can be quantified in a number of balls lost or won, repeated errors, etc. (Loy, McPherson, & Kenyon, 1979; Shaffer, 2005; Spink, 1992).

Former sociometric studies are numerous. Petrović and Pavlović (1969) conducted a study on a high-quality basketball team, using Moreno's (1960) test to determine the degree of its integration. Despite the high average experience in playing in the team (7.2 years), the group was not highly socially integrated. The players were cohesive just in playing basketball, while outside the basketball hall they were not socialized with each other in other ways. It turned out that the lack of the sociometric technique appears in the analysis of deeper psycho-social relationships and processes (so the sociometric technique should be supplemented with qualitative methods of personality tests). Šnajder (1984) conducted a sociometric analysis of a top volleyball team ("Mladost" from Zagreb) before and immediately after an important international tournament, where the team achieved a great result.

odnosi unutar malih grupa određuju se kao odnosi privlačenja i odbijanja. Standardi za predviđanje čovjekovih reakcija u određenim situacijama na mikrosociološkom, unutargrupnom nivou, dobiveni su posredstvom psiholoških, bioloških i socioloških odrednica (Bjelajac, 2006; Tušak, Misja i Vičić, 2003). Osnovna pitanja s kojima se suočavaju sociolozi u istraživanju socijalne dinamike su: čemu studija malih grupa (a); čemu (zašto) studije malih grupa u sportu (b). U odgovoru na prvo pitanje moguće je kao osnovne navesti pragmatičke, sociopsihološke, sociološke i komparativne razloge (Mills, 1966, Mills i Rosenberg, 1970): (1) kolektivne odluke često presudno utiču na razvoj malih zajednica i oscilacije u njihovoj istorijskoj dimenziji, te stoga što grupna dinamika znatno utiče na način svakodnevnog življenja pojedinaca; (2) male grupe pogodne su za eksperimentalnu međuigrupnu psiholoških i socioloških elemenata, te iz njih nastaju interpersonalni i kolektivni pritisci i naboji; (3) studijama malih grupa želi se saznati kakva je dinamika društva i pojedinaca; (4) konačno, male grupe predstavljaju poseban slučaj socijalnog sistema – u njima se odražavaju njegove pojedinačne osobine: etički principi, podjela rada, istorijska i mitologija svakodnevnog života, ideologije, rangiranje prema prestižu, koordinacija i subordinacija, i sl. (Milić, 1978). Sportska je grupa posebno zanimljiva istraživačima jer je izvorna (prirodna), a ne artifičijelna ili laboratorijski smišljena i oblikovana jedinica. U njoj je moguće držati pod kontrolom varijable koje predstavljaju sastvni dio grupne mikrostrukture: veličinu grupe, strukturu grupe, pravila ponašanja, stilove rukovođenja. Sportska grupa ima zajednički cilj: s obzirom na njegovu realizaciju može se pratiti razvoj takmičarskih odnosa, homogenizacije i konflikata uslovljenih spoljnim ili unutrašnjim razlozima. Konačno, studije sportskih grupa omogućavaju precizno i djelotvorno mjerenje grupnog rezultata koji se može kvantifikovati u broju izgubljenih ili osvojenih lopti, ponovljenih grešaka i sl. (Loy, Mcpherson i Kenyon, 1979; Shaffer, 2005; Spink, 1992).

Dosadašnja sociometrijska istraživanja su brojna. Petrović i Pavlović (1969) proveli su studiju na visokokvalitetnoj košarkaškoj ekipi upotrebom Morenovog (1960) testa kako bi utvrdili stepena njene integrisanosti. Uprkos visokom prosječnom stažu igrača u ekipi (7,2 godine), grupa nije bila visoko socijalno integrisana. Igrače je povezivalo samo igranje košarke, izvan košarkaške dvorane oni se međusobno nisu socijalizovali na druge načine. Pokazalo se i da su sociometrijske tehnike nedovoljne za analizu dubljih psihosocijalnih odnosa i procesa, pa ih treba nadopuniti testovima ličnosti kvalitativnim metodama. Šnajder

Taxonomic structure of the team had changed considerably after the finish of the tournament. A successful outcome on this tournament had a positive impact on the micro-structure in the team's next season, in terms of forming the sub-groups, related by functional criteria. Šnajder and Hošek (1985) repeated the study on the same team. They measured social status and analyzed sociometric structure of the group. The highest positions in the sociometric hierarchy structure of the team had three the oldest players, chosen according to the functional criterion. At the second level were the other players (something of inferior quality), which were chosen using the combined criteria (both the functional and emotional criteria). Players of the inferior quality had less favorable social status. Šimenc (1985) analyzed the micro-structure of the players from 12 teams in first national water polo league in the former Yugoslavia, in the season 1981. Sociometric structure showed that the water polo teams are fairly homogeneous, as a whole: the teams have 2 to 4 subsets of players, with one or two leaders on the top positions in the structure of the team, who are generally older players, more experienced and better than the others. The homogeneity of the team significantly affects the score that the team has at home, while the quality and age of the first six players in the pool have the significant impact on the success of the team as a guest. Lučić and Viskić-Štalec (1994) used the Moreno's sociometric method of a sociogram on a sample of members of the top basketball team ("Cibona" from Zagreb) at two generations of junior players, confirming the thesis about the changing status of an individual within the group membership variations. Distribution of responses obtained by sociometric test at the A and B selection of a Croatian national football team in 1994, separated two major players of both teams. It turned out that the in A selection there is a hierarchy based on the division between the elderly and young team members, while in the younger B selection this division does not exist (Marelić et al., 2001). Marelić, Đurković, and Rešetar (2007) examined cadet volleyball teams at the European Championship, using sociometric method. They showed that the teams are in general divided into two subgroups, with a major roles of a team captain and best player of the team. Significant differences were found in measurements performed before and after the European Championship in the variables of functional type. The status of team captain proved to be different in the initial and final measurement. Janković and Žugić (as cited in Milanović & Gabelica-Šupljika, 1997) investigated the pattern of men volleyball team players of Slovenia. The results of a sociometric procedure indicated the existence of two subgroups within the team. In the first two subgroups were six participants, mostly older and more experienced players. In the second subgroup were the the other players, with a fairly uneven number of choices according to emotional and functional criteria. Borić (1997, as

(1984) je proveo sociometrijsku analizu jedne vrhunske odbojkaške ekipe ("Mladost", Zagreb) prije i neposredno nakon važnog međunarodnog turnira gdje je postignut odličan rezultat. Taksonomska struktura ekipe znatno se promijenila nakon završenog turnira, a uspješan rezultat na navedenom turniru imao je pozitivan uticaj na mikrosocijalnu strukturu ekipe u narednoj sezoni, u smislu formiranja podgrupa povezanih funkcionalnim kriterijem. Šnajder i Hošek (1985) ponovili su istraživanje na istoj ekipi. Mjerili su socijalni status i analizirali sociometrijsku strukturu grupe. Najviše pozicije u hijerarhiji sociometrijske strukture ekipe imala su tri najstarija igrača, izabrane po funkcionalnom kriteriju. Na drugom nivou bili su ostali igrači, nešto slabijeg kvaliteta, koji su se birali kombinovanim kriterijem (i po funkcionalnom i po emocionalnom kriteriju). Igrači slabijeg kvaliteta imali su nepovoljniji socijalni status. Šimenc (1985) je analizirao mikrosocijalnu strukturu igrača iz 12 klubova Prve savezne vaterpolo lige bivše SFRJ u sezoni 1981. Sociometrijska struktura pokazala je da su vaterpolske ekipe prilično homogene cjeline; u njima postoje od dvije do četiri podgrupe igrača, s jednim do dva lidera s najvišim pozicijama u ekipnoj strukturi, koji su, po pravilu, stariji igrači, iskusniji i kvalitetniji od drugih. Homogenost ekipe značajno utiče na broj osvojenih poena kod kuće, dok kvalitet i dob prve šestorke značajno utiču na uspjeh u gostima. Lučić i Viskić Štalec (1994) su sociometrijskom metodom Morenovog sociograma na uzorku članova vrhunskog košarkaškog tima ("Cibona" Zagreb), u dva naraštaja juniora, potvrdili tezu o promjeni statusa pojedinca unutar grupe s promjenom njenog sastava. Distribucija odgovora dobijenih sociometrijskim testiranjem A i B selekcije nogometne reprezentacije Hrvatske 1994. izdvojila je po dvojicu igrača obje ekipe. Pokazalo se da u A selekciji postoji hijerarhija podjele na starije i mlade reprezentativce, dok u mladoj B selekciji takva podjela ne postoji (Marelić i saradnici, 2001). Marelić, Đurković i Rešetar (2007) su na timovima kadetskog odbojkaškog evropskog prvenstva, sociometrijskom metodom pokazali da se timovi dijele u dvije podgrupe, među kojom se ističu kapiten ekipe i najbolji igrač reprezentacije. Značajne razlike su pronađene u mjerenjima izvršenim prije i nakon evropskog prvenstva u varijabli funkcionalnog tipa, a status kapitena tima pokazao se različit u inicijalnom i finalnom mjerenju. Janković i Žugić (prema Milanović i Gabelica Šupljika, 1997), istraživali su uzorak igrača muške odbojkaške reprezentacije Slovenije, a rezultati sociometrijskog postupka ukazali su na postojanje dvaju podgrupa u reprezentaciji. U prvoj od dvije podgrupe bilo je šest ispitanika, većinom starijih i iskusnijih igrača. U drugoj podgrupi bili su ostali

cited in Hošek & Pavlin, 1983) conducted a sociometric testing for junior footballers of FC “Slaven Belupo” from Koprivnica. Distribution of responses by emotional and functional criteria allocated four highly ranked players, including two current leading authorities in the group (“leaders”), while the next two players are younger juniors, probable future “leaders” in the team. The sociometric study of the structure of the basketball teams of the first B Division (men) in the Republic of Serbia (102 players in eight basketball teams), revealed that every team has quite different sociometric structure (Dragić, 2008). Using sociometric techniques, Hotuleva (2009) showed that psychotechnical exercising has the influence to improve the quality of group cohesion in basketball.

Handball is a complex polystructural kinesiological activity. The success in handball largely depends on cooperation and communication of the handball subjects in the exercise group and in collective tactical actions. It is important that the handball team is emotionally and functionally balanced (without the polarization or dispersion to a number of homogenous but not focused subgroups). In addition to the individual performance and creativity of individual players, or personality traits such as honesty (Rogulj, Nazor, Srhoj, & Bozin, 2006), the necessity are the actions with a prevalence of a discipline and social responsibility. Milanović and Gabelica-Šupljika (1997) investigated the impact of the psychodiagnostics on a change of the psychosocial status at the members of sports teams, testing the handball team in the first women’s division in Croatia. Bebetos, Theodorakis, and Tsigilis (2011) emphasize the importance of a negative relationship between role ambiguity and role satisfaction in the handball team, which can also affect the alignment of team actions. In these aspects, the vital role has the leadership of the coaches, but also within teams, such the role of a team captain (Murray, 2006; Serpa, Pataca, & Santos, 1991). Pavlin (1972, as cited in Hošek & Pavlin, 1983) used sociometric procedures for the assessment of interpersonal relationships outside the functional activities of players, in the study of handball teams in the federal Women League in Yugoslavia. It has been shown that the neuroticism is not associated with social relationships in the team, while both personal relationships and neuroticism were not associated with being a quality player. Therefore, handball coach pursues a high degree of cohesiveness within the team, trying that a single common purpose become above the individual ones. Lorentzen (1994) considered the handball team as a group matrix, in which individuals are open systems, so the guided group discussion and the conversation between team members may contribute to a better cohesion and to a better functioning team. Starting from the importance of the analysis of interpersonal relationships within the handball team, in this article we will analyze some aspects of the micro-

igrači, s prilično neujednačenim brojem izbora po emocionalnom i funkcionalnom kriteriju. Borić (1997; citirano kod Hošek i Pavlin, 1983) proveo je sociometrijsko testiranje na fudbalerima juniorima NK “Slaven Belupo” iz Koprivnice. Distribucija odgovora po emocionalnom i funkcionalnom kriteriju izdvojila je četiri visokorangirana igrača, među kojima su vodeća dvojica trenutni autoriteti u grupi („lideri“), dok su sljedeća dvojica mlađi juniori, pretpostavljeni budući „lideri“ ekipe. U istraživanju sociometrijske strukture košarkaških ekipa prve B lige (muškarci) Republike Srbije (102 igrača iz 8 košarkaških klubova), pokazalo se da u svakoj ekipi postoji bitno drugačija sociometrijska struktura (Dragić, 2008). Primjenom sociometrijske tehnike, Hotuleva (2009) je pokazala da psihotehničke vježbe utiču na bolji kvalitet grupne kohezije kod košarkaša.

Rukomet je kompleksna polistrukturalna kineziološka aktivnost, a uspjeh u rukometu, u velikoj mjeri, zavisi od saradnje i komunikacije rukometnih subjekata u ostvarivanju grupnih i kolektivnih taktičkih djelovanja. Važno je da je rukometna ekipa emocionalno i funkcionalno uravnotežena (bez polarizacije ili disperzije na veći broj homogenih podgrupa, ali bez fokusa). Uz individualno djelovanje i kreativnost pojedinih igrača, odnosno osobine ličnosti kao što su iskrenost (Rogulj i saradnici, 2006), neophodne su usklađene zajedničke akcije u kojima dominira disciplina i socijalna odgovornost. Milanović i Gabelica Šupljika (1997) istraživale su uticaj psihodijagnostike na promjenu psihosocijalnog statusa članova sportske ekipe, testirajući prvoligašku žensku rukometnu ekipu. Bebetos, Theodorakis i Tsigilis (2011) ističu važnost negativne povezanosti između dvosmislenosti uloga i zadovoljstva rukometaša, koja, takođe, može uticati na usklađenost timskih akcija. Pri tome bitnu ulogu ima i vođstvo od strane trenera, ali i unutar tima, kao na primjer kapitena ekipe (Serpa, Pataco i Santos, 1991; Murray, 2006). Pavlin (1972, citirano kod Hošek i Pavlin, 1983) je u istraživanju rukometnih ekipa I savezne ženske lige takođe koristio sociometrijske postupke za ocjenu interpersonalnih odnosa izvan funkcionalne aktivnosti igračica. Pokazalo se da neurotizam nije povezan sa socijalnim odnosima u timu, dok ni lični odnosi ni neurotizam nisu bili bili povezani s kvalitetom igračica. Stoga rukometni trener teži ostvariti što veću kohezivnost unutar tima: da jedinstveni zajednički cilj bude iznad pojedinačnih. Lorentzen (1994) smatra da je rukometni tim grupna matrica, u kojem su pojedinci otvoreni sistemi, pa grupna rasprava i razgovor članova tima možda doprinosi boljoj koheziji i boljem funkcionisanju. Polazeći od važnosti analize međuljudskih odnosa unutar rukometne ekipe, u ovom radu ćemo analizirati

structure of a top handball team, in a relation with the social status of players.

The research *aim* is to determine the micro-structure and the relationship between the micro-structure of the first division women handball team, expressed by emotional and functional status of players within the team, with their objective socioeconomic status. As the particular *problems*, we defined finding the determination to what extent is the socioeconomic status of the players associated with their position within the microstructure of the team, according to emotional criteria (1) and according to functional criteria (2). Finally, we intended to determine whether players are nominated each other hierarchically structured (3). Based on the objectives and problems, and previous studies, we have formulated the specific research *hypotheses*: players of the same socioeconomic status, will be better mutually accepted, according to the emotional criterion (1); players of the same socioeconomic status, will be better mutually accepted, according to the functional criterion (2); mutually nominating each other, players will define the hierarchical structure of the group, on whose top will be the team captain (3).

METHOD

Participants

The sample represents 18 female handball players from the premiership team (First Croatian handball league), clinically healthy, continuously kinesiological active top handball players, aged from 18 to 26 years, who are actively involved in handball at least 7 years. The average chronological age of 21 years indicates that this are relatively young participants. In terms of educational background, highly skilled workers (the equivalent of four years of high school - 39%) are the most numerous, as well as those with high school or college (33%). College completed 17% of participants, while skilled workers have the prevalence of 11%. In the occupational structure of parents, largely dominated the category of other occupations (39%). We assume that in this category most parents are unemployed, housewives or retirees. Other occupations have the prevalence: private tradesmen 11%, skilled or highly skilled workers 17%, officials with the college 5% and professionals with university degree 23%. according to the position in the occupation of parents, dominate the lower positions, such as employees (39%) and lower managers (28%). The relatively low position in the profession suggest that the majority of players come from the families of lower socioeconomic status. Half of the total number of participants (50%) falls into the category with a monthly income of more than 3000 kuna (better players with professional contracts), while the younger players have grant contracts with much

neke aspekte mikrosocijalne strukture jedne vrhunske rukometne ekipe, u odnosu na socijalni status igračica.

Cilj istraživanja je utvrditi mikrosocijalnu strukturu, te relacije između mikrosocijalne strukture prvoligaške ženske rukometne ekipe izražene emocionalnim i funkcionalnim statusom igračica unutar ekipe, s njihovim objektivnim socioekonomskim statusom. Kao posebne *probleme* izdvojili smo utvrđivanje u kolikoj je mjeri socioekonomski status igračica povezan s njihovim mikrosocijalnim položajem unutar ekipe, prema emocionalnom kriteriju (1), te prema funkcionalnom kriteriju (2). Na kraju smo namjeravali utvrditi da li se igračice međusobno nominuju hijerarhijski strukturirano (3). Na osnovu ciljeva i problema, te dosadašnjih istraživanja, izvedene su i pojedinačne *hipoteze* istraživanja: igračice istog socioekonomskog statusa bolje će se međusobno prihvatati po emocionalnom kriteriju (1); igračice istog socioekonomskog statusa bolje će se međusobno prihvatati po funkcionalnom kriteriju (2); igračice će međusobnim nominacijama definisati hijerarhijsku strukturu grupe, na čijem će vrhu biti kapiten tima (3).

METODE

Ispitanici

Uzorak ispitanika predstavlja 18 igračica prvoligaškog ženskog rukometnog kluba (I hrvatska rukometna liga), klinički zdravih, kontinuirano kineziološki aktivnih vrhunskih rukometašica, dobi od 18 do 26 godina, koje se aktivno bave rukometom najmanje 7 godina. Prosječna hronološka dob od 21 godine ukazuje na činjenicu da je riječ o relativno mladim ispitanicama. U pogledu stručne spreme, prevladavaju visokokvalifikovane radnice (ekvivalent četvorogodišnje srednje škole - 39%), te visoka škola, odnosno fakultet (33%). Višu školu završilo je 17 % ispitanica, a KV radnica je 11 %. U strukturi zanimanja roditelja, u najvećoj mjeri prevladavala je kategorija ostalih zanimanja (39%). Pretpostavljamo da su u ovoj kategoriji većinom nezaposleni roditelji, domaćice ili penzioneri. Privatnih preduzetnika bilo je 11%, KV ili VKV radnika 17%, službenika s VSS 5%, stručnjaka s VSS 23%. Što se položaja u zanimanju roditelja tiče, prevladavaju niži položaji poput izvršioca (39%) i nižeg rukovodioca (28%). Relativno niski položaji u zanimanju navode na pretpostavku da je pretežno riječ o porodicama slabijeg socioekonomskog statusa. Polovina ukupnog broja ispitanica (50%) spada u kategoriju s mjesečnim primanjima većim od 3.000 kuna (kvalitetnije igračice s profesionalnim ugovorima), dok mlađe igračice imaju stipendijske ugovore s znatno nižim primanjima.

lower incomes. Players are mostly (56%) born in a small town (indigenous citizens of Trogir), and the others were from Split-Dalmatia County. The largest number of players are living with their parents (61%). Some of the players (22%) live in their own apartment or house. Most of the players and their families (67%) belongs to the middle class. The most numerous is number of five players' family members (55%) or four members (28%). The greatest number of families (50%) has total income between 7000 and 9000 kuna. Income per family member also indicated that most of the families have low socioeconomic status (44% of families with incomes up to 2500 kuna, 50% from 2500-3000 kuna, and only 6% over 3000 kuna). Therefore, on average, players usually have low socioeconomic status.

Instrument

The sample of variables is defined by the questionnaire with a total of 15 questions, open and closed types. The introductory section of the questionnaire (*demographic variables*), along with basic information (name, date of birth, occupation and place of residence of subjects) contains nine questions used to describe the social status of players and their families.

The second section contains the variables that define the *micro-social (the emotional and functional) status* of the players within the team. Participants were asked to nominate an unlimited number of co-players according to the some criterion of choice and a particular category. The 6 selection criteria were used, of which the first three were emotional criteria (1-3) and the last three functional criteria (4-6). Categories for elections were graded from the attracting to the rejection.

Nominations between the co-players referred to the following questions (with the categories of responses):

1. Specify those players that you would gladly share a room with her during the preparations (Likert-type scale: 5 = I would gladly share a room, 4 = sometimes I'd like to share a room, 3 = I do not care if I'd share a room with her, 2 = I'd share the room with her if I have to, 1 = I would never to her share a room with her),
2. Specify those players that you would confide to if you have intimate problems (Likert-type scale: 5 = I would always she confided, 4 = sometimes she'd confided, 3 = very rarely would it be trusted, 2 = not sure whether it would be ever confided to her, 1 = I would never her have confided),
3. Specify those players that you would like to hang out during your leisure (Likert-type scale: 3 = I always prefer to hang out with her, 2 = sometimes I would like to hang out with her, 1 = I would never like to hang out with her),
4. Specify those players that you would like to cooperate in the game (Likert-type scale: 3 = happily cooperate,

Igračice su u najvećem broju (56%) rođene u manjem gradu (domicilni grad Trogir), a i preostale su bile iz Splitsko-dalmatinske županije. Najveći broj igračica stanuje s roditeljima (61%). Jedan dio igračica (22%) žive u vlastitom stanu ili kući. Većina igračica i njihovih porodica (67%) pripada srednjem društvenom sloju. Najveći broj porodica broji 5 članova (55%) ili 4 člana (28%). Najveći broj porodica (50%) ima ukupna primanja između 7.000 i 9.000 kuna. Primanja po članu porodice također ukazuju da se uglavnom radi o porodicama niskog socioekonomskog statusa (44% porodica s primanjima do 2.500 kuna, 50 % 2.500-3.000 kuna, te 6 % preko 3.000 kuna). Igračice, dakle, u prosjeku imaju uglavnom nizak socioekonomski status.

Instrument

Uzorak varijabli definisan je upitnikom, s ukupno 15 pitanja otvorenog i zatvorenog tipa. Uvodni dio upitnika (*demografske varijable*), uz osnovne podatke (ime i prezime, datum rođenja, zanimanje i mjesto stanovanja ispitanica) sadrži 9 pitanja kojim se opisuje socijalni status igračica i njihovih porodica.

Drugi dio upitnika sadrži varijable kojima se definiše *mikrosocijalni - emocionalni i funkcionalni status* igračica unutar ekipe. Od ispitanica se tražilo da imenuju neograničen broj saigračica prema određenom kriteriju izbora i određenoj kategoriji. Korišteno je 6 kriterija izbora, od kojih su prva tri emocionalnog tipa (1-3), a posljednja tri funkcionalnog tipa (4-6). Kategorije izbora stepenovane su od privlačenja do odbacivanja..

Nominacije saigračica odnosile su se na sljedeća pitanja (s kategorijama odgovora):

1. Navedi one saigračice s kojima bi rado dijelila sobu na pripremama (ljestvica Likertovog tipa: 5 = rado bih dijelila sobu, 4 = ponekad bih dijelila sobu, 3 = svejedno mi je da li bih s njom dijelila sobu, 2 = dijelila bih s njom sobu ako moram, 1 = nikada s njom ne bih dijelila sobu),
2. Navedi one saigračice kojima bi se povjerala kada bi imala intimnih problema (ljestvica Likertovog tipa: 5 = uvijek bih joj se povjerala, 4 = ponekad bih joj se povjerala, 3 = jako rijetko bih joj se povjerala, 2 = nisam sigurna da li bih joj se ikad povjerala, 1 = nikad joj se ne bih povjerala),
3. Navedi saigračice s kojima bi se voljela družiti u slobodno vrijeme (ljestvica Likertovog tipa: 3 = uvijek bih se voljela družiti s njom, 2 = ponekad bih se voljela družiti s njom, 1 = nikad se ne bih družila s njom),
4. Navedi one saigračice s kojima rado sarađuješ u igri (ljestvica Likertovog tipa: 3 = rado sarađujem,

- 2 = cooperate, 1 = reluctant to cooperate),
5. Rate the players, according to the criteria of their so well knowledge about handball, so you can ask them at all times for expert advice (from 1 = the best knowledge about handball, onwards),
 6. Specify those players that you you consider capable to be a captain (appoint).

Methods of data analysis

The frequency of responses have been calculated for all questions. The percentage for the representation of each alternative answers within each question have been calculated. Relations between social status of the players with their emotional and functional status within the team have been identified using the non-parametric Chi-Square test and coefficient of contingency (C) as an indicator of association between categories of responses. For the questions about the choice of captain, the Spearman rank correlation coefficient was calculated between the social status of the players who are electing and their social status in the election for the captain. Based on the answers to all six questions of the questionnaire, the numbers of choices (to be chosen) for each player, we have calculated by the sum of the nominations that each player got from her co-players (one nomination - one point). Then we determine the percentage of the number of points obtained by each participant, based on the total maximum possible score for each participant. Correlations between the results (sociometric status of players) to the functional and emotional criteria of selection are also calculated, using the Spearman rank correlation coefficient.

RESULTS AND DISCUSSION

Main findings gave a confirmation of the first hypothesis, that the players of the same socioeconomic status (income) have better mutual emotional acceptance. This may be the result of long duration and intensity of the friendship that is more pronounced within than between different social strata of players. This is probably conditioned by generational, organizational and functional reasons. We are partially accepting the second hypothesis of a better functional mutual acceptance of players of the same socioeconomic status (income) in terms of the tendency for greater cooperation in the game. However, in relation to the selection of players from the leader's authority or handball knowledge, correlation with micro-status was not statistically significant. The hypothesis of the hierarchical structure of a sport group can be fully accepted. In relation to their sociometric status, players are differentiated into four levels of hierarchy, while at the top of this hierarchy is the team captain. In order to establish the correlation between social status of the players and their microsocioal position within the team, using the coefficient of contingency

- 2 = saradujem, 1 = nerado saradujem),
5. Rangiraj igračice koje tako dobro poznaju rukomet, da bi od njih u svakom trenutku zatražila stručni savjet (od 1 = najbolje poznaje rukomet, nadalje),
 6. Navedi one saigračice koje smatraš sposobnim za kapitena tima (imenovati).

Metode obrade podataka

Za sva pitanja izračunate su frekvencije odgovora. Izračunati su postoci zastupljenosti pojedine alternative odgovora unutar svakog pitanja. Relacije između socijalnog statusa igračica s njihovim emocionalnim i funkcionalnim statusom unutar ekipe utvrđene su neparametrijskim χ^2 -testom, odnosno koeficijentom kontingencije (C) kao pokazateljem povezanosti između kategorija odgovora. Za pitanje o izboru kapitena, izračunat je Spearmanov koeficijent rang korelacije između socijalnog statusa igračica koje biraju i socijalnog statusa igračica biranih za kapitena. Na osnovu odgovora na svih šest pitanja upitnika, brojeve izbora (izabranost) svake igračice smo sabirali, tako da su ispitanice za svako biranje od strane saigračica dobivale po 1 bod. Potom smo odredili postotak od dobivenog broja bodova svake ispitanice na osnovu ukupnog maksimalno mogućeg broja bodova za pojedinu ispitanicu. Korelaciju između rezultata (sociometrijskog statusa igračica), prema funkcionalnom i emocionalnom kriteriju izbora, takođe smo izračunali primjenom Spearmanovog koeficijenta rang korelacije.

REZULTATI I DISKUSIJA

Glavni nalazi istraživanja dali su potvrdu prve hipoteze, da se igračice istog socioekonomskog statusa (visina primanja) bolje međusobno emocionalno prihvaćaju. To može biti posljedica dugotrajnosti i intenziteta druženja koje je naglašenije unutar nego između pojedinih socijalnih slojeva igračica, a to je vjerovatno uslovljeno generacijskim, organizacijskim i funkcionalnim razlozima. Djelimično prihvatamo i drugu hipotezu o boljem međusobnom funkcionalnom prihvaćanju igračica istog socioekonomskog statusa (visina primanja), u pogledu tendencije veće saradnje u igri. Međutim, u odnosu na izbor igračice s autoritetom vođe ili rukometnog znanja, povezanost s mikrosocijalnim statusom nije statistički značajna. Hipoteza o hijerarhijskoj strukturi grupe može se u potpunost prihvatiti. Igračice su u odnosu na sociometrijski status diferencirane u četiri hijerarhijska nivoa, dok je na vrhu te hijerarhije kapiten tima.

S ciljem da se utvrdi povezanost socijalnog statusa igračica i njihovog mikrosocijalnog položaja unutar

we have found links between the social status of the players who are electing and the socioeconomic status of the players that are elected (chosen) in relation to emotional and functional criteria. Testing was conducted for all categories of responses together and separately for each category.

Correlation between social status of players and emotional acceptance criteria

Tables 1 and 2 show the analysis of responses to the question in the first criterion of emotional election (Specify those players that you would gladly share a room with her during the preparations). Based on the coefficients of contingency (Table 1), it is evident that

ekipe, koeficijentom kontingencije smo utvrdili povezanost između socijalnog statusa igračica koje biraju i socioekonomskog statusa igračica koje se biraju u odnosu na emocionalni i funkcionalni kriterij. Testiranje je izvršeno za sve kategorije odgovora zajedno, te zasebno za pojedine kategorije.

Povezanost socijalnog statusa igračica i emocionalnog kriterija prihvaćenosti

Tabele 1 i 2 pokazuju analize odgovora na pitanje prema prvom emocionalnom kriteriju izbora: s kime bi dijelila sobu. Na temelju koeficijenta kontingencije (Tabela 1), evidentno je da postoji statistički značajna povezanost između socioekonomskog statusa igračica

TABLE 1

Correlation between the categories of microsocioal status (players that you would gladly share a room) in relation to categories of income (all categories combined)

TABELA 1

Povezanost kategorija mikrosocijalnog statusa (s kojim bih igračicama dijelila sobu) u odnosu na kategorije visine primanja (sve kategorije zajedno)

| Microsocial status | Income | | | | | | | | | | | | | | | Σ |
|--------------------|-------------|------------|------------|------------|------------|-------------|------------|------------|------------|------------|-------------|------------|------------|------------|------------|-----|
| | High | | | | | Middle | | | | | Low | | | | | |
| | RD | PO | SV | MO | NI | RD | PO | SV | MO | NI | RD | PO | SV | MO | NI | |
| High | 37 (52%) | 4 (44%) | 2 (40%) | 1 (25%) | 1 (33%) | 27 (64%) | 4 (33%) | 9 (75%) | 2 (40%) | 1 (33%) | 7 (18%) | 1 (20%) | 2 (40%) | 1 (33%) | 1 (33%) | 100 |
| Middle | 7 (24%) | 4 (44%) | 2 (40%) | 1 (25%) | 1 (33%) | 9 (21%) | 5 (42%) | 1 (8%) | 1 (20%) | 1 (33%) | 13 (33%) | 3 (60%) | 1 (20%) | 1 (33%) | 1 (33%) | 51 |
| Low | 4 (14%) | 1 (12%) | 1 (20%) | 2 (50%) | 1 (33%) | 6 (15%) | 3 (25%) | 2 (17%) | 1 (20%) | 1 (33%) | 19 (49%) | 1 (20%) | 2 (40%) | 1 (33%) | 1 (33%) | 46 |
| Σ N | 48 | 9 | 5 | 4 | 3 | 42 | 12 | 12 | 4 | 3 | 39 | 4 | 5 | 3 | 3 | 197 |
| | | χ^2 | | | <i>p</i> | | | <i>C</i> | | | <i>df</i> | | | | | |
| | | 51.23 | | | < .01 | | | .45 | | | 28 | | | | | |

Legend: Microsocial status – Mikrosocijalni status; Income – Visina primanja; High – Visoka; Middle – Srednja; Low – Niska; **RD** – Gladly (Rado); **PO** – Sometimes (Ponekad); **SV** – All the same (Svejedno); **MO** – If I have to (Ako moram); **NI** – Never (Nikad); *N* – Number of subjects (Broj odgovora); Σ – Total (Ukupno); χ^2 – The chi-square distribution (Hi-kvadrat raspodjela); *p* – Probability (Vjerovatnoća); *C* – Contingency coefficient (Koeficijent kontingencije); *df* – Degrees of freedom (Stepeni slobode).

there is a statistically significant association between socioeconomic status of the players and their emotional microsocioal status, defined by the tendency to share rooms. The significance of this relationship is manifested only in the first category of choice (I would gladly share a room with), which reflects the tendency of the maximum positive selection (Table 2). Players with better socioeconomic status largely like to share a room with a player of equal status, while players who

i njihovog emocionalnog mikrosocijalnog statusa, definisanog tendencijom dijeljenja sobe. Značajnost ove povezanosti manifestuje se samo u prvoj kategoriji izbora (rado bih dijelila sobu) koja odražava tendenciju maksimalnog pozitivnog izbora (Tabela 2). Igračice boljeg socioekonomskog statusa u najvećoj mjeri sobu žele dijeliti s igračicama istog statusa, dok igračice koje imaju srednja i niska primanja pretežno sobu žele

have medium and low income mainly want to share a room with players who have low incomes. These results were expected, because the players with a high income are mainly professional handball players that have known each other for a long time (in the current or previous teams that have played together, or in a national selection). In addition to the fact that those players are well-known, outside of trainings and games, it is assumed that this group of players has in common, especially professional interests. Players with medium and low income are into the category of young handball players from this team or the team from which they came at the beginning of the season, so it is understandable that they emphasized emotional cohesiveness. On the other hand, players with different social status are belonging to different generational age groups, which can also be a cause of emotional cohesiveness

dijeliti s igračicama koje imaju niska primanja. Ovakvi su rezultati očekivani, jer se kod igračica s velikim primanjima radi o profesionalnim rukometašicama koje se međusobno poznaju već duže vrijeme (u okviru sadašnjeg kluba, prijašnjih klubova u kojima su zajedno igrale, reprezentativnih selekcija). Osim što se dobro privatno poznaju izvan treninga i utakmica, pretpostavlja se da ova grupa igračica ima i zajedničke, ponajprije profesionalne interese. Igračice sa srednjim i nižim primanjima spadaju u kategoriju mlađih rukometašica iz matičnog kluba, ili kluba iz kojeg su došle na početku sezone, pa je razumljiva njihova naglašena emotivna kohezivnost. S druge strane, igračice različitog socijalnog statusa pripadaju i generacijski različitim dobnim grupama, što također može biti razlog emotivne kohezivnosti.

TABLE 2

Correlation between the income and categories of microsocioal status defined with a wish to share a room (separately for the categories of answers)

TABELA 2

Povezanost između visine primanja i emocionalnog mikrosocijalnog statusa definiranoj tendencijom dijeljenja sobe (za pojedinu kategoriju odgovora)

| Indicator | Category of answers (microsocial status) | | | | |
|-----------|--|-------|-------|-------|-------|
| | RD | PO | SV | MO | NI |
| χ^2 | 35.50 | 1.34 | 3.96 | .76 | .00 |
| p | < .01 | > .20 | > .20 | > .20 | > .20 |
| C | .47 | .22 | .39 | .25 | .00 |

Legend: Indicator – Pokazatelj; Category of answers (microsocial status) – Kategorija odgovora (mikrosocijalni status); **RD** – Gladly (Rado); **PO** – Sometimes (Ponekad); **SV** – All the same (Svejedno); **MO** – If I have to (Ako moram); **NI** – Never (Nikad); χ^2 – The chi-square distribution (Hi-kvadrat raspodjela); p – Probability (Vjerovatnoća); C – Contingency coefficient (Koeficijent kontigencije).

Tables 3 and 4 provide analyses of responses to the question in the second criterion of emotional choice: Specify those players that you would confide to if you have intimate problems. There is a statistically significant association between socioeconomic status of the players and their emotional microsocioal status, defined by the tendency to entrust (Table 3). In this case, a significant relationship is reflected only in the first category of choice (I would always she confided). Table 4 shows that the players with a better socioeconomic status, who have higher incomes, would to the fullest extent trust about their emotional and intimate problems to the players of the same socioeconomic status. Players with average incomes would also prefer confiding to the players of the same (middle socioeconomic status), while the players with low incomes also trust those with low incomes. Even in this case, players are

Tabele 3 i 4 pokazuju analize odgovora na pitanje prema drugom emocionalnom kriteriju izbora: kojim bi se igračicama povjerala. Postoji statistički značajna povezanost između socioekonomskog statusa igračica i njihovog emocionalnog mikrosocijalnog statusa definiranoj tendencijom povjeravanja (Tabela 3). I u ovom slučaju, značajna povezanost odražava se samo u prvoj kategoriji izbora (uvijek bih joj se povjerala). U Tabeli 4 se vidi da bi igračice boljeg socioekonomskog statusa, koje imaju veća primanja, u najvećoj mjeri svoje emocionalne i intimne probleme povjebile igračicama istog socioekonomskog statusa. Igračice sa srednjim primanjima, također bi se najradije povjebile saigračicama, istog, dakle srednjeg socioekonomskog statusa, igračice s niskim primanjima saigračicama, s također niskim primanjima. I u ovom

emotionally homogenised by the same socioeconomic status

Tables 5 and 6 show the analyses of responses to the question under the third criterion of emotional choice: Specify those players that you would like to hang out during your leisure. There is a statistically significant

slučaju igračice su se emocionalno homogenizovale prema pripadnosti istom socioekonomskom statusu.

Tabele 5 i 6 pokazuju analize odgovora na pitanje prema trećem emocionalnom kriteriju izbora: s kojim bi se igračicama voljela družiti u slobodno vrijeme. Postoji statistički značajna povezanost između so-

TABLE 3

Correlation between the categories of microsocial status (which would be entrusted players) in relation to categories of income (all categories combined)

TABELA 3

Povezanost kategorija mikrosocijalnog statusa (kojim bi se igračicama povjerila) u odnosu na visinu primanja (sve kategorije zajedno)

| Microsocial status | Income | | | | | | | | | | | | | | | Σ |
|--------------------|--------------|------------|------------|------------|------------|-----------------|------------|------------|------------|------------|-------------|------------|------------|------------|-------------|----------|
| | High | | | | | Middle | | | | | Low | | | | | |
| | UV | PO | RI | NS | NI | UV | PO | RI | NS | NI | UV | PO | RI | NS | NI | |
| High | 24 (83%) | 5 (50%) | 2 (50%) | 1 (25%) | 1 (17%) | 13 (57%) | 2 (29%) | 1 (20%) | 2 (33%) | 2 (29%) | 2 (15%) | 1 (7%) | 2 (33%) | 0 (0%) | 1 (11%) | 59 |
| Middle | 2 (7%) | 4 (40%) | 1 (25%) | 1 (25%) | 3 (50%) | 8 (35%) | 4 (58%) | 2 (40%) | 3 (50%) | 3 (43%) | 1 (8%) | 8 (57%) | 2 (33%) | 2 (67%) | 1 (11%) | 45 |
| Low | 3 (10%) | 1 (10%) | 1 (25%) | 2 (50%) | 2 (33%) | 2 (8%) | 1 (13%) | 2 (40%) | 1 (17%) | 2 (29%) | 10 (77%) | 5 (36%) | 2 (33%) | 1 (33%) | 78 (33%) | 42 |
| ΣN | 29 | 10 | 4 | 4 | 6 | 23 | 7 | 5 | 6 | 7 | 13 | 14 | 6 | 3 | 9 | 146 |
| | χ^2 | | | | | p | | | | | C | | | | | df |
| | 70.83 | | | | | < .01 | | | | | .57 | | | | | 28 |

Legend: Microsocial status – Mikrosocijalni status; Income – Visina primanja; High – Visoka; Middle – Srednja; Low – Niska; **UV** – Always (Uvijek); **PO** – Sometimes (Ponekad); **RI** – Rarely (Rijetko); **NS** – I'm not sure (Nisam siguran); **NI** – Never (Nikad); N – Number of subjects (Broj odgovora); Σ – Total (Ukupno); χ^2 – The chi-square distribution (Hi-kvadrat raspodjela); p – Probability (Vjerovatnoća); C – Contingency coefficient (Koeficijent kontigencije); df – Degrees of freedom (Stepeni slobode).

TABLE 4

Correlation between the income and categories of microsocial status defined with a question which would be entrusted players (separately for the categories of answers)

TABELA 4

Povezanost između visine primanja i emocionalnog mikrosocijalnog statusa definiranom pitanjem suigračicama (za pojedinu kategoriju odgovora)

| Indicator | Category of answers (microsocial status) | | | | |
|-----------|--|-------|-------|-------|-------|
| | UV | PO | RI | NS | NI |
| χ^2 | 26.03 | 6.54 | .90 | 2.53 | 5.14 |
| p | < .01 | > .20 | > .20 | > .20 | > .20 |
| C | .53 | .42 | .07 | .40 | .43 |

Legend: Indicator – Pokazatelj; Category of answers (microsocial status) – Kategorija odgovora (mikrosocijalni status); **V** – Always (Uvijek); **PO** – Sometimes (Ponekad); **RI** – Rarely (Rijetko); **NS** – I'm not sure (Nisam siguran); **NI** – Never (Nikad); χ^2 – The chi-square distribution (Hi-kvadrat raspodjela); p – Probability (Vjerovatnoća); C – Contingency coefficient (Koeficijent kontigencije).

association between socioeconomic status and their emotional microsocial status, defined by the tendency of companionship in leisure time (Table 5). The significance of this relationship is reflected only in the first category of choice (I always like to hang out with her), i.e. the maximum of positive selection (Table 6). Players with high incomes are predominantly want to hang out with the players with same income, during their leisure time.

Summarizing the results in the previous three issues, related to the emotional microsocial status of the players within the team, we accept the first hypothesis (H1) that the players of the same socioeconomic status better accept each other emotionally.

cioekonomskog statusa igračica i njihovog emocionalnog mikrosocijalnog statusa, definiranog tendencijom druženja u slobodno vrijeme (Tabela 5). Značajnost ove povezanosti odražava se u prvoj kategoriji izbora (uvijek bih se voljela družiti s njom), tj. maksimalnog pozitivnog izbora (Tabela 6). Igračice s visokim primanjima pretežno se u slobodno vrijeme žele družiti s igračicama istih takvih primanja.

Rezimirajući rezultate u odnosu na prethodna tri pitanja koja se odnose na emocionalni mikrosocijalni status igračica unutar ekipe, prihvatamo prvu hipotezu (H1) da će se igračice istog socioekonomskog statusa bolje međusobno emocionalno prihvatati.

TABLE 5

Correlation between the categories of microsocial status (wish to spend leisure time together with some player) in relation to categories of income (all categories combined)

TABELA 5

Frekvencije zastupljenosti i povezanost kategorija mikrosocijalnog statusa (s kojim bi se igračicama voljela družiti u slobodno vrijeme) u odnosu na kategorije visine primanja (sve kategorije zajedno)

| Microsocial status | Income | | | | | | | | | Σ | |
|--------------------|-------------|-------------|------------|-------------|------------|------------|-------------|-------------|------------|-----|-----------|
| | High | | | Middle | | | Low | | | | |
| | UV | PO | NI | UV | PO | NI | UV | PO | NI | | |
| High | 39 (60%) | 11 (73%) | 2 (50%) | 29 (53%) | 9 (69%) | 4 (67%) | 4 (13%) | 4 (25%) | 1 (33%) | 103 | |
| Middle | 10 (20%) | 3 (20%) | 1 (25%) | 20 (36%) | 2 (15%) | 1 (17%) | 13 (41%) | 7 (44%) | 1 (33%) | 58 | |
| Low | 10 (20%) | 1 (7%) | 1 (25%) | 6 (11%) | 2 (15%) | 1 (17%) | 15 (46%) | 31 (33%) | 1 (33%) | 42 | |
| Σ N | 49 | 15 | 4 | 55 | 13 | 6 | 32 | 16 | 3 | 203 | |
| | | χ^2 | | | <i>p</i> | | | <i>C</i> | | | <i>df</i> |
| | | 41.68 | | | < .01 | | | .41 | | | 16 |

Legend: Microsocial status – Mikrosocijalni status; Income – Visina primanja; High – Visoka; Middle – Srednja; Low – Niska; **UV** – Always (Uvijek); **PO** – Sometimes (Ponekad); **NI** – Never (Nikad); **N** – Number of subjects (Broj odgovora); **Σ** – Total (Ukupno); χ^2 – The chi-square distribution (Hi-kvadrat raspodjela); *p* – Probability (Vjerovatnoća); **C** – Contingency coefficient (Koeficijent kontigencije); *df* – Degrees of freedom (Stepeni slobode).

Correlation between social status of players and functional acceptance criteria

Tables 7 and 8 show the analyses of responses to the first functional criterion: Specify those players that you would like to cooperate in the game. There is a statistically significant association between socioeconomic status of players and their functional microsocial status, defined by the trend of cooperation during the game.

Povezanost socijalnog statusa igračica i funkcionalnog kriterija prihvaćenosti

Tabele 7 i 8 pokazuju analize odgovora prema prvom funkcionalnom kriteriju: s kojim igračicama rado saraduješ u igri. Postoji statistički značajna povezanost između socioekonomskog statusa igračica i njihovog funkcionalnog mikrosocijalnog statusa, definisanog tendencijom saradnje u igri. Značajnost

TABLE 6

Correlation between the income and categories of microsocial status defined with a wish to spend leisure time together with some player (separately for the categories of answers)

TABELA 6

Povezanost između visine primanja i emocionalnog mikrosocijalnog statusa definiranog željom druženja u slobodno vrijeme (za pojedinu kategoriju odgovora)

| Indicator | Category of answers (microsocial status) | | |
|-----------|---|-------|-------|
| | UV | PO | NI |
| χ^2 | 30.85 | 9.25 | 1.41 |
| p | < .01 | > .20 | > .20 |
| C | .43 | .41 | .31 |

Legend: Indicator – Pokazatelj; Category of answers (microsocial status) – Kategorija odgovora (mikrosocijalni status); **UV** – Always (Uvijek); **PO** – Sometimes (Ponekad); **NI** – Never (Nikad); χ^2 – The chi-square distribution (Hi-kvadrat raspodjela); p – Probability (Vjerovatnoća); C – Contingency coefficient (Koeficijent kontigencije).

.TABLE 7

Correlation between the categories of microsocial status (with whom players you like to cooperate in a game) in relation to categories of income (all categories combined)

TABELA 7

Frekvencije zastupljenosti i povezanost kategorija mikrosocijalnog statusa (s kojim igračicama rado surađuješ u igri) u odnosu na kategorije visine primanja (sve kategorije zajedno)

| Microsocial status | Income | | | | | | | | | Σ |
|-----------------------|--------------|------------|------------|-----------------|------------|------------|-------------|------------|------------|----------|
| | High | | | Middle | | | Low | | | |
| | RA | SU | NE | RA | SU | NE | RA | SU | NE | |
| High | 51 (65%) | 4 (40%) | 1 (20%) | 44 (51%) | 4 (44%) | 1 (20%) | 12 (23%) | 2 (25%) | 1 (33%) | 130 |
| Middle | 16 (20%) | 5 (50%) | 3 (60%) | 28 (33%) | 2 (22%) | 1 (20%) | 14 (27%) | 3 (38%) | 1 (33%) | 73 |
| Low | 12 (15%) | 1 (10%) | 1 (20%) | 14 (16%) | 3 (33%) | 3 (60%) | 26 (50%) | 3 (38%) | 1 (33%) | 64 |
| ΣN | 79 | 10 | 5 | 86 | 9 | 5 | 52 | 8 | 3 | 267 |
| | χ^2 | | | p | | | C | | | df |
| | 43.82 | | | < .01 | | | .38 | | | 16 |

Legend: Microsocial status – Mikrosocijalni status; Income – Visina primanja; High – Visoka; Middle – Srednja; Low – Niska; **RA** – Gladly cooperate (Rado sarađujem); **SU** – Cooperate (Sarađujem); **NE** – Don't cooperate (Nesarađujem); **N** – Number of subjects (Broj odgovora); Σ – Total (Ukupno); χ^2 – The chi-square distribution (Hi-kvadrat raspodjela); p – Probability (Vjerovatnoća); C – Contingency coefficient (Koeficijent kontigencije); df – Degrees of freedom (Stepeni slobode).

The significance of this relationship is reflected only in the first category of choice (we gladly cooperate). Players who have high incomes most like to cooperate with players of the same socioeconomic status, players with middle incomes prefer to work with players with middle

ove povezanosti odražava se samo u prvoj kategoriji izbora (rado sarađujem). Igračice koje imaju visoka primanja najviše žele sarađivati s igračicama istog socioekonomskog statusa, igračice srednjih primanja najradije sarađuju s igračicama sa srednjim priman-

TABLE 8

Correlation between the income and categories of microsocial status defined with a wish to cooperate in the game with some player (separately for the categories of answers)

TABELA 8

Povezanost između visine primanja i funkcionalnog mikrosocijalnog statusa definirano željom suradnje u igri (za pojedine kategorije odgovora)

| Indicator | Category of answers (microsocial status) | | |
|-----------|---|-------|-------|
| | RA | SU | NE |
| χ^2 | 32.74 | 3.04 | 2.31 |
| p | < .01 | > .20 | > .20 |
| C | .36 | .31 | .38 |

Legend: Indicator – Pokazatelj; Category of answers (microsocial status) – Kategorija odgovora (mikrosocijalni status); **RA** – Gladly cooperate (Rado sarašujem); **SU** – Cooperate (Sarađujem); **NE** – Don't cooperate (Nesarađujem); χ^2 – The chi-square distribution (Hi-kvadrat raspodjela); p – Probability (Vjerovatnoća); C – Contingency coefficient (Koeficijent kontingencije).

incomes, while players with low incomes prefer to cooperate mutually. The tendency of cooperation in the game is also homogenized within a particular socioeconomic background of the players. Players with high incomes (i.e. quality or professional players) emphasize their cooperation in the game because they are mostly responsible for the game result, they spend most of their time in the game and they have the most mutual confidence. Previously shared experience of competition likely contribute to their greater cohesiveness on the functional plan. On the other hand, the players with the middle and lower financial benefits, trust in their mutual cooperation, primarily acquired during joining the trainings in their domicile team, or in other small team from which a group of young handball players came in the beginning of this season (Sinj).

Two following types of analyses for the functional criteria were specific. We wondered to know the correlation between the microsocial status of the player and the player who is (according to her perception) handball expert and authority. In Table 9 are given the analysis of responses by second functional criterion: Rate the players, according to the criteria of their so well knowledge about handball, so you can ask them at all times for expert advice. The low coefficient of contingency indicates that there is no statistically significant association between the microsocial status of players and their opinion about which of the players they could seek for expert advice from. Players of different socioeconomic status to a large extent agreed that authorities in handball knowledge should be sought primarily from the ranks of players of high social status, in other words experienced players. In fact, players with high incomes are the best players in the team, with the most handball knowledge, among which are several nacional team members.

jima, a igračice s niskim primanjima najradije međusobno sarađuju. Tendencija saradnje u igri takođe se homogenizuje unutar pripadnosti pojedinom socioekonomskom sloju igračica. Igračice s visokim primanjima (kvalitetne, odnosno profesionalne igračice) naglašeno sarađuju u igri jer su najodgovornije za rezultat, najviše vremena provode u igri i međusobno jedna u drugu imaju najviše povjerenja. Prethodno zajedničko takmičarsko iskustvo vjerovatno je pridonijelo i većoj kohezivnosti na funkcionalnom planu. S druge strane, igračice srednjih i nižih novčanih primanja, povjerenje u međusobnu saradnju prvenstveno su stekle tokom zajedničkog treninga u svom domicilnom klubu, ili u drugom manjem klubu iz kojeg je u ovoj sezoni pristigla grupa mlađih rukometašica (Sinj).

Dvije sljedeće vrste analize po funkcionalnom kriteriju bile su specifične. Zanimalo nas je koliko su povezani mikrosocijalni status same igračice i igračice koja je za nju stručni (rukometni) autoritet. U Tabeli 9 date su analize odgovora po drugom funkcionalnom kriteriju: od koje bi igračice zatražili stručni savjet iz rukometa. Niski koeficijent kontingencije ukazuje da ne postoji statistički značajna povezanost između socijalnog statusa igračica i njihovog mišljenja o tome od kojih bi igračica mogle zatražiti stručni savjet. Igračice različitog socioekonomskog statusa u velikoj su se mjeri usuglasile da autoritete rukometnog znanja prvenstveno treba tražiti iz redova igračica visokog socijalnog statusa, odnosno iskusnih igračica. Naime, igračice s visokim primanjima predstavljaju najkvalitetnije igračice u ekipi, s najviše rukometnog znanja, među kojima ima i nekoliko reprezentativki.

U Tabeli 10 su analize odgovora prema trećem

In Table 10 are showed the analyses of responses to the third functional criterion: Specify those players that you consider capable to be a captain. The low coefficient of contingency indicates that there is no statistically significant association between socioeconomic status of the players that elect the captain and microsocial status of players selected for the captain. So, when they choose a leader in game and the largest gaming authority, players of all socioeconomic levels predominantly uniformly elected the captain among the players with high salaries. Regardless of the origin socioeconomic status, players largely recognized those with the greatest authority and leadership abilities, and such are often the players of high microsocial status (i.e. professional, the best players on the team). The lack of statistically significant association between microsocial status of players and choice of the captain confirms low and statistically insignificant Spearman's rank correlation coefficient.

Summarizing the results of research in relation to

funkcionalnom kriteriju: koje bi igrači birali za kapitena. Niski koeficijent kontingencije ukazuje da ne postoji statistički značajna povezanost između socioekonomskog statusa igračica koje biraju kapitena i mikrosocijalnog statusa igračica biranih za kapitena. Dakle, kada je riječ o izboru vođe u igri, odnosno najvećeg igračkog autoriteta, igrači svih socioekonomskih statusa su se pretežno opredijelile da kapitena biraju iz redova igračica s visokim primanjima. Bez obzira na socioekonomski status, igrači su u velikoj mjeri prepoznale one s najvećim autoritetom i liderskim sposobnostima, a takve najčešće pripadaju igračicama visokog mikrosocijalnog statusa (tj. profesionalnim, najkvalitetnijim igračicama u ekipi). Nepostojanje statistički značajne povezanosti između mikrosocijalnog statusa igračica i izbora kapitena, potvrđuje niski i statistički neznajni Spearmanov koeficijent rang korelacije.

TABLE 9

Correlation between the income categories and categories of microsocial status of those players that would be asked for advice (all categories combined)

TABELA 9

Povezanost kategorija socioekonomskog statusa igračice i mikrosocijalnog statusa onih igračica od kojih bi tražile savjet (sve kategorije zajedno)

| Income | Microsocial status of the player that could be asked for a advice | | | Σ (100%) |
|----------|---|------------|------------|--------------------|
| | High | Middle | Low | |
| High | 22 (78%) | 3 (11%) | 3 (11%) | 28 |
| Middle | 11 (74%) | 2 (13%) | 2 (13%) | 15 |
| Low | 7 (58%) | 3 (25%) | 2 (17%) | 12 |
| Σ | 40 | 8 | 7 | 55 |
| | χ^2 | p | C | df |
| | 1.91 | > .20 | .18 | 4 |

Legend: Income – Primanja igračica; Microsocial status of the player that could be asked for a advice – Mikrosocijalni status igračice od koje bi tražile savjet; High – Visoka; Middle – Srednja; Low – Niska; Σ – Total (Ukupno); χ^2 – The chi-square distribution (Hi-kvadrat raspodjela); p – Probability (Vjerovatnoća); C – Contingency coefficient (Koeficijent kontingencije); df – Degrees of freedom (Stepeni slobode).

issues concerning the functional microsocial status of the players within the team, it is only partially possible to accept the second hypothesis (H2) that the players of the same socioeconomic status, better accept each other functionally. The hypothesis can be accepted only in relation to microsocial status defined by trend of cooperation in the game. A statistically significant correlation, however, has not been found in the relations

Rezimirajući rezultate istraživanja u odnosu na pitanja koja se odnose na funkcionalni mikrosocijalni status igračica unutar ekipe, samo je djelimično moguće prihvatiti drugu hipotezu (H2) da će se igrači istog socioekonomskog statusa bolje međusobno funkcionalno prihvatiti. Hipoteza se može prihvatiti samo u odnosu na mikrosocijalni status definisan tendencijom

between the socioeconomic status and the choice of captain and with the choice of players with the leader's authority or the best knowledge of handball. Team captains were chosen by the players regardless of their socioeconomic status. It is possible to assume that the trend of cooperation in the game, although it belongs to a functional criterion, probably partly have some characteristics of emotional criteria.

saradnje u igri. Statistički značajna povezanost, međutim, nije utvrđena u relacijama socioekonomskog statusa i izbora kapitena, odnosno igračica s autoritetom vođe ili rukometnog znanja. Kapiteni ekipe igrači biraju nezavisno od njegovog socioekonomskog statusa. Moguće je pretpostaviti da tendencija saradnje u igri, premda pripada funkcionalnom kriteriju, dijelom ima karakteristike emocionalnog kriterija.

TABLE 10

Correlation between the categories of microsocioal status of the player and those players who would be elected to captain the team (all categories combined)

TABELA 10

Povezanost kategorija mikrosocijalnog statusa igračice i onih igračica koje bi birale za kapetana momčadi (sve kategorije zajedno)

| Income | Microsocial status of the player that could be chosen as a captain | | | Σ (100%) |
|----------|--|------------|------------|--------------------|
| | High | Middle | Low | |
| High | 20 (74%) | 3 (11%) | 4 (15%) | 27 |
| Middle | 11 (61%) | 2 (11%) | 5 (28%) | 18 |
| Low | 6 (60%) | 2 (20%) | 2 (20%) | 10 |
| Σ | 37 | 7 | 11 | 55 |
| χ^2 | p | C | r_s | $r_s(p)$ |
| 1.78 | > .20 | .17 | .20 | > .20 |

Legend: Income – Primanja igračica; Microsocial status of the player that could be asked for a advice – Mikrosocijalni status igračice od koje bi tražile savjet; High – Visoka; Middle – Srednja; Low – Niska; Σ – Total (Ukupno); χ^2 – The chi-square distribution (Hi-kvadrat raspodjela); p – Probability (Vjerovatnoća); C – Contingency coefficient (Koficijent kontigencije); r_s – Sperman rank order correlation (Spermanov rang korelacije); $r_s(p)$ – Probability of Sperman rank order correlation (Vjerovatnoća Spermanovog ranga korelacije).

Determining the hierarchical structure of the group

Table 11 gives an overview of the number and percentage of nominations that some player obtained from the others, separately for emotional and functional eligibility criteria.

Based on data from sociometric questionnaire, based on mutual nominating among the players, it is possible to interpret the interpersonal relationships of attractions in this selected group. Players in the team can be classified on the basis of their mutual nominations, according to both criteria, in the hierarchical structure. In relation to sociometric status, players can be classified into four groups. It is interesting that in

Utvrđivanje hijerarhijske strukture grupe

U Tabeli 11 dat je prikaz broja i postotka biranosti pojedine igračice, posebno za emocionalni a posebno za funkcionalni kriterij izbora

Na osnovu podataka dobijenih iz sociometrijskog upitnika o međusobnom biranju među igračicama, moguće je interpretirati interpersonalne odnose privlačenja u ovoj selekcioniranoj grupi. Igrači kluba moguće je razvrstati na temelju međusobnih nominacija, prema oba kriterija, u hijerarhijsku strukturu. U odnosu na sociometrijski status, igračice se mogu svrstati u četiri grupe. Zanimljivo je da je u prvoj grupi samo jedna igračica koja «odskāče» od

the first group, only one player who »bounce« from the others: A1 (55 points, 50%). In the second group, there are two players and they are: A2 (43 points, 39.8%), A3 (36 points, 33.3%). In the third group, there are 5 players: A4 (25 points, 23.1%), A5 (22 points, 23.1%), A6 (21 points 19.4%), A7 (19 points, 17.5%) , A8 (16 points, 14.8%). In the fourth group are: A9 (4 points,%), A10 (3 points,%), A11 (3 points,%), A12 (2 points,%), A13 (1 point,%), A14 (1 point, 0) A15 (1 point), A16 (0 points) A17 (on points), A 18 (0 points). The first player (A1) is significantly separated from the others and has a high sociometric status, in emotional and functional terms. In the second group, there are players who play together for a long time. These are high quality and experienced players in the team, who play

svih: A1 (55 bodova, 50%). U drugoj grupi nalaze se dvije igračice i to su: A2 (43 bodova, 39,8%), A3 (36 bodova, 33,3%). U trećoj grupi nalazi se 5 igračica: A4 (25 bodova, 23,1%), A5 (22 boda, 23,1%), A6 (21 bod 19,4%), A7(19 bodova, 17,5%), A8 (16 bodova, 14,8%). U četvrtoj grupi nalaze se: A9 (4 boda, %), A10 (3 boda, %), A11 (3 boda, %), A12(2 boda, %), A13 (1 bod, %) A14 (1 bod, 0) A15(1 bod), A16(0 bodova) A17 (o bodova),A 18 (0 bodova). Prva igračica (A1) se značajno izdvaja od ostalih, a ima visok sociometrijski status i u emocionalnom i u funkcionalnom pogledu. U drugoj grupi nalaze se igračice koje igraju zajedno dugi niz godina. To su kvalitetne i iskusne igračice u ekipi, koje su u prvoj postavi. U trećoj grupi nalaze se igračice prinove, uglavnom

TABLE 11

Number of nominations for each player in all six questions of sociometric questionnaire and the percentage of nominations obtained in the ratio with the maximum possible number of nominations (separate for the functional for the emotional criteria)

TABELA 11

Broj izbora za pojedinu igračicu za svih šest pitanja sociometrijskog upitnika i postotak izabranosti u odnosu na maksimalni mogući broj izbora (posebno za funkcionalni i posebno za emocionalni kriterij)

| Rank | Player | Emotional criterion | | Functional criterion | |
|------|--------|---------------------|------|----------------------|------|
| | | Points | % | Points | % |
| 1. | A1 | 32 | 50.2 | 23 | 42.5 |
| 2. | A2 | 21 | 38.8 | 22 | 40.7 |
| 3. | A3 | 16 | 29.6 | 20 | 37.0 |
| 4. | A4 | 15 | 27.7 | 10 | 18.5 |
| 5. | A5 | 11 | 20.3 | 12 | 22.2 |
| 6. | A6 | 10 | 18.5 | 21 | 38.8 |
| 7. | A7 | 15 | 27.7 | 4 | 7.4 |
| 8. | A8 | 9 | 16.6 | 5 | 9.2 |
| 9. | A9 | 2 | 3.7 | 2 | 3.7 |
| 10. | A10 | 2 | 3.7 | 1 | 1.8 |
| 11. | A11 | 3 | 5.5 | 0 | 0.0 |
| 12. | A12 | 1 | 1.8 | 1 | 1.8 |
| 13. | A13 | 1 | 1.8 | 0 | 0.0 |
| 14. | A14 | 0 | 0.0 | 1 | 1.8 |
| 15. | A15 | 0 | 0.0 | 1 | 1.8 |
| 16. | A16 | 0 | 0.0 | 0 | 0.0 |
| 17. | A17 | 0 | 0.0 | 0 | 0.0 |
| 18. | A18 | 0 | 0.0 | 0 | 0.0 |

Legend: Rank – Redni broj; Player – Igračica; Emotional criterion – Emocionalni kriterij izbora; Functional criterion – Funkcionalni kriterij izbora; Points – Broj bodova; **A1-A18** – Players; Maximal number of nominations – emotional criterion (54), functional criterion (54) [Igračice; Maksimalni broj izbora – za emocionalni kriterij (54), za funkcionalni kriterij (54)].

in the first (starting) team. In the third group are novice players, mostly young but promising players who are brought from neighboring teams as a reinforcement (play in the starting first team or enter in play as a substitute during the game). In the final group of 10 players, many of them are coming from the junior team. The correlation between sociometric status of the players, chosen by their functional and emotional criterion is very high ($r = 82, p < .01$), which is consistent with our expectations that female team will focus simultaneously on good emotional and social relationships, as well as on the successful execution of the task. The results are very similar to the results of the most referenced in the literature (Marelić et al., 2001; Marelić, Đurković, & Rešetar, 2007; Šimenc & Šnajder, 1984), which clearly distinguishes a hierarchy with the captain on top of that is allocated by both criteria, emotional and functional. Results are different from the results of Petrović and Pavlović (1969), where players are grouped primarily by functional criteria.

Based on these results, it can be inferred about the structure and hierarchy of relations in this team. Player with the highest score (A1) is the best player, which also coincides with the trainer's choice for captain. Player A1, who achieved largest number of points by emotional criteria, simultaneously was chosen a »leader« by functional criteria. The best choice for deputy captain would be the players A2 and A3, which are actually older and more experienced players, who gained their popularity by a somewhat higher functional criteria. This fact tells about their experience and confidence that they are gained by other players. Players from the third and fourth levels of the hierarchy haven't a greater role in the team, emotionally or functionally.

The main advantage of the research is a detailed insight into sociometric and demographic structure of the players a top women's handball team. The research results are potentially applicable and useful, especially for a coach of the handball team, as they provide sufficient information about microsocial structure and relationship functioning in the team, as well as about emotional ties between the players. It can be a good starting point for programming and implementation of psychosocial preparation.

The main shortcoming of this research is a relatively simple principle of data analyses, and relatively simple instruments: a large number of (complex) questions, and a number of indices that can be drawn from the results of sociometric procedures, could provide more detailed results. On the other hand, it is possible for the players that they gave to some extent socially desirable answers, according to their own (and trainer) expectations. Finally, an indicator of high income does not necessarily mean the real socio-econo-

mlade ali perspektivne igrачice koje su dovedene iz susjednih klubova kao pojačanja (igraju u početnom timu ili ulaze kao zamjena tokom igre). U posljednjoj grupi od 10 igračica, veći broj dolazi iz juniorske ekipe. Korelacija između sociometrijskog statusa igračica prema funkcionalnom i emocionalnom kriteriju izbora je vrlo visoka ($r = 0,82; p < 0,01$), što je u skladu sa našim očekivanjima da će u ženskim ekipama usmjerenost na dobre emocionalne i socijalne odnose biti visoko povezana i s usmjerenošću na uspješno izvršavanje zadataka. Rezultati su vrlo slični većini referiranih rezultata u pregledu literature (Marelić, Đurković i Rešetar, 2007; Šimenc, Šnajder, 1984; Marelić i saradnici, 2001), gdje se jasno izdvaja hijerarhija s kapitenom tima na vrhu koji se izdvaja po oba kriterija, emocionalnom i funkcionalnom, a različiti su od rezultata Petrovića i Pavlovića (1969) gdje se igrači grupišu prvenstveno po funkcionalnom kriteriju.

Na osnovu navedenih rezultata, može se izvesti zaključak o strukturi i hijerarhiji odnosa u ovoj ekipi. Igračica s najviše osvojenih bodova (A1) najbolja je igračica, što se ujedno i podudara s trenerovim izborom za kapiten tima. Igračicu A1 saigračice cijene po emocionalnom kriteriju, ali je istovremeno izabrana kao »lider« i prema funkcionalnom kriteriju. Najbolji odabir za zamjenika kapiten tima bile bi igračice A2 i A3, koje su zapravo i starije i iskusnije igračice, koje su svoju popularnost stekle po nešto višem funkcionalnom kriteriju. To zapravo govori o njihovom iskustvu i povjerenju koje su stekle kod ostalih igračica. Igračice iz trećeg i četvrtog hijerarhijskog nivoa nemaju neku veću ulogu u klubu, ni emocionalno ni funkcionalno.

Glavna prednost istraživanja je detaljni uvid u sociometrijsku i demografsku strukturu igračica jedne vrhunske ženske rukometne ekipe. Rezultati istraživanja su potencijalno primjenljivi i korisni, posebno za trenera ove rukometne ekipe, jer pružaju dovoljno informacija o njenoj mikrosocijalnoj strukturi, te međusobnim funkcionalnim i emocionalnim vezama među igračicama. To može biti dobro polazište za programiranje i provođenje psihosociološke pripreme.

Glavni nedostatak istraživanja jeste relativno jednostavan princip obrade podataka, te relativno jednostavan instrumentarij: većim brojem (kompleksnijih) pitanja, i većim brojem indeksa koji se mogu izvesti iz rezultata sociometrijskog postupka, mogli bismo pružiti detaljnije rezultate. S druge strane, moguće je da su igračice u određenoj mjeri davale i društveno poželjne odgovore, u skladu sa vlastitim (ali i trenerovim) očekivanjima. Konačno, pokazatelj visine primanja ne treba nužno značiti i realni so-

mic status of the players. Some players have other sources of income, some have more or less family material resources, some have additional expenses, etc. From the shortcomings arise the directions for future research: application more complex sociometric and demographic indicators, the control of desirability of responses (maybe use one or more of psychological control scales).

CONCLUSION

Research results suggest the adoption of the first hypothesis that the players of the same socioeconomic status, have better mutual emotional acceptance. The second hypothesis, the better functional mutual acceptance of players of the same socioeconomic status, can be only partially accepted, in the domain of the tendency of cooperation in the game, but not in relation to the selection of players from the leader's authority or knowledge of handball. The third hypothesis, the hierarchical structure of groups can be fully accepted. In relation to the sociometric status, players are differentiated into four levels of hierarchy, while at the top of this hierarchy is the team captain.

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cioekonomski status igračice, budući da neke imaju i dodatne izvore prihoda, neke posjeduju veće ili manje porodične materijalne resurse, neke imaju dodatne izdatke, itd. Iz nedostataka proizlaze i smjernice za buduća istraživanja: primjena kompleksnijih sociometrijskih i demografskih pokazatelja, kontrola poželjnosti odgovora (možda primjena nekih kontrolnih psihologijskih skala).

ZAKLJUČAK

Rezultati istraživanja navode na prihvaćanje prve hipoteze da se igračice istog socioekonomskog statusa bolje međusobno emocionalno prihvaćaju. Druga hipoteza, o boljem međusobnom funkcionalnom prihvaćanju igračica istog socioekonomskog statusa se može samo djelimično prihvatiti, i to u domenu tendencije saradnje u igri, ali ne i u odnosu na izbor igračice s autoritetom vođe ili rukometnog znanja. Treća hipoteza, o hijerarhijskoj strukturi grupe, može se u potpunost prihvatiti. Igračice su u odnosu na sociometrijski status diferencirane u četiri hijerarhijska nivoa, dok je na vrhu te hijerarhije kapiten tima.

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Correspondence to:

Joško Sindik, PhD

Institute for Anthropological Research

Ljudevita Gaja 32

10000 Zagreb

Croatia

E-mail: josko.sindik@inantro.hr

Phone: 00385 15 53 51 22

Korespodencija:

dr Joško Sindik

Institut za antropologiju

Ljudevita Gaja 32

10000 Zagreb

Hrvatska

E-mail: josko.sindik@inantro.hr

Telefon: 00385 15 53 51 22

SOZIOÖKONOMISCHER STATUS UND MIKROSOZIALE STRUKTUR INNERHALB DES WEIBLICHEN HANDBALLCLUBS

Joško Sindik¹ und Dodi Mihaljević²

¹Institut für antropologische Forschung, Zagreb, Kroatien

²Philosophische Fakultät, Split, Kroatien

Das Problem der mikrosozialen Struktur einer bestimmten Gruppe führt die Soziometrie auf die Bestimmung der soziometrischen Struktur der Gruppe und den soziometrischen Status eines Individuums in einer Gruppe zurück. Aus der Sicht der Handballmannschaft ist es wichtig, dass sie emotional und funktional ausgeglichen ist. Außer der individuellen Leistung und Kreativität der einzelnen Spieler wichtig sind die in Einklang gebrachten gemeinsamen Aktionen, in denen Disziplin und gesellschaftliche Verantwortung dominieren. Das Ziel der Untersuchung ist die mikrosoziale Struktur zu bestimmen, sowie die Beziehung zwischen der mikrosozialen Struktur der ersten Liga weiblichen Handballmannschaft, die durch den emotionalen und funktionalen Status von Spielerinnen im Team ausgedrückt ist, mit ihrem objektiven sozioökonomischen Status. Insbesondere wollten wir feststellen, inwieweit der sozioökonomische Status der Spielerinnen mit ihrer mikrosozialen Position innerhalb des Teams verbunden ist, nach dem emotionalen Kriterium (1) und dem funktionalen Kriterium (2). Schließlich wollten wir feststellen, ob die Spielerinnen nach der hierarchischen Struktur gegenseitig nominiert werden. Aufgrund der angegebenen Probleme wurden folgende Forschungshypothesen aufgestellt: Handballspielerinnen, die zum gleichen sozioökonomischen Status gehören, werden nach dem emotionalen (1) bzw. funktionalen (2) Kriterium gegenseitig besser akzeptiert werden. Schließlich werden die Handballspielerinnen durch gegenseitige Nominierungen die hierarchische Struktur der Gruppe definieren, an deren Spitze sich der Mannschaftskapitän befindet (3). Bei einer Stichprobe von 18 Spielerinnen, die Mitgliederinnen der Senioren-Handballmannschaft im Alter von 16-26 Jahren sind und die mindestens 7 Jahre aktiv Handball spielten, wählten wir in einer detaillierten Beschreibung der demographischen Merkmale der Teilnehmer den sozioökonomischen Status der Handballspielerinnen als relevante Variable für die Korrelationsanalyse der mikrosozialen Struktur der Handballspielerinnen und ihren sozioökonomischen Status (nach dem funktionalen und emotionalen Kriterium) durch Anwendung des soziometrischen Verfahrens. Muster-Variablen wurden mit Hilfe eines Fragebogens definiert, der aus 15 offenen und geschlossenen Fragen bestand. Der einleitende Teil des Fragebogens (demographische

Variablen), gemeinsam mit den grundlegenden Informationen (Name, Geburtsdatum, Beruf und Wohnort der Befragten) bestand aus 9 Fragen, in denen der soziale Status von Spielerinnen und ihren Familien beschrieben wird. Der zweite Teil des Fragebogens beinhaltet die Variablen, mit denen der mikrosoziale Status (emotionaler und funktionaler Status) der Spielerinnen im Handballteam definiert wird. Die Befragten wurden gebeten, eine unbegrenzte Anzahl von Mitspielerinnen nach einem bestimmten Wahlkriterium und einer bestimmten Kategorie zu nominieren. Man hat dabei 6 Wahlkriterien benutzt: die ersten drei Kriterien (1-3) beziehen sich auf den emotionalen Typ, wobei sich die letzten drei auf den funktionalen Typ (4-6) beziehen. Die Wahlkategorien wurden auf der Likert-Skala von 1-5 bzw. von 1-3 bewertet.

Die Forschungsergebnisse führen zu der Annahme der Hypothese, dass die Spielerinnen vom gleichen sozioökonomischen Status emotional besser akzeptiert werden. Die Hypothese in Bezug auf eine gegenseitig bessere funktionale Akzeptanz der Spielerinnen vom gleichen sozioökonomischen Status kann nur teilweise akzeptiert werden, und zwar in der Domäne der Tendenz in Bezug auf die Zusammenarbeit im Spiel, aber nicht in Bezug auf die Auswahl einer Spielerin, die die Autorität eines Teamleaders besitzt oder über ein spezielles Handballwissen verfügt. Die Hypothese der hierarchischen mikrosozialen Struktur der Gruppe kann vollständig akzeptiert werden. In Bezug auf den soziometrischen Status sind die Spielerinnen in vier Hierarchieebenen eingeteilt, wobei an der Spitze dieser Hierarchie der Mannschaftskapitän steht. Die Wahl des Mannschaftskapitäns von seiten der Spielerinnen fällt auf eine Spielerin („Leader“) nach dem funktionalen und emotionalen Kriterium. Da nur wenige Forschungen in diesem Gebiet durchgeführt wurden, können folgende Implikationen für zukünftige Forschungen erwähnt werden: Anwendung komplexer soziometrischer und demographischer Indikatoren, sowie die Kontrolle der gewünschten Antworten (Anwendung einer der psychologischen Kontrollskalen).

Schlüsselwoerter: Handballspielerinnen, Soziometrie, Verbindung, Kontingenz, Hierarchie.

RAZVOJ ZDRAVSTVENO ORIJENTISANE FIZIČKE KULTURE U RUSKIM ŠKOLAMA (KRAJ XIX VIJEKA – OSAMDESETE GODINE XX VIJEKA)

GENESIS OF HEALTH – ORIENTED PHYSICAL CULTURE AT SCHOOLS OF RUSSIA (THE END OF THE XIX CENTURY – THE 80S OF THE XX CENTURY)

Vladimir Irhin¹ and Irina Irhina¹

¹Državni nacionalni istraživački Institut “BelSU”, Belgorod, Rusija
State National Research University “BelSU”, Belgorod, Russia

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SUMMARY

This work is devoted to genesis of ideas of Russian schoolchildren health maintenance, promotion and formation by physical training means within the period from the end of the XIX century till the 80s of the XX century. At the beginning of the XX century one of the perspective directions in development of the Russian physical training theory was scientific investigation of schoolchildren's health improvement by physical culture means. At the end of the XIX century in the Russian physical culture theory there were already marked out two independent, opposite in certain degree approaches - educational and hygienic. At the beginning of the XX century hygienic and educational tasks of physical education were recognized parity and compulsory. At the pre-revolutionary period of the health-oriented physical culture development at Russian schools physical training lesson was included into educational content as a compulsory subject at advanced schools. The aim of rising healthy generation caused establishment of innovative schools already in the first years of Soviet government. Schoolchildren's military-physical training was one of the central points in educational process during the Second World War. In the post-war period the scientists concentrated their attention on the war consequences study. At the end of 80s there was accumulated significant scientific and experimental works on health-improving measures for pupils. It has led to appearance and further promotion of health-oriented vector of physical education and pupils' health protection development.

Key words: health – oriented culture, school, Russia, history.

SAŽETAK

Ovaj rad se bavi nastankom ideja o očuvanju, poboljšanju i razvijanju zdravlja kod školske djece u Rusiji, putem fizičkog vježbanja u periodu od kraja XIX vijeka do 80-ih godina XX vijeka. Na početku XX vijeka, teorija fizičkog vježbanja u Rusiji se, između ostalog, kretala u pravcu naučnog istraživanja poboljšanja zdravlja školske djece preko fizičke kulture. Krajem XIX vijeka, u ruskoj teoriji fizičke kulture već su postojala dva istaknuta, nezavisna i donekle suprotstavljena pristupa – obrazovni i zdravstveni. Na početku XX vijeka, zdravstveni i obrazovni ciljevi fizičkog obrazovanja smatrani su jednakim i obaveznim. U periodu prije revolucije, u zdravstveno orijentisanom razvoju fizičke kulture u ruskim školama, čas fizičkog je bio dio obrazovnog sadržaja: kao obavezan predmet u višim školama. Cilj da se podiže jedna zdrava generacija doveo je do stvaranja inovativnih škola u prvim godinama sovjetske vlade. Vojničko-fizička obuka školske djece bila je jedna od ključnih tačaka obrazovnog procesa za vrijeme Drugog svjetskog rata. U poslijeratnom period, naučnici su usmjerili svoju pažnju na proučavanje posljedica rata. Krajem 80-ih godina XX vijeka, naglo je porastao broj naučnih i eksperimentalnih radova o mjerama za poboljšanje zdravlja učenika. To je dovelo do pojave i daljeg napredovanja razvoja fizičkog obrazovanja i zaštite zdravlja učenika.

Ključne riječi: zdravstveno-orijentisana kultura, škola, Rusija, istorija.

INTRODUCTION

In the 60s of the XIX extremely aggravated social contradictions determined growth of public activity in Russia. The reevaluation of moral values occurred among physical culture representatives of humanistic approach in Russia. Human personality and its health became significant factors. Authoritative, pragmatic physical culture, corporal punishments were subjected to sharp criticism in scientific studies and practical activities of progressive – minded thinkers of that time (Dementyev, 1892; Gorinevsky, 1900; Pokrovsky, 1893; etc.). It was pointed out that low level of Russian children's physical health was in many respects defined by the lack of purposeful physical training. The demand for a scientific foundations of pupils' physical training system at school appeared. Foremost personalities of that time underlined interrelation and interconditionality of physical development and mental activity for child's health improvement. Therefore they attached great importance to schoolchildren's health promotion by means of gymnastics, physical work and hygiene. At the same time the humanists were opponents of dominant military gymnastics and compulsion methods in the course of physical training. Health – oriented vector in the development of the Russian theory and practice of comprehensive school physical training gradually gained in strength. The goal of the research is to consider the genesis of ideas of Russian schoolchildren health maintenance, promotion and formation by physical training means within the period from the end of the XIX century till the 80s of the XX century.

METHOD

Theoretical analysis of pedagogical works of above mentioned period thinkers, comparative analysis concretized in comparative-historical and comparative-logical methods, inductive-deductive method, the principle of scientific objectivity and fact reliability provide adequate interpretation of the concerned pedagogical ideas.

RESULTS AND DISCUSSION

Theoretical study of physical training aspects in Russia was initiated by Lesgaft (1898). In his opinion general goal of upbringing was "harmonious and all-around development of human body activity". The key direction and condition of the goal achievement was physical culture regarded by Lesgaft (Ibid) not only as muscles but also as will training and moral relations formation. Basing on the psychophysical monism theory, P. F. Lesgaft developed the physical education system, carrying out indissoluble interrelation of pupils' moral and physical development. To P. F. Lesgaft's mind physical exercises acting in a role of purposeful actions were elements of psychophysical process. In child's physical and moral development decisive importance belonged to upbringing which should consider children's individual differences. Lesgaft made

UVOD

Šezdesetih godina XIX vijeka, krajnje zaoštrene društvene kontradiktornosti odredile su veću javnu aktivnost u Rusiji. Došlo je do skoka moralnih vrijednosti među predstavnicima fizičke kulture koji su zastupali humanistički pristup u Rusiji. Čovjekova ličnost i njegovo zdravlje postali su važni faktori. Autoritativna, pragmatična fizička kultura, fizičko kažnjavanje oštro su kritikovani u naučnim studijama i praksi progresivnih mislilaca tog vremena (Дементьев, 1892; Гориневский, 1900; Покровский, 1893; itd.). Tvrdilo se da je loše fizičko zdravlje ruske djece posljedica nedostatka osmišljenog fizičkog vježbanja. Pojavila se potreba za naučnim temeljima sistema fizičkog vježbanja u školama. Eminentni stručnjaci tog doba naglašavali su međusobnu povezanost i zavisnost fizičkog razvoja i mentalne aktivnosti. Takođe su pridavali veliku važnost promovisanju zdravlja djece putem gimnastike, fizičkog rada i higijene. Isto tako, humanisti su bili protivnici dominantne vojničke gimnastike i metoda prinude u fizičkom vježbanju. Zdravstveno - orijentisan pravac razvoja ruske teorije i prakse opšteg školskog fizičkog vježbanja sve više je dobijao na snazi.

METOD

Teoretska analiza iz pedagoških radova stručnjaka iz pomenutog perioda, komparativna analiza konkretizovana u komparativno-istorijskom i komparativno-logičkom metodu, induktivno-deduktivni metod, princip naučne objektivnosti i pouzdane činjenice daju adekvatno tumačenje relevantnih pedagoških ideja.

REZULTATI I DISKUSIJA

Teoretsko proučavanje aspekata fizičkog vježbanja u Rusiji pokrenuo je Лесгафт (1898). По njegovom mišljenju, opšti cilj odgoja bio je "harmoničan i cjelokupan razvoj aktivnosti čovekovog tijela". Glavni pravac i uslov postizanja tog cilja je fizička kultura, za koju je P. F. Lesgaft smatrao da predstavlja ne samo vježbanje mišića, već i volje i formiranje moralnih odnosa. Na osnovu psihofizičke teorije monizma, P. F. Lesgaft je izradio sistem fizičkog obrazovanja koji je predstavljao neraskidivu vezu između učeničkog morala i fizičkog razvoja. Prema Лесгафт (Ibid), fizičko vježbanje, kao smislaona aktivnost, bilo je sastavni element psihofizičkog procesa. U fizičkom i moralnom razvoju djeteta, presudni značaj bio je u odgoju koji treba da ima u vidu individualne razlike

one of the first attempts to determine pupils' psychophysiological peculiarities. In Lesgaft's doctrine about "ideal-standard person", much attention was paid to school types characteristics made up on the basis of long-term researches of pupils' physical condition, theoretical concept and practical approbation of experimental methods. The main idea put in P. F. Lesgaft's scientific observations and their theoretical explanation was that child type directly depended on intellectual and moral development. Author's merit is his attempt to research children types on the base of anthropological positions. However the usage of only one scientific method - observation, the absence of any certain features of the given type and accurately expressed criteria of its identification, - all these facts did not allow to realize completely his interesting and useful concept. In 1896 Lesgaft established the Institute of Man, which should (for the first time in the world) have dealt with complex problems of people. All these factors had basic value for development of the Russian physical training theory and practice, oriented on healthy person upbringing.

Within the period under study the idea of pupils' health care, creation of hygienic environment of pupils' study and life was put into practice of «new schools»: the Levitskay's in Tsarskoye Selo (1900), the Petrova's gymnasium in Novočerkassk (1906) and the Jakovleva's in Galitsyno near Moscow (1910). As a rule, "new schools" tended to use nature factors (pure air, wood, river) for children's health improvement. At the Levitskay's school, for example, much attention was paid to physical exercises and outdoor games: skating, hockey, skiing, football, tennis, lapt. Between lessons twenty- minutes exercises were taken place in the open air, frequently to music. Pupils' day began with morning jogging (in any weather) and dousing with cold water. Three times a week drilling lessons were conducted, and in other days - sports lessons: gymnastics, running, parallel bars exercises. For beginners and weakened children the physical training program was individual (Irhin, 2002).

At the beginning of the XX century one of the perspective directions in development of the Russian physical training theory was scientific investigation of schoolchildren's health improvement by physical culture means. Researches conducted by the hygienists in the 70 – 90s of the XIX century showed not only a low level of physical development of the pupils majority, but also defined negative educational process influence on schoolchildren's somatic and mental health. The pedagogical community insisted on physical training introduction into the curriculum as a compulsory subject, and also removal of dominating drilling gymnastics. At the May's, the Teniševsky's experimental schools, the Mogilyansky's female gymnasium, the

među djecom. P. F. Lesgaft je učinio jedan od prvih pokušaja da utvrdi psihofizičke specifičnosti učenika. U doktrini Lesgafta (Ibid) o "idealnoj osobi" mnogo pažnje je posvećeno karakteristikama tipova škole, dobijenih na osnovu dugogodišnjeg istraživanja fizičkog stanja učenika, teorijskog koncepta i praktične potvrde eksperimentalnih metoda. Glavna ideja usađena u P. F. Lesgaftova naučna zapažanja i njihovo teoretsko objašnjenje bila je da tip djeteta direktno zavisi od intelektualnog i moralnog razvoja. Autorova zasluga je u njegovom nastojanju da ispita tipove djece na osnovu antropoloških položaja. Međutim, primjena samo jednog naučnog metoda – posmatranja, odsustvo određenih osobina datog tipa i precizno izraženih kriterijuma njihovog utvrđivanja – nisu omogućili da se u potpunosti shvati njegov zanimljiv i praktičan koncept. Godine 1896. P. F. Lesgaft je osnovao Institut za proučavanje ljudi, koji je trebao (prvi u svijetu) da se bavi složenim problemima ljudi. Svi ovi faktori imali su polaznu vrijednost za nastanak ruske teorije i prakse fizičkog vježbanja, usmjerene ka odgajanju zdrave osobe.

Tokom perioda izučavanja ideje o brizi za zdravlje učenika, stvaranje zdrave sredine u kojoj đaci uče i žive uvedeno je u praksu "novih škola": Levitskaje u Carskom Selu (1900), Petrove gimnazije u Novočerkasku (1906) i Jakovljevoj u Galicinu kod Moskve (1910). "Nove škole" su, po pravilu, obično koristile prirodne faktore (čist vazduh, šume, rijeke) da se popravi zdravlje djece. Na primjer, u Levitskaja školi mnogo pažnje se posvećivalo fizičkom vježbanju i igrama na otvorenom: klizanju, hokeju, skijanju, fudbalu, tenisu, lapti. Dvadesetominutne vježbe radile su se napolju, između časova, često uz muziku. Đački dan počinjao bi jutarnjim trčanjem (bez obzira na vremenske prilike) i pljuskanjem hladnom vodom. Tri puta nedjeljno održavali su se časovi drilovanja, a drugim danima – časovi sporta: gimnastika, trčanje, vježbe na paralelnom razboju. Za početnike i slabiju djecu, program fizičkog vježbanja bio je individualizovan (Ирхин, 2002).

Na početku XX vijeka, teorija fizičkog vježbanja u Rusiji se, između ostalog, kretala u pravcu naučnog istraživanja poboljšanja zdravlja školske djece preko fizičke kulture. Istraživanja koja su sproveli zdravstveni radnici od 70-ih do 90-ih godina XIX vijeka, pokazala su ne samo nizak stepen fizičkog razvoja većine učenika, već su utvrdila i negativan uticaj obrazovnog procesa na somatsko i mentalno zdravlje učenika. Pedagoška zajednica insistirala je na uvođenju fizičkog vježbanja u nastavni plan i program, kao obaveznog predmeta, kao i izbacivanje dominantne drilovane gimnastike. U maju, u Teniševski eksperimentalnim školama, Mogiljanski ženskoj gimnaziji,

Medvednikovs' gymnasium, the Stoyunina's female classical school, 8-forms commercial school in Lesnoy (S.-Petersburg) much attention was paid to physical culture content, methods, forms and compulsory, daily physical training lessons. Outdoor games, walking tours, excursions, elements of separate kinds of sports were used as physical training means. Their new practice was a contrast to the official pedagogy considering 2-4 half-hours breaks a week sufficient for children's physical development at school.

The practice of progressive schools was supported by profound research of the physical culture theory. At the end of the XIX century in the Russian physical culture theory there were already marked out two independent, opposite in certain degree approaches - educational and hygienic. The founder of the educational approach P. F. Lesgaft determined physical education aim as person's achievement of motorial activity intelligent management.

The founder of the hygienic (health-oriented) approach E. A. Pokrovsky and his followers (Demytyev, 1892; Filitis, 1916; Gerd, 1912; and others) suggested that physical education aim was in achievement of high health improving effect. The research carried out by school doctors in the end of the XIX century, allowed to discover reasons of pupils' health impairment, rooting in health- wasted schooling system. In this connection V. V. Gorinevsky and his associates considered important to use exercises promoting removal of mental tension in the course of physical training (Gorinevsky, 1951).

Thus, the community development peculiarities, the physical culture theory and practice, formation of school hygiene and other sciences connected with physical training required development of the Lesgaft's physical education system and advancement of health - oriented problems, as priority ones.

At the beginning of the XX century hygienic and educational tasks of physical education were recognized parity and compulsory and that was an essential achievement of the Russian pedagogical thought.

During the period between two bourgeois-democratic revolutions in Russia (1905 and 1917) there was a surge of research in the field of pupils physical culture. Bekaryukov's (1914), Gorinevsky's (1913, 1916), and Ignatyev's (1912) works are regarded as the most significant in this period.

The Lesgaft's idea about the unity of various educational aspects (mind, soul and body) was developed by V. V. Gorinevsky. The scientist formulated three groups of physical culture tasks: health maintenance and promotion; child's general development and formation of person's moral-willed qualities. The Gorinevsky's considerable contribution is that he proved

Medvednikovoj gimnaziji, Stojuninoj ženskoj klasičnoj školi, osmogodišnjoj trgovačkoj školi u Lesnoju (Sankt Peterburg), mnogo pažnje posvećivalo se sadržaju fizičke kulture, metodama, oblicima i obaveznim, svakodnevnim časovima fizičkog. Igre na otvorenom, pješačenje, ekskurzije, elementi individualnih sportova koristili su se kao sredstvo fizičkog vježbanja. Njihova nova primjena predstavljala je kontrast zvaničnoj pedagogiji koja je smatrala da su dva do četiri polučasovna odmora nedjeljno dovoljna za fizički razvoj djece u školi.

Praksu u naprednim školama podržavala su i teoretska istraživanja u oblasti fizičke kulture. Krajem XIX vijeka, u ruskoj teoriji fizičke kulture već su postojala dva istaknuta ali nezavisna, donekle suprotstavljena pristupa - obrazovni i zdravstveni. Osnivač obrazovnog pristupa P. F. Lesgaft, utvrdio je da je cilj fizičkog obrazovanja čovjeka postizanje inteligentnog upravljanja motoričkim aktivnostima.

Osnivač zdravstvenog (zdravstveno - orijentisanog) pristupa E. A. Pokrovski i njegovi sljedbenici (Деметьев, 1892; Филитис, 1916; Герд, 1912; i drugi) smatrali su da je cilj fizičkog obrazovanja u postizanju boljeg zdravlja. Ispitivanja koja su vršili školski ljekari krajem XIX vijeka, omogućila su da se otkrije šta je razlog lošeg zdravlja učenika. U vezi s tim, Гориневский (1951) i njegovi saradnici smatrali su da je važno da se vježbanje koristi radi oslobađanja od mentalne napetosti.

Prema tome, specifičnosti razvoja sredine, teorija i praksa fizičke kulture, formiranje školske higijene i druge nauke povezane sa fizičkim vježbanjem, zahtijevali su, kao prioritet, razvijanje Lesgaftovog sistema fizičkog obrazovanja i sređivanje zdravstveno - orijentisanih problema.

Početak XX vijeka, zdravstveni i obrazovni zadaci fizičkog obrazovanja smatrani su jednako važnim i obaveznim, a to je predstavljalo suštinsko ostvarenje ruske pedagoške misli.

U periodu između dvije buržoasko-demokratske revolucije u Rusiji (1905. i 1917) došlo je do oscilacija u istraživanjima u oblasti fizičke kulture kod učenika. Бекарюков-а (1914), Гориневский-ева (1913, 1916) i Игнатъев-а (1912), smatrani su za najvažnije naučne radnike ovog perioda.

Lesgaftovu ideju o ujedinjavanju raznih obrazovnih aspekata (uma, duha i tijela) razvio je V. V. Gorinevski. Ovaj naučnik je formulisao tri grupe zadataka koje ima fizička kultura: očuvanje i poboljšanje zdravlja; opšti razvoj djeteta i formiranje čovjekovih moralnih kvaliteta. Značajan doprinos Gorinevskog je u tome što je dokazao potrebu za naučnom osnovom sistema fizičke kulture u školama. Rezimirajući predrevolucionarni period razvoja zdravstveno - orijentisane fizičke kulture u ruskim

necessity of scientific grounds of physical culture system at school.

Summing up the pre-revolutionary period of the health – oriented physical culture development at Russian schools it is necessary to notice, that physical training lesson was included into educational content as a compulsory subject at advanced schools. At the same time it was regarded as means of children's health improvement.

After the October revolution (1917) in Russia the researchers' attention was attached to negative and hazardous to pupils' health phenomena, study of social and pedagogical conditions provoking these processes.

In this period P. F. Kapterev proved scientifically child's moral life development on the basis of «brain, nerves, muscles, blood activity» connection. In his opinion, the only way to get positive results in healthy person's upbringing was to know child's physiology and psychology (Kapterev, 1914). To the middle of the 20s among the scientists researching issues of school hygiene, school sanitary and physical training (Gorinevsky, 1927; Iordansky, 1927) the viewpoint about necessity of these scientific approaches integration and their association under general name “physical culture” prevailed. Physical culture was interpreted broadly enough by hygienists and should have covered all aspects of school life:

[...] external school conditions, pupil's individual and collective hygiene in his study and everyday life, concern for school meals, school diseases control programs, organization of hygienic supervision and care for school, teacher's hygiene, school work on hygiene popularization, sanitary-and-hygienic establishments for schoolchildren out of school (Iordansky, 1927, p. 264).

Researchers of the 20s realized that the problem of healthy generation upbringing could be solved only by “healthy, vigorous and cheerful teacher” as “his nervous organization, health status had direct effect on his lessons. Decrease will weaken it and lower results of his work” (Ibid, p. 279). Thereupon the leading pathologies of teacher's health, measures for their health improvement, self-education in the field of physical culture and personal hygiene were in the limelight of researchers in the field of physical training. The problems of teacher's joining to healthy life-style, scientific organization of teacher's work, arrangement of hygienic work conditions for technicians were brought in the forefront.

The aim of the pedagogical theory and advanced teaching practice to develop of rising generation activity, independence, creativity, the requirement for physically and morally healthy person, builder of a socialist society

školama, treba primijetiti da je čas fizičkog bio ubačen u obrazovni sadržaj kao obavezan predmet u višim školama. Istovremeno se smatrao i načinom za poboljšanje zdravlja djece.

Poslije Oktobarske revolucije (1917), u Rusiji pažnja stručnjaka bila je usmjerena na negativne i po zdravlje učenika štetne fenomene, te proučavanje društvenih i pedagoških uslova koji su izazivali te procese.

U ovom period, P. F. Kapterev je naučno dokazao da moralni razvoj djeteta počiva na osnovu povezane “aktivnosti mozga, nerava, mišića, krvi”. Po njegovom mišljenju, jedini način da se postignu pozitivni rezultati u odgajanju zdrave osobe jeste da se upozna sa djetetovom fiziologijom i psihologijom (Каптерев, 1914). Do sredine 20-ih godina prošlog vijeka, među naučnicima koji su se bavili pitanjem školske higijene, školskih sanitarija i fizičkog vježbanja (Гориневский, 1927; Иорданский, 1927), prevladavalo je stanovište o potrebi za integrisanjem ovih naučnih pristupa i njihovim povezivanjem pod zajedničkim nazivom “fizička kultura”. Fizičku kulturu su dovoljno široko interpretirali zdravstveni radnici, a trebala je da pokriva sve aspekte školskog života:

[...] spoljašnje uslove oko škole, đачku individualnu i kolektivnu higijenu tokom učenja i svakodnevnog života, brigu za školske obroke, programe suzbijanja bolesti u školi, organizovanje zdravstvene kontrole i brige za školu, higijenu nastavnika, rad škole na popularizaciji zdravog života, sanitarno-higijenske kontrole za djecu izvan škole (Иорданский, 1927, str. 264).

Stručnjaci iz 20-ih godina XX vijeka, shvatili su da problem odgajanja zdrave generacije može da riješi samo “zdrav, snažan i veseo nastavnik,” pošto “njegov nervni sklop i zdravstveno stanje direktno utiču na njegova predavanja. Narušeno će ga oslabiti i dati slabije rezultate u njegovom radu” (Ibid, str. 279). Prema tome, briga o u zdravlju nastavnika, mjere za poboljšanje njihovog zdravlja, samoobrazovanje u oblasti fizičke kulture i lične higijene, bili su u žiži interesovanja stručnjaka u toj oblasti. U prvom planu su bili problemi uključivanja nastavnika u zdrav način života, organizovanje rada nastavnika na naučnoj osnovi i stvaranje zdravih uslova rada za tehničko osoblje.

Namjera pedagoške teorije i napredne nastavničke prakse da kod generacije koja raste razvije samostalnost i kreativnost, uslove za fizički i moralno zdravu osobu, graditeljice socijalističkog društva, dovela je do stvaranja inovativnih škola već u prvim godinama sovjetske vlade. Proces poboljšanja zdravlja i obrazovne aktivnosti primjenjivao se u praksi ondašnjih škola. Organizovanje ljetnjih škola omogućavao je “Положение

caused establishment of innovative schools already in the first years of Soviet government. The process of health - improving and educational activity was carried out in the practice of these schools. Organization of summer schools was provided by the "Regulation about common labour school" (1918) and the special "Regulation about summer school", adopted by Narkompross (Ministry of Education, 1920). The tasks of these schools included promotion of children's health, their sport - hygienic education and organization of useful leisure.

There were defined different types and flexible forms of summer schools organization: classroom with open windows; school or boarding school in the open air, the task of which was to unite needs of children's organism with learning; wood school where sport-hygienic tasks prevailed over teaching and educational ones; children's summer colony where the labour principle and dialogue with nature were realised, there also was children's physical health improvement and atmosphere most suitable to their mentality; summer children's playground (for coming children); summer country school carrying out the idea of improvement of pupils' health from city schools in conditions of country nature; primitive school in the form of periodic meetings of children on holidays (sometimes on weekdays). Teachers of summer schools met numerous difficulties in their activity: material and technical (absence of sports equipment and halls); methodical (insufficient level of teachers' education); organizational (antisocial working hours of teacher, hurly-burly). All these problems considerably reduced their work productivity and did unreal attempt to allocate summer school as independent, separate from common school. At the same time, the experience of health-improving and sport-hygienic public activities in these educational establishments is very actual nowadays in connection with necessity of organization of continuous, year-round teaching and educational process directed on pupils involving in physical activity.

Experimental establishments of the 20-30s brought essential contribution to the concept of Soviet schoolchildren's health maintenance and development. At the experimental centre under the guidance of S. T. Shatsky relationship between intellectual and physical education was of great importance. Except special physical exercises S. T. Shatsky paid great attention to introduction of hygienic conditions and knowledge about physical culture into country schoolchildren's life. It must be emphasized that every experimental school had its own research task. So, the Kraskovo-Malahovsky's experimental centre worked at subject "Rational statement of physical training at comprehensive school". Sports activity was carried out not only in

о единой трудовой школе" [Pravilnik o zajedničkoj radničkoj školi] (1918) i posebni "Pravilnik o ljetnjoj školi" koji je usvojio Narkompros (Министерство образования, 1920). Zadaci ovih škola podrazumijevali su i promovisanje zdravlja djece, njihovog sportsko-zdravstvenog obrazovanja i organizovanje korisnog slobodnog vremena.

Određeni su različiti tipovi i fleksibilni oblici organizovanja ljetnjih škola: učionice sa otvorenim prozorima; škola ili internat na otvorenom, sa zadatkom da ujedine potrebe dječjeg organizma i učenje; škola u šumi u kojoj su preovladavali sportsko-zdravstveni zadaci u odnosu na pedagoške i obrazovne; dječija ljetnja kolonija u kojoj se realizovao princip rada i upoznavanje prirode, a takođe se poboljšavalo fizičko zdravlje djece i stvarala atmosfera koja najviše odgovara njihovom mentalitetu; dječije ljetnje igralište (za buduće generacije); ljetnja seoska škola u kojoj se sprovodila ideja poboljšanja zdravlja djece iz grada u uslovima seoske sredine; eksperimentalna škola u vidu periodičnih sastanaka djece na raspustu (ponekad vikendom). Nastavnici u ljetnjim školama nailazili su na brojne teškoće u svom radu, materijalne i tehničke (nedostatak sportske opreme i sala), metodičke (nedovoljan nivo obrazovanja nastavnika) i organizacione (nehumano radno vrijeme nastavnika, prigovaranje). Svi ovi problemi znatno su umanjivali njihovu radnu produktivnost i proizveli nerealan pokušaj da se ljetnja škola označi kao nezavisna, odvojena od redovne škole. U isto vrijeme, iskustvo sa korisnim sportsko-zdravstvenim javnim aktivnostima u ovim obrazovnim institucijama je danas veoma prisutno: naročito iskustvo vezano za organizovanje neprekidne nastave i obrazovnog procesa koji obuhvata fizičku aktivnost.

Eksperimentalne institucije iz 20-ih i 30-ih godina prošlog vijeka dale su značajan doprinos konceptu očuvanja i razvijanja zdravlja kod školske djece u Rusiji. U eksperimentalnom centru pod vođstvom S. T. Šatskog, od velikog značaja bila je povezanost intelektualnog i fizičkog obrazovanja. Osim posebnih fizičkih vježbi, S. T. Šatski je dosta pažnje posvećivao uvođenju zdravih uslova života i znanja o fizičkoj kulturi u školski život na selu. Mora se naglasiti da je svaka eksperimentalna škola imala sopstveni istraživački cilj. Tako je Kraskovo-Malahovski eksperimentalni centar radio na predmetu "Racionalan prikaz fizičkog vježbanja u gimnazijama". Sportske aktivnosti su se izvodile ne samo u obrazovnom procesu, već i u okviru mentorskog rada, zasnovanog na učeničkom parlamentu. Posebna pažnja posvećivala se borbi protiv pušenja kod starijih učenika. Zbog toga se u školskom izvještaju za 1920/21. godinu, kaže da je „procenat učenika koji puše u 6. i 7. razredu bio strašno

educational process, but also in tutorial work based on pupils government. Special attention was payed to struggle against senior pupils smoking. As a result, it was stated in school report for 1920-21, "the percentage of smoking pupils of the 6-7th forms was terribly small and on 40-50 persons – no one smoker; in the 8th class - on 50 persons - 5-6 smokers, in the 9th (senior) - on 40 persons - 1 smoker" (Ivanov, 1969).

V.P. Kashchenko established sufficiently effective educational system directed on maintenance, promotion and formation of children's health owing to his long-term operational experience at medical-pedagogical station of Narkompros of RSFSR (Kashchenko, 1922). Its aim was to avoid pupil's physical and psychological overfatigue, to use and develop his inclinations and abilities as much as possible, to carry out preventive measures of negative aspects in person development. Such approach required its comprehensive study on the basis of fundamental achievements of physiology and psychology, and provided cooperation of doctor and teacher. At the heart of educational activity was experimental-creative, active motorial process. Child's age and his psychophysical peculiarities were taken into account.

V. P. Kashchenko was interested not in quantity, but quality of schoolchildren's knowledge, development of his individuality, degree of direct participation in life.

Key direction of these aims achievement was children's and teachers' creativity. Children learnt much through nature during walking tours and excursions, observing sunset, beauty of summer night, peering into animals and plants life. All these impressions were reflected in children's drawings. These outings and, so-called, "oxygen excursions" - 5 versts pedestrian tours arranged on Sundays - were forms of active rest as well. After long walking tour children's mobile activity was limited and replaced with different sorts of "silent games". "Olympic games" including sport events, competitions and contests in literary, art, musical and other kinds of creativity were complex health - improving form of work at sanatorium-school. During "Olympic Games" meetings of former pupils with present ones, art exhibitions of student's works, theatrical performances took place. Living bright spiritual interests pupils, not only deflected from obtrusive moods, overcame their inertia, but also learnt personality characteristics forming their own "Self-concept". The latter was favored by wonderful atmosphere of spirituality, emotional comfort and trust. Different specialists of particular mould and with special education were selected into sanatorium-school staff in order a child was surrounded by people who would supplement each other with temperament, inclinations and abilities, and create favorable sphere

mali i da među 40-50 osoba – nije bilo pušača; u 8. razredu – na 50 osoba – 5-6 pušača, u 9. razredu (stariji) – na 40 osoba – 1 pušač" (Иванов, 1969).

V. P. Kaščenko je ustanovio dovoljno efikasan obrazovni sistem, usmjeren na očuvanje, promovisanje i razvijanje zdravlja djece zahvaljujući svom dugogodišnjem operativnom iskustvu u medicinsko-pedagoškoj stanici Narkompros RSFRS (Кащенко, 1922). Cilj ovog sistema bio je da se izbjegne fizički i psihološki premor učenika, da se u što većoj mjeri iskoriste i razviju njegove sklonosti i sposobnosti, kao i sprovođenje mjera za sprečavanje negativnih aspekata u razvoju ličnosti. Ovakav pristup zahtijevao je sveobuhvatnu studiju, zasnovanu na fundamentalnim dostignućima fiziologije i psihologije, uz saradnju ljekara i nastavnika. U srži obrazovne aktivnosti bio je eksperimentalno-kreativan, aktivan motorički proces. Uzimala su se u obzir godine djeteta i njegove psihofizičke osobnosti.

V. P. Kaščenka nije interesovao kvantitet, već kvalitet znanja školske djece, razvoj njihove individualnosti, stepen neposrednog angažovanja u životu.

Od presudnog značaja za postizanje ovih ciljeva bila je kreativnost djece i nastavnika. Djeca su dosta učila u prirodi za vrijeme pješačenja i izleta, posmatrajući zalazak sunca, ljepotu ljetnje noći, posmatrajući život životinja i biljaka. Svi ovi utisci imali su svoj izraz u dječjim crtežima. Ti izlasci i tzv. "vazdušni izleti" – 5 versta (1 verst iznosi oko 1 km) pješačenja organizovanog nedjeljom – predstavljali su i oblike aktivnog odmora. Poslije dugog pješačenja, aktivnost djece bila je ograničena i zamjenjivana je raznim vrstama "nijemih" igara. "Olimpijske igre", sa svojim sportskim disciplinama, nadmetanjima i takmičenjima u književnosti, likovnom, muzičkom i drugim vrstama kreativnog izražavanja, bile su složena forma rada u školama - sanatorijumima. Tokom "Olimpijskih igara", sastajali su se prijašnji učenici sa sadašnjim, održavale su se izložbe učeničkih likovnih radova, pozorišne predstave. Baveći se duhovnim interesovanjima učenici ne samo da su bili odvracani od opstruktivnog raspoloženja, izbjegavajući inerciju, nego su i sticali znanja o karakteristikama ličnosti, formirajući sopstveni "pojam o sebi". Formiranje tog pojma olakšavala je atmosfera duhovnosti, emotivnog zadovoljstva i povjerenja. Za zaposlene u školi – sanatorijumu, birani su stručnjaci različitih profila, sa specijalnim obrazovanjem, kako bi dijete bilo okruženo ljudima koji bi se dopunjavali u pogledu temperamenta, afiniteta i sposobnosti i tako stvarali okruženje pogodno za razvoj učenika.

Odmor od rada, zabava i raspored učenja imali su blagotvorno dejstvo na zdravlje djece. Mada se sva-

for pupils' development.

Work-rest, entertainment and learning schedule had health – improving effect on children. Though daily routine was developed collectively (at conference of medical - pedagogical staff), realization and control of its implementation were part of tutor's duties. For performing all these duties tutor had to know children pedagogics, psychology, physiology, personality characteristics, but to have certain strong-willed and business qualities of professional with good health. The system of labour share between teachers and tutors, organization of microgroups (10-12 children), regular shift hours during a day and rest day after night shift was directed at tutors' health maintenance.

At present the Kashchenko's pedagogical heritage is not sufficiently studied. The ideas presented by V. P. Kashchenko in the system of defective children health improvement can be creatively used not only in specialized medical-pedagogical establishments, but also in the organization of sport health-improving work at secondary schools of Russia and other countries.

Theoretical and practical activities of Soviet teachers and psychologists, physiologists and hygienists of the 20-30s years (Bekhterev, 1928; Blonsky, 1930; Gorinevsky, 1927; Iordansky, 1927; Kashchenko, 1922; and others) convincingly proved that orientation to maintenance and maximum development of pupils' health is a pivot, kernel of physical culture at school. The result of these scientists' research activity during that period was formation of essentially new educational system and training of pupils based on the scientifically-materialistic theory. However further development of health – oriented physical training of Soviet school was prevented in the conditions of Stalin's personality cult, destruction of domestic pedology, genetics, closure of experimental school centers. For long years maintenance of schoolchild's physical and mental status, formation of his health culture were left on the sideline in researching of educational process. A number of research devoted to the above-mentioned problems was sharply decreased since the second part of the 30s up to the end of the 40s. The exception was the scientific works of (Berman & Milman, 1935), and Milman (1940), and their followers: Adrianova (1941), Chertok, Milman, and Zabludovsky (1940), and Nimen (1941, 1945) dealt with sport - hygienic education of children at elementary school.

The Second World War aggravated the situation of children's life and health protection. Schoolchildren's military-physical training was one of the central points in educational process. It was based on special course of senior pupils' pre-military training and system of out-of-class activities: sport and defense study groups and sections, all-USSR military-sports ("Raid in the enemy's rear" (1942); "To defeat" (1943); "To storm"

kodnevni raspored pravio zajednički (na sastanku ljekarsko – pedagoškog osoblja), realizovanje i kontrolisanje njegovog primjenjivanja bili su dio mentоровih zaduženja. Da bi izvršio sve ove obaveze, mentor je morao da poznaje dječju pedagogiju, psihologiju, fiziologiju, lične osobine, ali i da ima izvjesne osobine snažne volje i poslovnosti jednog profesionalca dobrog zdravlja. Sistem raspodjele rada između nastavnika i mentora, organizovanje u mikrogrupe (10-12 djece), redovne smjene tokom dana i odmor poslije noćne smjene, imali su za cilj očuvanje zdravlja mentora.

Trenutno se Kaščenkovo pedagoško nasleđe nedovoljno proučava. Ideje koje je V. P. Kaščenko predstavio u sistemu poboljšanja zdravlja djece, mogu da se na kreativan način iskoriste ne samo u specijalnim medicinsko-pedagoškim institucijama, već i pri organizovanju sportskih aktivnosti u srednjim školama u Rusiji i drugim državama.

Teorijske i praktične aktivnosti sovjetskih pedagoga i psihologa, fiziologa i zdravstvenih radnika 20-ih i 30-ih godina prošlog vijeka (Бехтерев, 1928; Блонский, 1930; Гориневский, 1927; Иорданский, 1927; Кащенко, 1922; i drugi) nedvosmisleno su pokazale da je okrenutost ka očuvanju i maksimalnom razvoju zdravlja učenika centar i suština fizičke kulture u školi. Doprinos istraživačkih aktivnosti naučnika iz tog perioda ogleda se nastajanju suštinski novog obrazovnog sistema i vježbanja učenika na temeljima naučno-materijalističke teorije. Međutim, dalji razvoj zdravstveno - orijentisanog fizičkog vježbanja u ruskoj školi sprečili su kult Staljinove ličnosti, destruktivnost domaće pedologije, genetike, zatvaranje eksperimentalnih školskih centara. Dugo godina su očuvanje učeničkog fizičkog i mentalnog statusa i stvaranje njegove kulture zdravlja ležali po strani u istraživanjima obrazovnog procesa. Broj istraživanja koja su se bavila gore pomenutim problemima naglo je opao od druge polovine 30-ih do kraja 40-ih godina prošlog vijeka. Izuzetak je bio naučni rad Берман и Мильмана (1935) i njihovih sljedbenika: Адрианова (1941), Черток, Мильман и Заблудовский (1940), те Нимен (1941, 1945) који су се bavili sportsko-zdravstvenim obrazovanjem djece u osnovnoj školi.

Drugi svjetski rat je situaciju sa životom i zdravstvenom zaštitom djece učinio još gorom. Vojničko-fizičko vježbanje među školskom djecom bilo je jedno od centralnih mjesta u obrazovnom procesu. Počivalo je na specijalnom kursu predvojničke obuke starijih učenika i sistema vanškolskih aktivnosti: sportske i odbrambene studijske grupe i sekcije, sveruske vojničke vježbe ("Napad u neprijateljskoj pozadini", 1942; "Za odbranu", 1943; "Za napad", 1944).

(1944). The educational plans included sports competitions, crosses, control of pupils' military and physical training. For example, at schools in Altay region in 1941-42 academic year there were 29.000 schoolchildren in anti-aircraft and chemical defense study groups, about 1000 in shooting section, 1500 in sports (Ravkin, 1988).

In the 40s the scientific works of Semashko (1947), Sovetov (1956), Tseitlin (1963) and others were devoted to physiological, hygienic and pedagogical aspects of physical education, hygienic problems of children's and teenagers' health defence and improvement. In 1944 the Research Institute of School Hygiene of the Academy of Pedagogical Sciences of RSFSR (at present - the Institute of Age Physiology) was established on N. A. Semashko's initiative and headed by him. Complex interdisciplinary theoretical and applied research in the field of age physiology and morphology, school hygiene and physical training of pupils of comprehensive schools began to be held since then.

In the post-war period the scientists concentrated their attention on the war consequences study. According to the findings of State Sanitary Inspection of the USSR, held in 1945-46 academic year, there was a lag in schoolchildren's development in anthropometrical indicators in comparison with similar indicators of 1938-40s. The problem of development of physical training hygiene was put in the forefront in the end of the 40s.

In the 40-50s positive changes in promotion of 7-years education were observed at Soviet schools. However, the deficiency of qualified sports staff, sports equipment and halls, weak hygienic validity of educational process essentially affected teachers' and pupils' health.

In the period of late 40s - middle 50s the problem of schoolchildren health improvement by means of physical training was discussed by the government systematically. In December of 1948 Narkompros of RSFSR issued the Act "On Physical Training Improvement at School", which defined the fundamental directions of work in the field. In 1956 there was adopted the Act of Ministry of Education of RSFSR on compulsory morning gymnastics holding at schools and partial change of norms "Be Prepared to Labour and Defense". However, in spite of it pupils' physical training remained the most backward sphere in educational activity at schools (Ravkin, 1988).

In late 50s early 60s the problem of maintenance and development of children's health was put to the centre of scientists' attention. It was determined by the social processes in the country: on the one hand, there was gradual, painful renunciation from previous pressure tactics in human education on the other hand there was revival of humanistic trends, accounting of human needs. There were observed social, economic

Obrazovni planovi obuhvatali su sportska nadmetanja, ukrštanja, kontrolisanje đачke vojničke i fizičke obuke. Na primjer, u školama u regionu Altaja u školskoj 1941/42. godini bilo je 29.000 školske dece u studijskim grupama za odbranu od vazdušnih i hemijskih napada, oko 1.000 u streljačkoj sekciji, 1.500 u sportskim (Равкин, 1988).

Tokom 40-ih godina naučni radovi Семашко (1947), Советов (1956), Цейтлин (1963) i drugih bavili su se fiziološkim, zdravstvenim i pedagoškim aspektima fizičkog obrazovanja, zdravstvenim problemima djece i očuvanju i poboljšanju zdravlja tinejdžera. Godine 1944. Institut za istraživanje zdravlja u školama pri Pedagoškoj akademiji RSFSR (sada Institut za starosnu fiziologiju) osnovan je na inicijativu i pod vodstvom N. A. Semaška. Od tada se sprovode složena interdisciplinarna teoretska i primijenjena istraživanja u oblasti starosne fiziologije i morfologije, zdravlja u školama i fizičkog vježbanja učenika srednjih škola.

U poslijeratnom period, naučnici su usmjerili pažnju na proučavanje posljedica rata. Prema rezultatima Državne sanitarne inspekcije USSR-a, izvršene u školskoj 1945/46. godini, došlo je do zastoja u razvoju školske djece po antropometrijskim pokazateljima u poređenju sa sličnim pokazateljima u periodu od 1938. do 1940. godine.

Četrdesetih i pedesetih godina primećene su pozitivne promjene u razvoju sedmogodišnjeg obrazovanja. Međutim, nedostatak stručnog sportskog osoblja, sportske opreme i sala te slaba zdravstvena vrijednost obrazovnog procesa, loše su uticali na zdravlje nastavnika i učenika.

U periodu od kraja 40-ih do sredine 50-ih godina o problemu poboljšanja zdravlja školske djece putem fizičkog vježbanja Vlada je sistematski raspravljala. U decembru 1948. godine, Narkompros RSFSR-a donio je "Zakon o poboljšanju fizičkog vježbanja u školama" koji je definisao osnovne pravce rada u toj oblasti. Godine 1956, usvojen je zakon ministarstva prosvete RSFSR o obaveznoj jutarnjoj gimnastici u školama i djelimično izmijenjen standard "Budite spremni za rad i odbranu". Ipak, fizičko vježbanje učenika ostalo je najudaljenija sfera u obrazovnoj aktivnosti u školama (Равкин, 1988).

Krajem 50-ih i početkom 60-ih godina prošlog vijeka, pitanje očuvanja i razvoja zdravlja djece postavljeno je u centar pažnje naučnih radnika. Bilo je određeno društvenim procesima u državi: s jedne strane došlo je do postepenog, bolnog poricanja prethodne taktike prisile u obrazovanju, a s druge strane su oživjeli humanistički trendovi koji su priznavali čovjekove potrebe. Uočeni su društveni, ekonomski i moralni konflikti u društvu, porast ak-

and moral conflicts in the society, growth of children and teenagers activities damaging their health. In that period the researchers (Antropova, 1968; Grombah, 1959) focused on necessities of educational environment improvement at schools. Sovetov (1956), and Milman (1966) underlined the importance of medico-hygienic knowledge popularization among schoolchildren. In the 60s it was necessary to develop scientific bases of schoolchildren physical training (Kuznetsova, 1998; Lyach, Kofman, & Meykson, 1996).

In the 70-90s there was rapid growth of number of research in the field of physical education and pupils' health protection. The problems of educational and physical exertions adaptation of children and teenagers were considered in the works of Antropova (1968). Kolesov's and Hripkova's (1982) works were dealt with the problems of puberty and sexual education, preventive measures of harmful habits.

Since 1985 scientists started to hold the research devoted to the PC (Personal Computer) influence on pupils organism in order to prove health-keeping technologies of PC use (including the sphere of physical education) in educational process of schoolchildren. In 1986 the staff of the Research Institute of Children and Teenagers Physiology of the Academy of Pedagogical Sciences of the USSR developed "Complex Program on medico-hygienic education of comprehensive school pupils". And then educational and methodical complex on valeological education of schoolchildren: "methodical recommendations for teachers of comprehensive schools" was worked out.

Thus, by the end of 80s there was accumulated significant scientific and experimental works on development of school curricula, teaching methods corresponding to pupils adequate functional possibilities and physical education for foundation of health-improving measures for pupils, definition of acceptable limit of intellectual and physical exertions.

CONCLUSION

The analysis of peculiarities of health - oriented physical training development in Russia of the pre-revolutionary period indicates that anthropological, humanistic and hygienic approaches to the maintenance and organization of physical education at schools were identified at the end of the XIX century and continued to develop. The approaches were replenished with scientific achievements of pedagogical psychology (Nechaev, 1899; Lazurskiy, 1913; Rubinshtein, 1920).

There was integration of educational and hygienic aspects of the physical culture theory (Lesgaft, 1888; Pokrovsky, 1893). At the same time there was no integration of these theoretical approaches within

tivnosti kod djece i tinejdžera koje su štetile njihovom zdravlju. U tom periodu naučnici (Антропова, 1968; Громбах, 1959) su se okrenuli neophodnom usavršavanju pedagoške sredine u školama. Советов (1956) и Мильман (1966) isticali su značaj popularizacije medicinsko-zdravstvenog znanja među školskom decom. Tokom 60-ih godina prošlog vijeka bilo je neophodno da se stvori naučna osnova za fizičko vežbanje školske dece (Кузнецова, 1998; Лях, Кофман и Мейксон, 1996).

Tokom 70-ih i 80-ih godina prošlog vijeka došlo je naglog porasta broja istraživanja u oblasti fizičkog obrazovanja i zdravstvene zaštite učenika. Problemi adaptacije djece i tinejdžera na obrazovne i fizičke napore bili su predmet rada Антропова (1968). Rad Колесов-а и Хрипкива (1982) bavi se problemom puberteta i seksualnog obrazovanja, preventivnih mjera za sprečavanje štetnih navika.

Od 1985. godine, stručnjaci su počeli da istražuju uticaj kompjutera na organizam učenika kako bi dokazali tehnologije očuvanja zdravlja pri upotrebi PC (zajedno sa sferom fizičkog obrazovanja) u obrazovnom procesu učenika (L. A. Leonova). Godine 1986. radnici Naučnog instituta za fiziologiju dece i tinejdžera pri Pedagoškoj akademiji SSSR-a sačinili su "Složeni program za medicinsko-zdravstveno obrazovanje učenika u srednjim školama". A zatim je izrađen obrazovni i metodički kompleks za zdravstveno obrazovanje školske djece: metodičke preporuke za nastavnike u srednjim školama.

Tako se do kraja 80-ih godina nakupilo mnoštvo značajnih naučnih i eksperimentalnih radova na temu izrade školskog plana i programa, nastavnih metoda koje bi odgovarale funkcionalnim mogućnostima učenika i fizičkog obrazovanja u cilju pokretanja mjera za poboljšanje zdravlja učenika, definisanja prihvatljive granice intelektualnog i fizičkog naprezanja.

ZAKLJUČAK

Analiza specifičnosti razvijanja zdravstveno - orijentisanog fizičkog vježbanja u Rusiji iz predrevolucionarnog perioda pokazuje da su antropološki, humanistički i zdravstveni pristup njegovanju i organizovanju fizičkog obrazovanja u školama utvrđeni krajem XIX vijeka su nastavili da se razvijaju. Ovi pristupi su osnaženi naučnim dostignućima pedagoške psihologije (Нечаев, 1899; Лазурский, 1913; Рубинштейн, 1920).

Došlo je do integrisanja obrazovnog i zdravstvenog aspekta teorije fizičke kulture (Лесгафт, 1888; Покровский, 1893). Istovremeno, nije došlo do integrisanja ovih teorijskih pristupa u granicama naučne i pedagoške

the limits of scientific and pedagogical theory, oriented to health improvement of integral school educational system. Scientific works were removed from real school practice and carried out in elite educational establishments.

In the 20-30s there was the trend based on anthropological approach to studying and child bringing up in pedagogical researches (Basov, 1931; Blonsky, 1930; Vygotsky, 1931). At the same time the point of view on necessity of these scientific approaches association under general name “physical education” was prevailed among researchers of school hygiene, sanitary and physical training problems. However, the absence of health scientific methodology did not allow to carry out similar integration.

In practice of experimental schools of the 20-30s of the last century the positive experience on hygienic and physical education of subjects of pedagogical process, diseases prevention and deviations in children development was accumulated. Stalin's personality cult and domination of command-administrative state system were the causes of serious damage to the development of theory and practice of health improving physical education at Soviet school. In the period perspective research in pedology and genetics were closed; genetics experimental school centers were reduced and progressive antropologo-humanistic ideas were condemned to oblivion.

The social “thaw” of the late 50s - middle 60s, and further revival of humanistic trends promoted actualization of maintenance of schoolchildren health by physical training means. In the late 50s – 80s there was a trend of quantitative growth of research on physical and hygienic education and pupils' health protection (Antropova, 1985; Grombakh, 1988; Kuznetsova, 1998; Sharipova, 1990).

Common feature of the theoretical and practical research of that period was orientation to educational process hygienic model directed basically on diseases prevention but not individual health development. Therefore, it could not solve the problem of healthy person education in full scope. At the same time the accumulated theoretical and experimental works in Russian health improving physical education of the XX century laid down the foundations of the Russian theory of health pedagogy and development of valeological ideas in modern sports health - improving practice of secondary schools in the 90s of the last century.

teorije usmjerene ka poboljšanju zdravlja integralnog školskog obrazovnog sistema. Naučni radovi bili su daleko od prave školske prakse i realizovani u elitnim obrazovnim institucijama.

Tokom 20-ih i 30-ih godina prošlog vijeka, u pedološkim istraživanjima pojavio se trend zasnovan na antropološkom pristupu učenju i vaspitavanju (Басов, 1931; Блонский, 1930; Выготский, 1931). U isto vrijeme je stanovište o neophodnosti udruživanja ovih naučnih pristupa pod zajedničkim imenom “fizičko obrazovanje” dominiralo među onima koji su se bavili problemom školskog zdravlja, higijene i fizičkog vježbanja. Međutim, nedostatak naučne metodologije nije dozvoljavao da dođe do sličnog integrisanja.

U eksperimentalnim školama 20-ih i 30-ih godina prošlog vijeka akumuliralo se pozitivno iskustvo o zdravstvenom i fizičkom obrazovanju predmeta pedagoškog procesa, sprečavanju bolesti i devijacijama u razvoju djece. Kult Staljinove ličnosti i dominacija komandno-administrativnog državnog sistema ozbiljno su narušili napredovanje teorije i prakse u oblasti zdravstveno - korisnog fizičkog obrazovanja u sovjetskim školama. U tom period zatvoren je put naučnog istraživanja u pedologiji i genetici; smanjen je broj genetskih eksperimentalnih školskih centara, a progresivne antropološko-humanističke ideje bile su osuđene na zaborav.

Društveno “otopljenje” krajem 50-ih i sredinom 60-ih godina, kao i dalje oživljavanje humanističkih tendencija, podstaklo je realizaciju očuvanja zdravlja školske djece putem fizičkog vježbanja. U periodu od kraja 50-ih do 80-ih godina XX vijeka, postajao je trend kvantitativne ekspanzije istraživanja fizičkog i zdravstvenog obrazovanja i zdravstvene zaštite učenika (Антропова, 1985; Громбах, 1988; Кузнецова, 1998; Шарипова, 1990).

Zajednička karakteristika teorijskog i praktičnog istraživanja iz tog perioda bila je orijentisanost ka obrazovnom procesu sa zdravstvenim modelom, prvenstveno usmerenim na zaštitu od bolesti, ali ne i na unapređivanje zdravlja pojedinca. Prema tome, ovo nije moglo da riješi problem obrazovanja zdrave osobe u punoj mjeri. Istovremeno su brojni teoretski i eksperimentalni radovi iz XX vijeka u oblasti ruskog fizičkog obrazovanja sa ciljem poboljšanja zdravlja postavili temelje ruske teorije pedagogije zdravlja i nastanka ideja o savremenom zdravstveno korisnom vježbanju u srednjim školama 90-ih godina prošlog vijeka.

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Correspondence to:

Prof. Vladimir Irhin, PhD

Belgorod,

308015,

Chapaev Street, 13 -61

Russia

e-mail: irhin@bsu.edu.ru

Phone: 008 47 22 22 03 10

Priljeno: 19 jula 2011. godine

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Odobreno: 10. decembra, 2011. godine

Correspondence to:

Prof. Vladimir Irhin, PhD

308015, г. Белгород,

ул. Чапаева, д.13, кв. 61

Rusija

e-mail: irhin@bsu.edu.ru

Telefon: 8-4722-220-310

РАЗВИТИЕ ЗДОРОВЬЕОРИЕНТИРОВАННОЙ ФИЗИЧЕСКОЙ КУЛЬТУРЫ В ШКОЛАХ РОССИИ (КОНЕЦ XIX ВЕКА – 80-е ГОДЫ XX ВЕКА)

Владимир Ирхин¹ и Ирина Ирхина¹

¹Национальный научно-исследовательский институт «БелСУ», Белгород, Россия

В работе рассматривается генезис идей сохранения, укрепления и формирования здоровья школьников России средствами физической культуры в период с конца XIX века до 80-х годов XX века. В конце XIX века в российской теории физического воспитания выделилось два самостоятельных направления – образовательное и гигиеническое. Создатель образовательного направления П.Ф. Лесгафт видел цель физического образования в достижении человеком осмысленного управления двигательными действиями. Он создал систему физического образования, в которой осуществлялась неразрывная взаимосвязь духовного (умственного, нравственного, эстетического) и физического развития учащихся. По мнению П.Ф. Лесгафта, сами физические упражнения, выступающие в роли целенаправленных действий, являются элементами психофизического процесса. В ходе физического и духовного развития ребенка решающее значение принадлежит воспитанию, которое должно учитывать индивидуальные различия детей. Основоположник гигиенического направления Е.А. Покровский и его последователи (И.Я. Герд, Е.М. Дементьев, А.В. Зак, Н.С. Филитис, Г.Ю. Явейн и другие) считали, что цель физического воспитания заключается в достижении высокого оздоровительного эффекта. Исследования школьных врачей, проведенные в конце XIX века, позволили вскрыть причины снижения здоровья учащихся, корни вышедшие в здоровьезатратной системе школьного образования, предложить использовать в процессе физического воспитания такие упражнения, которые способствовали бы снятию умственного напряжения. Значительный вклад В.В. Гориневского заключается в том, что он доказал необходимость научного обоснования системы физического воспитания в школе. В начале XX в. гигиенические и образовательные задачи физического воспитания были признаны равноправными и обязательными. Особенности развития общества, теории и практики физической культуры, становления школьной гигиены и других смежных с физической культурой наук привели к необходимости создания системы физического образования П.Ф. Лесгафта и выдвижению здоровьесориентированных задач, как приоритетных. В противовес официальной педагогике, считавшей, что для физического развития детей в условиях школы достаточно 2-4 получасовых перемен в неделю, в опытных школах К.И. Мая, Тенишевского, М.Д. Могиланской, М.Н. Стоюниной и др. уроки физической культуры были обязательными и ежедневными, рассматривались как средство оздоровления детей. В качестве средств физического воспитания использовались подвижные игры, походы, экскурсии, элементы отдельных видов спорта.

В первые годы Советской власти появились инновационные школы, в которых осуществлялся процесс оздоровительной и образовательно-воспитательной деятельности. В этот период П.Ф. Каптерев с научных позиций обосновал развитие духовной жизни ребенка на основе связи «деятельности мозга, нервов, мускул, крови». По его мнению, только в контексте знания физиологии и психологии ребенка можно добиться положительных результатов в воспитании здорового Человека. В этой связи в центр внимания исследователей в сфере физической культуры попадали ведущие патологии здоровья учителя, вопросы разработки мер по их оздоровлению, самообразованию в области физической культуры и личной гигиены. На передний

план выдвигались проблемы приобщения учителя к здоровому образу жизни, научная организация труда учителя, создание гигиенических условий работы технического персонала. Опытные-показательные учреждения 20-30-х годов внесли существенный вклад в утверждение идеи сохранения и развития здоровья советских школьников. Теоретическая и практическая деятельность советских педагогов и психологов, физиологов и гигиенистов 20-30-х годов - доказала, что ориентация на всемерное развитие здоровья учащихся является стержневой линией физкультурной работы в школе. Итогом научно-практической деятельности учёных в этот период явилось становление принципиально новой системы воспитания и обучения учащихся, основанной на научно-материалистической теории образования. Однако дальнейшее развитие здоровьесориентированной физической культуры советской школы было заторможено в условиях утвердившегося культа личности Сталина, разгрома отечественной педагогической, генетической, свертывания опытно-экспериментальных школьных площадок.

Одно из центральных мест в учебно-воспитательном процессе в период 2-й мировой войны занимала военно-физическая подготовка школьников. Ее основу составлял специальный курс по допризывной подготовке старшеклассников и система внеклассной работы: оборонно-спортивные кружки и секции, Всесоюзные военно-спортивные игры. Воспитательные планы включали спортивные соревнования, кроссы, смотры военной и физической подготовки учащихся. В 40-х годах в исследованиях уделяется внимание физиологическим, гигиеническим и педагогическим аспектам физического воспитания, гигиеническим проблемам охраны и укрепления здоровья детей и подростков. С середины 40-х годов начинаются комплексные междисциплинарные теоретические и прикладные исследования в области возрастной физиологии и морфологии, школьной гигиены и физического воспитания учащихся общеобразовательных школ.

В 50-60-х гг. исследователи акцентируют свое внимание на необходимости оздоровления образовательной среды в школах. В 70-х-80-х годах происходит быстрый рост числа исследований по широкой проблематике физкультурного воспитания и охране здоровья учащихся: адаптация детей и подростков к учебным и физическим нагрузкам; содержание и методика физического воспитания детей школьного возраста; проблемы полового созревания и полового воспитания; профилактика вредных привычек у детей; обоснования здоровьесберегающих технологий использования ПЭВМ в сфере физкультурного образования школьников, комплексная программа по медико-гигиеническому воспитанию, валеологическому образованию школьников и т.д. К концу 80-х годов в российской оздоровительной физической культуре был накоплен солидный научно-практический материал для обоснования мер по улучшению здоровья учащихся. Это привело к дальнейшему укреплению здоровьесориентированного вектора ее развития.

Ключевые слова: здоровьесориентированная физическая культура, школа, Россия, история.

FIZIČKA AKTIVNOST UČENIKA SA DIJABETESOM: ULOGA NASTAVNIKA FIZIČKOG VASPITANJA U ŠKOLAMA

EXERCISE TRAINING IN STUDENTS WITH DIABETES: THE ROLE OF PE TEACHER AT SCHOOL

Anthi Peppa¹, Katerina Asonitou¹, and Dimitra Koutsouki¹

¹Department za fizičko vaspitanje i sportske nauke, Laboratorija za adaptirane fizičke aktivnosti / razvojne i fizičke poremećaje, Univerzitet Atina, Grčka
Department of Physical Education and Sport Science, Laboratory of Adapted Physical Activity / Developmental and Physical Disorders, University of Athens, Greece

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SUMMARY

Diabetes mellitus is the metabolic disease of disturbed glycemic control and can mainly be divided into two categories: diabetes type 1 (DMT1) which is more common in students and diabetes type 2 (DMT2). Physical exercise has been shown to have various beneficial effects on diabetic patients and therefore it is strongly recommended for diabetic students at school. The work of physical educator in Greek public schools is obstructed by lack of formal educational seminars, required facilities, and information among society as well as phenomena of school phobia and stigmatization. The role of physical educator is encouraging and supporting diabetic students in regularly taking part in school sport activities, monitoring blood glucose levels and recording exercise plan and response to certain activities. Furthermore, from a psychological point of view, physical educator can help diabetic students to develop their special skills, adopt an optimistic attitude, obtaining self-confidence and learn to benefit from physical exercise. Finally, physical educator could be viewed as the coordinator of interactions among doctors, parents, school teachers, non-diabetic students and diabetic students regarding participation of diabetic students in school sport activities and their exercise performance along with achieving a balance on glycaemic levels.

Key words: health – diabetes mellitus; physical activity; physical education; special needs students; teacher responsibility.

SAŽETAK

Diabetes je bolest poremećenog metabolizma glukoze i može se podijeliti u dvije kategorije: dijabetes tipa 1 (DMT1), koji je češći u djece, i dijabetesa tipa 2 (DMT2). Fizička aktivnost je pokazalo da ima raznovrsne pozitivne efekte na dijabetičare i zato se preporučuje i učenicima dijabetičarima. Rad nastavnika fizičkog vaspitanja u grčkim javnim školama nailazi na prepreke zbog nedostatka zvaničnih obrazovnih seminara, potrebnih objekata i informisanosti društva kao i pojave školske fobije iigmatizacije. Jedna od uloga nastavnika fizičkog vaspitanja je da ohrabruje i podstiče učenike sa dijabetesom da redovno učestvuju u školskim sportskim aktivnostima, da prati nivo šećera u krvi i bilježi plan vježbanja i reakciju na određene aktivnosti. Osim toga, s psihološkog stanovišta, nastavnik fizičkog vaspitanja može da pomogne učenicima sa dijabetesom da razviju posebne vještine, postanu optimistični, dobiju samopouzdanje i nauče da imaju koristi od fizičkog vježbanja. Najzad, nastavnik fizičkog vaspitanja može da se posmatra kao koordinator međudjelovanja između ljekara, roditelja, nastavnika, učenika bez dijabetesa i učenika sa dijabetesom u vezi sa učešćem učenika sa dijabetesom u školskim sportskim aktivnostima i rezultata njihovog vježbanja uz postizanje ravnoteže na glikemijskom nivou.

Ključne riječi: zdravlje - dijabetes; fizička aktivnost, fizičko vaspitanje, učenici sa posebnim potrebama, odgovornost nastavnika.

INTRODUCTION

Diabetes mellitus is a metabolic disease which is characterized by high levels of blood glucose, emerging from either defect in insulin production, or alternatively from the incompetence of cells to absorb and use available insulin. As a result, high levels of blood glucose leads to the classical symptoms of polyuria, polydipsia and polyphagia (“Pathogenesis and management of human diabetes mellitus. Workshop at the 23rd Annual Meeting of the European Society for Clinical Investigation. 1989, Athens, Greece,” 1992). Two types of diabetes have been described: (i) Diabetes Mellitus Type 1 (DMT1) in which the individual is not able to produce insulin or produce insufficient amount of insulin. DMT1 is also known as insulin-dependent diabetes mellitus (IDDM) and although it can theoretically occur in any age, it has been observed to be very frequent in children and adolescents and therefore, is also mentioned as juvenile diabetes in literature (Burn, 2010; von Herrath, Sanda, & Herold, 2007; Ma & Chan, 2009); (ii) Diabetes Mellitus Type 2 (DMT2) which is characterized by insulin resistance along with insulin deficiency in few cases (Athanasakis et al., 2010; Gershell, 2005). DTM 2 is also referred in literature as non-insulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes. Diabetes without proper treatments can cause many complications including hypoglycemia, diabetic ketoacidosis, or non-ketosis hyperosmolar coma, cardiovascular disease, chronic renal failure, retinal damage. Therefore, adequate clinical management of diabetes by drug administration is essential, as well as blood pressure control and healthy lifestyle (i.e. smoking cessation, body weight control). Students with DMT1 have absolute insulin deficiency and therefore, they must receive insulin replacement. Oral hypoglycemic agents do not restore insulin secretion. Non-pharmacological interventions can facilitate control, but they can never substitute for exogenous insulin. In the patients with DMT2, initial treatment begins with non-pharmacological interventions, specifically, diet, exercise and weight loss. It must be underlined that the treatment of children and adolescents with DMT2 differs from that of adults (Peterson, Silverstein, Kaufman, & Warren-Boulton, 2007) because treatment in students is focused on decreased insulin sensitivity with advancing sexual maturity, physical growth, ability to provide self-management, and neurologic vulnerability to hypoglycemia (in children younger than five years). Interestingly, diet and exercise alone are effective for metabolic control in less than 10% of students with DMT1, and pharmacological application of insulin is usually required (Kaufman, 2002). However, the syn-

UVOD

Dijabetes je metabolička bolest koju karakteriše visok nivo glukoze u krvi. Ona proizlazi ili iz nemogućnosti organizma da proizvodi inzulin ili nesposobnosti ćelija da reaguje na raspoloživ insulin. Kao posljedica toga, visok nivo glukoze u krvi dovodi do klasičnih simptoma poliurija, polidipsia i polifagia (“Pathogenesis and management of human diabetes mellitus. Workshop at the 23rd Annual Meeting of the European Society for Clinical Investigation. 1989, Athens, Greece,” 1992). Opisana su dva tipa dijabetesa: (i) Diabetes Mellitus tipa 1 (DMT1) u kome pojedinac nije u stanju da proizvodi insulin ili proizvodi nedovoljnu količinu insulina. DMT1 je poznat pod nazivom insulin-zavisni Diabetes Mellitus (IDDM). Mada se, teoretski, može pojaviti u bilo kom životnom dobu, uočeno je da je vrlo čest kod djece i adolescenata, tako da se često spominje u literaturi pod nazivom dječiji dijabetes (Burn, 2010; von Herrath, Sanda i Herold, 2007; Ma i Chan, 2009); (ii) Diabetes Mellitus tipa 2 (DMT2) odlikuje se otpornošću na insulin koje prati, u nekim slučajevima, nedostatak insulina (Athanasakis i saradnici, 2010; Gershell, 2005). DTM2 se u literaturi, takođe, naziva i nezavisni insulin dijabetes (NIDDM) ili dijabetes u odrasloj životnoj dobi. Dijabetes bez odgovarajućeg tretmana može da dovede do mnogih komplikacija uključujući hipoglikemiju, dijabetičke ketoacidoze ili kome, kardiovaskularne bolesti, hroničnog zatajenja bubrega, oštećenja mrežnjače. Stoga, odgovarajuća kontrola dijabetesa uzimanjem lijekova važna je kao i kontrolisanje krvnog pritiska te zdrav način života (tj. prestanak pušenja, kontrola tjelesne težine). Učenici sa DMT1 imaju apsolutni insulinski nedostatak i, zbog toga, oni moraju da dobiju zamjenski insulin. Oralni hipoglikemici ne obnavljaju lučenje insulina od strane pankreasa. Nefarmakološke intervencije mogu da olakšaju kontrolu, ali one nikad ne mogu da budu zamjena za insulin. U pacijenata sa DMT2 inicijalna terapija počinje sa nefarmakološkim intervencijama, a naročito: dijetom, vježbanjem i gubitkom težine. Treba naglasiti da liječenje djece i adolescenata sa DMT2 se razlikuje od odraslih (Peterson, Silverstein, Kaufman i Warren-Boulton, 2007) jer tretman kod učenika je usmjeren na smanjenje insulinske osjetljivosti sa napredovanjem seksualne zrelosti, fizičkim rastom, sposobnošću da se obezbijedi samo-upravljanje i neurološke ranjivosti na hipoglikemiju (kod djece mlađe od pet godina). Zanimljivo, ishrana i vježbe su efikasne za metaboličku kontrolu kod manje od 10% učenika sa DMT1 i obično je potrebna farmakološka primjena insulina (Kaufman, 2002). Ipak,

ergistic effect of diet, exercise and pharmacological treatment is considering the key in diabetes management. In this literature review, we will focus on physical education at common Greek schools for diabetic students.

DIABETIC STUDENTS AND PROBLEMS AT SCHOOL LIFE IN GREEK PUBLIC SCHOOLS

Despite recent advances in diabetes management, diabetes remains a disease that hampers life quality in terms of various somatically, economical and psychological impediments in children and parents' everyday life. The diabetes management program for a diabetic child comprises one or two insulin injections on a daily basis along with measurements of glucose levels in blood and urine, special diet and exercise needs. Each diabetic student is able to have a normal school life provided that the following aspects will be taken into consideration as amenably as possible (Faro, 1995; Goodrich & McDermott, 1989; Henderson, 2005; Lionis & Papathanasiou, 2008; Nichols & Norris, 2002; Owens-Gary, Shea, & Lewis, 2010; Papadaki, Linardakis, Codrington, & Kafatos, 2008; Wagner, Heapy, James, & Abbott, 2006; Wagner & James, 2006):

- The lack of formal education seminars for teachers and school staff in Greece concerning chronic diseases in children and specifically diabetes (Kalyva, Malakonaki, Eiser, & Mamoulakis, 2011). Although teachers are not doctors (Tahirovic & Toromanovic, 2007), it is essential to be well informed for basic diabetes management for emergency conditions (Abdel Gawwad, 2008; Alnasir & Skerman, 2004; Gagliardi, Neighbors, Spears, Byrd, & Snarr, 1994; Hellems & Clarke, 2007; Olympia, Wan, & Avner, 2005; Parent, Wodrich, & Hasan, 2009; Tahirovic & Toromanovic, 2006), be able to support student in daily medical practice (i.e. blood test, insulin injection) and control child habits at school (i.e. food, exercise). Furthermore, teachers must be well informed for psychological aspects of diabetes and provide means for a "socially healthy" school environment. The diabetic child or adolescent must feel comfortable at school, without fears for exclusion or stigmatization due to the disease. Other students should be also encouraged by educators to be well-behaved and support their classmates with chronic disease such as diabetes.
- The lack of suitable private rooms for health issues (Kalyva et al., 2011). In most Greek public school, restrooms are used as private space for

sinergijski efekat ishrane, vježbanja i farmakološki tretman smatra se ključem upravljanja dijabetesom. U ovom preglednom radu mi ćemo se usredsrediti na fizičko vaspitanje za učenike sa dijabetesom u zajedničkim grčkim školama.

UČENICI SA DIJABETESOM I NJIHOVI ŽIVOTNI PROBLEMI U GRČKIM JAVNIM ŠKOLAMA

Uprkos najnovijim dostignućima u liječenju dijabetesa, on je i dalje bolest koja ometa kvalitet života u smislu različitih somatskih, ekonomskih i psiholoških smetnji u svakodnevnom životu kod djece i njihovih roditelja. Program upravljanja dijabetesom za djecu sa ovom bolešću sastoji se od jedne ili dvije injekcije insulina dnevno, uz mjerenje glukoze u krvi i urinu, poseban režim ishrane i potrebu za vježbanjem. Svaki učenik dijabetičar može da vodi normalan školski život pod uslovom da se uzmu u obzir, što je moguće više, sljedeće aspekte (Faro, 1995; Goodrich & McDermott, 1989; Henderson, 2005; Lionis & Papathanasiou, 2008; Nichols & Norris, 2002; Owens-Gary, Shea, & Lewis, 2010; Papadaki, Linardakis, Codrington, & Kafatos, 2008; Wagner, Heapy, James, & Abbott, 2006; Wagner & James, 2006):

- Nedostatak zvaničnih obrazovnih seminara u vezi sa hroničnim bolestima djece, a posebno sa dijabetesom, za nastavnike i školsko osoblje u Grčkoj (Kalyva, Malakonaki, Eiser i Mamoulakis, 2011). Iako nastavnici nisu ljekari (Tahirovic i Toromanovic, 2007), neophodno je da budu dobro informisani iz osnova upravljanja dijabetesom u vanrednim situacijama (Abdel Gawwad, 2008; Alnasir & Skerman, 2004; Gagliardi, Neighbors, Spears, Byrd, & Snarr, 1994; Hellems & Clarke, 2007; Olympia, Wan, & Avner, 2005; Parent, Wodrich, & Hasan, 2009; Tahirovic & Toromanovic, 2006). Tako bi bili u mogućnosti da podrže učenike u svakodnevnoj medicinskoj praksi (tj. test krvi, ubrizgavanje insulina) i kontroli djetetovih navika u školi (npr. hrana, vježbe). Pored toga, nastavnici moraju da budu dobro informisani o psihološkim aspektima dijabetesa i obezbijede sredstva za "društveno zdravo" školsko okruženje. Dijete ili adolescent dijabetičar treba da se prijatno osjećaju u školi bez straha da će zbog bolesti doživjeti isključenje ili stigmatizaciju. Ostali učenici, takođe, trebaju da budu ohrabreni od strane nastavnika da se pravilno ponašaju i da daju podršku svojim kolegama sa hroničnim bolestima poput dijabetesa.
- Nedostatak odgovarajućeg intimnog prostora za

medical purposes whereas a pharmacy as small as a cupboard exist in director's office. Both for hygiene and for psychological reasons, it is essential that diabetic students will be able to use a special room for necessary treatments where they will feel both safe and comfortable (Hellems & Clarke, 2007).

- A fruitful collaboration among people around diabetic student including teachers, family, classmates is an absolute requirement for normal school life of students with diabetes (Abdel Gawwad, 2008). The role of educators in these cases is multicenter, since they have to coordinate interactions among student, inform and consult parents, estimate feedback from parents for student's behavior at home, adopt new rules and means for support of diabetic students.
- Absences from school for diabetic students is a factor that cannot be predict. It is common that students with diabetes are absent from school because of frequent sickness or because of hospitalization for days or weeks. The interpretation of school absences is not easy, but diabetic students have to face this abnormal situation as a fact and not feel guilty or insecure. Rehabilitation of diabetic student in normal school life after each absence, especially when this is long, must be as mild as possible for student's psychological condition (Kadohiro, 2009; Nimsgern & Camponeschi, 2005; "Students with chronic illnesses: guidance for families, schools, and students", 2003).
- The effect of diabetes on learning procedure, memory and overall brain function. Numerous studies have reported that in cognitive dysfunction in diabetic patients which is characterized by a slowing of mental speed and a diminished mental flexibility, whereas learning and memory are spared (Brands, Biessels, de Haan, Kappelle, & Kessels, 2005; Deary et al., 1993; Gold, Deary, & Frier, 1997; Hasanein & Shahidi, 2011; Kadohiro, 2009; McCarthy, Lindgren, Mengeling, Tsalikian, & Engvall, 2002; Ryan & Williams, 1993; Sachon et al., 1992). The magnitude of the cognitive deficits is mild to moderate, but even mild forms of cognitive dysfunction might hamper everyday activities, especially in students, since they can be expected to present problems in more demanding situations.
- School phobia also known as school refusal (Le Heuzey, 2008) is the phenomenon characterized by a complex and extreme form of anxiety about going to school. Diabetic students often suffer from school phobia or develop school phobia as zdravstvene probleme (Kalyva i saradnici, 2011). U većini grčkih škola za tu namjenu se koriste toaleti dok se priručne apoteke u malim ormanima nalaze u kancelarijama direktora. Kako iz higijenskih tako i iz psiholoških razloga od velike je važnosti je da učenici dijabetičari koriste posebne prostorije za neophodan tretman u kojoj bi se osjećali sigurno i udobno (Hellems i Clarke, 2007).
- Plodna saradnja među ljudima oko učenika dijabetičara, uključujući tu: nastavnike, porodicu i drugove; je apsolutni preduslov za njihov normalan školski život (Abdel Gawwad, 2008). Uloga nastavnika, u ovim slučajevima, je multicentrična. Oni moraju da koordiniraju interakciju između učenika, informišu i konsultuju roditelje, procjenjuju povratne informacije od roditelja o ponašanju učenika kod kuće, usvoje nova pravila i sredstva za podršku učenicima dijabetičarima.
- Izostajanje iz škole učenika dijabetičara je faktor koji se ne može predvidjeti. Uobičajeno je da učenici sa dijabetesom izostaju sa nastave danima ili nedeljama zbog bolesti ili hospitalizacije. Interpretacija školskih izostanaka nije laka, ali učenici dijabetičari se moraju suočiti sa ovom situacijom kako zbog nje ne bi osjećali krivicu ili nesigurnost. Povratak učenika dijabetičara u normalni školski život poslije svakog odsustva, posebno kada je dug, mora da bude što blaži zbog psihološkog stanja učenika (Kadohiro, 2009; Nimsgern i Camponeschi, 2005; "Students with chronic illnesses: guidance for families, schools, and students", 2003).
- Dijabetes utiče na ukupno funkcionisanje mozga pa tako i na učenje i pamćenje. Brojne studije ustanovile su kognitivne disfunkcije kod dijabetičara koju karakteriše usporavanje mentalne brzine i umanjenje mentalne fleksibilnosti dok su učenje i pamćenje pošteđeni (Brands, Biessels, de Haan, Kappelle i Kessels, 2005; Deary i saradnici, 1993; Gold, Deary i Frier, 1997; Hasanein i Shahidi, 2011; Kadohiro, 2009; McCarthy, Lindgren, Mengeling, Tsalikian i Engvall, 2002; Ryan i Williams, 1993; Sachon i saradnici, 1992). Veličina kognitivnog deficita kreće se od blage do umjerene. Čak i blagi oblici kognitivne disfunkcije mogu da otežaju svakodnevnu aktivnost, jer se može očekivati da predstavljaju problem u zahtjevnijim situacijama.
- Strah od škole poznata i kao odbijanje škole (Le Heuzey, 2008) je složen fenomen koji karakteriše anksioznosti od odlaska u školu. Učenici dijabetičari često pate od fobije od škole ili razvijaju strah prema školi kao posljedicu nedostatka socijal-

consequence of lack of socialization at school or emotions of rejection by school mates (Ohki, Kishi, Orimo, & Ohkawa, 2004). It is important to point out that school phobia is not related to indolence but it is a stressed-related psychological disorder that needs to be treated.

- Educators, parents and classmates attitudes are decisive for diabetic student's development and health (Abdel Gawwad, 2008; "Students with chronic illnesses: guidance for families, schools, and students", 2003). Teacher is responsible for informing and controlling harmonic co-existence of non-diabetic and diabetic students and promoting relationships among students (Nakamura et al., 1997). Parents in the context of school life should interact with educators on a regular basis and support their child in achieving a productive, pleasant and safe school life.

EXERCISE FOR DIABETIC STUDENTS

Attitudes in physical education for diabetic students

Although DMT1 historically has been more common in patients with an age ranging from 8 to 19 years, DMT2 diabetes is also emerging as an important disease in this group. DMT2 diabetes accounts for 8-45% of childhood diabetes in different countries (Peterson et al., 2007). The goal of physical education at school context is to develop physically educated individuals who have the knowledge, skills and confidence to enjoy a lifetime of healthful physical activity (Fairclough & Stratton, 2005; Haywood, 1991). Healthy lifestyle habits, including healthy eating and physical activity, can lower the risk of becoming obese and developing related diseases (Daniels et al., 2005). This general goal of physical education is even more critical for the quality of life and health of students with chronic diseases such as diabetes. School-based physical education has many benefits, including increasing physical activity and improving physical fitness and muscular endurance. Increasing physical activity through physical education is a public health strategy for reducing childhood obesity. Physical education improves students' health, which improves their ability to learn. Recent studies provide intriguing evidence that students who are fit and healthy are more ready to learn. Physical education seems to be a critical contributor to physical fitness, health and academic performance. More specifically, improved fitness condition has been associated with better school attendance records at elementary school level, fewer disciplinary referrals

izacije u školi ili emocija kao posljedice odbacivanja od strane drugova (Ohki, Kishi, Orimo, & Ohkawa, 2004). Važno je naglasiti da fobija od škole nije ljenost već je psihološki poremećaj vezan sa stresom koji treba liječiti.

- Stavovi nastavnika, roditelja i školskih drugova su odlučujući za razvoj učenika dijabetičara i njegovo zdravlje (Abdel Gawwad, 2008; "Students with chronic illnesses: guidance for families, schools, and students", 2003). Nastavnik je odgovoran za informisanje i kontrolu harmonične koegzistencije između učenika dijabetičara i onih koji to nisu i unapređenje istih među njima (Nakamura et al., 1997). Roditelji, kada je u pitanju školski život, trebaju da redovno sarađuju sa nastavnicima i da podrže svoje dijete u postizanju produktivnog, ugodnog i sigurnog školskog života.

VJEŽBE ZA UČENIKE SA DIJABETESOM

Stavovi o fizičkom vaspitanju učenika dijabetičara

Iako, epidemiološki gledano, DMT1 je češći kod pacijenata starosti od 8 do 19 godina, DMT2 diabetes se takođe pojavljuje kao važna bolest u ovom uzrastu. DMT2, u različitim zemljama, obuhvata 8-45% populacije djece oboljele od dijabetesa (Peterson i saradnici, 2007). Cilj fizičkog vaspitanja u kontekstu škole je razvoj fizički obrazovanih ljudi koji posjeduju znanja, vještine i samopuzdanje da kroz zdrave fizičke aktivnosti uživaju u životu (Fairclough i Stratton, 2005; Haywood, 1991). Zdrave životne navike, uključujući zdravu ishranu i fizičku aktivnost, mogu da smanje rizik od nastanka gojaznosti i razvoj bolesti povezanih sa njom (Daniels i saradnici, 2005). Ovaj opšti cilj fizičkog vaspitanja još je važniji za kvalitet života i zdravlja učenika sa hroničnim bolestima kao što je dijabetes. Fizičko vaspitanje na školskoj osnovi ima mnogo prednosti uključujući povećanje fizičke aktivnosti i poboljšanje fizičke kondicije i mišićne izdržljivosti. Povećanje fizičke aktivnosti kroz fizičko vaspitanje je strategija javnog zdravlja za smanjenje gojaznosti u djetinstvu. Fizičko vaspitanje poboljšava zdravlje učenika čime se poboljšava i njihova sposobnost da uče. Nedavna istraživanja pružaju intrigantne dokaze da su učenici koji su u boljoj fizičkoj aktivnosti i zdravi, spremniji da uče. Izgleda da fizičko vaspitanje značajno doprinosi ostvarenju fizičke kondicije, zdravlja i uspjeha u školi. Tačnije, poboljšanje fizičke kondicije je uslov bolje evidencije pohađanja nastave u osnovnim školama, manje disciplinskih opomena (Carlson i

(Carlson et al., 2008; Telford et al., 2011), and higher academic achievement at high school and university level (Aktop, 2010; Coe, Pivarnik, Womack, Reeves, & Malina, 2006; Rheault & Shafernich-Coulson, 1988; Sallis et al., 1999; Silverman, Devillier, & Ramirez, 1991; Telford et al., 2011).

Based on aforementioned evidences for the role of physical education, the advantages of physical education for diabetic students concerning both somatically, mental and psychological positive effects. Diabetic student does not faced inclusion, have an improved self-esteem, is socialized with other students during team sports and learns to controls their body energy needs. In this context, provided that medical doctor provide permission for the diabetic student for attending common physical education classes, student should be encouraged both by parents and educators to participate in physical education activities at school. In Greek public schools (Bekiari, Kokaridas, & Sake-llariou, 2006; Christodoulos, Douda, Polykratis, & Tokmakidis, 2006; Digelidis & Papaioannou, 1999; Kanioglou, 2008; Koutedakis & Bouziotas, 2003), there is a tendency by students with chronic disease to avoid completely exercise. Parents and teachers are in most cases overprotective and students can easily “escape” from physical exercise courses. This attitude is completely out of the scope of physical education and supports the development of incompetent patients with low confidence and motivation for life and sports activities, whereas strengths diabetic students isolation and stigmatization.

As far as type of exercise suitable for diabetic students, diabetes management's studies support a combination of routine exercise plus team sport (Adolfsson, Nilsson, & Lindblad, 2011; Aouadi et al., 2011; Boule, Haddad, Kenny, Wells, & Sigal, 2001; Chipkin, Klugh, & Chasan-Taber, 2001; Franz, 1987; Maiorana et al., 2001; Wallberg-Henriksson, Rincon, & Zierath, 1998):

- *Routine Exercise:* Exercise improves insulin sensitivity; the duration and intensity of exercise will influence blood glucose levels. This may result in a decreased requirement for insulin and/or an increased potential of hypoglycemic episodes. To avoid this, the student may need to eat an additional snack before exercising. If a student has symptoms of low blood glucose or will be participating in more than 40-45 minutes of physical activity, blood glucose levels should be checked before exercising. Glucose monitoring equipment should be available at the activity site (Aouadi et al., 2011; Giannini, de Giorgis, Mohn, & Chiarelli, 2007).
- *Team Sports:* Team sports should be encouraged

saradnici, 2008; Telford i saradnici, 2011) i bolja akademska postignuća u srednjoj školi i na univerzitetskom nivou (Aktop, 2010; Coe, Pivarnik, Womack, Reeves i Malina, 2006; Rheault i Shafernich-Coulson, 1988; Sallis i saradnici, 1999; Silverman, Devillier i Ramirez, 1991; Telford i saradnici, 2011).

Na osnovu iznjetih činjenica o ulozi fizičkog vaspitanja njegova prednost, kada su u pitanju učenici sa dijabetesom, ogleda se u somatskim, mentalnim i psihološkim pozitivnim efektima. Učenici dijabetičari nemaju problema sa uključivanjem, poboljšava im se samopoštovanje, kroz timske sportove se druže sa ostalim učenicima i uče da kontrolišu potrebe svoga tijela za energijom. S tim u vezi, pod uslovom da ljekar odobri učeniku sa dijabetesom da pohađa nastavu fizičkog vaspitanja zajedno sa drugim učenicima, potreban je podsticaj od strane nastavnika i od strane roditelja da učestvuje u nastavi fizičkog vaspitanja u školi. U grčkim državnim školama (Bekiari, Kokaridas i Sakellariou, 2006; Christodoulos, Douda, Polykratis i Tokmakidis, 2006; Digelidis i Papaioannou, 1999; Kanioglou, 2008; Koutedakis i Bouziotas, 2003), postoji tendencija od strane učenika sa hroničnim bolestima da u potpunosti izbjegnu vježbanje. Roditelji i nastavnici, u većini slučajeva, se odnose prema njima zaštitinički, i ti učenici lako mogu da “izbjegavaju” časove fizičkog vaspitanja. Takav stav je u potpunosti izvan djelokruga fizičkog vaspitanja i podstiče razvoj nesposobnih bolesnika sa niskim samopouzdanjem i motivacijom za život i sportske aktivnosti, što vodi učenike dijabetičare u izolizaciju i stigmatizaciju.

Što se tiče vrste vježbi pogodnih za učenike sa dijabetesom studije upravljanja dijabetesom podržavaju kombinaciju rutinskih vježbi sa kolektivnim sportovima (Adolfsson, Nilsson i Lindblad, 2011; Aouadi i saradnici, 2011; Boule, Haddad, Kenny, Wells i Sigal, 2001; Chipkin, Klugh i Chasan-Taber, 2001; Franz, 1987; Maiorana i saradnici, 2001; Wallberg-Henriksson, Rincon i Zierath, 1998).

- *Rutinske vježbe:* Vježba poboljšava osjetljivost na inzulin; trajanje i intenzitet vježbanja će utjecati na nivo glukoze u krvi. To može dovesti do smanjenja potrebe za insulinom i / ili povećan potencijal hipoglikemijskih epizoda. Da bi se to izbjeglo, učenici će možda morati da konzumiraju još jednu užinu prije vježbanja. Ukoliko učenik ima simptome niskog nivoa šećera u krvi ili će učestvovati u fizičkoj aktivnosti koja prelazi 40-45 minuta, potrebno je provjeriti prije vježbanja nivo glukoze u krvi. Oprema za mjerenje glukoze treba da bude dostupna na mjestu aktivnosti (Aouadi i saradnici, 2011; Giannini, de Giorgis, Mohn i Chiarelli, 2007).
- *Kolektivni sportovi:* Potrebno je hrabriti učenike

especially when students express themselves an interest. Student, parents and doctor will provide the guidance necessary to accommodate full participation. The absolute requirement for participating in team sports is monitoring supplies and snacks available at the site of the activity and staff trained regarding their use. Most students old enough to participate in school sports are able to monitor their own blood and to adjust their snacks accordingly (Aouadi et al., 2011; Giannini et al., 2007).

For aerobic exercise, walking, cycling, and swimming are well tolerated by most diabetic patients. These activities should ideally be included in diabetic students exercise program. However, most schools at Greece do not support extended sport facilities, but still aerobic exercise can take place. Aerobic training should gradually be increased in duration to last for 30–45 minutes to reach energy expenditure recommendations and heart rate has been suggested to reach of 55–79% of maximum.

As far as discrimination of DMT1 versus DMT2 diabetic students is concerned during physical education training (De Feo et al., 2006; Robertson, Adolfsson, Scheiner, Hanas, & Riddell, 2009), physical educator should take into consideration the fact that students with DMT2 should participate fully in physical education classes and team sports since they have to handle with obesity and cardiovascular problems. Students with DMT1 will make adjustments in their insulin and food intake, in order to maintain blood glucose levels within their target ranges during exercise, and prevent hypoglycemia. These students have to check their blood glucose levels more frequently while engaging in physical activity. Physical educators must be able to recognize and assist with the treatment of hypoglycemia. A quick-acting source of glucose and the student's glucose meter should always be available, along with water (De Feo et al., 2006).

The role of physical education

Physical exercise is important for individual's health and well-being, but it's especially beneficial for diabetic students. In order to improve overall fitness, diabetic students should participate regularly in physical exercise courses which help in the direction of glycemic control. Diabetic students can play and succeed at sports just like their non-diabetic peers. However, diabetic students and their educators must be careful about when, how long, and how intensely they exercise, and they must take steps to avoid hypoglycemia during or after the activity, including monitoring glucose both before and after exercise,

dijabetičare da se bave kolektivnim sportovima posebno kada sami izraze interes za to. Učenik, roditelji i ljekar će dati uputstva neophodna za puno učešće u kolektivnim sportovima. Apolutni uslov za učešće u kolektivnim sportovima je praćenje zaliha i užine dostupnih na mjestu aktivnosti i osoblje obučeno u pogledu njihovog korišćenja. Većina učenika koja je dovoljno stara da uzme učešća u školskom sportu u stanju je i da prati stanje svoje krvi i da, shodno tome, prilagodi i svoje obroke (Aouadi i saradnici, 2011; Giannini i saradnici, 2007).

Većina dijabetičara dobro toleriše aerobno vježbanje, hodanje, vožnju bicikla i plivanje. Ove aktivnosti su idealne i trebaju da budu uključene u program vježbanja učenika sa dijabetesom. Međutim, većina škola u Grčkoj ne podržava proširenje sportskih objekata, ali još uvijek se mogu izvoditi aerobne vježbe. Aerobni trening treba postepeno povećavati da traje 30-45 minuta da dostigne preporučenu potrošnju energije a preporučena frekvencija srca predlaže se da dostigne 55-79% od maksimuma.

Što se tiče razlike između DMT1 i DMT2 učenika a koje se odnose na časove fizičkog vaspitanja (De Feo i saradnici, 2006; Robertson, Adolfsson, Scheiner, Hanas i Riddell, 2009), nastavnici fizičkog vaspitanja trebaju uzeti u obzir činjenicu da učenici sa DMT2 trebaju u potpunosti da učestvuju na časovima fizičkog vaspitanja i u kolektivnim sportovima pošto oni trebaju da se nose sa gojaznošću i kardiovaskularnim problemima. Učenici sa DMT1 će da prave prilagođavanja sa svojim insulinom i unosom hrane kako bi održavali nivo glukoze u krvi tokom vježbanja na željenom nivou kao i da spriječe hipoglikemiju. Nastavnik fizičkog vaspitanja treba da bude u stanju da prepozna i pomogne u tretmanu hipoglikemije. Brzodjelujući izvor glukoze i učenikov mjerac šećera u krvi trebaju uvijek da budu dostupni zajedno sa vodom (De Feo i saradnici, 2006).

Uloga nastavnika fizičkog vaspitanja

Fizičko vježbanje je važno za zdravlje i blagostanje pojedinca, ali je posebno korisno za učenike sa dijabetesom. U cilju poboljšanja ukupne kondicije učenici dijabetičari trebali bi redovno da učestvuju u časovima fizičkog vaspitanja koji pomažu u glikoregulaciji. Učenici sa dijabetesom mogu da se bave sportom i uspiju u njemu baš kao i njihove kolege bez dijabetesa. Ipak, učenici sa dijabetesom i njihovi nastavnici moraju da budu oprezni po pitanju kada, koliko dugo i koliko intenzivno vježba, i moraju da preduzmu korake kako bi izbjegli hipoglikemiju tokom i nakon aktivnosti. To uključuje praćenje glukoze prije i poslije vježbanja, da

always having glucose tablets or a high-energy snack on hand for unexpected lows, and drinking extra water to prevent dehydration. Students with DMT1 must coordinate exercise with diet and insulin therapy, making adjustments in insulin dosing or snacking. It is essential also to keep a record of exercise and physical reactions is important, because each person has his or her own unique response to exercise that can be observed through weekly treatment adjustments, and because different types of exercise have different effects on blood glucose. In this issue the support of physical educator is critical, since can provide student with record forms, design special exercise program for diabetic student when necessary, encourage and help student with keeping exercise reports.

Overall, a successful physical educator must taking into consideration the following issues (De Feo et al., 2006; Gallivan & Greenberg, 2003; Kollipara & Warren-Boulton, 2004; Marschilok, 2008):

- Encourage exercise and participation in physical activities and sports for diabetic students as they would for other students.
- Treat the student with diabetes the same as other students, except in meeting his or her medical needs.
- Respect the diabetic student's right to privacy and confidentiality.
- Make sure blood glucose monitoring equipment is available at all activity sites, and encourage the student to keep personal supplies readily accessible.
- Allow and encourage the student to check blood glucose levels.
- Understand and be aware that hypoglycemia can occur during and after physical activity and that a change in the student's behavior could be a symptom of blood glucose changes.
- Recognize and respond to the signs of hypoglycemia and hyperglycemia and take initial actions.
- Treat hypoglycemia, provide the student with immediate access to a fast-acting form of glucose.
- Communicate with the medical doctors and parents for any observations or concerns about the student

CONCLUSIONS

Physical education is an essential component of both school practice and healthy lifestyle. Furthermore, physical exercise is essential for the medical management of diabetes and for preventing the development of diabetes. Benefits of exercise for diabetic students include glycemic control, blood pressure reduction and

uz sebe uvijek imaju tabletu glukoze ili użinu visoke energetske vrijednosti u sluĉaju neoĉekivanih padova šećera u krvi, i da piju vodu kako bi se sprijeĉila dodatna dehidracija. Uĉenici sa DMT1 moraju da usklade vjeţbanje sa ishranom i insulinskom terapijom, praveći korekcije u doziranju insulinom i uzimajući dodatnu uţinu. Vaţno je voditi evidenciju o vjeţbanju i fiziĉkoj rekreaciji, jer svaka osoba ima svoju individualnu reakciju na vjeţbanje koja se moţe posmatrati kroz nedeljni tretman prilagođavanja, kao i zbog ĉinjenice da razliĉiti tipovi fiziĉke aktivnosti imaju razliĉite efekte na nivo šećera u krvi. Po ovom pitanju podrška nastavnika fiziĉkog vaspitanja je od presudne vaţnosti pošto moţe da obezbjedi odgovarajuće obrazce, dizajnira poseban program vjeţbanja uĉeniku dijabetiĉaru kada je to potrebno, i podstakne i pomogne uĉeniku da vodi izvještaj o provođenju vjeţbanja.

Sve u svemu, uspješan nastavnik fiziĉkog vaspitanja treba da uzme u obzir sledeće stvari (De Feo i saradnici, 2006; Gallivan i Greenberg, 2003; Kollipara i Warren-Boulton, 2004; Marschilok, 2008):

- Ohrabrivati vjeţbanje i uĉešće u fiziĉkim aktivnostima i sportovima uĉenika dijabetiĉara kao što to radi sa ostalim uĉenicima.
- Odnositi se prema uĉenicima sa dijabetesom isto kao i prema ostalim uĉenicima osim kada su pitanju njegove ili njene medicinske potrebe.
- Poštovanje prava uĉenika dijabetiĉara na privatnost i povjerljivost.
- Provjeriti da li je oprema za praćenje glukoze u krvi dostupna na mjestima na kojima se provodi aktivnost i podsticati uĉenike da im je liĉni pribor lako dostupan.
- Dopuštati i podsticati uĉenike da provjere nivo glukoze u krvi.
- Shvatiti i biti svjestan da se hipoglikemija moţe desiti tokom i poslije fiziĉke aktivnosti i da ponašanje uĉenika moţe da bude simptom promjena glukoze u krvi.
- Prepoznati i reagovati na znakove hipo i hiperglikemije i preduzeti poĉetne aktivnosti.
- Tretirajući hipoglikemiju, obezbjediti uĉeniku trenutni pristup brzodjelujućem obliku glukoze.
- Porazgovarati sa roditeljima ili ljekarom u pogledu zapaţanja ili zabrinutost oko uĉenika.

ZAKLJUČCI

Fiziĉko vaspitanje je vaţna komponenta i školske prakse i zdravog naĉina ţivota. Pored toga, fiziĉko vjeţbanje je neophodno za medicinsko upravljanje dijabetesom i za sprijeĉavanje njegovog razvoja. Prednosti vjeţbanja za uĉenike sa dijabetesom ukljuĉuju kontrolu glikemije, smanjenj krvnog pritiska i poboljšanje

improved cardiovascular system condition. Despite the preponderance of evidence of the benefits for exercise in diabetic students, there is still a lack of participation among diabetic students in school sport activities as well as limited information among teachers, non-diabetic students, parents and society in Greek public schools. No special educational programs are available and efficient handling of diabetic students is a personal successful story for each physical educator. The role of physical educator in dealing with diabetic students is multifactorial and concerns coordination and interactions with diabetic students, non-diabetic students, parents, doctors, and other school teachers and employees. The ultimate goal of physical educator in the context of diabetic students management is to encourage them in order to regularly participate in school sport activities and facilitate their rehabilitation among non-diabetic classmates and on long term basis educate diabetic students as to responsibly take care of their health, organize their own fitness activities and enjoying benefits from exercise on their life and health quality.

stanja kardiovaskularnog sistema. Uprkos brojnim dokazima o koristi vježbanja učenika sa dijabetesom i dalje je učešće ovih učenika u aktivnostima školskog sporta nedovoljno. Nedovoljna je i informisanost među nastavnicima, učenicima koji nemaju diabetes, roditeljima i društvu u grčkim državnim školama. Posebni obrazovni programi o ovome nisu dostupni a efikasno vođenje učenika sa dijabetesom je lična uspješna priča svakog nastavnika fizičkog vaspitanja. Uloga nastavnika fizičkog vaspitanja u susretu sa učenikom dijabetičarom je kompleksna i odnosi se na koordinaciju i interakciju sa učenicima dijabetičarima, učenicima koji to nisu, roditeljima, doktorima i ostalim nastavnicima i zaposlenicima u školi. Krajnji cilj fizičkog vaspitanja u pogledu upravljanja dijabetesom kod učenika je da ih ohrabri da redovno učestvuju u aktivnostima školskog sporta i olakša njihovo uklapanje među vršnjake u razredu. Isto tako, na dugoročnoj osnovi, educira učenika sa dijabetesom da se odgovorno stara o svom zdravlju, organizuje svoje fizičke aktivnosti i uživa od koristi kojim ta aktivnost utiče na kvalitet njihovog života i zdravlja.

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Correspondence to:

Anthi Peppas, MSc

41 Ethnikis Antistasis

17237 Athens

Greece

e-mail: anthi.peppas@googlemail.com

Phone:

Correspondence to:

Mr Anthi Peppas

41 Ethnikis Antistasis

17237 Athens

Greece

e-mail: anthi.peppas@googlemail.com

Telefon:

ΣΩΜΑΤΙΚΗ ΑΣΚΗΣΗ ΓΙΑ ΤΟΥΣ ΜΑΘΗΤΕΣ ΜΕ ΔΙΑΒΗΤΗ: Ο ΡΟΛΟΣ ΤΟΥ ΕΚΠΑΙΔΕΥΤΙΚΟΥ ΦΥΣΙΚΗΣ ΑΓΩΓΗΣ ΣΤΟ ΣΧΟΛΕΙΟ

Ανθή Πέππα¹, Κατερίνα Ασωνίτου¹, & Δήμητρα Κουτσούκη¹

¹Πανεπιστήμιο Αθηνών, Τμήμα Επιστήμης Φυσικής Αγωγής και Αθλητισμού (ΓΕΦΑΑ)
Εργαστήριο Προσαρμοσμένης Κινητικής Δραστηριότητας/Αναπτυξιακών και Κινητικών Διαταραχών, Αθήνα, Ελλάδα

Ο σακχαρώδης διαβήτης είναι μεταβολική ασθένεια η οποία χαρακτηρίζεται από αύξηση της συγκέντρωσης του σακχάρου στο αίμα (υπεργλυκαιμία) και διαταραχή του μεταβολισμού της γλυκόζης, είτε ως αποτέλεσμα ελαττωμένης έκκρισης ινσουλίνης είτε λόγω ελάττωσης της ευαισθησίας των κυττάρων του σώματος στην ινσουλίνη. Οι κύριοι τύποι σακχαρώδους διαβήτη είναι ο σακχαρώδης διαβήτης τύπου 1 (ΣΔΤ1), ο σακχαρώδης διαβήτης τύπου 2 (ΣΔΤ2) και ο διαβήτης της κήσης. Ο ΣΔΤ1 αποτελεί την κυριότερη αιτία διαβήτη σε

παιδιά, μπορεί όμως να προσβάλλει και τους ενήλικες. Ο ασθενής με ΣΔΤ1 είναι απόλυτα εξαρτημένος από τη εξωγενή χορήγηση ινσουλίνης προκειμένου τα επίπεδα σακχάρου του αίματος να διατηρηθούν σε φυσιολογικά επίπεδα. Η ανάπτυξη ΣΔΤ2 συνδέεται επιδημιολογικά με την παχυσαρκία. Η παχυσαρκία προδιαθέτει στην ανάπτυξη ινσουλινοαντοχής πιθανόν λόγω της παραγωγής από το λιπώδη ιστό ουσιών που ελαττώνουν την ευαισθησία των κυττάρων στην ινσουλίνη. Στον ΣΔΤ2, τα συμπτώματα είναι πιο ήπια και η πιθανότητα εμφάνισης διαβητικής

κετοξέωσης είναι μικρή. Για την αντιμετώπιση του ΣΔΤ2 κρίνεται απαραίτητη αλλαγή του τρόπου ζωής του ασθενούς με στόχο την απώλεια βάρους, την αύξηση της σωματικής άσκησης και την υγιεινή διατροφή. Παράλληλα, συχνά χρησιμοποιούνται αντιδιαβητικά φάρμακα ή τέλος όταν κρίνεται σκόπιμη η χορήγηση ινσουλίνης.

Η φυσική δραστηριότητα έχει αποδεδειγμένα πολλαπλά οφέλη για τους διαβητικούς ασθενείς και συνεπώς συνιστάται ανεπιφύλακτα και για τους διαβητικούς μαθητές στα πλαίσια του μαθήματος της Φυσικής Αγωγής στο σχολείο. Ωστόσο, το έργο του Εκπαιδευτικού Φυσικής Αγωγής στο σχολείο δυσχεραίνουν οι παρούσες συνθήκες στα ελληνικά δημόσια σχολεία: (α) ελλειπής ενημέρωση εκπαιδευτικών για τους μαθητές με ειδικές ανάγκες και χρόνιες ασθένειες, (β) παντελής έλλειψη υποδομών για την διευκόλυνση των μαθητών με χρόνιες ασθένειες, (γ) ανύπαρκτη κοινωνική πολιτική για την ομαλή συμμετοχή παιδιών με χρόνιες παθήσεις στα κοινά δρώμενα της σχολικής πράξης και την διαχείριση των φαινομένων σχολικής φοβίας και στιγματισμού.

Ο ρόλος του εκπαιδευτικού φυσικής αγωγής συνίσταται στην ενθάρρυνση και υποστήριξη των διαβητικών μαθητών ώστε να παίρνουν τακτικά μέρος στις αθλητικές

δραστηριότητες στα πλαίσια του σχολείου και ειδικά στο μάθημα της φυσικής αγωγής. Παράλληλα ο εκπαιδευτικός φυσικής αγωγής καλείται να συνεισφέρει στην διαχείριση του ελέγχου των επιπέδων γλυκόζης, στη επιτήρηση της συστηματικής καταγραφής αυτών προ και μετά τη σωματική άσκηση καθώς και στο σχεδιασμό ειδικών προγραμμάτων άσκησης όταν αυτό κρίνεται αναγκαίο. Επιπλέον, από ψυχολογικής απόψεως, ο εκπαιδευτικός φυσικής αγωγής μπορεί να βοηθήσει σημαντικά τους διαβητικούς μαθητές ώστε να αναπτύξουν τα ιδιαίτερα ταλέντα τους, να αποκτήσουν αυτοεκτίμηση και αισιοδοξία και να μπορέσουν να εκτιμήσουν τα οφέλη από τη φυσική δραστηριότητα. Τέλος, ο εκπαιδευτικός φυσικής αγωγής μπορεί να δράσει ως ο συντονιστής μεταξύ του οικογενειακού γιατρού, της οικογένειας και των λοιπών εκπαιδευτικών, ενημερώνοντας κατάλληλα για τις παρατηρήσεις του κατά τη διάρκεια της σχολικής πράξης, προβλέποντας κινδύνους και συνειφέροντας στην τροποποίηση και τη βελτίωση της ποιότητας ζωής του διαβητικού μαθητή.

Λέξεις κλειδιά: Σακχαρώδης διαβήτης, Φυσική αγωγή, Εκπαίδευση, Μαθητές με ειδικές δεξιότητες, Εκπαιδευτικός Φυσικής Αγωγής.

GUIDELINES FOR AUTHORS

Journal intention

SportLogia journal covers the areas of sports and physical education. It is issued twice a year and publishes original scientific papers, reviewed scientific papers, scientific gathering presentations, short scientific articles and professional articles from the area of sports, physical education, recreation, kinesiology anthropology, training methods, sport biology and exercise, sport medicine, biomechanics, sport history and sport management as well as contributions from other sciences (medicine, sociology, psychology, philosophy, exact sciences and mathematics) applied in sports.

General remarks on papers

All manuscripts are submitted to the journal's editors, who, after reading the manuscripts, decide about the further procedure: (1) the manuscript is immediately sent for review; (2) if there are any objections and suggestions, the manuscript is sent back to the author for corrections; (3) rejection of the manuscript. The editor may decline the manuscript in the following cases: (1) the topic of the manuscript is not relevant; (2) a manuscript with a similar topic has already been published in the journal; (3) the manuscript does not conform to the standards of the journal. If the manuscript is not accepted, a short notice is sent to the author, but the manuscript is not sent back.

If the author has corrected the text in accordance with the instructions from the editor, the manuscript is sent for review. In that case, the author will be given a form called *Copyrights Declaration*, which needs to be filled in and sent back to the editor. The signature of the author verifies the authenticity of the text, authorship and acceptance of the review procedure.

All articles must be reviewed. There will be two reviewers from the relevant scientific area for each article, and both reviews will be anonymous. The author's name will be unknown to the reviewers (double blind review). If a reviewer finds the article noncompliant with the criteria of the journal, the editorial will not accept the article. If, on the other hand, the reviewers find the article acceptable, it will be put in one of the following categories:

- *Original scientific paper* is a first publication of original research results in a form that the research can be repeated, and the asserted facts verified. It is organized in accordance with the IMRAD scheme for experimental research or in a descriptive way for descriptive science areas.
- *Scientific work review* is a review of papers on a specific topic, works of an individual researcher or a

UPUTSTVO AUTORIMA

Namjera časopisa

Časopis SportLogia iz oblasti sporta i fizičkog vaspitanja izdaje se dva puta godišnje i objavljuje izvorne naučne članke, pregledne naučne članke, kratke naučne članke, izlaganje sa naučnog skupa i stručne članke iz područja sporta i sportskih aktivnosti, fizičkog vaspitanja, rekreacije, kineziološke antropologije, trening metoda, biologije sporta i vježbanja, sportske medicine, biomehanike, istorije sporta i menadžmenta u sportu kao i priloge iz drugih nauka (medicine, sociologije, psihologije, filozofije, prirodnih nauka i matematike) primjenjenih na sport.

Opšte odredbe o priložima

Svi rukopisi dostavljaju se uredništvu časopisa koji, nakon što ih pročita, određuje dalji postupak: (1) odmah šalje rukopis na recenziju; (2) ako ima određenih primjedbi i sugestija, rukopis vraća autoru na doradu; (3) odbija rukopis. Urednik može da odbije rukopis u sledećim slučajevima: (1) tema koju obrađuje rukopis nije relevantna; (2) rukopis sa sličnom temom već je objavljen u časopisu; (3) rukopis ne ispunjava standarde časopisa. Ukoliko rukopis nije prihvaćen, autoru se šalje kratko obavještenje, ali rukopis se ne vraća.

Ukoliko je autor usvojio primjedbu urednika i pre-radio tekst u skladu sa sugestijama, rukopisi se šalju na recenziju. U tom slučaju autoru se šalje formular *Izjava o autorskim pravima*, koju treba ispuniti, potpisati i vratiti uredniku. Svojim potpisom autor potvrđuje izvornost članka, svoje autorstvo i prihvatanje recenzentskog postupka.

Svi članci obavezno podliježu recenziji. Za svaki članak predviđena su dva recenzenta iz relevantne naučne oblasti i oba su anonimna (Imena autora takođe su i za recenzente anonimna (double blind recension)). Ukoliko članak, prema mišljenju recenzentata, ne zadovoljava kriterije časopisa, uredništvo članak ne prihvata. Ukoliko pak recenzenti pozitivno ocjene članak, svrstavaju ga u jednu od kategorija:

- *Izvorni naučni članak* predstavlja prvu objavu originalnih istraživačkih rezultata u takvom obliku da istraživanje može da se ponovi, a utvrđene činjenice da se provjere. Organizovan je po šemi IMRAD za eksperimentalna istraživanja ili na deskriptivan način za deskriptivna naučna područja.
- *Pregledni naučni članak* predstavlja pregled najnovijih radova o određenom predmetnom području,

group of researchers whose aim is to summarize, analyze, evaluate or synthesize already published information. It brings new syntheses which also include results of author's own research.

- *Short scientific article* is an original scientific article which may skip some elements of IMRAD. It concisely presents results of a completed own research or of an ongoing research.
- *Scientific gathering presentation* is a comprehensive article that has previously been briefed to a scientific gathering, but it has not been published in its comprehensive form in the Paper Collection Book of the gathering.
- *Professional article* is a review of something that is already known, with an emphasis on the usability of the results of the original research and the spread of knowledge. The complexity of the text is adjusted to the needs of the professional and scientific aspects of the journal.

After reviews have been done, the editorial board will analyze them. If needed, the paper is sent back to the author who must comply with the suggestions and objections made by the reviewers. Once they have redone the paper, the authors need to specifically describe, on a *separate sheet of paper*, how they have resolved the reviewer's suggestions.

Only those papers that have been placed in one of the categories and which have *two positive reviews will be published*.

Text style and organization

Scientific articles must adhere to the IMRAD scheme (Introduction, Methods, Results and Discussion).

Title

The title page of the manuscript should contain the following information: (1) a concise, but informative title. Use of abbreviations is not encouraged; (2) the author's names (do not include degrees); the last one is introduced by "&"; (3) the affiliation of the authors, town and state; (4) the name and address of the corresponding author (must include title, degree and position of the corresponding author, phone and fax numbers – zip code for the country and city, and email address).

Summary, large summary and key words

The summary should be brief and self-explanatory. It should cover a general presentation of the topic (the purpose and the objective of the paper), results and conclusions. Authors should not use abbreviations. The abstract should include 150-250 words. Authors from abroad write the large summary in their native language (the summary has to be reviewed), and the authors whose native language is BCS write the mentioned summary in

radova pojedinog istraživača ili grupe istraživača sa ciljem da se već publikovane informacije sažmu, analiziraju, evaluiraju ili sintetizuju. Donose nove sinteze koje, takođe, uključuju i rezultate sopstvenog istraživanja autora.

- *Kratki naučni članak* predstavlja izvorni naučni članak kod kojih neki elementi šeme IMRAD mogu da budu ispušteni. Ukratko sažima rezultate završenog izvornog istraživačkog rada ili rada koje je još u toku.
- *Izlaganje sa naučnog skupa* predstavlja cjelovit članak koji je prethodno referisan na načnom skupu, ali u obliku cjelovitog članka nije objavljen u zborniku naučnog skupa.
- *Stručni članak* predstavlja prikaz već poznatog, s naglaskom na upotrebljivost rezultata izvornih istraživanja i širenja znanja, a zahtijevnost teksta prilagođena je potrebama stručnosti i naučnosti časopisa.

Nakon primljenih recenzija uredništvo ih analizira. Ukoliko je to potrebno, rad se vraća autoru koji je dužan uvažiti sugestije i primjedbe recenzenata. Kada preradi svoj rad autor-i treba da, na *posebnoj listu papira*, konkretno navedete kako su razriješili sugestije vezane za recenziju.

Objavljuju se samo radovi koji su svrstani u jednu od kategorija i koji *imaju dvije pozitivne recenzije*.

Stil i organizacija teksta

Naučni članci se organizuju po šemi IMRAD (Introduction, Methods, Results, i Discussion).

Naslov rada

Naslov rada treba da sadrži sledeće informacije: (1) kratak ali informativan naslov u kome se ne preporučuje korišćenje skraćenica; (2) ime autora bez titule gdje se ispred poslednjeg autora stavlja "i"; (3) institucija u kojoj autor-i radi, grad i država; (4) ime i adresa autora predviđenog za korespondenciju (naučno zvanje, položaj, broj telefona i faksa, poštanski broj grada, državu i e-mail adresu).

Sažetak, veliki sažetak i ključne riječi

Sažetak treba da bude kratak i razumljiv sam po sebi. U sažetku se ne treba pozivati na tekst članka. Treba da obuhvati opšti prikaz teme (predmet i cilj rada), rezultate i zaključak. Autori ne bi trebali da tom prilikom koriste skraćenice. Sažetak treba da sadrži 150-250 riječi.

Velik sažetak ne smije da pređe 1800 karaktera (do tri stranice u duplom redu), i treba da sadrži naslov rada, ključne riječi i tekst sažetka. Autori iz inostranstva veliki sažetak pišu na maternjem jeziku (sažetak

one of the official languages of the IOC Assembly (article 27 of Olympic Charter), except English. The translation should be made by relevant person.

Large summary should not exceed 1800 characters (up to three pages of double spaced text), and should include title, keywords and summary text.

Three to six words, which are not part of the title, need to be singled out. The Key words need to reflect the contents of the paper.

Introduction

This part of the paper ought to inform the reader of the issues dealt with in the research and the results of previous analyses. The purpose of the research should also be clearly stated in this part.

Methods

This part should consist of the following subtitles: entity sample, variables, procedures, tastings, statistical analysis.

Units of measurement, symbols and abbreviations must conform to international standards. Measurements of length, height, weight and volume should be given in metric units (meter, kilogram, liter).

Results

The results should be presented as tables, graphs and pictures, possibly processed statistically and be concisely presented in the text.

Tables, graphs and pictures showing the results of individual analyses need to be indicated in the text for easier reader navigation.

Discussion

The authors are expected here to comment on the results and compare them with literature data. The discussion must be professional and correspond to experimental data. Practical implications are welcome.

Conclusion

Contains clearly stated scientific assertions, open issues and recommendations for further research.

Tables, graphs and pictures

Each table and any illustration (black and white only) must be submitted on a separate sheet of paper. Tables should be numbered in the order in which they occur in the text and referred to as, for example, "Table 1." Each table should be accompanied by a short title. Tables should be accompanied with interpretations (legends). It will also be deemed informative if the tables include indications of important correlations and relevant variables.

mora da bude lektorisan), a autori kojima je maternji jezik BHS ovaj sažetak pišu na jednom od jezika Međunarodnog olimpijskog komiteta, naravno osim engleskog, na koje se simultano prevodi na svim Skupštinama MOK-a (član 27 Olimpijske povelje). Prevođenje mora da uradi stručna osoba.

Potrebno je izdvojiti i dati tri do šest ključnih riječi koje se ne nalaze u naslovu. Ključne riječi moraju da odražavaju suštinu sadržaja rada.

Uvod

Ovaj dio rada treba da informiše čitaoca o problemima datog istraživanja i rezultatima prethodnih analiza. Cilj istraživanja takođe treba jasno navesti u ovom dijelu.

Metode

Ovaj dio treba da se sastoji od sledećih podnaslova: uzorak entiteta, varijable, procedure testiranja, statistička analiza.

Mjerne jedinice, simboli i skraćenice moraju da poštuju međunarodne standarde. Mjere dužine, visine, težine i zapremine moraju da budu u metričkim jedinicama (metar, kilogram, litar).

Rezultati

Rezultati bi trebalo da budu predstavljeni kroz, tabele, grafikone i slike, statistički obrađene i koncizno interpretirane.

Tabele, grafikoni i slike koje pokazuju rezultate pojedinih analiza trebaju da budu naznačene u tekstu kako bi se pažnja čitaoca skrenula na njih.

Diskusija

Od autora se očekuje da iznesu dokaze istraživanja i da ih uporede sa dosada objavljenim istraživanjima u toj oblasti. Diskusija mora da bude stručna i u skladu sa podacima eksperimenta. Poželjno je da diskusija obuhvati i praktične implikacije rada.

Zaključak

Sadrži jasno izrečene naučne tvrdnje, otvorena pitanja i preporuke za daljnja istraživanja.

Tabele, grafikoni i slike

Svaka tabela, grafikon i slika (samo u crno bijeloj tehnici) treba da bude dostavljena na posebnom listu papira. Tabele treba da budu numerisane po redoslijedu kojim se pojavljuju u tekstu i označena kao npr. "Tabela 1". Svaka tabela treba da ima kratak naslov. Potrebno je dodati legende za tabele. Takođe bilo bi informativno ako bi se u tabelama naznačile značajnije korelacije i značajnije varijable.

Illustrations, graphs and pictures shall be marked as "Figure 1". Photographs are sent in electronic form in a resolution not smaller than 300 dpi and in a .jpeg format. Each figure needs to have a short title. In case that the figures are taken over from another paper, the title should not include the original name. In such a case, the source where the picture was taken from should be indicated under the picture.

If tables, graphs and pictures contain special symbols, or are prepared in a special program, they must be submitted in a separate file, with clearly indicated order of their inclusion in the text.

Article technical form

Articles are written and published in Latin alphabet, and, when needed, in other alphabets, in the Serbian language (ijekavica dialect) and the English language. Any deviation from this, needs to be agreed with the editorial board in advance. If author's native language is not Serbian, Croatian or Bosnian their papers will be translated by editorial board. When translating the paper authors are suggested to engage someone whose native language is English.

Texts are to be written in Microsoft Word Windows program, on A4 paper format. Text is to be written in the Times New Roman font, size 12 pt in 1.5 spacing, aligned on both sides, with a 1 tab denting of the first row of a paragraph, with 2.5 cm paper margins. If it is necessary to indicate a word or a sentence in the text, use the italic. Text size should conform to 15 pages. The editorial board may accept a bit longer papers, but it will seldom do so.

Articles and abstracts should be written in the third person, neutrally, adhering to a good style and defined linguistic norms.

Referencences

The journal uses the Harvard reference system - APA standards for referencing literature.

Sending papers

Authors must send papers on a DVD, which must bear: (1) the name of the author, (2) the title of the paper, (3) Word program that has been used.

Papers are to be sent to the following address:

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Fakultet fizičkog vaspitanja i sporta
Bulevar Petra Bojovića 1A
78000 Banja Luka
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Članci se pišu i štampaju latiničnim pismom, po potrebi i drugim pismima, na srpskom (ijekavica) i engleskom jeziku. Svako odstupanje od navedenog, treba posebno unaprijed dogovoriti s Uredništvom. Ako se radi o autorima kojima maternji jezik nije srpski, hrvatski ili bošnjački njihove radove na srpski prevodi uredništvo. Autori su dužni da prilikom prevođenja rada na engleski jezik angažuju stručne osobe, najbolje one kojima je maternji jezik engleski.

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Bosna i Hercegovina

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E-mail adresu: ffvis@blic.net