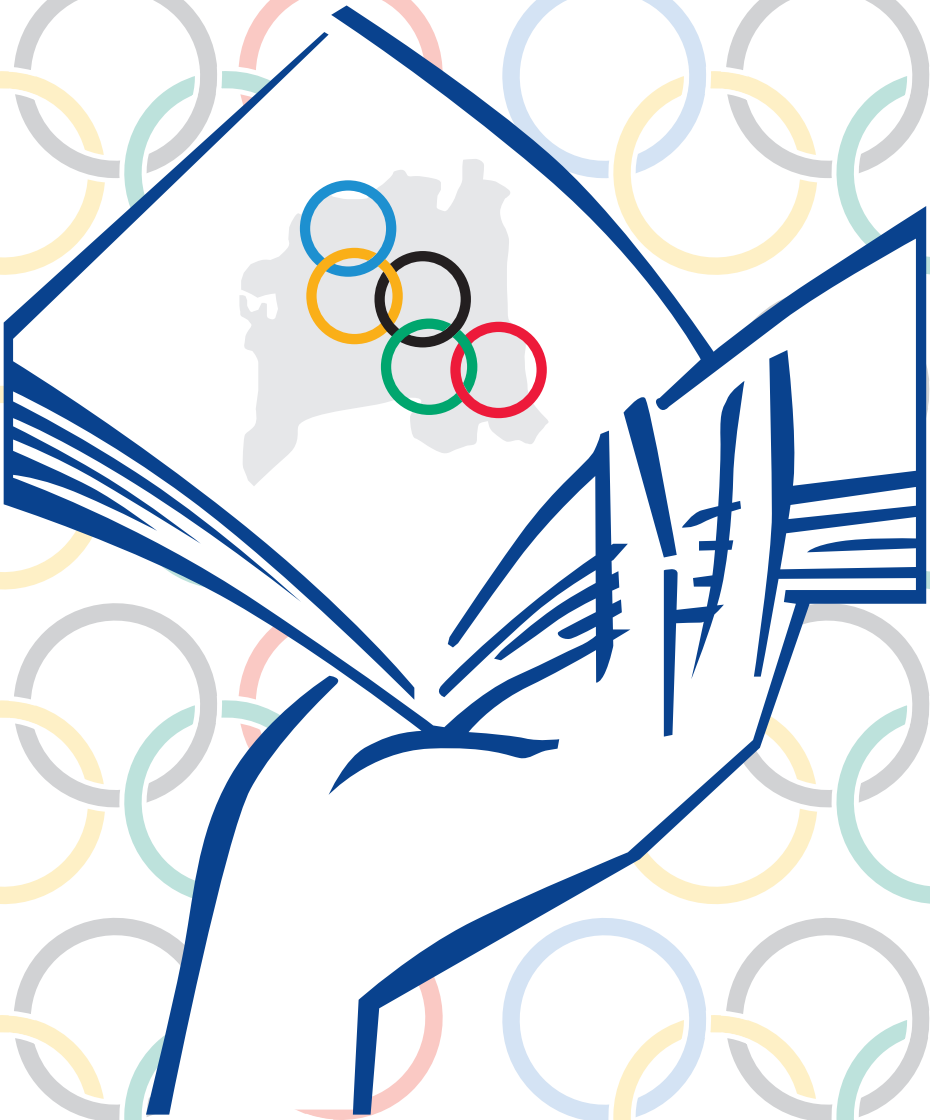
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STAVOVI SPORTSKIH NAVIJAČA U CRNOJ GORI PREMA NACIONALNOM IDENTITETU U ODNOSU NA FREKVENCIJU UČESTVOVANJA U SPORTSKIM AKTIVNOSTIMA

UVOD

Sport i nacionalni identitet su snažno povezani kroz cijelu istoriju čovječanstva, najviše iz razloga što sportisti od iskona, bilo da su u pojedinačnoj konkurenciji ili da su dio nacionalnih sportskih timova, predstavljali određenu grupu ljudi okupljenih oko istog cilja ili iste ideje (Popović i Bjelica, 2013; Popović, Bjelica i Vasiljević, 2013; Popović i Bjelica, 2014). Samim tim, oni su, zajedno sa navijačima, predstavljali pripadnike određene nacije koju veže osjećaj nacionalnog ponosa koji zajednički njeguju (Bogdanov, 2011). Međutim, kako bi se stekla bolja osnova razumijevanja dobijenih podata u radu, neophodno je, na samom početku navesti operacionalne definicije nacije, sa čijim razumijevanjem je moguće preći na upoznavanje sa nacionalnim identitetom kroz tumačenje nacionalizma kao jednog od glavnih produkata nacionalnog identiteta u savremenom društvu.

Prema Smith-u (1991), koji je jedan od najistaknutijih autora u ovoj oblasti, nacija predstavlja grupu ljudi koja, prije svega posjeduje zajedničke i osobene elemente kulture, zatim ima jedinstven ekonomski sistem, jednako pravo na državljanstvo za sve članove, potom posjeduje osjećanje solidarnosti koje proizilazi iz zajedničkog iskustva, kao i to da njeni članovi zauzimaju zajedničku teritoriju. Sa druge strane, Anderson (1991) podrazumijeva da je nacija „zamišljena zajednica“, najviše iz razloga što, čak i najmanji narod nikada neće upoznati većinu ostalih članova, niti čuti za njih dok će u njihovim mislima postojati veoma prisna međusobna veza. Takođe, Hroch (1996) ističe da nacija predstavlja integrisanu društvenu grupu, ne na osnovu jednog, već na osnovu nekoliko objektivnih odnosa, kao što su, prije svega ekonomski, politički, jezički, kulturni, vjerski, geografski, istorijski itd. dok se njihov subjektivni odraz ogleda u kolektivnoj svijesti. I ostali autori koji su se bavili ovom problematikom su dolazili do sličnih zaključaka, tako Kellas (1998) ističe da nacija predstavlja grupu ljudi koji osjećaju da su međusobno povezani istorijskim dešavanjima, kulturnim obilježjima te da imaju zajedničko etničko porijeklo itd. Daljom analizom utvrđeno je da autori dolaze do različitih tumačenja nacije (Bogdanov, 2011), ali svaki od njih dolazi do istog osjećanja tj. da se nacija sastoji od članova koji dijele iste zajedničke karakteristike kao što su pripadnost zajednici, osjećanje bratstva koje proističe iz zajedničkih iskustava (npr. dijeljenja zajedničke teritorije i sl.), iako nisu nikada upoznali jedni druge. Sa razumijevanjem pojma nacije moguće je preći na upoznavanje sa nacionalnim identitetom kroz

tumačenje nacionalizma kao jednog od glavnih produkata nacionalnog identiteta u savremenom društvu. Autori ove studije su pokušali da utvrde glavne pravce u proučavanju nacionalizma kao jednog, kako je već rečeno, od glavnih produkata nacionalnog identiteta u savremenom društvu. Proučavanje nacionalizma je prožeto korišćenjem različitih termina da se opiše sličan ili identičan koncept. Kellas (1998) je podijelio studije koje su proučavale nacionalizam na dva glavna pravca, prije svega na instiktivne i na kontekstualne, dok ih Cronin (1999) svrstava u primordijalizam, etatizam, politički mitologizam i modernizam. Sa druge strane, Smith (2001) ih dijeli u perenijalizam, primordijalizam, etnosimbolizam i modernizam. Svaki od navedenih pravaca može biti široko kategorisan, a savremeni autori se slažu da postoje etnički i modernistički pravac u proučavanju nacionalizma (Kelly, 2007). Razlike koje se pojavljuju između ova dva pravca se temelje na pogledima koji se razlikuju u odnosu na „dan postanka“ nacija. Etnički nacionalisti vjeruju da su nacije postojale i prije posljednjih decenija XVIII vijeka dok moderni nacionalisti prepoznaju nacije kao tvorevinu XVIII i XIX vijeka (Hastings, 1997) i stvaranja modernig država na Berlinskom Kongresu.

Prema Popoviću i Bjelici (2013, 2014), nije pogrešno tvrditi da je sport veoma dobro pozicioniran kada je razvoj nacionalnog identiteta i nacionalnog ponosa u pitanju, a najviše iz razloga što postoje čvrsti dokazi u naučnoj literaturi da uspjeh nacionalnih sportskih timova, ali i organizacije velikih sportskih događaja, kao što su svjetska i kontinentalna takmičenja, mogu doprinijeti povećanju samopoštovanja i nacionalnog ponosa (Dauncey, & Hare, 1999; Gavin, 2007; Karkatsoulis, Michalopoulos, & Moustakatou, 2005). Sa druge strane, veoma je bitno naglasiti da je pogrešno zaključiti da bi svi članovi određenog društva trebalo da eksploatišu sport kao sredstvo za izgradnju svog nacionalnog identiteta, kao i da bi svi članovi određenog društva trebalo da se osjećaju ponosno u situacijama kada njihovi nacionalni timovi postižu značajne sportske uspjehe. Dakle, više je nego jasno da je sport, vjerovatno samo jedan od brojnih faktora koji može da utiče na nacionalni identitet ali i, kao takvoga izuzetno ga je značajno adekvatno istražiti.

Stoga se cilj ove studije odnosi na provjeravanje i analiziranje stavova sportskih navijača koji sistematično prate svoje nacionalne timove prema nacionalnom identitetu, najviše iz razloga što su autori pretpostavili da oni variraju u odnosu na frekvenciju učestvovanja u sportskim aktivnostima, te da ispitanici koji više ućestvuju u sportskim aktivnostima imaju pozitivnije stavove prema nacionalnom identitetu.

METOD

Populaciju u ovoj studiji su činili punoljetni građani koji su, u vrijeme anketiranja, imali prebivalište na teritoriji Crne Gore, dok je uzorak ispitanika organizovan putem kombinovanja ili raslojavanja, tako da su obrađena različita svojstva navedene populacije i različiti prostori na kojima je ona egzistirala. Takođe je vrijedno istaći da su svi ispitanici prepoznali sebe kao sportske navijače, što je bio uslov da budu uključeni u analizu. Anketa je sprovedena tokom 2013. godine a upitnici su distribuirani u tri grada koji su se nalazili u različitim regijama Crne Gore, prije svega u Baru i Kotoru koji se nalaze u južnoj regiji, zatim u Podgorici kao glavnom gradu, Nikšiću koji se

nalazi u srednjoj regiji, kao i u Bijelom polju i Mojkovcu koji se nalaze u sjevernoj regiji, dok su se ispitanici koji su bili anketirani putem interneta i telefonskog razgovora nalazili i na drugim lokacijama u Crnoj Gori. Ukupno je prikupljeno 700 upitnika, ali je 31 upitnik bio isključen iz analize, budući da nisu bili adekvatno popunjeni, tako da je u istraživanju učestvovalo, ukupno 699 ispitanika koji su bili podijeljeni, za potrebe ove studije, na sljedeće subuzorke, prije svega na one koji uopšte ne učestvuju u sportskim aktivnostima (n=97), zatim na one koji učestvuju manje od jednom (n=71), one koji učestvuju 1-4 puta (n=108), 5-10 puta (n=130), 11-20 puta (n=98) i one koji učestvuju više od 20 puta u toku jednog kalendarskog mjeseca (n=165).

Instrument istraživanja je predstavljao standardizovani upitnik koji je bio prilagođen prema Bogdanovu (2011), a uzorak promjenljivih, za potrebe ove studije, je sačinjavao sistem od 19 sudova (tvrdnji) koje su ispitanici ocjenjivali prema sedmo-stepenoj Likertovoj skali vrijednosti. Popunjavanje upitnika nije trajalo, u prosjeku duže od 10 minuta a ispitanici su u anketi učestvovali na dobrovoljnoj osnovi. Važno je naglasiti da je anketa bila anonimna i da su svi odgovori bili strogo povjerljivi. Vijredno je napomenuti i da su ispitanici, i pored svega navedenog imali mogućnost da u svakom momentu opozovu svoje učešće u anketi, ali se niko od njih nije na tako nešto odlučio.

Empirijski podaci su analizirani putem statističkog paketa za društvene nauke (SPSS 20.0), a kao prvi korak, bila je primijenjena deskriptivna statistika kojom su izračunati aritmetička sredina i standardna devijacija. Budući da su se promjenljive u ovoj studiji nalazile na naparametrijskim skalama, radi detaljnijih analiza koje su slijedile, bilo je neophodno da se one, primjenom Blomovog postupka, transformišu u skale višeg reda. Zatim su primjenom Two-sample Hotelling's T-Square testa utvrđene razlike u stavovima ispitanika prema nacionalnom identitetu u odnosu na frekvenciju učestvovanja u sportskim aktivnostima.

REZULTATI

U prvoj tabeli su prikazane aritmetička sredina i standardna devijacija kada su stavovi ispitanika prema nacionalnom identitetu u pitanju, i to za svaki od analiziranih subuzoraka koji su se odnosili na frekvenciju učestvovanja u sportskim aktivnostima.

Tabela 1. *Deskriptivni statistici stavova ispitanika prema nacionalnom identitetu u odnosu na frekvenciju učestvovanja u sportskim aktivnostima tokom kalendarskog mjeseca*

	Mean	SD
uopšte ne učestvuju	4.2642	1.49744
manje od jednom	4.2863	1.53458
1-4 puta	4.3743	1.38224
5-10 puta	4.4603	1.49317
11-20 puta	4.4608	1.35038
više od 20 puta	4.5203	1.50618

Legenda: Mean – aritmetička sredina; SD – standardna devijacija

Analizom empirijskih podataka (Tabela 2.) je utvrđeno da se značajne razlike u stavovima prema nacionalnom identitetu između subuzoraka pojavljuju kod ispitanika koji učestvuju u sportskim aktivnostima više od 20 puta mjesečno (M±SD=4.52±1.51) i onih koji uopšte ne učestvuju u sportskim aktivnostima (M±SD=4.26±1.50), zatim onih koji učestvuju manje od jednom (M±SD=4.29±1.53) i onih koji učestvuju 1-4 puta mjesečno (M±SD=4.37±1.38), kao i između ispitanika koji učestvuju us portskim aktivnostima 11-20 puta mjesečno (M±SD=4.46±1.35) i onih uopšte ne učestvuju u sportskim aktivnostima i onih koji učestvuju manje od jednom mjesečno.

Tabela 2. *Razlike u stavovima ispitanika prema nacionalnom identitetu u odnosu na frekvenciju učestvovanja u sportskim aktivnostima tokom kalendarskog mjeseca na nivou značajnosti (p)*

	manje od jednom	1-4 puta	5-10 puta	11-20 puta	više od 20 puta
uopšte ne učestvuju	0.096	0.449	0.134	0.000	0.000
manje od jednom		0.093	0.228	0.003	0.019
1-4 puta			0.962	0.281	0.050
5-10 puta				0.472	0.394
11-20 puta					0.347

Stoga se može konstatovati da su potvrđena očekivanja autora ove studije, te je pretpostavljeno da je izraženija pripadnost naciji kod sportskih navijača koji više ućestvuju u sportskim aktivnostima a, samim time imaju i pozitivnije stavove prema nacionalnom identitetu.

Diskusija

Karakteristike prethodnih istraživanja koje se odnose na povezanost sporta i nacionalnog identiteta su, uglavnom ne-empirijskog karaktera (citirano u Popović i Bjelica, 2013, 2014), a ovaj odnos je u većini slučajeva istraživan iz antropoloških i psiholoških perspektiva (Bairner, 2001; Giulianotti, 2000; MacAloon, 2006). Veliki broj studija, kao što je, prije svih “Fever Pitch” ali, i niz drugih, naglašavaju jaku vezu između sporta i kolektivnog identiteta (Hornby, 1992). Međutim, malo njih je posmatralo ovaj odnos iz perspektive sportskih nauka, najviše iz razloga što potencijalni autori iz ove oblasti nisu bili posebno zainteresovani za izučavanje navedenog odnosa. Stoga je, prema Heere-u i James-u (2007), povezanost sportskih timova i društvenih grupa koje ih okružuju još uvijek nedovoljno istražena. Najviše iz tog razloga, autori ove studije su se odlučili da se bave ovom problematikom kako bi uspjeli da iskoriste nevjerovatan resurs koji se ogleda u uspjesima nacionalnih sportskih timova u Crnoj Gori, kao vrlo značajnu determinantu koja može značajno pozivno uticati na stavove sportskih navijača prema nacionalnom identitetu, posebno onima koji koji se ne bave ili vrlo malo sportskim aktivnostima, te nemaju izgrađenu vezu sa sportom.

Dakle, od neprocjenjivog je značaja da se sportskim navijačima omogući uključivanje u sistematsko bavljenje sportom, posebno iz razloga što se očekuje da bi njihovo frekventnije učestvovanje u sportskim aktivnostima doprinijelo da se identifikovanje sa članovima svoje ekipe i približilo im naciju kao grupu ljudi, sličnu sportskoj ekipi čiji su pripadnici, koja, prije svega posjeduje zajedničke i osobene elemente kulture, zatim ima jedinstven ekonomski sistem, jednako pravo na državljanstvo za sve članove, potom posjeduje osjećanje solidarnosti koje proizilazi iz zajedničkog iskustva, kao i to njeni članovi zauzimaju zajedničku teritoriju, kako je vidi jedan od najistaknutijih autora u ovoj oblasti (Smith, 1991), te prihvati naciju kao integrisanu društvenu grupu, ne na osnovu jednog, već na osnovu nekoliko objektivnih odnosa, kao što su, prije svega ekonomski, politički, jezički, kulturni, vjerski, geografski, istorijski itd. dok se njihov subjektivni odraz ogleda u kolektivnoj svijesti (Hroch, 1996). U korist svega navedenog idu i zaključci Kellas-a (1998) koji ističe da nacija predstavlja grupu ljudi koji osjećaju da su međusobno povezani istorijskim dešavanjima, kulturnim obilježjima te da imaju zajedničko etničko porijeklo i sličnim kontekstima. Na taj način bi njihovi stavovi trebalo da budu pozitivniji, te da se sa razumijevanjem pojma nacije omogući prelazak na upoznavanje sa nacionalnim identitetom kroz tumačenje nacionalizma kao jednog od glavnih produkata nacionalnog identiteta u savremenom društvu (Popović i Bjelica, 2013, 2014).

Zaključak

Dakle, iako sport nije jedini faktor koji utiče na nacionalni identitet, dobijeni rezultati navede na pretpostavku da bi frekventnije učestvovanje sportskih navijača u sportskim aktivnostima moglo doprinijeti povećanju samopoštovanja i nacionalnog ponosa. Međutim, ovakve preptostavke ne smiju biti apsolutno prihvaćenei moraju biti utvrđene detaljnijim analizama koje će uslijediti.

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ATTITUDES OF SPORTS FANS IN MONTENEGRO TOWARD NATIONAL IDENTITY AMONG THE FREQUENCY OF THEIR PARTICIPATION IN SPORT ACTIVITIES

Introduction: Sport and national identity have been strongly connected through entire history, mostly due to the reason that an individual sportsmen or a national sport team may represent a certain group of people united around a single goal or the

same ideas (Popović & Bjelica, 2013). Hence, they, accompanied with the sports fans, represent an entire nation and foster a sense of national pride amongst members of a given nation (Bogdanov, 2011). Consequently, this research was aimed at gaining relevant knowledge about the attitudes of sports fans that constantly attend the matches of national team toward national identity, mostly due to the reason the authors of this research believed that it could vary according to the frequency of their participation in sport activities in a month. Methods: The sample included 669 respondents who participate in sport activities more than 20 times (n=165), 11-20 times (n=98), 5-10 times (n=130), 1-4 times (n=108), less than ones a month (n=71) and as well as sports fans who never participate (n=97). The sample of variables consisted of 19 items, and the subjects were evaluated it by a seven-point Likert scale. Regarding the statistical analysis, descriptive statistics and Two-sample Hotelling's T-Square test were employed. Results: Based on the results it was concluded that significant differences occurred between sport fans who participate in sport activities more than 20 times (M±SD=4.52±1.51) and those who have never participated it (M±SD=4.26±1.50), those who participated less than ones (M±SD=4.29±1.53) and those who participate 1-4 times a month (M±SD=4.37±1.38), as well as between sport fans who participate in sport activities 11-20 times (M±SD=4.46±1.35) and those who have never participated it and those who participate it less than ones a month. Discussion: Sport is well positioned when we talk about the development of national identity, due to the reason there are many evidence from the previous literature (cited in Popović and Bjelica, 2013) that achievements of national sports teams and organization of major sports events can increase it. In addition, this study recognized stronger affiliation of the subjects who participate in sport activities more to the nation. Although sport is not only one factor that can influence national identity, the results of this study suggest that the personal involvement of sports fans in sports activities might also strengthen its self-esteem and national pride. References: Popović S, Bjelica D (2013). Sport Mont, 37-39, 61-66. Bogdanov D (2011). Influence of National Sport Team Identity on National Identity. Unpublished Doctoral Dissertation. Tallahassee, FL: The Florida State University.

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STAVOVI SPORTSKIH NAVIJAČA U CRNOJ GORI PREMA NACIONALNOM IDENTITETU U ODNOSU NA UZRAST

UVOD

Sport i nacionalni identitet su snažno povezani kroz cijelu istoriju čovječanstva, najviše iz razloga što sportisti od iskona, bilo da su u pojedinačnoj konkurenciji ili da su dio nacionalnih sportskih timova, predstavljali određenu grupu ljudi okupljenih oko istog cilja ili iste ideje (Popović i Bjelica, 2013; Popović, Bjelica i Vasiljević, 2013; Popović i Bjelica, 2014). Samim tim, oni su, zajedno sa navijačima, predstavljali pripadnike određene nacije koju veže osjećaj nacionalnog ponosa koji zajednički njeguju (Bogdanov, 2011). Međutim, kako bi se stekla bolja osnova razumijevanja dobijenih podata u radu, neophodno je, na samom početku navesti operacionalne definicije nacije, sa čijim razumijevanjem je moguće preći na upoznavanje sa nacionalnim identitetom kroz tumačenje nacionalizma kao jednog od glavnih produkata nacionalnog identiteta u savremenom društvu.

Prema Smith-u (1991), koji je jedan od najistaknutijih autora u ovoj oblasti, nacija predstavlja grupu ljudi koja, prije svega posjeduje zajedničke i osobene elemente kulture, zatim ima jedinstven ekonomski sistem, jednako pravo na državljanstvo za sve članove, potom posjeduje osjećanje solidarnosti koje proizilazi iz zajedničkog iskustva, kao i to da njeni članovi zauzimaju zajedničku teritoriju. Sa druge strane, Anderson (1991) podrazumijeva da je nacija „zamišljena zajednica“, najviše iz razloga što, čak i najmanji narod nikada neće upoznati većinu ostalih članova, niti čuti za njih dok će u njihovim mislima postojati veoma prisna međusobna veza. Takođe, Hroch (1996) ističe da nacija predstavlja integrisanu društvenu grupu, ne na osnovu jednog, već na osnovu nekoliko objektivnih odnosa, kao što su, prije svega ekonomski, politički, jezički, kulturni, vjerski, geografski, istorijski itd. dok se njihov subjektivni odraz ogleda u kolektivnoj svijesti. I ostali autori koji su se bavili ovom problematikom su dolazili do sličnih zaključaka, tako Kellas (1998) ističe da nacija predstavlja grupu ljudi koji osjećaju da su međusobno povezani istorijskim dešavanjima, kulturnim obilježjima te da imaju zajedničko etničko porijeklo itd. Daljom analizom utvrđeno je da autori dolaze do različitih tumačenja nacije (Bogdanov, 2011), ali svaki od njih dolazi do istog osjećanja tj. da se nacija sastoji od članova koji dijele iste zajedničke karakteristike kao što su pripadnost zajednici, osjećanje bratstva koje proističe iz zajedničkih iskustava (npr. dijeljenja zajedničke teritorije i sl.), iako nisu nikada upoznali jedni druge. Sa razumijevanjem pojma nacije moguće je preći na upoznavanje sa nacionalnim identitetom kroz tumačenje nacionalizma kao jednog od glavnih produkata nacionalnog identiteta u savre-

menom društvu. Autori ove studije su pokušali da utvrde glavne pravce u proučavanju nacionalizma kao jednog, kako je već rečeno, od glavnih produkata nacionalnog identiteta u savremenom društvu. Proučavanje nacionalizma je prožeto korišćenjem različitih termina da se opiše sličan ili identičan koncept. Kellas (1998) je podijelio studije koje su proučavale nacionalizam na dva glavna pravca, prije svega na instiktivne i na kontekstualne, dok ih Cronin (1999) svrstava u primordijalizam, etatizam, politički mitologizam i modernizam. Sa druge strane, Smith (2001) ih dijeli u perenijalizam, primordijalizam, etnosimbolizam i modernizam. Svaki od navedenih pravaca može biti široko kategorisan, a savremeni autori se slažu da postoje etnički i modernistički pravac u proučavanju nacionalizma (Kelly, 2007). Razlike koje se pojavljuju između ova dva pravca se temelje na pogledima koji se razlikuju u odnosu na „dan postanka“ nacija. Etnički nacionalisti vjeruju da su nacije postojale i prije posljednjih decenija XVIII vijeka dok moderni nacionalisti prepoznaju nacije kao tvorevinu XVIII i XIX vijeka (Hastings, 1997) i stvaranja modernig država na Berlinskom Kongresu.

Prema Popoviću i Bjelici (2013, 2014), nije pogrešno tvrditi da je sport veoma dobro pozicioniran kada je razvoj nacionalnog identiteta i nacionalnog ponosa u pitanju, a najviše iz razloga što postoje čvrsti dokazi u naučnoj literaturi da uspjeh nacionalnih sportskih timova, ali i organizacije velikih sportskih događaja, kao što su svjetska i kontinentalna takmičenja, mogu doprinijeti povećanju samopoštovanja i nacionalnog ponosa (Dauncey, & Hare, 1999; Gavin, 2007; Karkatsoulis, Michalopoulos, & Moustakatou, 2005). Sa druge strane, veoma je bitno naglasiti da je pogrešno zaključiti da bi svi članovi određenog društva trebalo da eksploatišu sport kao sredstvo za izgradnju svog nacionalnog identiteta, kao i da bi svi članovi određenog društva trebalo da se osjećaju ponosno u situacijama kada njihovi nacionalni timovi postižu značajne sportske uspjehe. Dakle, više je nego jasno da je sport, vjerovatno samo jedan od brojnih faktora koji može da utiče na nacionalni identitet ali i, kao takvoga izuzetno ga je značajno adekvatno istražiti.

Stoga se cilj ove studije odnosi na provjeravanje i analiziranje stavova sportskih navijača koji sistematično prate svoje nacionalne timove prema nacionalnom identitetu, najviše iz razloga što su autori pretpostavili da oni variraju u odnosu na uzrast, te da ispitanici koji starije uzrasne dobi imaju pozitivnije stavove prema nacionalnom identitetu.

METOD

Populaciju u ovoj studiji su činili punoljetni građani koji su, u vrijeme anketiranja, imali prebivalište na teritoriji Crne Gore, dok je uzorak ispitanika organizovan putem kombinovanja ili raslojavanja, tako da su obrađena različita svojstva navedene populacije i različiti prostori na kojima je ona egzistirala. Takođe je vrijedno istaći da su svi ispitanici prepoznali sebe kao sportske navijače, što je bio uslov da budu uključeni u analizu. Anketa je sprovedena tokom 2013. godine a upitnici su distribuirani u tri grada koji su se nalazili u različitim regijama Crne Gore, prije svega u Baru i Kotoru koji se nalaze u južnoj regiji, zatim u Podgorici kao glavnom gradu, Nikšiću koji se nalazi u srednjoj regiji, kao i u Bijelom polju i Mojkovcu koji se nalaze u sjevernoj regiji, dok su se ispitanici koji su bili anketirani putem interneta i telefonskog razgovora

nalazili i na drugim lokacijama u Crnoj Gori. Ukupno je prikupljeno 700 upitnika, ali je 31 upitnik bio isključen iz analize, budući da nisu bili adekvatno popunjeni, tako da je u istraživanju učestvovalo, ukupno 699 ispitanika koji su bili podijeljeni, za potrebe ove studije, na sljedeće subuzorke, prije svega na one koji imjau manje od 20 godina (n=97), zatim na one koji imaju 20 -30 godina (n=71), one koji imaju 30-40 godina (n=108), 40 – 50 godina (n=130), 50 – 60 godina (n=98) i one koji imaju 60 godina i više (n=165).

Instrument istraživanja je predstavljao standardizovani upitnik koji je bio prilagođen prema Bogdanovu (2011), a uzorak promjenljivih, za potrebe ove studije, je sačinjavao sistem od 19 sudova (tvrdnji) koje su ispitanici ocjenjivali prema sedmo-stepenoj Likertovoj skali vrijednosti. Popunjavanje upitnika nije trajalo, u prosjeku duže od 10 minuta a ispitanici su u anketi učestvovali na dobrovoljnoj osnovi. Važno je naglasiti da je anketa bila anonimna i da su svi odgovori bili strogo povjerljivi. Vijredno je napomenuti i da su ispitanici, i pored svega navedenog imali mogućnost da u svakom momentu opozovu svoje učešće u anketi, ali se niko od njih nije na tako nešto odlučio.

Empirijski podaci su analizirani putem statističkog paketa za društvene nauke (SPSS 20.0), a kao prvi korak, bila je primijenjena deskriptivna statistika kojom su izračunati aritmetička sredina i standardna devijacija. Budući da su se promjenljive u ovoj studiji nalazile na naparametrijskim skalama, radi detaljnijih analiza koje su slijedile, bilo je neophodno da se one, primjenom Blomovog postupka, transformišu u skale višeg reda. Zatim su primjenom Two-sample Hotelling's T-Square testa utvrđene razlike u stavovima ispitanika prema nacionalnom identitetu u odnosu na uzrast ispitanika.

REZULTATI

U prvoj tabeli su prikazane aritmetička sredina i standardna devijacija kada su stavovi ispitanika prema nacionalnom identitetu u pitanju, i to za svaki od analiziranih subuzoraka koji su se odnosili na uzrast ispitanika.

Tabela 1. *Deskriptivni statistici stavova ispitanika prema nacionalnom identitetu u odnosu na uzrast ispitanika*

	Mean	SD
manje od 20 godina	4.42	1.17
20 -30 godina	4.39	1.44
30 – 40 godina	4.44	1.46
40 – 50 godina	4.49	1.48
50 – 60 godina	4.45	1.39
60 godina i više	4.72	1.10

Legenda: Mean – aritmetička sredina; SD – standardna devijacija

Analizom empirijskih podataka (Tabela 2.) je utvrđeno da se značajne razlike u stavovima prema nacionalnom identitetu između subuzoraka pojavljuju kod ispitanika koji su stariji od 60 godina (M±SD=4.72±1.10) i svih ostalih ispitivanih grupa, osim

onih čiji je uzrast bio svrstan u grupu 40-50 godina (M±SD=4.49±1.48). Sa druge strane, značajne razlike su, takođe utvrđene između ispitanika starih 50-60 godina (M±SD=4.45±1.39) i onih koji su scrstali sebe u kategoriju 20-30 godina starosti (M±SD=4.39±1.44) i onih mlađih od 20 godina (M±SD=4.42±1.17).

Tabela 2. *Razlike u stavovima ispitanika prema nacionalnom identitetu u odnosu na uzrast ispitanika na nivou značajnosti (p)*

	20 -30	30 -40	40 -50	50 -60	više od 60
manje od 20	0.390	0.360	0.101	0.000	0.000
20 -30		0.742	0.281	0.006	0.001
30 – 40			0.664	0.071	0.012
40 – 50				0.160	0.677
50 – 60					0.024

Stoga se može konstatovati da su potvrđena očekivanja autora ove studije, te je pretpostavljeno da je izraženija pripadnost naciji kod sportskih navijača koji su stariji a, samim time imaju i pozitivnije stavove prema nacionalnom identitetu.

DISKUSIJA

Karakteristike prethodnih istraživanja koje se odnose na povezanost sporta i nacionalnog identiteta su, uglavnom ne-empirijskog karaktera (citirano u Popović i Bjelica, 2013, 2014), a ovaj odnos je u većini slučajeva istraživan iz antropoloških i psiholoških perspektiva (Bairner, 2001; Giulianotti, 2000; MacAloon, 2006). Veliki broj studija, kao što je, prije svih “Fever Pitch” ali, i niz drugih, naglašavaju jaku vezu između sporta i kolektivnog identiteta (Hornby, 1992). Međutim, malo njih je posmatralo ovaj odnos iz perspektive sportskih nauka, najviše iz razloga što potencijalni autori iz ove oblasti nisu bili posebno zainteresovani za izučavanje navedenog odnosa. Stoga je, prema Heere-u i James-u (2007), povezanost sportskih timova i društvenih grupa koje ih okružuju još uvijek nedovoljno istražena. Najviše iz tog razloga, autori ove studije su se odlučili da se bave ovom problematikom kako bi uspjeli da iskoriste nevjerovatan resurs koji se ogleda u uspjesima nacionalnih sportskih timova u Crnoj Gori, kao vrlo značajnu determinantu koja može značajno pozivno uticati na stavove sportskih navijača prema nacionalnom identitetu, posebno mlađim generacijama koje su iskazali slabiju identifikaciju sa svojom nacijom.

Dakle, značajno je da se sportskim navijačima iz mlađih uzrasnih kategorija, kroz različite obrazovne jursevem omogući suštinsko upoznavanje sa nacijom kao grupom ljudi koja, prije svega posjeduje zajedničke i osobene elemente kulture, zatim ima jedinstven ekonomski sistem, jednako pravo na državljanstvo za sve članove, potom posjeduje osjećanje solidarnosti koje proizilazi iz zajedničkog iskustva, kao i to njeni članovi zauzimaju zajedničku teritoriju, kako je vidi jedan od najistaknutijih autora u ovoj oblasti (Smith, 1991), te prihvati naciju kao integrisanu društvenu grupu, ne na osnovu jednog, već na osnovu nekoliko objektivnih odnosa, kao što su, prije svega ekonomski, politički, jezički, kulturni, vjerski, geografski, istorijski itd. dok se njihov

subjektivni odraz ogleda u kolektivnoj svijesti (Hroch, 1996). U korist svega navedenog idu i zaključci Kellas-a (1998) koji ističe da nacija predstavlja grupu ljudi koji osjećaju da su međusobno povezani istorijskim dešavanjima, kulturnim obilježjima te da imaju zajedničko etničko porijeklo i sličnim kontekstima. Na taj način bi njihovi stavovi trebalo da budu pozitivniji, te da se sa razumijevanjem pojma nacije omogući prelazak na upoznavanje sa nacionalnim identitetom kroz tumačenje nacionalizma kao jednog od glavnih produkata nacionalnog identiteta u savremenom društvu (Popović i Bjelica, 2013, 2014).

ZAKLJUČAK

Dakle, iako sport nije jedini faktor koji utiče na nacionalni identitet, dobijeni rezultati navede na je neophodno obratiti posebnu pažnju na malže kategorije sportskih naijača. Snažnim uticajem globalnih svjetskih tokova, pretpostavlja se da su mlaži navijači počeli da gube svoje nacionalne vrijednosti, a da bi takav trend trebalo zaustaviti organizacijom edukativnih kurseva koji bi značajno mogli doprinijeti povećanju samopoštovanja i nacionalnog ponosa. Međutim, ovakve preptostavke ne smiju biti apsolutno prihvaćene i moraju biti utvrđene detaljnijim analizama koje će uslijediti.

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ATTITUDES OF SPORTS FANS IN MONTENEGRO TOWARD NATIONAL IDENTITY AMONG THEIR AGES

Introduction: It is widely known that sport and national identity have been strongly connected through entire history. An individual sportsmen or a national sport team may represent a certain group of people united around a single goal or the same ideas (Popovic & Bjelica, 2013). Hence, they, accompanied with the sports fans, represent an entire nation and foster a sense of national pride amongst members of a given nation (Bogdanov, 2011). Consequently, this research was aimed at gaining relevant knowledge about the attitudes of sports fans that constantly attend the matches of national team toward national identity, mostly due to the reason the authors of this research believed that it could vary according to their ages. Methods: The sample included 669 respondents who have been divided into six subgroups: younger than 20 years old (n=326), 20-30 years old (n=203), 30-40 years old (n=46), 40-50 years old (n=30), 50-60 years old (n=42) as well as sports fans who were older than 60 years old (n=22). The sample of variables consisted of 19 items, and the subjects were evaluated it by a seven-point Likert scale. Regarding the statistical analysis, descriptive statistics

and Two-sample Hotelling's T-Square test were employed. Results: Based on the results it was concluded that significant differences occurred between sport fans who are older than 60 year old (M±SD=4.72±1.10) and all other groups, except those who are 40-50 years old (M±SD=4.49±1.48). On the other hand, the significant differences were also occurred between sport fans who are 50-60 year old (M±SD=4.45±1.39) and those who are 20-30 years old (M±SD=4.39±1.44) and those who are younger than 20 years old (M±SD=4.42±1.17). Discussion: It is the fact, judging from some evidence from the previous literature, that sport is well positioned when we talk about the development of national identity (cited in Popovic and Bjelica, 2013). Consequently, the achievements of national sports teams and organization of major sports events can increase it, while this study recognized stronger affiliation of the subjects who are older to its nation. Although sport is not only one factor that can influence national identity, according to the results of this study the tendency of national strategies must be much more focused on strengthening self-esteem and national pride of young population. References: Popović S, Bjelica D (2013). Sport Mont, 37-39, 61-66. Bogdanov D (2011). Influence of National Sport Team Identity on National Identity. Unpublished Doctoral Dissertation. Tallahassee, FL: The Florida State University.



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REPETITIVE STRENGTH AMONG STUDENTS OF AGE 14

Introduction

The main goal of this study was to verify the actual motor status, respectively the component of the repetitive strength among students of age 14 of masculine gender of an area with specific geographic characteristics, and almost not developed at all from the sports perspective. In addition, the scale of relationship between variables which measured the repetitive strength, verifying latent structures of the repetitive strength dimension in the sense of its topologic hierarchy were analyzed. Known that repetitive strength is human ability to execute motor movements unlimited duration or until rejection, also genetic coefficient of repetitive strength is 50%.This research was focused mainly in verifying the actual motor status, respectively the repetitive strengthamong students of age 14. In addition to verifying the actual motor status, another objective was to verify the relationship between the variables employed. It was expected to obtain significant correlations among movement variables, and the repetitive strength was expected to concentrate in one single factor.

Material and methods

The study involved 82 male students of the primary school “Qamil Ilazi” in Kaçanik-Kosovo. All those tested enjoyed good health. Measurements were conducted in the morning during regular physical education classes in this school in the period September – October (2002).

Four movement tests, which test the repetitive strength,were conducted: 1.Pull-up, 2.Sit-Up, 3. Back extension, 4. Push-up. The methods used to analyze the data are standard methods using SPSS, correlation method and factorial analysis method.

Results and discussion

Basic statistical parameters show a distribution which is not significantly different from the normal distribution. This enabled us to continue using the deductive statistical methods, which yielded highly correlative values among the repetitive strength tests, while in the latent space of this dimension;two latent motor factors were obtained. Based on the actual motor status, respectively on the repetitive strength of this sample according to MAX D values, it is found that the distribution is not significantly different from the normal distribution, since the variable values are lower than the values of the test, which is TEST= .180.

Table 1. *Basic statistical parameters*

Variable	N	Min	Max	Mean	Std.Dev.	Skew	Kurt	KV%	MaxD
Pull-up	82	0	11	3.9	2.61	0.469	-0.23	67.08	0.11
Sit-Up	82	10	196	51.31	26.44	2.642	11.06	51.52	0.155
Back extension	82	8	110	48.98	19.77	0.469	1.08	40.36	0.082
Push-up	82	0	53	18.69	10.25	0.469	0.8	54.84	0.128

TEST= .180.

The scale of relationship between repetitive strengthvariables was partial since not all correlation test values were statistically significant.

Table 2. *Correlations between variables*

Variable	Pull-up	Sit-Up	Back extension	Push-up
Pull-up	1			
Sit-Up	0.069	1		
Back extension	0.179	.223*	1	
Push-up	.482**	0.177	.244**	1

Legend: *& ** Significant for the 0.05 & 0.01

Space factorization results in extracting two latent squares, so that according to parallel projections, the first factor which carries most of information is the repetitive strength of arms factor, which resulted in high values of correlation with Pull-uptest values of .892 and Push-upvalue of .807, while the second factor is the repetitive strength of body factor, which has high correlation with Sit-Up test values of .872 and Back extension value of .665.

Table 3. *Characteristic roots and parts of the common variance explained*

Variable	Lambda	Variance%	Cum %
1	**1.718**	42.956	**42.956**
2	**1.016***	25.409	**68.365****
3	0.761	19.018	87.383
4	0.505	12.617	100

Table 4. *Amaze of the parallel projection*

Number	Variable	Factor 1	Factor 2
1	Pull-up	**0.892**	-0.097
2	Sit-Up	-0.133	**0.872**
3	Back extension	0.18	**0.665**
4	Push-up	**0.807**	0.129

Conclusion

The study concludes that the distribution is mainly normal, because the MAX D variable values are lower than the values of the test, which is TEST= .180. The scale of relationship between repetitive strength variable was partial since not all correlations were statistically significant. Space factorization resulted in extracting two latent squares defined as repetitive strength of arms factorwhich resulted in high values of correlation with Pull-up test values of .892 and Push-up value of .807, and repetitive strength of body factorwhich has high correlation with Sit-Up test values of .872 and Back extension value of .665. Despite the young age of the students involved in this research and despite that the sample was selected from of an area with specific geographic characteristics, and almost not developed at all from the sports perspective. Research shows that current physical condition and health of the students is good, enough space to move, and to make motor activity was also in their favor,although the repetitive strength was expected to concentrate in one single factor.

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REPETITIVE STRENGTH AMONG STUDENTS OF AGE 14

The study involved 82 male students of the primary school "Qamil Ilazi" in Kaçanik-Kosovo.Four movement tests, which test the repetitive strength, were conducted: 1. Pull-up, 2. Sit-Up, 3. Back extension, 4. Push-up.The main goal of this study was to verify the actual motor status, respectively the component of the repetitive strength among students of age 14 of masculine gender. In addition to verifying the actual motor status, another objective was to verify the relationship between the variables employed.Basic statistical parameters show a distribution which is not significantly different from the normal distribution, yielded highly correlative values among the repetitive strength tests. Space factorization resulted in extracting two latent squares defined as repetitive strength of arms factor, and repetitive strength of body factor.

Key Words: *repetitive strength, motor status, factor, male.*

"Dan", 1. februar 2014.

У СУСРЕТ 11. МЕЂУНАРОДНОЈ КОНФЕРЕНЦИЈИ И 10. КОНГРЕСУ ЦРНОГОРСКЕ СПОРТСКЕ АКАДЕМИЈЕ

Све спремно за почетак

Пријава радова за излагање на 11. међународној научној конференцији о трансформационим процесима у спорту „Спортска достигнућа“ и учешће на 10. Конгресу Црногорске спортске академије је окончана 15. јануара. Поред великог броја пристиглих радова, рецензенти су прихватили и одабрали 102 адекватно припремљена рада чији аутори су се строго држали прецизно формулисаних пропозиција за припрему истих. Поред 102 регистрована учесника који ће презентовати своје радове, пријављено је још и 13 учесника који ће пратити конференцију без пријављеног рада.

– Овогодишњу конференцију краси чињеница да је национална структура аутора веома шаролика, тј. аутори су са свих страна свијета, из 25 земаља, рекао је проф. др Душко Бјелица, предсједник приређивачког одбора Конгреса. – Наведени научни радови су пријављивани по понуђеним секцијама, тако да би вриједно било истаћи да су аутори препознали секције у оквиру конференције коју организује Црногорска спортска академија као референтно мјесто за излагање својих научних достигнућа, рекао је Бјелица


Душко Бјелица

Организатори су саопштили да се аутори пријављених радова обавјештавају о њиховом прихватању до 1. фебруара.

– Врло брзо ће бити припремљен програм рада, гдје ће бити детаљно разрађен распоред излагања који ће се одвијати паралелно на два језика, нашем и енглеском. Уводна предавања су до сада потврђена од стране проф. др Зорана Милошевића са Факултета спорта и физичког васпитања Универзитета у Новом Саду и доц. др Селчука Акпинара са Департмана за спорт Невшехир Хачи Бекташ Вели Университа из Анкаре, рекао је члан Организационог одбора доц. др Стево Поповић.

Г.Б.

UDK: 796.325.012.1

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ANTHROPOMETRIC AND MOTORIC COMPARISONS BETWEEN THE TWO VOLLEYBALL TEAMS IN PRISHTINA

Introduction

In relation to the structure of movements, volleyball is within the group of complex poly-structural sports. Through the game of volleyball it is achieved the transformation of anthropological characteristics as those morphological, cognitive and conative, especially those motoric ones and situational motoric.

In enhancing of sports results, in today’s time the quantity of (volume and intensity) of work is not the only decisive criteria, but also the quality of work (changing the stereotype of the work, the elimination of redundant movements, the rationalisation of the game with its elements, etc..).

All these circumstances and factors mentioned stimulated me that through this paper and through methods for processing of results, to try and give a true and factual picture of the situation, with particular emphasis on the evaluation of some anthropometric and motoric characteristics to the players of both volleyball clubs from Prishtina.

The main problem which is is treated in this paper is the verification of the situation and differences between these players of the two clubs, through the results arising from variables that I have chosen for this purpose.

The purpose of the paper is to diagnose the morphological and motor status of players for both clubs, and then based on the results gained for the anthropometric status we can make an comparisons analysis..

METHODS

In this research there are 30 players involved (15 from each team) of both volleyball clubs from Prishtina. That are VC “ Prishtina” and VC “Prishtina 1”.

It must be emphasized that all players are fully fit to attend regular exercises within their clubs.

V.C “Prishtina” attend in the Volleyball Super Ligue of Kosova and V.C “Prishtina 1” atend in the first ligue of Kosovo. The both Volleyball clubs have exercise 5 times during the week.

Volleyball Club “Prishtina”:

- Average age of players is 27 years and 1 month,
- exercise volleyball in average of 12 years and 3 months,
- play volleyball average 10 years and 8 months,
- With other sports activities there are 68 % treated players that deal with is.

Volleyball Club “Prishtina I”:

- Average age of players is 25 years and 2 month,
- exercise volleyball in average of 10 years and 2.5 months,
- play volleyball average 9 years and 1.5 months,
- With other sports activities there are 37 % treated players that deal with is.

Based on the purpose of the research, the sample of the variable consists of 14 measuring instruments (variables). Out of them 8 from anthropometry, 4 from motor and 2 by situational motor. And they are: body weight, body height, leg length, thigh circumference, calf circumference, abdominal adipose tissue, redness hand width, length fasciitis, Crouch on the bench, the jump on the length from the spot, Hand Taping in the bank, Jogging 20 meters (High Start), Passing the ball from different positions (5x4m), Jogging at the different angles (4x5m).

For processing of the results in this research the following methods were used:

Mid arithmetic, variance, standard deviation, standard error of the arithmetic average, coefficient of variance, maximum score, minimum score, T-test, according to Pearson correlation coefficient, and hypothesis testing on the validity of the r-s at 0:05 levels of safety stairs.

RESULTS

Table 1. *STATISTICAL ANALYSIS OF ANTHROPOMETRIC VARIABLES FOR V.C "Prishtina "*

		$\bar{x}$	S^2	DS	$S_{\bar{x}}$	KV %	Mmax	Mmin
1.	APT	7404.16	6672.74	81.68	23.60	11.03	930	640
2.	ALT	1914.33	2098.38	45.80	13.23	2.58	1943	1690
3.	AGJK	999.83	798.63	28.26	8.16	2.82	1035	935
4.	APKO	557.16	661.30	25.71	7.43	4.61	604	513
5.	APK	355.75	1386.85	37.24	10.76	10.46	406	260
6.	AIDHB	8.33	26.88	4.77	1.37	57.26	22	4
7.	AGJKD	71.75	19.85	5.18	1.28	6.25	78	61
8.	AGJSH	263.5	86.58	9.30	2.68	3.52	287	253

Through the methods for finding of the distribution results, we can conclude that the variables 2, 3, 4, 7 and 8, have symmetric distribution of the mid arithmetic's. The small value of the coefficient variance percentage gives us that the group in these variables was more homogeneous. In variable of the *abdominal adipose tissue* and *body weight* of the group of players have been more heterogeneous and have a greater distribution of the mid arithmetic's, with a higher percentage of the variance coefficient (57.26 and 11.03 value).

Table 2. *STATISTICAL ANALYSIS OF MOTOR VARIABLES FOR V.C. “Prishtina”*

		$\bar{x}$	V	DS	$S\bar{x}$	KV %	Rmax	Rmin
1.	MPB	48.58	41.40	6.43	1.85	13.23	58	32
2.	MKGJV	231.25	171.35	13.09	3.78	5.66	250	210
3.	MTDB	22.66	12.72	3.56	1.02	15.71	29	18
4.	MV20m	3.16	0.03	0.18	0.05	5.69	2.89	3.7
5.	MPTP	4.22	0.06	0.25	0.07	5.92	3.61	4.57
6.	MVKN	6.54	0.08	0.29	0.08	4.43	6.0	7.02

As far as the distribution of results in motor variables for V.C "Prishtina", a greater homogeneity of the group is noticed in the variables 2, 4, 5 and 6, which tells us that this group of individuals in these variables do not differ significantly from each other. While, in the variables 3 and 1, and MTDB and MPB, it is noticed a significant variability in what is proved with higher values of the variance coefficient. Based on the distribution measurements of the distribution results, respectively to the standard deviation values to the average arithmetic’s we can assume that almost in all motor variables there is a symmetric distribution of results.

Table 3. *STATISTICAL ANALYSIS OF ANTHROPOMETRIC VARIABLES FOR V.C “Prishtina 1”*

		$\bar{x}$	S^2	DS	$S\bar{x}$	KV %	R max	R min
1.	APT	689.41	4827.91	69.48	20.03	10.07	840	615
2.	ALT	1885.75	2952.85	54.34	15.70	3.14	1934	1630
3.	AGJK	964.08	1004.07	31.68	9.15	3.28	1045	916
4.	APKO	546.75	1222.68	34.96	10.02	6.39	626	500
5.	APK	364.41	278.74	16.69	4.82	4.58	395	347
6.	AIDHB	8.75	4.52	2.12	0.61	24.22	13.5	6
7.	AGJKD	73.66	18.22	4.26	1.23	5.78	85	69
8.	AGJSH	264.25	88.18	9.39	2.71	3.55	286	248

In the table 3. There are basic statistical parameters given of anthropometric variables V.C. "Prishtina1" In all variables, the measurements of distribution of results are not mainly clustered around the average arithmetic, which we can assume for the abnormal distribution of results. Even on the basis of the coefficient of variability of relevant variables, it is noticed emphasized differences of subjects. The group is not homogeneous in the variable of *abdominal adipose tissue* AIDHB with V.C. = 24.22. A significant variability is shown in the *body weight* variable APT. Such variability is also presented at the volleyball players of "Pristina 1".

Table 4. *STATISTICAL ANALYSIS OF MOTOR VARIABLES FOR V.C. “Prishtina 1”*

		$\bar{x}$	S^2	DS	$S\bar{x}$	KV %	Rmax	Rmin
1.	MPB	43.41	56.57	7.52	2.17	17.32	59	30
2.	MKGJV	224	473.5	21.76	6.28	9.71	288	195
3.	MTDB	21.58	5.90	2.43	0.70	11.26	26	18
4.	MV20m	3.37	0.04	0.22	0.06	6.25	2.84	3.79
5.	MPTP	4.33	0.05	0.23	0.06	5.31	4.06	4.83
6.	MVKN	6.63	0.16	0.40	0.11	6.03	6.03	7.45

As it can be seen from the table above, when comparing with the distribution of results of anthropometric dimensions, at the motor variables V.C. "Prishtina 1" we have a more symmetrical distribution of results, namely at the variables 2, 4, 5, and 6, which confirms the low value of the rate variance coefficient, as well as the measurement of results distribution - standard deviation (DS). While, in the variables MPB and MTDB we do not have a symmetrical distribution of the average arithmetic, which is confirmed also by the high value of the rate variance of coefficient. This heterogeneity of the group into these two variables is determined by individuals with very good results and in the other hand individuals with poorer results.

INTERPRETATION OF VALUES T-test

		$\bar{x}_1$	$\bar{x}_2$	T-test
1.	APT	7404.16	689.41	3.15
2.	ALT	1874.33	1825.75	4.53
3.	AGJK	999.83	964.08	5.58
4.	APKO	557.16	546.75	1.59
5.	APK	355.75	364.41	- 1.40
6.	AIDHB	8.33	8.75	- 0.49
7.	AGJKD	71.75	73.66	- 2.06
8.	AGJSH	263.5	264.25	- 0.37
1.	MPB	48.58	43.41	3.46
2.	MKGJV	231.25	224	1.89
3.	MTDB	22.66	21.58	1.66
4.	MV20m	3.16	3.37	- 4.67
5.	MPTP	4.22	4.33	- 2.04
6.	MVKN	6.54	6.63	- 1.28

By analyzing the values obtained by means of the method of T - Test, at the level of 0:05 or 95% of reliability, the results with value of 2.17 and onwards are with significant statistical value. It is noticed that in the space of anthropometric dimensions there are valid statistical differences which appear between the two clubs, and that in the variables: ***body weight*** at the value of 3.15, ***body height*** at the value of 4.53 and ***leg length*** at the value of 5:58. All significant changes in the above mentioned variables

are for the good of V.C. "Prishtina". Changes in ALT and AGJK variables are determined by longitudinal factor which is important in the game of volleyball. Also in the space of motor dimensions, on the basis of the results achieved with the help of T-test, there are valid statistical changes presented in the variables of ***crouching on the bench*** at the value of 3:46 and ***jogging 20 m*** with value of -4.67. It is well known that fast players have a great advantage in: counterattacks, quick defense, etc. Both changes are in the favour of VC "Prishtina"

Table 5. *THE REGISTER OF THE CORELATIONS OF ANTHROPOMETRIC AND MOTOR VARIABLES OF BOTH CLUBS*

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1.	APT	1.00													
2.	ALT	.58	1.00												
3.	AGJK	.51	.94	1.00											
4.	APKO	.83	.42	.42	1.00										
5.	APK	.45	.30	.40	.57	1.00									
6.	AIDHB	.86	.45	.45	.85	.59	1.00								
7.	AGJKD	.34	.34	.46	.18	.38	.10	1.00							
8.	AGJSH	.89	.59	.59	.83	.54	.93	.22	1.00						
9.	MPB	-.23	-.37	-.44	-.31	-.31	-.10	-.40	-.32	1.00					
10.	MKGJV	.46	.16	.12	.17	.04	.33	.52	.31	.00	1.00				
11.	MTDB	.16	.05	.07	-.01	.12	.34	.19	.26	.42	.66	1.00			
12.	MV20m	.24	.41	.38	.42	.46	.43	.02	.36	.17	.10	.43	1.00		
13.	MPTP	.33	.21	.23	.13	.16	.16	.11	.26	-.52	-.07	-.49	-.59	1.00	
14.	MVKN	.02	.44	.57	.21	.28	.04	.05	.18	-.67	-.57	-.64	-.71	.52	1.00

Testing of the hypothesis on the validity of the correlation coefficient in the level of safety stairs 0:05. Significant correlations at the level of 0:05 probabilities are the correlations with the value over 0:56. In the table 5, it is presented registry of correlations of anthropometric and those motor variables of the clubs. If we analyze the values obtained in the registry table of correlations, we can see that in most of the anthropometric variables are obtained higher correlative values between the space of morphological dimensions. These high values are especially evident at the variables: AGJSH, APT and AIDHB in relation to the other anthropometric variables. In the space of motor variables, a significant correlation is achieved in the MVKN variable with the variables of flexibility test, explosive power, frequency of movements of the legs and fast running in 20 m.

CONCLUSION

It is known that the researching of problems of anthropometric dimensions and the motor skills in the field of sports kinesiology requires a multidimensional study approach to this nature of problems. From the research variables which we have presented to realize our goal, such an approach it is required. The results obtained in

this research, the verifying of the hypotheses set forth earlier, enable us to conclude that the goal set out in this research to a large extent is achieved. The statistical methods with which the results have been processed can explain the condition of anthropometric and motor characteristics. With the help of T-test we came to the conclusion that valid statistical differences (between the two clubs which have been subject to research) has, in the space of anthropometric and motor dimensions on behalf of VC "Prishtina".

So, with the help of correlation (according to Pearson) we saw the inter-correlative relations anthropometric variables, and concluded that these relations are at a high level of connection for both clubs. In the area of motor these correlations were weaker. Whereas, the connectivity between anthropometric and motor variables was based only on one correlation for both clubs. These weak inter-correlative relationships are reflected due to the morphological variability and psychophysical abilities of players. Results obtained from anthropometric and motor variables give us a clear picture on the factual situation of morphological characteristics and motor skills for players of these two clubs.

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ANTHROPOMETRIC AND MOTORIC COMPARISONS BETWEEN THE TWO VOLLEYBALL TEAMS IN PRISHTINA

Introduction: The increase in sports results today not only identifies the quantity (volume and intensity) of the work put in, but also the quality (changing the stereotypical notion of effort, eliminating redundant movements, rationalizing the sport in all elements etc). All of these circumstances and factors referred in this paper are stimulated through practical methods for processing positive results and aiming to present a realistic and factual reflection of the current condition, particularly emphasizing the evaluation of several anthropometric and motor characteristics of the players in both volleyball clubs from Prishtina. Methods: These methods are elaborated among arithmetic methods, variance, standard deviation and standard error of the arithmetic

mean, the coefficient of variance, the maximum and minimum score test, the score in accordance to the Pearson correlation coefficient-whereas the instruments measured 14 variables such as anthropometric 8, 4 motors and 2 situational. The main purpose to which is addressed in this paper is verifying the situation and the differences between the players in two of the clubs by analyzing the results from the variables I have chosen. Results: The results show that there is a significant differentiation between one volleyball group to the other in terms of motor, anthropometric and situational. This is proven by the results of the data based on the parameters abovementioned. Discussion: Results acquired on in the research, verifies the hypotheses which sets forth previously, it helps to us to understand that the main goal in this research has largely been achieved. Statistical methods that have been processed results may explain the state of anthropometric and motor characteristics. Moreover, with the help of T-test we came to understand the valuable statistical differences between two clubs which have been subject to research. These results are best justified considering the fact that the first group of fallow this year was much more successful than the second group. In the current discussion on the results obtained from anthropometric and motor variables give us a clear picture of the actual situation on morphological characteristics and motor skills, the players of these two groups/clubs. References: Bompa T (2000) Periodization: Theory and Methodology of Traning. Ilinois, USA. Frohreich H, Irmgard D, Konzag K (1992) Voleyball Spielend Trainieren. Berlin, Germany. Tahiraj E, Rexhepi F (2010) Some main morphological characteristics and locomotive-technical of national teams at the grand prix 2010 in volleyball (women). 14-symposium for the sport to Physical Education in young people, Ohrid, Macedonia. Kostic R (2000) Theory and Methodology of Sports Training Volleyball games, Nis, Serbia.

“Dan”, 4. april 2014.

НАУЧНИ СКУПОВИ ЦРНОГОРСКЕ СПОРТСКЕ АКАДЕМИЈЕ ДАНАС ПОЧИЊУ РАД

Свечано отварање у 16

Свечано отварање 11. међународне научне конференције о трансформационим процесима у спорту „Спортска достигнућа“ и десетог Конгреса Црногорске спортске академије под називом „Трансформациони процеси у спорту“, обавиће се данас у 16 часова у згради Ректората Универзитета Црне Горе. Гостима ће се, између осталих обратити проф. др Предраг Мирановић, ректор УЦГ и министри из Владе РЦГ – просвјете и спорта **Славољуб Стијеповић** и науке **Сања Влаховић.** На овогодишњој конференцији учествоваће 63 научника који ће излагати своје радове, док је укупно на радовима 138 аутора и коаутора. Одмах након свечаног отварања предвиђена су пленарна предавања проф. др **Зорана Милошевића** са Факултета спорта и физичког васпитања и доц. др **Селчука Акпинара** са Департмана за спорт Невшехир Хаџи Бекташ Вели Универзитета.

Т.Б.

UDK: 797.212.2(497.115)

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ANALYZE OF RESULTS OF THE KOSOVO SWIMMERS ALONG EIGHT YEAR PERIOD, BREASTSTROKE TECHNIQUE AT DISCIPLINES 50 AND 200 METERS

Introduction

The first purpose of this study was to analyze longitudinal swimming results at several competitions through eight years period. Our aim was to verify if it was progress of Kosovo swimmers from 2002 to 2009 respectively 2003 to 2009. This research has had the aim to see trends and changes between these years, analyzing them in breaststroke technique at 50 and 200 meters swim distance, by men senior swimmers.

Objectives

This research is focused on authentication changes in results over the years in the breaststroke technique, 50 and 200 m distance. Our aim was to analyze the results of competitions in Kosovo championships over the years from 2002 until 2009, respectively 2003 to 2009, trying to analyze the status of the achievements over the years and the trends of the results competitive level in Kosovo, senior men category of contestants, in the final competitions.

Material and Methods

The study involved eight years period in breaststroke technique senior male swimmers, at disciplines 50 and 200 meters, which was organized by Kosovo Swimming Federation, and the measures was made from licensed judges of Kosovo Swimming Federation.

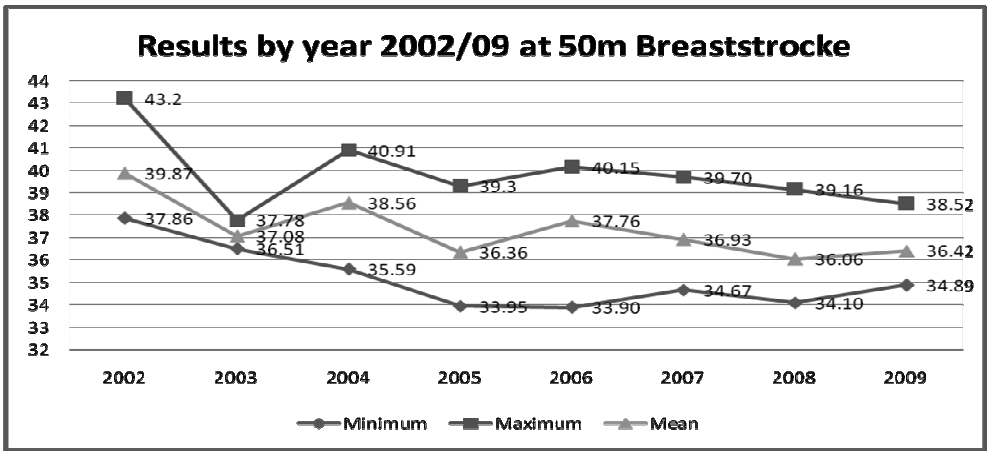
The methods used to analyze the data are standard methods using SPSS i.e. descriptive parameters, ANOVA and trend through the graphic display.

Results and Discussion

The results of the Basic Statistical parameters within years are shown through minimum, average, maximum results.

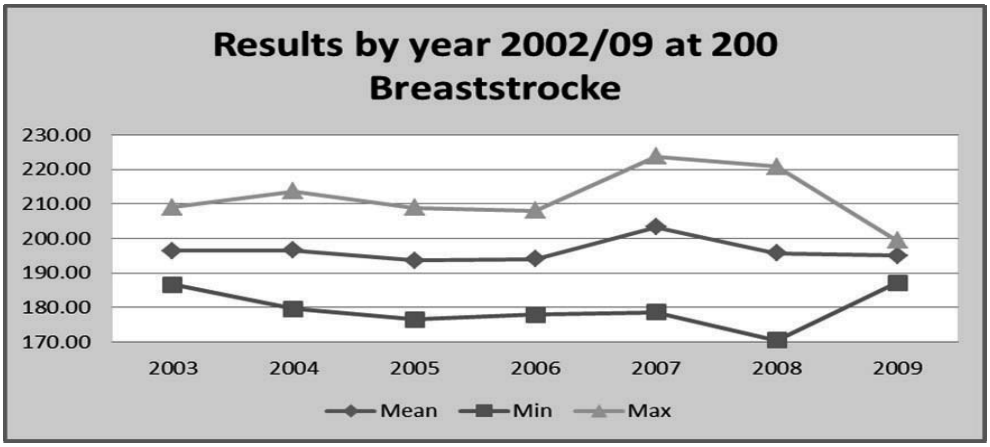
Although there was increase in the value of the best annual results as a result of the distribution of outcomes within groups that have average scores represent values statistically insignificant, except from 2002 to 2008, in the 50m breaststroke.

In tab.1. The scope of the results in 50m breaststroke discipline is shown the improved results over the years. This is evident especially in the years 2007 and 2008.



Tab.1. *Graphical presentation of results in the 50m breaststroke discipline - the years 2002 to 2009*

In the 200m breaststroke discipline noted that changes in the period 2003-2009 are too small as a whole. It is observed that the best result in this stretch was in 2008, but due to the distribution of outcomes within the group is not differentiated average score. This is noted in the results obtained through ANOVA method.



Tab.2. *Graphical presentation of results in the 200m breaststroke discipline - the years 2002 to 2009*

Through ANOVA method note that the average results in 50m breaststroke discipline is projected linear with only one statistically significant difference from 2002 to 2008, though the results have made minimal difference in almost all years, it is not

projected average outcomes as a result of the distribution the majority of results within groups.

In the 200m breaststroke discipline is not projected any important statistical average result, and this is as a result of the distribution of outcomes within groups.

ANOVA - POST HOC TEST – BREASTSROKE 50m MEN (B50m Tukey HSD)

(I) stat	(J) stat	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Y2002	2003	2.79	1.13	.242	-.84	6.42
	2004	1.31	1.13	.940	-2.32	4.94
	2005	3.51	1.13	.063	-.11	7.14
	2006	2.11	1.13	.585	-1.52	5.74
	2007	2.94	1.13	.189	-.68	6.57
	2008	3.81*	1.13	.033	.19	7.44
	2009	3.46	1.13	.071	-.17	7.08
Y2003	2004	-1.48	1.13	.892	-5.11	2.15
	2005	.72	1.13	.998	-2.90	4.35
	2006	-.68	1.13	.999	-4.31	2.95
	2007	.15	1.13	1.000	-3.47	3.78
	2008	1.03	1.13	.984	-2.60	4.65
	2009	.67	1.13	.999	-2.96	4.29
Y2004	2005	2.20	1.13	.532	-1.42	5.83
	2006	.80	1.13	.996	-2.83	4.43
	2007	1.63	1.13	.834	-1.99	5.26
	2008	2.51	1.13	.368	-1.12	6.13
	2009	2.15	1.13	.564	-1.48	5.77
Y2005	2006	-1.40	1.13	.916	-5.03	2.22
	2007	-.57	1.13	1.000	-4.20	3.05
	2008	.30	1.13	1.000	-3.32	3.93
	2009	-.06	1.13	1.000	-3.68	3.57
Y2006	2007	.83	1.13	.995	-2.79	4.46
	2008	1.71	1.13	.801	-1.92	5.33
	2009	1.35	1.13	.931	-2.28	4.97
Y2007	2008	.88	1.13	.994	-2.75	4.50
	2009	.52	1.13	1.000	-3.11	4.14
Y2008	2009	-.36	1.13	1.000	-3.99	3.27

*. The mean difference is significant at the 0.05 level.

Tab.3. *ANOVA presentation of results in the 50m breaststroke discipline – the years 2002 to 2009*

ANOVA- POST HOC TEST – BREASTSROKE 200m MEN (B200m Tukey HSD)

(I) Year	(J) Year	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
V2003	V2004	-.19	8.06	1.00	-25.45	25.08
	V2005	2.80	8.06	1.00	-22.47	28.07
	V2006	2.35	7.68	1.00	-21.74	26.44
	V2007	-6.92	7.68	.97	-31.01	17.17
	V2008	.68	7.68	1.00	-23.41	24.77
	V2009	1.41	7.68	1.00	-22.68	25.50
V2004	V2005	2.99	8.41	1.00	-23.41	29.38
	V2006	2.54	8.06	1.00	-22.73	27.81
	V2007	-6.74	8.06	.98	-32.00	18.53
	V2008	.86	8.06	1.00	-24.41	26.13
	V2009	1.59	8.06	1.00	-23.68	26.86
V2005	V2006	-.45	8.06	1.00	-25.72	24.82
	V2007	-9.72	8.06	.89	-34.99	15.55
	V2008	-2.12	8.06	1.00	-27.39	23.15
	V2009	-1.39	8.06	1.00	-26.66	23.88
V2006	V2007	-9.27	7.68	.89	-33.36	14.82
	V2008	-1.67	7.68	1.00	-25.77	22.42
	V2009	-.94	7.68	1.00	-25.04	23.15
V2007	V2008	7.60	7.68	.95	-16.49	31.69
	V2009	8.33	7.68	.93	-15.76	32.42
V2008	V2009	.73	7.68	1.00	-23.36	24.82

Tab.4. *ANOVA presentation of results in the 200m breaststroke discipline - the years 2003 to 2009*

Based on the best annual results (Tab. 2.), Noted that there has been growing with good results, but as a result of the distribution of results (standard error), the average results have not shown statistical significance amongst the groups along the years(see 2008).

Conclusions

1. It is shown that an increase occurs in the results with the best results within groups, so the trend is positive.
2. Average results have normal trend as a result of the distribution of outcomes of individuals in groups.
3. The year 2003 is shown homogeneity in groups, as a result of a massive participation of competitors in competitions (preliminary, final races).

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ANALYZE OF RESULTS OF THE KOSOVO SWIMMERS ALONG EIGHT YEAR PERIOD, BREASTSTROKE TECHNIQUE AT DISCIPLINES 50 AND 200 METERS

The study has had the aim to analyze swimming at several competitions of Kosovo swimmers through eight years period from 2002 to 2009 respectively 2003 to 2009, analyzing them in two different swimming disciplines - breaststroke at 50 and 200 meters swim distance by senior swimmers. There was increase in the value of the best annual results as a result of the distribution of outcomes within groups that have average scores represent values statistically insignificant, except from 2002 to 2008, in the 50m breaststroke. In the 200m breaststroke discipline noted that changes in the period 2003-2009 are too small as a whole. Through ANOVA method note that the average results in 50m breaststroke discipline is projected linear with only one statistically significant difference from 2002 to 2008 at level 0.05.

Key words: *swimming, breaststroke technique, results, difference.*

UDK: 796.332.011.1

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COMPARATIVE ANALYSIS OF FAST ATTACK STARTS, BETWEEN THE SOCCER TEAMS REAL MADRID AND INTER MILAN

Introduction

Soccer is a modality of complex understanding and strongly influenced by randomness. The increasing research on this game was consolidated, above all, in the realization of studies oriented to the description and explanation of physical and/or physiological or quantification of actions performed, an attempt to quantify the activity of footballers (Lago-Ballesteros & Lago-Peñas, 2010). Traditional approaches to the quantification of team sports have proved to be limited in their ability to identify complex structural regularities that, despite being unobservable, nonetheless underlie the development of the sporting contest between opposing teams (Camerino, Chaverri, Anguera & Jonsson, 2012). It should be noted, however, that the analysis of behavior structures is not being proposed as a substitute for conventional approaches in sports research. Coaches should have as main concern how to collect game information and realize how is it possible to intervene in the processes of teaching-learning and training, becoming more effective/efficient supervising the process applied to the players. The enormous amount of factors that condition the football game, affect deeply its accuracy, without implementation of proper scientific means, the development is dependent on random factors.

Given the need to analyze the game, some researchers have resorted to notational analysis. It represents a significant advance as observational methodology, and demands fulfillment of the requirements of the scientific method along the process. This methodology applied to football context provides unbiased and necessary information for coaches, to promote more adequate processes in the game context. Sequence analysis, has been presented as a model that supplies relevance and innovation, helping to achieve better relations, collective and individual behaviors, in particular in football as revealed by the work of Barbosa (2013), Camerino, et. al (2012), among others. The observational methodology provides a quantitative but also

a qualitative analysis and ultimately helps define the type of behavior in the game context. According to Bakeman & Quera (2011) one of the main reasons for using observational methods is the ability to capture behaviours displayed along the time, which allows sequential analysis to be carried out.

The lag technique, as a classical sequential analysis procedure, dates back to studies by Sackett (1987), completed with subsequent contributions by Bakeman and Quera (2011) and Quera (1993). In particular, in the field of physical activity and sport, there are many studies that use SDIS-GSEQ, mainly with multicode event sequences (Barbosa, Sarmento, Anzano & Campaniço, 2013). There are very few studies that, in this area, consider the temporal dimension with SDIS-GSEQ (Anguera, 2007).

Methods

The design used was based on an observational methodology for data collecting (Anguera, Blanco-Villaseñor, Losada, & Hernández-Mendo, 2000). The sample was collected using indirect observation, included 24 soccer games of domestic competitions, 12 per team. To collect data, we used an observational instrument developed and validated by Sarmento, Anguera, Campaniço & Leitão, (2010). This tool makes it possible to observe and record the occurrence of perceivable behaviors in natural context and data exporting in multiple formats that suits sequential data analysis with SDIS-GSEQ.

Results

Start of fast attack sequences, using actions where the players can be immediately pressed by the opponent. In Table I we show the patterns detected by prospective analysis. Criteria conduct - recovery of the ball possession by disarming.

Table I *– Start of fast attack, conduct criteria recovery of the ball possession by disarm*

Conduct Criteria	**Recovery of the ball possession by disarm**				
Prospective analysis	**D+1**	**D+2**	**D+3**	**D+4**	**D+5**
International de Milan (IM)	---	Pfr (2.79)	---	---	---
	Z1(2.50)	---	Z5 (2.00)	---	---
Real Madrid (RM)	Dcd (2.13) Pr (2.34) Rjr (2.06)	Dcd (3.12)	---	---	---

When the fast attack starts by disarm, we note different ways to approach the event: IM team removes the ball of the pressure area, using the forward pass, on the other hand RM team leaves the pressure zone using the conduction of ball with fast pace.

Observing Table II we can verify the patterns detected by prospective analysis. Criteria conduct - recovery of the ball possession by interception.

***Table II** – Start of fast attack sequences, conduct criteria recovery of the ball possession by interception of the ball*

Conduct Criteria	**Recovery of the ball possession by interception**				
Prospective analysis	**D+1**	**D+2**	**D+3**	**D+4**	**D+5**
International de Milan (IM)	---	---	---	---	---
Real Madrid (RM)	Z4 (2.05)	---	Z5 (2.05)	Z7 (2.21)	---

The absence of behavioral procedures by the IM team, seem to be related to the higher acyclicity, producing less standardization. In RM team, the defensive midfield sector is the primary area to recover the ball possession when the team starts the offensive process by intersection. We should also refer the verticality of the game, exposed by activation of areas of the central corridor.

Start of fast attack using actions where the players can´t be immediately pressed by the opponent. In Table III, we can verify the patterns detected by prospective analysis. Criteria conduct - recovery of the ball possession by goal-keeper action.

***Table III** (continuation) – Start of fast attack, conduct criteria recovery of the ball possession by goal-keeper action*

Conduct Criteria	**Recovery of the ball possession by goal-keeper action**				
Prospective analysis	**D+1**	**D+2**	**D+3**	**D+4**	**D+5**
International de Milan (IM)	---	Dcd (2.35) Pfr (2.08)	---	---	---
	Z2 (5.74)	Z6 (2.59)	---	Z12 (2.69)	---
	---	Pia (5.79)	---	---	---
Real Madrid (RM)	Dpl (3.79) Ddu (3.04) Pal (2.98) Pdf (2.19)	Ddu (4.34) Pma (2.96) Pdf (2.45)	Dcd (2.58) Pma (2.07) Pal (2.40)	Dia (3.00)	---
	Z2 (5.48)	Z8 (2.36)	---	Z7 (3.38)	---
	Spsa (3.04)	Spsa (3.04)	---	---	---

The different conduct activated between the teams particularly the lesser amount of developments activated by the IM team, compared to RM, are related to the pass accuracy of the goalkeeper; or the ability to produce higher intensity game actions, using a faster transition time that allow faster offensive reorganization which

consequently creates greater success in developments, thus, more often repeated increasing the systematization of the conducts.

In Table IV, we can verify the patterns detected by prospective analysis. Criteria conduct - recovery of the ball possession due to a regulatory interruption in favor of the observed team.

Table IV *– Start of fast attack, conduct criteria recovery of the ball possession due to a regulatory interruption in favor*

Conduct Criteria	**Recovery of the ball possession due to regulatory interruption in favor**				
Prospective analysis	**D+1**	**D+2**	**D+3**	**D+4**	**D+5**
International de Milan (IM)	Z9 (2.47) Z12 (2.49)	Z12 (3.07)	Z12 (2.49)	---	---
	Spinp (3.10)	Pir (2.27)	---	---	---
Real Madrid (RM)	Drc (3.14) Pma (2.81) Ppt (2.27) Rjl (3.91)	Dpl (2.46) Rjl (3.78)	Drc (2.82)	Dpc (3.94)	Drc (2.71) Dia (3.04)
	Z7 (2.46) Z9 (4.17)	Z9 (2.87)	Z9 (3.03)	---	---
	Spinp (2.24)	Spinp (3.02)	---	---	---

The results lead us to suppose that RM adjusts a set of more standardized behaviors, compared to the IM team. The team members identify in this type of start a set of actions which must be developed, and seek to build the process according to predefined tactical-technical principles, showing higher stringency.

Discussion

Considering the purpose of this article, it was identified the existence of conducts in which the probability of occurrence ensured the relationship established beyond pure chance.

Taking into account the sequence analysis previously exposed, in the start of fast attack using actions where the players can immediately be pressed by the opponent, we identified dissociative tendencies. In the recovery of the ball possession by interception IM didn’t activate any conduct, exposing large irregularities in the actions performed subsequently. On the other hand, the RM team activated spatial characterization conduct which reveals standardization on the field areas where the team plays.

The RM team activates individual actions, resorting to ball conduction, and due to this action, improves the numerical relationship in the offending process; IM activates collective conducts, as exposed in the pass direction. We consider that the

team makes use of the short/medium pass and long pass, resorting to a situation that shortens the defensive reorganization time.

Regarding the start of fast attack using actions where the players can´t be immediately pressed by the opponent, teams switch roles: RM makes use of the collective actions pass reception / control and long pass; IM activates a development of individual characteristics, conducting the ball. In this type of start teams progress in a more systematic way on the pitch noting a higher repetition of the paths used. We assume that these results may be understood as a success factor, in other words, the teams recover the ball possession and can move closer to the opposing goal, however, using different actions. Regarding the contexts of interaction (game center) it shows a degree of stability, detected by the activation of conducts in both beginnings and both teams.

Compared to the other group of starts, we infer the existence of longer patterns with more activated conducts. We believe that the team uses the starts without direct intervention of the opponent on the ball to start the offensive process in a more regular order applying actions of general knowledge by team players.

None of the starts activates conducts related with the end of the offensive process, this aspect is an example of the difficulty in coding a complete offensive sequence, representative of the entire process: starts, development and the finale.

Compared to the start using actions where the players can immediately be pressed by the opponent, we infer the existence of longer conduct patterns, and more conducts triggered. Teams use the this type of start, in a more regular form, in order to develop actions that are of general knowledge by the team players.

We proceeded with the purpose of studying the game given its complex nature. Our aim was to dissect the start of the offensive process of two teams that shared the same technical staff. Occasionally we can identify identical conducts, but given the results we can conclude that teams have different game models.

The coach plan went through adjustments, according to the characteristics and type of championship, team and players, with the intention of maximizing their resources focusing on the players and their capabilities.

This type of analysis in the natural context (the game), enables us to obtain information on how to organize the training process, so that the team understands ways to enhance the teams potential and oppose adversary actions of success (Barbosa, Sarmento, Martins, Leitão & Campaniço, 2011).

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COMPARATIVE ANALYSIS OF FAST ATTACK STARTS, BETWEEN THE SOCCER TEAMS REAL MADRID AND INTER MILAN

Introduction: This study intends to identify the significant repeated and regular behavior, emerging from the diversity of game actions, determining the behavioral variables that define and characterize the Offensive Game Methods, in fast attack, in two teams that share the same coach and technical team. The selected teams are International Milan (IM) and Real Madrid (RM). We seek for relation between the beginnings (criteria conducts) and (conducts behaviors), developments, pace of the game, the zones of the field, the interaction contexts. The results allows us to better understand the similarities and differences between them. Methods: The design used in the present study was based on an observational methodology for data collecting. The sample included 12 football games (per team) of domestic competitions, from the

sports season 2009/2010 IM and 2010/2011 RM. The matches were analyzed through systematic observation, using a specific instrument to observe the offensive process (Sarmento, 2012). The collected data were introduced in the SDIS-GSEQ program for Windows (version 5.1). The determination of the motivational value of transitions between the different behaviors considered as criteria categories and object occurred considering the pattern sequence up to the transition limit of 5. The analysis of data reliability was calculated by intra and inter observer conformity, and values above 0.89 for all criteria were achieved. Results: The teams have different patterns, attending to the studied beginnings. Every beginning has a set of behaviors that emerge from the diversity of actions, except in the conduct criteria interception of the ball of IM. Relatively to the beginning of fast attack using actions where the players can be immediately pressed by the opponent, teams were less systematic, compared with the beginning of fast attack using actions where the players can´t be immediately pressed by the opponent. Discussion: We verified the specificity of the different beginnings, in two different teams, in fast attack. The beginnings where the players can be immediately pressed by the opponent, makes us think about the opponents affecting the systematization of behaviors, conditioning the existence of results. We think that the teams use the beginnings without direct intervention of the opponent on the ball, to start the offensive process in model order applying actions of general knowledge by team players. References: Sarmento H (2012). Análise do jogo de futebol Padrões de jogo ofensivo em equipas de alto rendimento: uma abordagem qualitativa. Tese de Doutoramento, Universidade de Trás-os-Montes e Alto Douro.

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НА ТРАДИЦИОНАЛНИМ СКУПОВИМА ЦРНОГОРСКЕ СПОРТСКЕ АКАДЕМИЈЕ УЧЕСТВОВАЋЕ НАУЧНИЦИ ИЗ 25 ДРЖАВА

Све спремно за почетак


Душко Бјелица

Организациони одбор 11. међународне конференције о трансформационим процесима у спорту „Спортска достигнућа” и 10. Конгреса Црногорске спортске академије вриједно ради на припреми програма академских и социјалних активности које ће се одржати у Подгорици од 3. до 6. априла ове године. Поред најављених пленарних излагања, академски дио конференције ће се одвијати у неколико мултидисциплинарних секција, које ће обухватити природне, друштвено-хуманистичке и медицинске аспекте савременог спорта.

– **Велики број учесника конференције који долазе 25 држава свијета ће своје реферате изложити јавно, али значајан број се одлучио и за постер презентације које су по први пут понуђене у организацији Црногорске спортске академије,** рекао је проф. др **Душко Бјелица,** предсједник припремачког одбора. – **Пријава радова за излагање окончана је још 15. јануара, а поред великог броја пристиглих радова, рецензенти су прихватили 118 адекватно припремљена рада чији аутори су се строго држали прецизно формулисаних пропозиција за припрему истих,** рекао је Бјелица. Т.Б.

UDK: 796.012.1-053.6

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THE RESULTS OF PROFESSIONAL APPROACH AND INCREASED INTENSITY OF WORK

Introduction

In sport the achievement of high results certainly depends on the properly based training system and adopting sports knowledge. On the other hand, the key role play behaviour pattern, knowledge, skills, professionalism, and the management ability of training teachers and sports workers.

Respondents in our research were pupils of primary school, some of who, along with the regular school classes in Sport and Physical Education, attended organised training courses in other sports clubs.

The goal of the research is to establish if the professional approach and increased intensity of applied results in improvements and differences between the functional and motoric abilities (skills and habits) with students.

Methods

The research has been conducted on a sample of 76 students at the age of 14. The first subsample consists of 40 students, and the second – of 36 students, who, along with their regular school classes of 3 times a week and additional sports subject as choice (this refers to the first subsample as well), had regular trainings in basketball clubs three hours a week. They were tested by three indexes: 1) motoric abilities; 2) motoric skills and habits (Majerič, 2004); and 3) functional abilities (Jovanović, 1999).

There were calculated: basic descriptive statistic parameters, t-tests of independent samples, analysis of variance and Friedman test (Bala, 1986).

Results

The results of the analyses are represented in 6 tables.

Table 1 presents the basic statistic parameters for each group of respondents.

According to them, two variables indicate similar achievements of the two groups, whereas six of variables indicate better results in favour of the athletes.

Table 1. *Basic statistic parameters for each group*

Descriptive Statistics								Pulse FA	
group	Parameters	SLJ	ST	R20M	R50M	MSH	BTL	1 min.	3 min.
1	N	40	40	40	40	40	40	40	40
	Minimum	108.00	19.00	34.00	77.00	32.04	68.00	104.00	70.00
	Maximum	193.00	49.00	49.00	116.00	48.63	118.00	182.00	140.00
	Range	85.00	30.00	15.00	39.00	16.59	50.00	78.00	70.00
	Mean	151.30	31.88	42.58	96.53	39.66	92.40	138.63	108.58
	Median	150.00	30.50	43.50	97.00	38.68	94.50	139.00	108.50
	Std. Dev.	19.241	8.953	3.993	11.277	4.981	11.801	23.089	17.509
	Variance	370.215	80.163	15.943	127.179	24.807	139.272	533.112	306.558
	Skewness	0.097	0.455	-0.339	0.021	0.142	-0.323	0.224	-0.035
	Kurtosis	0.086	-0.965	-0.591	-1.046	-0.878	-0.015	-1.036	0.023
2	N	36	36	36	36	36	36	36	36
	Minimum	125.00	27.00	35.00	77.00	26.26	64.00	92.00	86.00
	Maximum	225.00	60.00	43.00	103.00	39.49	94.00	182.00	120.00
	Range	100.00	33.00	8.00	26.00	13.23	30.00	90.00	34.00
	Mean	177.08	39.83	38.86	86.69	33.41	80.06	124.14	96.22
	Median	175.00	39.00	39.00	87.00	32.02	81.00	118.00	95.00
	Std. Dev.	23.615	8.310	2.685	7.163	4.613	9.320	23.361	8.107
	Variance	557.679	69.057	7.209	51.304	21.276	86.854	545.723	65.721
	Skewness	0.141	0.666	0.185	0.517	-0.020	-0.431	0.886	1.360
	Kurtosis	0.215	-0.015	-1.449	-0.443	-1.576	-1.017	0.114	2.318

SLJ – standing long jump; ST – Sargent test; R20M – running 20 meters; R50M – running 50 meters; MSH - motoric skills and habits; BTL - before the training load, 1 min. – after 1 minute; 3 min. – after 3 minute; Pulse FA – pulse functional abilities.

Table 2 presents Levene's test for equality of variances, t-test for independent samples and eta square.

The values worked through eta squared are emphatically high in all variables, except for the variable of pulse within the first minute.

Table 2. *Levene's test for equality of variances, t-test for independent samples and eta square*

Independent Samples Test		Levene's Test for Equality of Variances		t-test for Equality of Means			eta squared
		F	Sig.	t	df	Sig. (2-tailed)	
SLJ	EVA	0.386	0.536	-5.239	74	**0.000**	0.271
ST	EVA	0.840	0.362	-4.002	74	**0.000**	0.178
R20M	EVNA	5.443	0.022	4.704	74	**0.000**	0.239
R50M	EVNA	9.212	0.003	4.479	74	**0.000**	0.227
MSH	EVA	0.072	0.789	5.658	74	**0.000**	0.302
BTL	EVA	0.640	0.426	5.022	74	**0.000**	0.244
1 min.	EVA	0.047	0.829	2.716	74	**0.008**	0.091
3 min.	EVNA	11.936	0.001	3.874	74	**0.000**	0.178

SLJ – standing long jump; ST – Sargent test; R20M – running 20 meters; R50M – running 50 meters; MSH - motoric skills and habits; BTL - before the training load, 1 min. – after 1 minute; 3 min. – after 3 minute; EVA - Equal variances assumed; EVNA - Equal variances not assumed.

Examinating Table 3, there can by concluded that using one-factor analysis of variance of the repetitive measures, regarding the group medium pulse values in the three measures (pulse in three periods of time: before the training load, i.e. performance of test – polygon, within the first minute after finishing the test, and in the third minute after the performance of test, the first group indicates significant differences.

The obtained results show that the three time periods of pulse measuring establish different values.

Table 3. *One-factor analysis of variance of the repetitive measures – first group*

Effect	Wilks' Lambda	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
pulse	0.168	93.915	2	38	**0.000**	0.832

(I) pulse	(J) pulse	Mean Difference (I-J)	Std. Error	Sig.(a)
1	2	-46.225	3.604	**0.000**
1	3	-16.175	2.591	**0.000**
2	3	30.050	2.357	**0.000**

Examinating Table 4, there can by concluded that using one-factor analysis of variance of the repetitive measures, regarding the group medium pulse values in the three measures (pulse in three periods of time: before the training load, i.e. performance of test – polygon, within the first minute after finishing the test, and in the third minute after the performance of test, the second group indicates significant differences.

Table 4. *One-factor analysis of variance of the repetitive measures – second group*

Effect	Wilks' Lambda	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
pulse	0.169	83.327	2.000	34.000	**0.000**	0.831

(I) pulse	(J) pulse	Mean Difference (I-J)	Std. Error	Sig.(a)
1	2	-44.083	3.792	**0.000**
1	3	-16.167	1.786	**0.000**
2	3	27.917	3.711	**0.000**

The review of applied Friedman test in Tables 5 and 6 indicates statistically significant difference of results in the pulse scale recorded in the three measures of time span, and it is all supported by the obtained values with the first group Sig.=0.000, Chi-Square (2, N=40)=74.08, and the second group Sig.=0.000, Chi-Square (2, N=36)=71.51 at the level of 0,05.

The mean ranges in the three measures of the two groups points out that there is an increase in relation to the first against the second measure, and decrease (reduction) regarding the third measure.

Table 5. *Descriptive statistics and percentiles for each group*

Descriptive Statistics								
Pulse	N	Percentiles			N	Percentiles		
		25th	50th (Median)	75th		25th	50th (Median)	75th
BTL	40	84.00	94.50	99.50	36	72.00	81.00	88.00
1 min.	40	120.00	139.00	155.75	36	105.25	118.00	144.00
3 min.	40	98.50	108.50	120.00	36	90,00	95,00	100,00

Table 6. *Friedman ranks test for each group*

I group pulse	Ranks Mean		II group pulse	Ranks Mean
before the training load	1.09		before the training load	1.01
1 minute	3.00		1 minute	3.00
3 minute	1.91		3 minute	1.99
Test Statistics(a)			Test Statistics(a)	
N	40		N	36
Chi-Square	74.075		Chi-Square	71.510
df	2		df	2
Asymp. Sig.	**0.000**		Asymp. Sig.	**0.000**
a	Friedman Test		a	Friedman Test

On the base of the obtained results, the conclusion is that better results in all three indexes, are determined with the second subsample. It is those who are involved in regular school classes, have the sport as their additional subject choice, and had an active training work in their sports clubs.

Discussion

The following conclusions are reached after analyzing the results obtained in the research:

- Using t-test of independent samples, it is established that there are statistically significant differences in all of the applied variables of the three indexes of

achievements in the research (motoric abilities, motoric skills, and habits and functional abilities) between the two groups of respondents.

- Using one-factor analysis of variance of repetitive measures, there are established differences in the functional abilities within the accomplished time measures with the two groups of respondents. Along with this, there is accomplished an individual comparation between the three time measures of the pulse, and there are noticed individually significant differences in all measurements with the two groups of entities.
- Friedman test is used to confirm differences in achievements of the two groups of respondents.
- In total, out of the obtained results of the applied methods there can be concluded that better results in all variables (motoric abilities, motoric knowledge, and habits and functional abilities) are achieved with the second group of entities (II group of respondents who attend regular school classes and have sport as additional subject and are active athletes in other sports associations and clubs).

The results of the analyses of the first index in the conducted research show great similarity with the results obtained in the research of Georgiev, Kostovski, & Mitrevski (2012). The results of the second index indicate great similarity with Mitrevski's research (2012). The results of the third index are logically sustained. They are better with the second subsample.

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THE RESULTS OF PROFESSIONAL APPROACH AND INCREASED INTENSITY OF WORK

Introduction: The goal of the research is to establish if the professional approach and increased intensity of applied results in improvements and differences between the functional and motoric abilities (skills and habits) with students. Methods: The research has been conducted on a sample of 76 students at the age of 14. The first subsample consists of 40 students, and the second of 36 students, who, along with their regular school classes of 3 times a week and additional sports subject as choice (this refers to the first subsample as well), had regular trainings in basketball clubs three hours a week. They were tested by three indexes: 1) motoric abilities; 2) motoric skills and habits (Majeric, 2004); and 3) functional abilities (Jovanovic, 1999). There were calculated: basic descriptive statistic parameters, t-tests of independent samples, analysis of variance and Friedman test (Bala, 1986). Results: The results of the analyses are represented in 8 tables. On the base of the obtained results, the conclusion is that better results in all three indexes, are determined with the second subsample. It is those who are involved in regular school classes, have the sport as their additional subject choice, and had an active training work in their sports clubs. Discussion: The authors general conclusion of the research is that the number of that kind of research approach is quite small The results of the analyses of the first index in the conducted research show great similarity with the results obtained in the research of Georgiev, Kostovski, & Mitrevski (2012). The results of the second index indicate great similarity with Mitrevski's research (2012). The results of the third index are logically sustained. They are better with the second subsample. References: Bala G (1986). Logicke osnove metoda za analizu podataka iz istrazivanja u fizickoj kulturi. Novi Sad, Sava Muncan. Georgiev G, Kostovski Z, Mitrevski V (2012). Sport Mont, 34-36, 105-9. Jovanovic G (1999). Pulsometri u praksi. Bones, Kotor. Majeric M (2004). Analiza modelov ocenivanja sportnih znanj pri sportni vzgoji (Doktorska disertacija), Univerza v Ljubljani, Fakulteta za sport Ljubljana. Mitrevski V (2012). Razliki vo postiganjata i rezultatite po predmetot fizičko vospituvanje i obrazovanie i sport kaj učenicite od nekoi Balkanski državi (Doktorska disertacija), Univerzitet "Sv. Kiril i Metodij", Fakultet za fizička kultura, Skopje.

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MEASURE CHARACTERISTICS OF MOTOR TESTS OF MOVEMENT FREQUENCY WITH STUDENT FROM MACEDONIA AND KOSOVO

Introduction

The tests of good measure characteristics are a multiple matter of interest. They can be property used in the work of selecting young athletes as well as programming the physical activities and giving marks in classes.

There are many authors who have conducted researches and established measure characteristics of motor tests. Measure characteristics are constantly an actual issue for research. In recent years, the measure characteristics of motor tests have become a subject of particular interest in the works of Mirkov et al. (2011); Peric et al. (2012).

The subject of study in this research are measuring characteristics of applied motor tests of assessing the movement frequency. This research was conducted with the aim of establishing and comparing the measure characteristics of the used motor tests of movement frequencies with 11-year-old students from Macedonia and Kosovo.

Methods

The sample of respondents consists of 180 male students at the age of 11 (100 from Macedonia and 80 from Kosovo). They were tested with three composite motor tests to assess the movement frequency: hand tapping (HT), leg tapping (LT) and leg tapping of wall (TW).

For the obtained data there calculated: basic descriptive parameters, factor analyse, Cronbach α coefficient of generalisability and Spearman-Brown's coefficient of reliability (Vincent, 2005).

Results

According to the basic statistic parameters (Table 1), pupils from Macedonia and Kosovo have achieved many similar results.

Table 1. *Basic statistic parameters*

Macedonia (N=100)		*Tests/Item*	**Kosovo (N=80)**	
Mean	*Std. Dev.*		*Mean*	*Std. Dev.*
25.61	3.58	HT1	26,60	4,172
25.50	3.23	HT2	26,66	3,507
25.45	3.29	HT3	26,78	3,468
16.77	1.85	LT1	17,53	1,449
17.35	1.59	LT2	17,70	1,409
17.50	1.45	LT3	17,70	1,363
15.69	3.43	TW1	15,71	3,402
16.32	3.72	TW2	16,26	3,492
16.77	3.60	TW3	16,60	3,546

HT1 - hand tapping, first item; LT1 - leg tapping, first item and TW1 - leg tapping of wall, first item.

According to the obtained results related to the validity of tests (Table 2), with the pupils from Macedonia the highest validity present test – hand tapping (HT), and with pupils from Kosovo – leg tapping of wall (TW).

All of the three motor tests bear the characteristics of satisfactory validity. Their items have same subject of measure.

In each case of factor analysis a singular factor (principal component analysis) is isolated.

Table 2. *Factor validity of the tests*

Macedonia (N=100)		*Tests/Item*	**Kosovo (N=80)**	
Factor 1	*h²*		*Factor 1*	*h²*
.96	.92	HT1	,93	,86
.97	.93	HT2	,94	,89
.96	.92	HT3	,89	,79
λ=2.77	**%=92.21**		**λ=2.53**	**%=84.22**
.84	.71	LT1	,87	,76
.92	.84	LT2	,92	,85
.90	.81	LT3	,89	,79
λ=2.36	**%=78.79**		**λ=2.39**	**%=78.72**
.88	.78	TW1	,92	,84
.94	.89	TW2	,95	,91
.92	.85	TW3	,94	,88
λ=2.52	**%=84.02**		**λ=2.63**	**%=87.80**

N – number of entities; Factor 1 – isolated factor; h² - communality; λ – value of first *isolated factor; % - percent.*

According to the established coefficients of reliability (Table 3), it is noticed that they are very high with the pupils of both countries. Neverteless, they are slightly higher with Macedonian pupils.

Table 3. *Coefficients of reliability*

Macedonia (N=100)		*Tests*	**Kosovo (N=80)**	
Cronbach α	SB		Cronbach α	SB
.957	.958	HT	,902	,906
.856	.865	LT	,872	,872
.905	.905	TW	,930	,930

Cronbach α - Cronbach alfa coefficient of generalisability; SB - Spearman-Brown's coefficient of reliability.

On the based of the received results, it is obvious that regarding the three tests satisfactory measure characteristics are established (validity and reliability).

Discussion

On the base of the obtained results in the research, the following conclusions are reached:

1. The applied motor tests for both Macedonian and Kosovo pupils have same subject of measure – movement frequency.

2. About the three applied tests for both groups of pupils (from Macedonia and Kosovo) there is established a high level of validity and reliability.

3. We recommend the applied tests to be used for assessing the motoric ability of movement frequency with young people in Macedonian and Kosovo.

In kinesiology, by using motor tests, we indirectly form a concept about the motor abilities of the respondents. That is why; it is of great importance to use tests that have satisfactory measure characteristics.

The used tests are recommended for application in assessing motor abilities – movement frequency. The final results correspond to a great extent with the researches of Metikoš et al, (1989), Georgiev (1996, 2007), Pireva (2013) and other.

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MEASURE CHARACTERISTICS OF MOTOR TESTS OF MOVEMENT FREQUENCY WITH STUDENT FROM MACEDONIA AND KOSOVO.

Introduction: The tests of good measure characteristics are a multiple matter of interest. They can be property used in the work of selecting young athletes as well as programming the physical activities and giving marks in classes. There are many authors who have conducted researches and established measure characteristics of motor tests. Measure characteristics are constantly an actual issue for research. This research was conducted with the aim of establishing and comparing the measure characteristics of the used motor tests of movement frequencies with 11-year-old students from Macedonia and Kosovo. Methods: The sample of respondents consists of 180 male students at the age of 11 (100 from Macedonia and 80 from Kosovo). They were tested with three composite motor tests to assess the movement frequency. For the obtained data there calculated: basic descriptive parameters, Pearson coefficient of correlation, factor analyse, Cronbach α and Spearman-Brown's coefficients (Vincent, 2005). Results: On the based of the received results, it is obvious that regarding the three tests satisfactory measure characteristics are established (validity and reliability). Discussion: In kinesiology, by using motor tests, we indirectly form a concept about the motor abilities of the respondents. That is why, it is of great importance to use tests that have satisfactory measure characteristics. The used tests are recommended for application in assessing motor abilities' movement frequency. The final results correspond to a great extent with the researches of Metikos et al, (1989), Georgiev (1996, 2007), Pireva (2013) and other. References: Georgiev G (1996). Definiranje na stepenot na faktorskata validnost, relijabilnost i drugi merni karakteristiki vo biomotorniot prostor kaj učenicite od dvata pola od 11-godišna vozrast. (Magisterski trud), Univerzitet "Sv. Kiril i Metodij", Fakultet za fizička kultura, Skopje. Georgiev G (2007). Sport i nauka, 5, 224-30. Metikos D, Prot F, Hofman E, Pintar S, Oreb G (1989). Mjerenje bazicnih motorickih dimenzija sportasa. Fakultet za fizicku kulturu Sveucilicta u Zagrebu, Zagreb. Pireva A (2013). Merni karakteristiki, normativi i standardi za ocenuvanje na motorniot status na mladite. (Doktorska disertacija), Univerzitet "Sv. Kiril i Metodij", Fakultet za fizička kultura, Skopje. Vincent JW (2005). Statistics in kinesiology (3rd ed.). Human Kinetics, Champaign.

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MANCHESTER UNITED, INTERNAZIONALE MILANO AND FC BARCELONA – WHAT´S DIFFERENT?

Introduction

Although football is considered a universal language, there are particularities that characterize the way it is practiced in several countries. Overall, the style of English football is known as "*Kick and Rush*", the Italian as "*Catenaccio*", and the Spanish as "*Fúria Española*".

The literature in the field of sociology and anthropology (Győri Szabó, 2011; Hamil, et al., 2010; Hargrave, 2007; Nogueira, 2011) provides important insight into the aspects described above. Unfortunately, there is a lack of research comparing the different professional teams used in this study (Manchester United, Internazionale Milano and FC Barcelona). The available studies that investigated the different leagues have essentially focused on: i) anthropometric data (Bloomfield, Polman, Butterfly, & O`Donoghue, 2005); ii) technical aspects (Dellal et al., 2011; Obserstone, 2011); and iii) motor activity data (Dellal et al., 2011).

This study aims to understand which aspects in the characterization of playing styles of the different soccer teams are the most important for coaches. The English, Italian and Spanish Leagues have been chosen for this study because they are considered by the International Federation of Football History and Statistics (IFFHS), the three strongest European Leagues of the 1st Decade of the 21st Century. In order to allow coaches to consider the wider context of the leagues they play in, the analysis focused also on the three teams - Barcelona, Inter Milan and Manchester United - that won their respective leagues in the season prior to the data collection.

Methods

We chose 8 expert high-performance Portuguese first league football coaches (Coach 1 to Coach 8) with a professional experience (as first coach) ranging from 2 to 30 years (14.9 ± 8.6 years). All coaches, who were initially selected to participate in

the study and who accepted the invitation, were coaching professionally at the time the interviews were taken, and had worked at some point in their careers as Head coaches in the Portuguese League.

Because of the in-depth character of each interview, the interpretational nature of the analysis, and the number of the teams in the first league (n=16), 8 coaches were considered representative and met the objectives of the study, as well as the criteria of expert selection (previous experience as Head coach in the first Portuguese League; UEFA Pro licensed coach).

Instruments

We used semi-structured interviews to collect the data (Bardin, 2008); the advantages of using this type of interview are diverse when compared to other methods of data collection (Flick, 2005; Quivy & Campenhoudt, 2005). The interview guide was designed to identify the most relevant issues for the coach so that a further in-depth exploration could be done.

The certification of the content validity of the interview was done according to common qualitative research methods (Strauss & Corbin, 1990). More specifically, it was attained after preparation and discussion of previous drafts of the transcript, based on the following steps: i) preparation of first draft of the transcript based on the specific aims of the study and available literature (Castelo, 2009; Carling et al., 2005; Knudsson & Morrison, 2002); ii) evaluation of the interview transcripts by three senior researchers in sports pedagogy, who have substantial experience with qualitative methods; iii) discussion of findings based on the presented suggestions by each; iv) a pilot study done with a Portuguese first league coach; v) minor adaptations to the transcripts resulting from the reflections of the pilot study: vi) resubmission of the updated version of the transcripts to the experts; this, ultimately resulted in the final version of the interview guide.

Data Collection

All the interviews were done by the first author, between December 2011 and February 2012, in a relaxed setting (normally in the office) at the football academies where the different coaches work. The interview began by stating the general information about the purpose of the project. Next, the interviewer focused on background and demographic information. And finally, a more in-depth exploration of the topic followed. None of the interviews were rushed, and the coaches had time to clarify and reformulate their thinking. Each interview took between 1 and 2½ hours and was transcribed verbatim (223/59 pages).

Data analysis

The objective of the analysis was to build a system of categories that emerged from the unstructured data and that represented the organization and utilization of expert high-performance football coaches' view of the topic.

Data analysis was performed using content analysis (Bardin, 2008), and through combining inductive and deductive approaches, the text units were coded and text units with comparable meanings were organized into specific categories. Three researchers conducted the analysis independently to ensure that the resulting classification system was suitable and best fitted the data. The software QSR NVivo 9 was used in coding the transcripts of the interviews.

Results

The initial data analysis revealed 10 categories of data related to the different leagues and 8 categories of data concerning the different teams; for each situation these categories were grouped in 4 final categories.: i) game culture/identity (n=18); ii) strategical-tatical factors (n=17); iii) player characteristics (n=14); iv) coach philosophy (n=14).

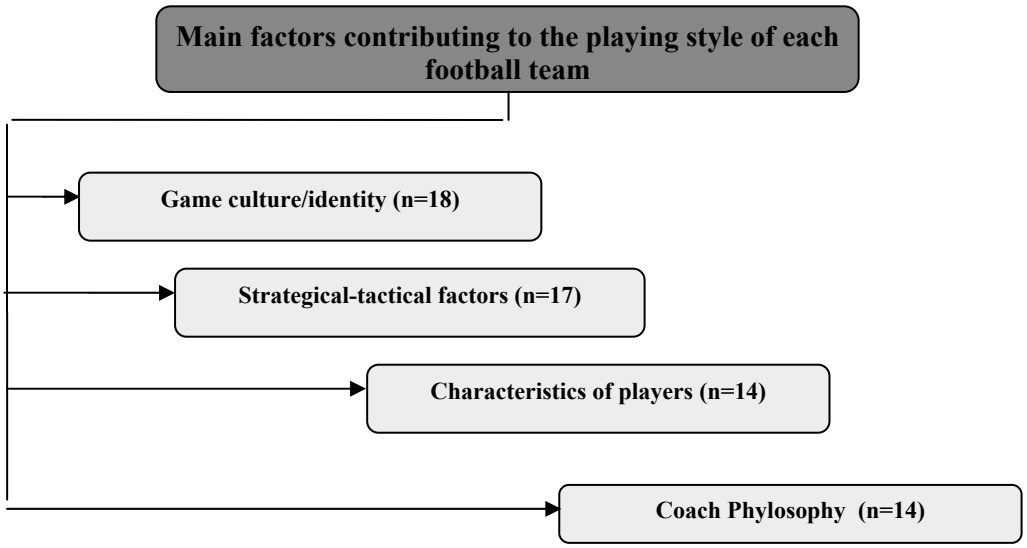


Figure 1. *Representation of the aspects that most contribute to each of the football teams' playing style.*

When analyzing the specific characteristics of the three teams, the coaches mainly referred to aspects related to a playing/identity culture of each team that is influenced by their history, their tradition and a set of values underlying the different clubs. The factors that contribute to the development of this identity are of various kinds, based mainly on political ideologies, specific characteristics of the society and by the group of players and coaches who were passing by clubs throughout its history (Győri Szabó, 2011; Hamil et al., 2010).

“Barcelona has a history and a culture behind that is very difficult to shake and it becomes a critical success factor. The Barcelona of today has a little of Barcelona team of Dinus Michell and Cruyff; this is undeniable. And the club now has established such a solid structure that makes up the teams of those times.” (Coach 1)

“Barcelona has a playing culture that starts from a young age, in which players are created and shaped. With Manchester United, there also is a playing culture, but it has a different dimension, because it will continuously adjust depending on the players they get.” (Coach 5)

Our coaches described each team’s differences based on strategic and tactical aspects. Overall, all coaches recognized the quality and merit with which Barcelona plays, basing their views on a ball possession that is very difficult to equal by any other team in the world. In contrast, Manchester United plays in a way where strong ball possession is primary, but also their ability to play quickly and offensively, through a more "direct" playing style. Finally, Inter Milan’s style is defined essentially by their defensive tactical rigor and the capacity to develop effective offensive sequences of quick attacks and counterattacks.

"I think that Barcelona is characterized by a very pronounced positional attack, even with very specific characteristics. The Inter at that time tried to explore the fast attack and counterattack of an obvious way. Regarding Manchester United, I think that if they could develop counterattacks, they played trought that way, if they can not, they played in an organized attack. I believe that Barcelona is very pronounced. Manchester United, perhaps was the best team in the three methods of play. Barcelona are clearly a team that plays in organized attack, positional attack.” (Coach 8)

“I think that Inter was also a strong team in transitions, FC Barcelona not so much, because Barcelona privileges the domain and control of the game in possession and, for them, the transitions are always safely transitions. As the counterattack requires transitions with a risk, they use them with a high dose of security. When they recovery the ball possession, if they have to play the ball to the goalkeeper, they play, ie they believe in the development of their style of play following this path. Probably, from all those teams, Manchester United is the team who play a more complete football because they are so strong in the transitions as in the situations of posittional attack or pure offensive organization.” (Coach 6)

The players that form these teams are only one element that can explain the different ways of playing. As described elsewhere (Kuper & Szymanski, 2010), our coaches feel that the strong and stable economic situation of these teams have allowed

them to have players who are perfectly suited to the game's model, whilst also contributing to an enrichment of the game shown through extremely high playing skills.

> *"Manchester United has had the financial capability to contract French, Portuguese, Spanish and South American players. They went looking for players who could bring them the end result without having to necessarily show better game quality. Inter was a highly effective team, it had a mix of players typically Italian, cynical, tactically worshiped from a defensive organization standpoint, or a structural one, with a mix of creative players who bring unpredictability to the game."* (Coach 1)

> *"... If you look at Manchester United team from the the last few years, the problem is when they have or does not have the best players, when they have a player like Cristiano Ronaldo or does not have Cristiano Ronaldo. (...) and also the quality of three or four players that have more ball possession than the others all together (Barcelona)." (Coach5)*

In addition to the players' characteristics, the interviewees mentioned that the philosophy the coach possesses is another aspect that can also influence a team's playing style.

> *"Manchester United is a team that has a national manager coaching it, holding a typical English style, both in its essence and in its game philosophy. His experience as a coach led him to create a game concept that is very close to what is seen in the English teams, but more contrasting to the realities of central Europe, like Spain, Portugal, or Netherlands, where primacy for quality of play is paramount."* (Coach 1)

> *"...I think the great worker of that team [Inter] is their coach, someone who can show such strong leadership and objectivity. That is, their playing style was primarily based on someone who knows very well what he wants and what can be achieved with the players he had; a great example of a good symbiosis."* (Coach 5)

This work studied the aspects that coaches considered more important when describing the Barcelona, Inter Milan and Manchester United, providing novel data for the understanding of the factors influencing a team's playing style. We found that the coaches views go far beyond issues related exclusively to tactical, strategic or technical aspects; i.e. they are strongly influenced by cultural aspects.

Our coaches believe that what distinguishes them are aspects related to a culture of play/identity specific to each team. This is seen in a context that takes into account the clubs' history, which in turn is influenced by factors like politics, culture and the

players and coaches who have been part of the club. Finally, they also referred to the strategic and tactical aspects, the players' skills and the coach's philosophy as aspects that also contribute to differentiating these teams.

Understanding the factors that contribute to the different playing styles in different countries and teams may provide useful information for coaches who want to more efficiently adapt to their new cultures and implement their playing philosophy.

Aknowledgement

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MANCHESTER UNITED, INTERNAZIONALE MILANO AND FC BARCELONA – WHAT´S DIFFERENT?

Introduction: Although football is considered a universal language, there are particularities that characterize the way it is practiced in several countries. Overall, the style of English football is known as "Kick and Rush", the Italian as "Catenaccio", and the Spanish as "Fúria Española". This study aims to understand which aspects in the characterization of playing styles of the different teams (Manchester United, Internazionale Milano and Barcelona) are the most important for coaches. Methods: We chose 8 expert high-performance Portuguese first league football coaches (Coach 1 to 8) with a professional experience (as first coach) ranging from 2 to 30 years (14.9 ± 8.6 years). Semi-structured interviews were carried out and the data analyzed trough content analysis using the software QSR NVivo 9. Results and discussion: The data were grouped in four mainly categories: i) game culture/identity (n=18); ii) strategical-Tatical factors (n=17); iii) player characteristics (n=14); iv) coach philosophy (n=14). When analyzing the specific characteristics of the three teams, the coaches mainly referred to aspects related to a playing/identity culture of each team that is influenced by their history, their tradition and a set of values underlying the different clubs. Our coaches described each team's differences based on strategic and tactical aspects. Overall, all coaches recognized the quality and merit with which Barcelona plays, basing their views on a ball possession that is very difficult to equal by any other team in the world. In contrast, Manchester United plays in a way where strong ball possession is primary, but also their ability to play quickly and offensively, through a more "direct" playing style. Finally, Inter Milan's style is defined essentially by their defensive tactical rigor and the capacity to develop effective offensive sequences of quick attacks and counterattacks. The players that form these teams are only one element that can explain the different ways of playing. As described elsewhere (Kuper & Szymanski, 2010), our coaches feel that the strong and stable economic situation these teams have allows them to have players who are perfectly suited to the game's model, whilst also contributing to an enrichment of the game shown through extremely high playing skills. The interviewees also mentioned the philosophy hat the coach possesses is another aspect that can also influence a team's playing style. Understanding the factors that contribute to the different playing styles in different countries and teams may provide useful information for coaches who want to more efficiently. References: Kuper S, & Szymanski S (2010). Why England lose & other curious football phenomena explained. Fulham: HarperSport.

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THE DIFFERENCE BETWEEN TWO VOLLEYBALL TEAMS IN SOME ANTHROPOMETERIC AND MOTOR ABILITIS

Introduction

Every sports team sports during the game aims to achieve the best results. To achieve high results it is required a rational and optimal training process. Such results cannot be achieved without the application of scientific methods of research. Only through high technology during the process of training can bring to the highest results.

Desired success in any sport, including the game of volleyball depends on many internal and external factors. Among the internal factors of assigning special importance in the game of volleyball are anthropometric parameters, psychomotor skills, cognitive skills and conative features of volleyball. It depends on the specifics of playing each sport which features and capabilities of anthropological have a specific influence in each sport.

The motor precision is defined and performance skill of movement oriented and dosage properly, to which as a dimension of vast spectrum belongs also the precision of situational volleyball (Strahonja, A. 1978). This wide field today is not thoroughly researched. Therefore, each research has a fundamental character, especially if the purpose is to verify the impact of each characteristic and anthropological ability in the performance of situational precision as very important skill in the game of volleyball.

The purpose of this research is oriented in confirming the differences in some anthropometric and motor parameters, and situational precision between the two best teams of the Super League of Kosovo in volleyball.

Methods

To realize the goal of this research are involved a 12 volleyball players of the team KV "Pristina " and 12 volleyball players of the team KV "University AAB" as the two best teams at the end of the Kosovo Super League championship in volleyball. There have been applied 4 anthropometric variables such as: body weight (APESHA), body height (ALARTE), arm length (AGJKR), forearm length (AGJPK); 5 basic motor variables: long jump from the place (MKVGJ), jump high from the place (MKVL), taping hand (MTD), taping feet (MTK), running 20 meters from a fast start (MV20M) and 7 situational tests: pass the ball with the fingers on target vertical (SPTGR), pass the ball with the forearm (" hammer ") in target vertical (SPTGQ), pass the ball with the fingers on the horizontal target (SPTK), pass the ball with the forearm (" hammer ") in horizontal target (SPTÇM), pass the ball with the fingers jumping in the horizontal target (SPTÇR), tennis service in horizontal target (SPSHT), service to jump in the horizontal target (SPSHK).

For each variable were calculated applying these values : basic 1.parametrat central and dispersion, 2. Asymmetry coefficient (" skjunis ") and height distribution ("kurtosis"), 3. Coefficient of variation, and 4.The verification of the arithmetic difference in averages between the two teams in anthropometric and motor parameters, as well as situational precision through applying the discriminatory analysis of t-test for independent variables.

Results

Results of the basic parameters of central and statistical dispersion, the asymmetry and height distribution of anthropometric motor and variables, situational precision of volleyball Club "Pristina" are all presented in Table 1. The coefficient values of asymmetry ("skjunis") indicate that they are bipolar and low scores incline direction, because more than half of them are negative signs (hypo kurtosis). Volleyball players, in terms of morphological characteristics and performance of motor tasks appear as homogenous group. The variation coefficients in the test performance of the situational precision show the volleyball players as a heterogeneous group.

Table 1. *Basic indicators of statistical anthropometric, motor and situational variables, to volleyball players of KV "Pristina”*

	N	Min	Max	Ma	SD	Skew	Kurt	KV
AWEIGHT	12	67.50	97.68	81.058	9.738	0.052	-1.241	12.013
AHIGH	12	175.20	195.40	186.225	8.601	-0.061	-2.293	4.618
AGJKR	12	34.35	41.20	36.575	1.826	1.385	3.081	4.9931
AGJPK	12	24.90	33.20	27.658	2.194	1.332	3.067	7.9339
MKVGJ	12	201.70	296.84	268.21	27.718	-1.422	1.959	10.334
MKVL	12	39.10	48.30	45.5	2.687	-1.407	1.904	5.9069
MTD	12	22.00	37.00	29.25	5.610	-0.340	-1.642	19.181
MTK	12	22.00	28.00	25.666	2.059	-0.436	-1.037	8.024
MV20M	12	3.40	4.10	3.725	0.245	0.053	-1.431	6.588
SPTGR	12	35.00	80.00	56.916	13.194	0.107	-0.651	23.181
SPTGQ	12	28.00	44.00	36.25	5.276	-0.146	-1.244	14.555
SPTK	12	11.00	38.00	22.916	8.743	0.052	-1.040	38.152
SPTÇM	12	10.00	26.00	21.833	4.783	-1.755	2.764	21.907
SPTÇR	12	11.00	34.00	22.166	6.562	-0.213	0.026	29.603
SPSHT	12	5.00	12.00	8.416	2.108	0.105	-0.809	25.054
SPSHK	12	6.00	10.00	8.083	1.311	-0.181	-0.439	16.223

The results of the basic parameters of central and statistical dispersion, the asymmetry and height distribution of anthropometric and motor variables, and situational precision of volleyball Club "University AAB" are presented in Table 2. The values of the Asymmetry coefficients T ("skjunis") show that those in this table are bipolar and low scores incline direction; because more than half of them are negative

signs (hypo kurtosis). Even volleyball second team, regarding the morphological characteristics and motor tests are shown as a homogenous group. The coefficients of variation indicate that in the execution of the test of situational precision, the group has different results and that is as shown as a heterogeneous group.

Table 2. *The basic statistical indicators of anthropometric, motor and situational variables to volleyball players of the KV "University AAB"*

	N	Min	Max	Ma	SD	Skew	Kurt	KV
AWEIGHT	12	71.48	91.30	81.626	8.203	-0.105	-2.042	10.049
AHIGH	12	174.20	196.80	186.087	8.026	-0.074	-1.844	4.3131
AGJKR	12	33.10	40.40	35.958	2.114	0.626	-0.065	5.879
AGJPK	12	23.70	33.50	27.208	2.638	1.028	1.94	9.698
MKVGJ	12	121.00	280.10	227.890	43.583	-1.187	2.456	19.124
MKVL	12	37.60	46.70	40.658	2.285	1.737	4.33	5.6139
MTD	12	20.00	37.00	28.916	5.728	-0.411	-1.43	19.808
MTK	12	18.00	28.00	22.750	2.988	0.314	-0.559	13.136
MV20M	12	3.20	4.20	3.941	0.284	-1.733	3.709	7.2128
SPTGR	12	20.00	74.00	53.583	16.121	-0.718	0.211	30.086
SPTGQ	12	12.00	44.00	33.083	8.295	-1.472	3.29	25.073
SPTK	12	10.00	36.00	21.833	8.663	0.059	-1.098	39.681
SPTÇM	12	7.00	27.00	17.363	5.432	-0.3	0.312	31.343
SPTÇR	12	6.00	30.00	21.3343	7.036	-1.107	0.819	32.984
SPSHT	12	5.00	9.00	6.750	1.215	0.205	-0.406	18.006
SPSHK	12	4.00	8.00	5.416	1.240	0.743	0.189	22.894

To prove that there is a statistically significant difference between the volleyball players of KV "Pristina" and the volleyball players of KV "University AAB" as the two best teams at the end of the Kosovo Super League championship in volleyball, in some anthropometric and motor variables, and situational precision has been applied the T - test to both groups of variables independently.

The difference between the 12 volleyball of KV "Pristina" and the volleyball players of KV "University AAB" in the performance of motor tasks and situational precision was statistically significant for the variables: long jump from the place(MKVGJ) Mean Diff. - 40320, T- 2704, df - 22 ; sig. - 0013, the high jump from the place (MKVL) (Mean Diff. - 4841, T- 4757, DF - 22 ; sig. - 0000), taping feet (MTK) (Mean Diff. - 2916, t - 2, 90, df - 24 ; sig. - 0, 011), pass the ball with the forearm ("hammer") in horizontal target (SPTÇM) (Mean Diff. - 4500, T- 2154, DF - 22, sig. -0042), tennis service in horizontal target (SPSHT), (Mean Diff. - 1666, T- 2372, DF - 22 ; sig. - 0027), the target service with the jump in the horizontal (SPSHK), (Mean Diff. - 2666 ; t - 5118, DF - 22 ; sig. - 0000).

The results of the discriminative analysis show that the differences in arithmetic averages have been in favor of the volleyball players of KV "Pristina" where the results of T- test are presented in Table 3.

Table 3. *The difference in anthropometric, motor and situational variables between volleyball players of KV "Pristina" and KV "University AAB"*

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Diff.	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
AWEIGHT	.487	.493	-.155	22	.879	-.568	3.675	-8.191	7.054
AHIGH	1.054	.316	.040	22	.968	.137	3.396	-6.905	7.180
AGJKR	1.237	.278	.765	22	.453	.616	.806	-1.055	2.289
AGJPK	.598	.448	.454	22	.654	.450	.990	-1.604	2.504
MKVGJ	1.487	.236	2.704	22	**.013**	40.320	14.910	9.397	71.242
MKVL	.330	.571	4.757	22	**.000**	4.841	1.017	2.730	6.952
MTD	.003	.956	.144	22	.887	.333	2.314	-4.466	5.133
MTK	1.622	.216	2.784	22	**.011**	2.916	1.047	.743	5.089
MV20M	.012	.915	-1.998	22	.058	-.216	.108	-.441	.008
SPTGR	.239	.630	.554	22	.585	3.333	6.013	-9.138	15.805
SPTGQ	.395	.536	1.116	22	.277	3.166	2.838	-2.719	9.052
SPTK	.026	.874	.305	22	.763	1.083	3.553	-6.285	8.452
SPTÇM	.292	.594	2.154	22	**.042**	4.500	2.089	.166	8.833
SPTÇR	.027	.872	.300	22	.767	.833	2.777	-4.926	6.593
SPSHT	4.756	.040	2.372	22	**.027**	1.666	.702	.209	3.123
SPSHK	.017	.897	5.118	22	**.000**	2.666	.521	1.586	3.747

Discussion

The basic statistical parameters of the asymmetry coefficients of variation show the situation of the team in terms of morphological status and also the current situation of conditional and technical preparation of volleyball players. The results obtained show that the morphological aspect of volleyball teams appear as homogenous dominated by body altitude.

Optimal morphological characteristics of athletes greatly depend on the sport of choice, however, looked at in general terms, we see that the overall best results are reached by those sportsman whose body building meets the specific requirements of a sport, in this case the game of volleyball. The need for such adjustments is more pronounced when the volleyball players are always in higher level of competitions. The success in the game of volleyball still depends on the morphological characteristics of volleyball players, of which the most important are the height and body weight, which

are valorized taking into account the current age of the volleyball players (Marelić, Djurkovic and Resetar 2008).

The results show that the selection in volleyball requires a special responsibility. It requires knowledge, skill and professionalism in information gathering, knowledge of specific and safer models for detection and objectivity of the information collected, which are related to the characteristics and skills required in the relevant sport (Paranosić and Savic, 1977).The formation of a player in the game of volleyball is a long and complicated process which means it takes both quantitative and qualitative learning.

When analyzing the differences in arithmetic averages we note that in the tests of explosive force and in some tests of situational precision of serving, the volleyball players of KV"Pristina" have had better results than volleyball players of KV "University AAB" and these differences were statistically significant $p < 0,05$. The training process of volleyball players of KV "Pristina" has affected more in the quantitative raise of some motor and technical skills of the volleyball players of KV "Pristina", which is manifested by better results at the end of the Kosovo Super League championship in volleyball.

The variables variance analysis of the difference between volleyball players of KV "Pristina" and KV"University AAB" in some motor and situational precision tests indicates that the kinesiologycal treatment of the volleyball players of KV "Pristina" has been more qualitative, where operators of anaerobic and aerobic sustainability and the situational training have induced higher quantitative changes.

The results of this study coincide with the findings of several authors of this nature (Čolakhodžić, et al., 2012) where has been proven the impact of the quality of situational training on the basic motor space structure.

Aknowledgement

The paper is part and continuation of the project "The impact of qualitative training in condition, technical and tactical preparation of the players in the Super League of Kosovo in Volleyball. Without the support of the leadership of both clubs, KV "Pristina" and KV "University AAB" the completion of this work would have been impossible.

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THE DIFFERENCE BETWEEN TWO VOLLEYBALL TEAMS IN SOME ANTHROPOMETRIC AND MOTOR ABILITIES.

Introduction: In this research we are deal with two teams of the super league of Kosovo in volleyball. The goal of this study is to verify the differences between the two teams in volleyball in some anthropometric characteristics, basic motor skills and situational tests. Methods: For the realization of this research, there were included 12 volleyball player from the team KV "Prishtina" and 12 from the team KV "Universiteti AAB". There are applied 4 anthropometric variables (body weight, body height, arm length, forearm length), 5 basic motor variables (long jump from place, high jump from the place taping hand, taping feet, jogging with 20 meters with a fast start), and 7 situational tests (pass the ball with the fingers on target vertical expulsion of the ball with the forearm ("hammer") in vertical target, passing the ball with the fingers in a horizontal target, the expulsion of the ball with the forearm ("hammer") in horizontal target, pass the ball with fingers to jump in the horizontal target, tennis service in horizontal target, the target service with the horizontal jump. For processing the obtained results from the measurements and proving the difference between the teams in anthrop motored parameters, was used the discriminatory analysis using the t-test for independent variables. Results: The results obtained show that the players of the two volleyball teams, involved in research do not distinguish between them in anthropometric characteristics (p> 0:05). The team KV "Prishtina" has had better results in some explosive force motor variables and situational tests (p <0:05), which are also important for success in the game of volleyball. Discussion: To prove statistical differences between the two teams VC "Pristina" and VC. "AAB" in each variable is used T - test. Through this method can be verified the change between two

arithmetic means. To achieve the statistical validity of differences between two groups in sample above 20 entities, the value of must be T > 1.97, at the statistical significance level of p < 0.05. Results from our sample showed that between VC. "Pristina" and VC. "AAB", important statistical changes were in those motoric tests. High jumping, foot taping, Passing the ball with hammer to the wall, Tactical accurate Service, Accuracy of service with jump and Standing long jump length. References: Strahonja A, Jankovic V, Shnajder V (1982). Kineziologija, 14, 46-51. Forthomme B, Croisier JL, Ciccarone G, Crielaard JM, Cloes M (2005). Am J Sports Med, 33, 1513-9. Strahova A (1972). Kineziologjia, 1, 24-36.

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У ПОДГОРИЦИ ОД 3. ДО 6. АПРИЛА 11. КОНФЕРЕНЦИЈА И 10. КОНГРЕС ЦРНОГОРСКЕ СПОРТСКЕ АКАДЕМИЈЕ

Организатори већ спремни

Иако је до почетка 11. Међународне конференције о трансформационим процесима у спорту „Спортска достигнућа“ и десетог Конгреса Црногорске спортске академије остало још десетак дана организатори су на јучерашњој конференцији за новинаре истакли да је све спремно и да би традиционални скупови могли почети већ данас. Као прошле, и ове године ће се Конгрес одржати у Подгорици, и то од 3. до 6. априла а окупиће научнике из 25 држава свијета. Предсједник приређивачког одбора и декан Факултета за спорт и физичко васпитање из Никшића **Душко Бјелица** је истакао да је прихваћено укупно 102 рада, који су штампани у Зборнику сажетака са адекватним ИСНБ бројем, док ће адекватно изложени радови стећи право да се нађу у реномираном часопису „Спорт Монт“, који излази на нашем, уз сажетак на енглеском језику.

– **Поред великог броја пристиглих радова, рецензенти су прихватили и одабрали 102 адекватно припремљена рада чији аутори су се строго држали прецизно формулисаних пропозиција за припрему истих. Поред регистрованих учесника који ће презентовати своје радове, пријављено је још учесника који ће пратити конференцију без пријављеног рада. Најбољи радови ће бити предложени за објављивање у часопису „Montenegrin Journal of Sports Science and Medicine“, који, такође издаје Црногорска спортска академија, а који се поред EBSCO цитатне базе, налази још у осам међународних цитатних база, док је код SCOPUS-a и THOMSON REUTERS-a у току евалуација истог**, рекао је Бјелица.

На конференцији је још говорио ректор **Предраг Мирановић**, као и члан Организационог одбора Стево Поповић, који је истакао да ће уводна предавања имати проф. др **Зорана Милошевић** са Факултета спорта и физичког васпитања Универзитета у Новом Саду и доц. др **Селчук Акпинар** са Департмана за спорт Невшехир Хаџи Бекташ Вели Универзитета у Анкари, са којим ће Факултет за спорт и ФВ из Никшића потписати протокол о сарадњи.

Т.Б.



Бјелица и Мирановић

UDK: 796.325(497.115)

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THE DISTINCTION BETWEEN TEAMS RANKED THIRD AND FOURTH IN THE SUPER LEAGUE VOLLYEBALL OF KOSOVO

Introduction

Unlike other complex kinesiologycal activities, sports discipline volleyball is interesting, complex, dynamic, motivating and very attractive to all generations. In volleyball game, the actions are manifested with rapid motor reactions, both in the phase of defense as well as attack, where teams attempt to score more points with more successful attacks.

To be more successful in all phases of a game it requires players to possess such anthropometric parameters that correspond to the volleyball game, to have the reaction speed in different situations, to have a good perception of time and space, as well as to have basic motor skills especially with high explosive strength of the legs and perfect technical execution elements.

Given that the basic elements of volleyball include a variety of motor actions so that their execution can be straight, and also efficient, is completely understandable and reasonable to expect that work to improve with the training of these elements and affect the development of motor skills (Nesic, Sikimić, Ilic and Stojanovic, 2011). Contemporary volleyball game requires all players a high level of general motor skills, as well as specific - typical of a volleyball game and for certain particular positions of players (Martinovic et al, 2011). Players should be well prepared to perform perfectly all the technical and tactical elements.

Methods

For the realization of this research there have been included 12 volleyball players from the team of KV "Granit com" ranked in third place in the Super League of Kosovo in Volleyball and 12 volleyball players from the team of KV "Te Luzha", ranked in fourth place in Super League of Kosovo in volleyball. There have been applied 4 anthropometric variables which are: body weight (APESHA), body height (ALARTE), arm length (AGJKR), forearm length (AGJPK); 5 basic motor variables: the long jump from place (MKVGJ), jump high from place (MKVL), taping hand (MTD), taping feet (MTK), running 20 meters from a fast start (MV20M); and 7 situational tests: pass the ball with the fingers on vertical target (SPTGR), pass the ball to the forearm ("hammer") in target vertical (SPTGQ), pass the ball with fingers on the horizontal target (SPTK), pass the ball with the forearm ("hammer") in horizontal target (SPTÇM), pass the ball with the fingers jumping in the horizontal target (SPTÇR), tennis service in horizontal target (SPSHT) service to jump in the horizontal target (SPSHK).

For each applied variable were calculated these values: 1. Basic central and dispersion, 2. Asymmetry coefficient ("skjunis") and height distribution ("kurtosis"), 3. The verification of arithmetic difference in averages between the two teams in anthropometric and motor parameters, as well as situational precision through applying the discriminatory analysis of t-test for independent variables.

Results

We start the analysis of Table 1 by observing the column of the standardized coefficients of distribution asymmetry (skewness), which provides the verification of the compliance of empirical data with theoretical ideal Gauss distribution. The values of the asymmetry coefficients for each anthropometric and motor variable, and situational precision are far away from the critical values and very close to the optimum value that represents discrimination test. The earned distributions show that the applied anthropometric variables did not show any pronounced asymmetry, and the motor and situational precision tests did not present complicated tasks and are selected in full compliance with the age, gender and profession. Further analysis of the same coefficients indicates a negative asymmetry - dominated hypo kurtosis in most motor and situational precision tests.

Table 1. *Basic indicators of statistical anthropometric, motor and situational precision variables to volleyball players of KV "Granit com"*

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
AWEIGHT	12	66.48	97.68	80.9133	9.95073	-.002	-1.207
AHIGH	12	177.75	198.80	186.4667	8.79071	.068	-2.209
AGJKR	12	34.35	41.20	36.1292	2.15295	1.133	1.315
AGJPK	12	24.10	31.60	27.2250	2.04412	.599	.406
MKVGJ	12	204.70	291.32	269.6267	27.23156	-1.498	1.813
MKVL	12	39.30	49.40	43.0083	3.11316	.611	-.249
MTD	12	22.00	37.00	29.2500	5.61046	-.340	-1.642
MTK	12	20.00	28.00	22.8333	2.62274	.834	.040
MV20M	12	3.40	4.10	3.6500	.23160	.843	-.370
SPTGR	12	33.00	78.00	56.5833	13.20095	-.091	-.625
SPTGQ	12	26.00	43.00	35.5000	5.23103	-.226	-.629
SPTK	12	10.00	36.00	22.6667	8.57410	-.126	-1.258
SPTÇM	12	10.00	28.00	19.4167	5.61586	-.446	-.246
SPTÇR	12	11.00	32.00	21.9167	6.40253	-.525	-.194
SPSHT	12	5.00	12.00	7.8333	2.28963	.517	-.718
SPSHK	12	5.00	9.00	7.6667	1.37069	-.800	-.512

Basic central and fundamental parameters, the dispersive asymmetry coefficients ("skjunis") and the distribution of height ("kurtosis") (Table 2.) provide a result almost the same as in Table 1. In this table the values of the coefficients of asymmetry for each anthropometric and motor variable, and situational precision are away from the critical values and very close to the optimum value that represents discrimination test. Distributions earned show that the applied anthropometric variables did not show any pronounced asymmetry and motor and situational precision tests not present complicated tasks and are selected in full compliance with the age, gender and profession. Further analysis of the same coefficients indicates a domination of negative asymmetry – hypo kurtosis in most motor and situational precision tests, which means that the values of these tests tend to go the direction of the lower ones. The biased results of the motor tests, and the situational precision toward the lower ones shows a low motivation of the volleyball players in performing these motor and situational tests.

Table 2. *Basic statistical indicators of anthropometric, motor and situational variables, to volleyball playes of KV "The Luzha"*

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
AWEIGHT	12	67.50	92.68	80.7433	8.85671	-.162	-1.790
AHIGH	12	173.70	194.20	185.7458	8.73086	-.097	-2.242
AGJKR	12	31.80	40.40	35.8500	2.29931	.221	.151
AGJPK	12	23.10	32.90	27.1083	2.59105	.655	1.179
MKVGJ	12	201.54	281.50	236.2017	28.47705	.471	.637
MKVL	12	39.10	48.20	42.0917	2.91531	.782	-.258
MTD	12	20.00	37.00	28.9167	5.72805	-.411	-1.430
MTK	12	19.00	27.00	22.5833	2.42930	.358	-.480
MV20M	12	3.20	4.30	3.9917	.29064	-1.981	5.005
SPTGR	12	16.00	72.00	53.0000	16.58586	-.973	.880
SPTGQ	12	13.00	41.00	32.8333	7.64952	-1.686	3.610
SPTK	12	9.00	33.00	21.5000	8.38288	-.145	-1.283
SPTÇM	12	7.00	29.00	18.4167	6.11196	-.215	.285
SPTÇR	12	3.00	28.00	20.9167	7.46456	-1.490	2.027
SPSHT	12	4.00	11.00	7.5833	2.15146	-.005	-.865
SPSHK	12	3.00	10.00	5.0000	1.85864	1.835	4.708

To prove that there is a statistically significant difference between the KV volleyball players of KV "Granit com" ranked in third place in the Super League of Kosovo in volleyball and the volleyball players of KV " Te Luzha" ranked on the fourth place in the Super League of Kosovo in volleyball, in some anthropometric,

motor and situational precision variables has been applied the T - test to two groups of the independent variables.

The difference between the 12 volleyball players of KV "Granit com", and the volleyball players of KV "Te Luzha" is confirmed in only two motor tests and one situational precision, and in the tests: long jump from place (MKVGJ) Mean Diff. = 25278, t = 2.308, df - 22, sig. = 0.031), running 20 meters from a fast start (MV20M) (Mean Diff. = -.34125, t = -3,185, df - 22, sig. = 0.004) service with the jump in the horizontal target (SPSHK) (Mean Diff. = 2.666; t = 4.000; df - 22, sig. = 0.001)

Discriminative analysis results show that differences in arithmetic averages have been in favor of the players of KV "Granit com", (except for the test of run at 20 meters from a fast start (MV20M) where the results of t - test are presented in Table 3.

Table 3. *The difference in anthropometric, motor and situational variables between players in the KV "Granit com" and KV "Te Luzha*

	Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Diff.	
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
AWEIGHT	.188	.669	.044	22	.965	.170	3.845	-7.805	8.145
AHIGH	.006	.940	.202	22	.842	.720	3.576	-6.696	8.138
AGJKR	.105	.749	.307	22	.762	.279	.909	-1.606	2.164
AGJPK	.422	.523	.122	22	.904	.116	.952	-1.859	2.092
MKVGJ	.012	.915	2.308	22	**.031**	25.278	10.952	2.564	47.992
MKVL	.042	.840	.745	22	.464	.916	1.231	-1.636	3.470
MTD	.003	.956	.144	22	.887	.333	2.314	-4.466	5.133
MTK	.019	.892	.242	22	.811	.250	1.032	-1.890	2.390
MV20M	.002	.968	-3.185	22	**.004**	-.341	.107	-.564	-.119
SPTGR	.240	.629	.586	22	.564	3.583	6.119	-9.107	16.274
SPTGQ	.360	.555	.997	22	.330	2.666	2.675	-2.881	8.214
SPTK	.063	.804	.337	22	.739	1.166	3.461	-6.012	8.345
SPTÇM	.023	.880	.417	22	.680	1.000	2.396	-3.969	5.969
SPTÇR	.084	.775	.352	22	.728	1.000	2.838	-4.887	6.887
SPSHT	.029	.866	.276	22	.785	.250	.906	-1.630	2.130
SPSHK	.015	.904	4.000	22	**.001**	2.666	.666	1.284	4.049

Discussion

The results obtained show that the players of the two teams of volleyball of Kosovo Super League ranked in third and fourth place, which were involved in research do not differ among themselves in anthropometric characteristics (p > 0:05). KV "Granit Com" has had better results on tests of explosive force in the long jump from place (MKVGJ), (P < 0:05), while volleyball team of KV “Te Luzha" has had

better results in jogging 20 meters start from the top (MV20M), ($p < 0:01$). Situational test does not show statistically significant difference observed between the two teams apart in the service test jump in the horizontal target (SPSHK) ($p < 0:01$) where KV "Granit com" had better results.

Discriminative analysis of t - test by which it is estimated the difference between the arithmetic averages of KV volleyball players "Granit Com" and the V volleyball players "Te Luzha" in some motor tests and situational precision shows that of volleyball kinesiologycal treatment of the two teams in terms of quality has been approximately the same.

Results of this study shows for a qualitative selection on the level of Super League of Kosovo both teams are ranked in third and fourth position, as well as in terms of conditional preparation. By comparing the mean of heights and some other longitudinal variables, and Situational accuracy in a sample to be tested from Kosovo Super League volleyball players, obtained results are very similar with some reported results so far achieved in the game of volleyball samples (Marelič et al. 2008, Strahonja, 1978).

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Aknowledgement

The paper is part and continuation of the project "The impact of qualitative training in condition, technical and tactical preparation of the players in the Super League of Kosovo in Volleyball. Without the support of the leadership of both clubs, KV "Granit com" and KV "Te Luzha“ the completion of this work would have been impossible.

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THE DISTINCTION BETWEEN TEAMS RANKED THIRD AND FOURTH IN THE SUPER LEAGUE VOLLEYBALL OF KOSOVO.

Introduction: When it is about elite male volleyball players, it is always meant about players that possess such anthropometric parameters which correspond with volleyball game. In this research we are deal with two teams of the super league of Kosovo in volleyball. The goal of this study is to verify the differences between the two teams in volleyball in some anthropometric characteristics, basic motor skills and situational tests. Methods: For the realization of this research, there were included 12 volleyball player from the team KV "Granit com" and 12 from the team KV "Te Luzha". There are applied 4 anthropometric variables (body weight, body height, arm length, forearm length), 5 basic motor variables (long jump from place, high jump from the place taping hand, taping feet, jogging with 20 meters with a fast start), and 7 situational tests (pass the ball with the fingers on target vertical expulsion of the ball with the forearm ("hammer") in vertical target, passing the ball with the fingers in a horizontal target, the expulsion of the ball with the forearm ("hammer") in horizontal target, pass the ball with fingers to jump in the horizontal target, tennis service in horizontal target, the target service with the horizontal jump. For processing the obtained results from the measurements and proving the difference between the teams in anthrop motored parameters, was used the discriminatory analysis using the t-test for independent variables. Results: The results obtained show that the players of the two volleyball teams of the Super League in of Kosova, involved in the research do not distinguish between them in anthropometric characteristics (p> 0:05). The team KV "Granit Com" has had better results in some motor variables of the explosive force and the one of long jump from the place(P <0:05) and running 20 meters from a fast start (p <0:01). Situational tests are not a statistically significant difference observed between the two teams. Discussion: In order to verify the statistical significance through the t-test, the value of t-test should be established, which for significant level p<0.05 is T>1.97 above 20 entities. The results show that statistically valid changes with valid significant tests are present in anthropometric and movement space. Table nr.15 presents the results of two teams “Graniti Com” and “Te Luzha”. In this case, the statistical valid changes are presented in three tests: high jump, 20 meters speed run and accuracy of the service in jumping. References: Liba MR, Stauff MR (1963). Research Quarterly, 35, 59–63. Strahova A (1972). Kineziologija, 1, 19-72. Nikqi V. (2008). Differences of some anthopmetric and motor characteristics as well as several situatinal testes among Kosovo Superlague Volleyball players, 35-64. Strahonja A, Jankovic V, Shnajder V (1982), Kineziologija, 11, 46-51.

UDK: 797.2

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PRATICE CRAWL – MENTAL DISTABILITIES: ADULT CHOICE OF DRIVE TECHNOLOGY ADAPTED COMPETITORS

Introduction

Of the two schools most stressed about the act of propelling the crawl, crawl in practice, which is the most efficient swimming, the two modes of propulsion favorites are “The outstretched arm” next to the called swimmer paddling and “The arm bent S-shaped” under the so-called swimmer impeller (N. Lanotte, S. Lem, 2012) The debate is not yet settled (Potdevin F; Pelayo P. 2006).

Any swimmer has a strategy for managing its own resources considering the cost / benefit of each stroke technique report, with the aim of improving strength (Arellano, R. (1992), its movement and hence its performance (Joshua, 1992) in retarded placed in individual practice crawl competition, open to different technical conditions, what is the movement that is most often practiced, according to “the outstretched arm” or “folded S-shaped arm “under the swimmer?

Methods

We record video (Chollet, D - 2003), during two Regional championships in France adapted swim organized by the French Federation of Adapted Sport tests crawl in Division 1 Division 2 and Division 3 according to the latest regulations for implementation first time. We study the test of 50 meters crawl performed by each competitor. These competitors are also facing a technicality in the conduct of technical actions that should be most effective for each of them. We then analyze the sports performance of each continuous. We question the choice: “The outstretched arm” or “arm bent S-shaped” under the swimmer, by interviews (Y.Meynaud; Duclos D.1996) professional supervisors or volunteers before tests their competitors and we competitors are questioning after their trials.

Results

The video shows the three kinds of coordination among swimmers (Chollet, 1997; Costill , Maglischo and Richardson , 1992; Pelayo et al, 1999.):

- Coordination "opposition" where the propulsive action of the two arms are realized in the form of relay . The moment arm a has completed its thrust and the other opposing arm starts its tensile.

- The most coordination discontinuous, that is caught in a dead time of an arm (usually in front support phase) during the propulsive phase of the other arm.

- The third coordination "overlap" has a simultaneity of the end of the push of a start of the arm with the other traction. There is therefore superposition (overlap) of the partial activities of two arms propellant.

It appears on the videos that all competitors have a coordination phase of "opposition" or "discontinuous" or "overlap" in the swimming arms outstretched.

It appears on the video that all competitors swim the “arms outstretched” The point of view of professional or volunteer supervisors: no of them are not asked for the choice of method of propulsion is best for their competitors as they say swimming techniques they teach in their club are the same as for all disabled or not competitors. the views of professionals and volunteer supervisors requires further in-depth study.

The point of view of competitors : For competitors the method of propulsion “outstretched arm” seems to them the most effective. Method “arm S” Their demand coordination of movement more difficult to obtain in the context of mental disability.

Discussion

Using the method of “arms outstretched” timing of movements is easier to obtain in the case of development of a simple movement to the competitor defi cient adult mind. He can repeat the gesture “outstretched arms” over the entire length as a strategy to optimize its performance (Temprado 1991; Famose 1993; Sarrazin, 1997).

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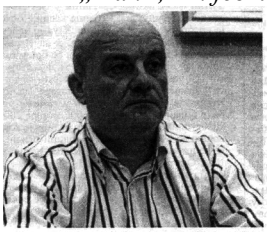
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PRATICE CRAWL – MENTAL DISTABILITIES: ADULT CHOICE OF DRIVE TECHNOLOGY ADAPTED COMPETITORS

Introduction: Of the two schools most stressed about the act of propelling the crawl, crawl in practice, which is the most efficient swimming, the two modes of propulsion favorites are "The outstretched arm" next to the called swimmer paddling and "The arm bent S-shaped" under the so-called swimmer impeller (N. Lanotte, S. Lem, 2012) The debate is not yet settled (Potdevin F; Pelayo P. 2006). Any swimmer has a strategy for managing its own resources considering the cost / benefit of each stroke technique report, with the aim of improving strength (Arellano, R. (1992), its movement and hence its performance (Joshua, 1992) in retarded placed in individual

practice crawl competition, open to different technical conditions, what is the movement that is most often practiced, according to "the outstretched arm" or "folded S-shaped arm "under the swimmer? Methods: We record video (Pk Chollet - 2003), during two Regional championships in France adapted swim organized by the French Federation of Adapted Sport tests crawl in Division 1 Division 2 and Division 3 according to the latest regulations for implementation first time. We question the choice: "The outstretched arm" or "arm bent S-shaped" under the swimmer, by interviews (Y.Meynaud; Duclos D.1996) professional supervisors or volunteers before tests their competitors and we competitors are questioning after their trials. Results: It appears on the video that all competitors swim the "arms outstretched" The point of view of professional or volunteer supervisors: no of them are not asked for the choice of method of propulsion is best for their competitors as they say swimming techniques they teach in their club are the same as for all disabled or not competitors. The point of view of competitors: For competitors the method of propulsion "outstretched arm" seems to them the most effective. Method "arm S" Their demand coordination of movement more difficult to obtain in the context of mental disability. Discussion: Using the method of "arms outstretched" timing of movements is easier to obtain in the case of development of a simple movement to the competitor deficient adult mind. He can repeat the gesture "outstretched arms" over the entire length as a strategy to optimize its performance (Temprado 1991; Famose 1993; Sarrazin, 1997). References: Arellano R (2004). Seminario Europeo de Entrenadores de Natación, Madrid 7-9 mayo 04. Arellano, R. (1992).Evaluación de la fuerza propulsiva en natación y su relación con elentrenamiento y la técnica. (Tesis Doctoral, Director: Jaime Vila). Chollet P. (2013). La coordination dans les quatre nageS. Actes des 3ème journées spécailisées de natation ed De Booeck 2013. Elipot, M , Dietrich, G., Hellard, P., Houel, N. (2010). Cinalysis: A new software for swimming races analysis. Procedia Engineering, 8 th Conference of the International Sports Engineering Association (ISEA), 2, 3467.

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У СУСРЕТ 10. КОНГРЕСУ И 11. КОНФЕРЕНЦИЈИ ЦРНОГОРСКЕ СПОРТСКЕ АКАДЕМИЈЕ У ПОДГОРИЦИ ОД 3. ДО 6. АПРИЛА

Стижу научници из 25 земаља

Организациони одбор 11. међународне конференције о трансформационим процесима у спорту „Спортска достигнућа“ и 10. Конгреса Црногорске спортске академије вриједно ради на припреми програма академских и социјалних активности које ће се одржати у Подгорици од 3. до 6. априла ове године. Поред најављених пленарних излагања, академски дио конференције ће се одвијати у неколико мултидисциплинарних секција, које ће обухватити природне, друштвено-хуманистичке и медицинске аспекте савременог спорта.

– **Велики број учесника конференције који долазе из Албаније (5 аутора), Бразила (1), Бугарске (3), Канаде (1), Хрватске (1), Чешке (4), Финске (2), Француске (1), Индије (1), Ирана (17), Ирака (4), Јапана (1), Косова (11), Македоније (3), Малезије (1), Португала (1), Румуније (1), Србије (6), Словеније (1), Шпаније (1), Тајвана (1), Тајланда (2), Турске (17), Велике Британије (1), као и из Црне Горе (15), своје реферате изложиће јавно, али значајан број се одлучио и за постер презентације које су по први пут понуђене у организацији Црногорске спортске академије,** рекао је проф. др **Душко Бјелица,** предсједник припремачког одбора, уз напомену да су поред великог броја пристиглих радова рецензенти прихватили само 102 адекватно припремљена рада чији аутори су се строго држали прецизно формулисаних прописа за њихову припрему.

Т.Б.

UDK: 796:005

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THE MANAGERIAL CONCEPTS OF THE QUALITY AND PERFORMANCE AND THEIR INTEGRATION IN THE SPORTS ORGANIZATIONS

Introduction

The sports organizations are nowadays more than ever confronted with the requirements to deliver the outcomes of the best value for the price and be able to confirm the best possible spending of the public and sponsorship funds. The variety of the consumers and customers in sport expect to be provided or to be a part of the sports products and services that offer the excitement, fun and worthy and pleasurable experience. The customers in sport are not only the participants in sport or the spectators of sport but also members, employees, and volunteers who work in sport governing organizations, in special interests clubs, in commercial sport clubs, in professional sport franchises, and in political sport organizations (Mawson,1993). Managing such a variety of different customers and requirements requires the complex approach toward the quality and performance. To develop the both, the quality management system and performance management system must be implemented. This enables a sport organisation to achieve the goals and objectives in compliance with the external and internal expectations stemming from the complex sport environment.

Hypothesis 0: Upon the similar features of the quality and performance systems it is possible to design the integrated yet flexible framework which could enable the managers of the non - for- profit sports organizations identify and select the proper indicators of quality and performance in order to capture the specific features of sport.

Methods

The aims of this paper is to design the concept of integrated quality and performance management system for non – for – profit sports organizations. To accomplish the aims of the paper the desk research and formal and thematic content analysis were used as a research methods. For the identification of the different approaches to the quality and performance management in sport, the literature review from the international sources has been conducted. The formal content analysis of a systematic sample of texts related to the quality and performance in sport was used in order to identify the approaches to the topic. The desk research was then followed by a construction of a conceptual framework that can be used by sport managers when managing the quality and performance in their areas of responsibility.

Results

Based on the analysis of the literature related to the quality in sport we can distinguish two generic approaches when defining the quality in sport: the organizational perspective of quality in sport and quality of the services in sport (Nova, 2013).

With regard to the main goal of our paper we will further focus on the organizational perspective of quality in sport which is based on the concepts which are rooted in the management philosophy that addresses the improvement of the whole organization to satisfy the customer needs or requirements. For managing quality standards in sports organizations Mawson (1993) suggested the implementation of the Total Quality Management (TQM) in sport which stresses the consumer – focused management system stemming from full involvement of the entire organizational workforce in improving quality. The TQM underlines the need to capture all parts of institution and its processes within the quality assurance framework and therefore the quality of the service is not isolated from the long – term improvement of the all processes in an organization. The organizational approach for quality improvement in sports has been used in the Flemish policy aimed on the introduction of TQM via IKSport computer information system so to establish a quality (evaluation) system in sports clubs (DeKnop et.al, 2004). The evaluation of the quality management is made by using the clusters of items into seven dimensions: strategic planning and marketing management, internal procedures and systems, external communication and image building, organizational culture and atmosphere, management and structure, human resources management and organizational effectiveness. Moreover the drivers as club´s main orientation (achievement – oriented, participation - oriented or multipurpose); primary target group (children/youth, adults or both) type of sport (individual sport or team sport) number of members/size, are also audited. The same philosophy is behind the UK Quality scheme for Sport and Leisure called Quest (Quest, 2013) which is deemed as a first attempt to adjust Excellence Model of the European Foundation for Quality Management (EFQM) in sport and leisure sector. The EFQM is based on the premise that sustainable and excellent results in organizational performance are achieved through the leadership driving strategy and planning, people, partnership, resources and processes. In tune with the TQM and EFQM the Quest offers the framework for continuous improvement which is based on a planned approach, staff development and ownership which are reflected in the Quality/Integrated Management system. The Quest also offers the external assessment and benchmarking of services for sport organizations. The sport and its delivery cannot be separated from the public sector and therefore we also have to mention the holistic tool - Common Assessment Framework (CAF) which has been developed in 2000 by European Public Administration Network so to assist public administrations in their quest for continuous improvement in the all public sector organizations across Europe. The latest revision of the CAF (EIPA, 2013) strongly supports concepts such as users' orientation, public performance, innovation, ethics, effective partnerships with other organization(s) and social responsibility which are the concepts´ that all sport organizations which are operating in the public and state sector pursue as well. CAF as a total quality management tool was inspired by the EFQM and therefore follows the idea of the organizational performance which is achieved through enablers and results.

The logic of the organizational performance management is quite simple - setting targets and working to achieve them in various fundamental areas of particular

organization and check the progress or fulfilment of the expected standards at the regular basis. The same is valid for sports organizations but the situation is more complicated than in “purely business like” organizations. Sport and recreation opportunities are delivered by a mixed economy of providers across the public, non-for –profit and commercial sectors. Most of the sport organizations are non- for - profit in their nature and therefore the implementation of the classical performance management tools such as Balance Scorecard (Kaplan & Norton, 1992) is to some extent limited or should be customized (Hoye et al., 2012). When defining the limits of the utilization of the Balance Scorecard in sport organization the specific features of the sport as defined and revisited by Smith and Stewart (1999, 2010) have to be taken into consideration. In their revision they stated that sport is a heterogeneous and ephemeral experience mired in the irrational passions of fans, commanding high levels of product and brand loyalty, optimism and vicarious identification; sport favours on-field winning over profit; sport is subject to variable quality, which in turn has implications for the management of competitive balance and anti-competitive behaviour; sport has to manage a fixed supply schedule. As Smith and Stewart (2010) pointed out a failure to recognise sport as a business will produce poor performance, and management strategies that gives no recognition to its special features, will fail to deliver optimal outcomes. Considering the logic of the Balance Scorecard (BS) and its utilization in sport the following obstacles which prevent its perfect implementation within the sport context can be identified. Firstly, the primary goal of the BS is the attainment of the financial goals which reflect the business success, whereas in sport the winning and sport experience are valued the most. Secondly the logic of the BS is based on the “top down” principle which is not manageable within the sport hierarchy, where the sport organization at the lowest levels have to have the flexibility in order to be able to react to and also satisfy the local needs. Thirdly, the external factors, which are of the utmost importance in sport, are in the BS considered just indirectly. And lastly the BS requires that the strategies and goals are set precisely, which is not the case in sport. In the quest to find the most suitable performance management framework for variety of sports organizations there is a growing number of studies. They are reflecting the hierarchical structure of the sport and referring to the different levels of sports organizations. Bayle and Madella (2002) proposed a new performance measurement techniques in a taxonomic perspective that associates qualitative and quantitative indicators to determine performance profiles for national (French) sport federations. They suggested not only dimensions of performance (institutional, social internal, social external, economic and financial, promotional, organizational) but also the tools for their measurement. Chappelet and Bayle (2005) have proposed six performance dimension of a voluntary sport organisation at the national level: sport, internal/ social, societal, financial, promotional, organizational. Bayle and Robinson (2007) studied strategy and management practices of 11 French National governing bodies (NGB) of sport in relation to their organizational performance and proposed a framework through which NGB performance in the field of sport could be explained. The framework is composed of the factors affecting the performance of NGBs which are divided into strategic and operational performance

mix. To the strategic mix factors' belong the system of governance, quality of the operating network and position in the industry and to the operational performance mix factors' belong the forms and levels of professionalization, the presence of a participatory organizational culture and partnership approach. Winand et.al, 2010 proposed a model to measure organizational performance of governing bodies in Olympic sport by considering objectives distributed among five main dimensions: sport, customer, communication and image, finance and organization, which are measured by quantitative performance indicators. Performance measurement for the development of sport – A good practice guide for local authorities (2001) issued by Sport England provides a valuable tool for local authorities involved with the provision of sports services to measure the impact of their service on the communities they serve, to demonstrate that service is valued and to show that it is being delivered efficiently and cost – effectively. Local indicators for sport are suggested that should be consistent with the strategic focus of the sport authorities and the responsibilities that are important for local sport organizations and the community they serve.

In order to prove the complementary nature of Quality Management System (QMS) and Performance Management System (PMS) two frameworks have been chosen - Common Assessment Framework (CAF, EIPA 2013) and the Evaluation Framework for Sport (Sport England, 2001).

Tab. 1. *Comparison of the QMS – CAF and PMS – Sport Evaluation Framework*

CAF dimensions 2013	**Sport Evaluation Framework (2001)**
ENABLERS	**RESOURCES COMMITMENT**
Leadership; Strategy and planning; People; Partnership and Resources; Processes	Service inputs (capital and revenue on direct and indirect provision, staff resources)
RESULTS	**IMPACT AND EFFECTIVENESS AND EFFICIENCY**
Citizen/ Customer – oriented Results; People; Social responsibility; Key performance results	Sporting outcomes; Process outcomes; Service outputs; Process outputs; Equity measures; Social, economic and environmental outcomes

Source: Elaborated based on CAF (2013) and Sport Evaluation Framework (2001)

On base of the comparison of the dimensions as indicated in Tab. 1 the new integrated framework (see Fig .1) can be developed



Fig. 1. *Integrated Quality and Performance Management System for Non- for –Profit Sports Organizations*

Discussion - rationality of the proposed integrated framework

The main reason for developing of the integrated framework for quality and performance management system for non-for profit sports organizations is, that both QMS and PMS have the common goals, principles, collection and sharing of common data. They both concentrate on the actions which result in improved public services, accountability and service impact. They demonstrate to internal and external partners or stakeholders that the sports organization is achieving continuous improvement and that the targets have being met and also collect the evidence to demonstrate how sport and recreation contribute to the sporting, social and economic outcomes in society.. Within the QMS and PMS there are common indicators for measurement of the strategy planning, service delivery, cost and efficiency, people, activities, programmes and facilities. These indicators provide information to different users and levels of reporting how the sport service and sport experience is perceived by customers and stakeholders, and whether the stated aims and objectives have been accomplished. Moreover they indicate how efficient and effective the sport serviceswere, and they also can serve as the tool for comparison with other providers. For both QMS and PMS the common principles can be identified such as: focus on the priorities of the sports organization, internal alignment and linkage of performance and quality indicators,

regular data collections on different levels of the sports organization and the need for regular update of the indicators in changing circumstances. Both QMS and PMS strive to provide a balanced picture in relation to the sports organization performance and quality and this means that the participation, leadership, partnerships, facilities, sporting outcomes, as well as efficiency and effectiveness should be measured. The consideration of Smith and Steward (2010) in relation to the specifics of performance measurement in sport justifies our proposed integrative approach to the implementation of QMS and PMS in sport organizations. The flexibility of the new integrated conceptual framework which combines the QMS and PMS allows overcoming the specifics related to the performance management in sport arising from the specific features of sport. Moreover the suggested integrated framework could overcome the weaknesses related to the performance management sustainability and efficiency in sport organizations as discussed by Sanderson (1998) and explained by Robinson (2012). The main concerns are related to the inability to capture the environmental complexity in performance indicators and lack of managerial control over the number of environmental features. Another concern is based on the impossibility to measure all aspects of a sport organization. With regard to these concerns our integrated concept provides a logical framework for capturing of all elements of the performance no matter whether or not they are measurable. The integration of the enablers into integrated framework could increase the dynamics of the performance management and to overcome its “dark sides” such as performance paradox (van Dooren, et al., 2010) also known as the law of decreasing effectiveness (De Bruijn, 2006).

Based on the presented arguments we can say that Hypothesis 0 has been proved and that upon the similar features of the quality and performance systems it is possible to design the integrated yet flexible framework which could enable the managers of the non - for- profit sport organizations identify and select the proper indicators of quality and performance in order to capture the specific features of sport. Further research is bound to testing the proposed integrated model in the practice of the sports organizations where a crucial role of sport managers will be selection of the indicators for the joint evaluation of the quality and performance. The indicators shall be determined in accordance with the need to assess the effectiveness and efficiency of the entire organization and all of its outputs and outcomes.

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THE MANAGERIAL CONCEPTS OF THE QUALITY AND PERFORMANCE AND THEIR INTEGRATION IN THE SPORT ORGANIZATIONS.

Introduction: This paper explores the possibilities of interconnection between the concepts of quality management systems and the concepts of the performance in sports organizations so to achieve the greater effectiveness and efficiency in terms of their operations. Therefore the paper provides an overview of the quality management systems and principles which are applicable in sports organizations and special attention is also paid to

the analysis of the Balanced Scorecard principles in the sport context. Via the chosen methodology the author analyses the potential of this performance measurement tool for the integration into quality management system in sports organizations. Methods: In the paper the author used different methods of scientific research namely systematic observation, desk research, descriptive and causal method as well as the inductive and deductive method. The methods of analysis and synthesis of the existing perspectives were exploited in order to analyse and describe the interrelatedness between the different concepts. Results: The profound analysis and synthesis of the existing theoretical and practical tools applied in the quality of sport and performance of sport has proved the rightfulness of the assumptions that these two concepts can be based on their logic integrated in the managerial practice in one framework. Discussion: Implementing the integrated concept of the quality management and performance management in the sport organizations can be very efficient, considering the characteristics of the quality management systems and performance measurement. This approach can improve the realisation and results of the core processes in sport organizations and enhance their accountability towards the stakeholders´ requirements and expectations. References: Hoye R at al. (2012). Sport Management - principles and applications. Third edition. Routledge NY. Kaplan RE, Norton DP (1992). Harvard Business Review, 71-9. Nová J (2013). Current Concepts of the Quality in Sport and Their Possible Utilization in the Czech Republic. In: Conference Proceedings Prague, November 2013.Economics, Management and Marketing of Sport 2013, International Conference.

„Vijesti“, 25. mart 2014.

CRNOGORSKA SPORTSKA AKADEMIJA

Konferencija u Podgorici novi iskorak

Fakultet za sport i fizičku kulturu uvijek je išao korak dalje - kazao je rektor Univerziteta Crne Gore Predrag Miranović Ovogodišnja konferencija organizovana je po uzoru na onu iz Barselone - ističe predsjednik CSA Duško Bjelica



Sa jučerašnje konferencije za novinare Foto: B. PEJOVIĆ

Jubilarni, 10. kongres Crnogorske sportske akademije (CSA), te 11. međunarodna konferencija o transformacionim procesima u sportu "Sportska dostignuća", biće održani u Podgorici od 3. do 6. aprila. Tim povodom juče je u Rektoratu Univerziteta Crne Gore održana konferencija za novinare, kojoj su prisustvovali rektor UCG **Predrag Miranović**, predsjednik Crnogorske sportske akademije i dekan fakulteta za sport i fizičku kulturu **Duško Bjelica**, šef naučnog komiteta **Stevo Popović**, te članovi organizacionog komiteta **Dobrislav Vujović, Miroslav Kezunović** i **Jovica Petković**.

102 RADA IZ 25 DRŽAVA BIĆE PREZENTOVANO NA 11. MEĐUNARODNOJ KONFERENCIJI O TRANSFORMACIONIM PROCESIMA U SPORTU "SPORTSKA DOSTIGNUĆA" I 10. KONGRESU CRNOGORSKE SPORTSKE AKADEMIJE (CSA). PREKO 30 RADOVA JE ODBIJENO, JER JE "FILTER" ZA UČEŠĆE BIO RIGOROZAN - SAOPŠTENO JE IZ CSA

17 AUTORA IMAJU ZEMLJE KOJE DAJU NAJVIŠE RADOVA, A TO SU TURSKA I IRAN. AUTORA IMA SA SVIH KONTINENATA, POČEV OD JAPANA, TAJVANA, TAJLANDA, PA DO ŠPANIJE, FRANCUSKE, TURSKE. ORGANIZATORI ISTIČU DA JE OVE GODINE INSISTIRANO NA KVALITETU UMJESTO KVANTITETA, TE DA JE U TOM POGLEDU DOSTIGNUTA STEPENICA VIŠE

- Prethodnih godina na Univerzitetu smo se trudili ne samo da prenosimo znanje, već da stimulišemo naučno istraživačke projekte. Negdje smo imali manje, negdje više otpora, ali Fakultet za sport i fizičku kulturu, na čelu sa dekanom Duškom Bjelicom ne samo da je sve zahtjeve ispunio, već je uvijek išao korak dalje. Okupljali su stručnjake iz svoje oblasti, osnovali međunarodni naučni časopis i jako su pozitivan primjer koji je prepoznat u međunarodnim okvirima - kazao je rektor Univerziteta Crne Gore Predrag Miranović, a onda se o međunarodnoj konferenciji izrazio "sportskim rječnikom":

- Ja sam laik za sport, ali ako pogledate odakle sve dolaze učesnici međunarodne konferencije, jasno vam je da je ona izuzetno važna za nauku, sport i državu.

Konferencija počinje 3. aprila, dan kasnije je zvanično otvaranje, a zatvaranje je 6. aprila u podne.

Uz zahvalnost rektoru Miranoviću na podršci, predsjednik CSA Bjelica govorio je o važnosti izdavanja časopisa "Montenegrin Journal of Sports Science and Medicine", te približio stav organizatora da se ove godine dodatno povede računa o kvalitetu učesnika.

- Ove godine postupili smo po ugledu na konferenciju koja je održana u Barseloni. Mnogo radova morali smo da odbijemo. Znali smo da će po tim kriterijumima, koji su najrigorozniji do sada, biti manje radova iz bivše Jugoslavije, ali da će biti više autora iz drugih zemalja, što je kvalitet konferencije popelo bar za stepenicu više u odnosu na prethodne godine - istakao je Bjelica. **A. V.**

UDK: 796.332.012.1

Arben Osmani, *University Educational Institution AAB (Prishtinë, Kosovo)*
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EFFECTS OF MOTORIC ABILITIES ON THE SPECIFIC MOTORIC ABILITIES OF FOOTBALL PLAYERS AGED BETWEEN 14 AND 16

Introduction

In various articles and papers we often come across the statement “football – the most important secondary thing in the world”. This in simple terms explains the great popularity that football enjoys.

Modern football players need to possess the following distinctions: morphological characteristics, motoric and specific motoric abilities, situation judging abilities and certain psychological characteristics.

The research goal of this article is to examine the effects of motoric abilities on the specific motoric abilities of football players aged from14 to 16.

In line with the research goal, the following task was set: to establish the influence of the predictor system of six motoric tests on the two-criterion specific motoric tests of agility and coordination.

Methods

The group of tested persons in this research consists of 54 male football players aged from 14 to 16 who have active training in football club in Prishtina. Their active football experience was two years at least.

The sample of variables covers 6 motoric and 2 specific motoric tests.

From motoric tests the following items were used (as a predictor system of variables):

1. Long jump (LJ);
2. 20-meter running (20M);
3. Throwing medical ball (TMB);
4. Sit-ups (SU);
5. Raising the trunk in 30 seconds (RT); and
6. Hanging shaft. (HS).

From the specific motoric tests for agility and coordination the following was used as a criteria variable:

1. T-test (TT); and
2. Illinois test (IT).

For each space individually calculation was carried out for basic statistic indexes and the effects of the motoric abilities on the specific motoric abilities are established through linear regression analysis.

The data has been analysed using statistic software Statistics 7.0.

Results

From the obtained results presented in two tables (table 1 and table 2), the conclusion is the following: the motoric variables have significant participation in the prediction of success in acquiring specific motoric abilities that are an important part of football playing.

The predictor system of six motoric variables has statistically significant influence on the criterion variable T-test.

In the first case (table 1) the influence is at level 0, 05 (p=0, 05). The coefficient of multiple correlations is 0, 48 and the coefficient of the determination is 0, 27 and explained in percentage it is 27%.

Individually significant influence on the criterion has the variable Hanging shaft (HS) – p-level=0, 03.

Table 1. *Regressive analysis for criteria variable T-test (TT)*

R = 0,48	RI = 0,27	F(6,47) = 2,30	p < 0,05

Variables	Beta	Partial Cor.	t(47)	p-level
1. LJ	-0,10	-0,10	-0,66	0,51
2. 20M	0,11	0,11	0,77	0,44
3. TMB	0,23	0,25	1,73	0,09
4. SU	0,03	0,03	0,20	0,84
5. RT	-0,05	-0,05	-0,37	0,71
6. HS	-0,33	-0,31	-2,26	0,03

** R - coefficient of multiple correlation; RI – coefficient of determination; F – F-test; p – level of significance; Beta – standardized beta coefficient; Partial Cor. – coefficient of partial correlation; t – t-test; and p-level – level of significance for predictor variable.*

The predictor system of six motoric variables has statistically significant influence on the criterion variable Illinois test.

In the second case (table 2) the influence is at level 0, 00 (p=0, 00). The coefficient of multiple correlation is 0, 55 and the coefficient of the determination is 0, 31 and explained in percentage it is 31%.

Individually significant influence on the criterion has the variable Long jump (LJ) – p-level=0, 00.

On the ground of the modest contribution that this completed research can offer, we think that the used predictor variables are adequately counted.

They can certainly be used for assessing (in prediction) the specific motoric of football players.

Table 2. *Regressive analysis for criteria variable Illinois test (IT)*

R = 0,55	RI = 0,31	F(6,47) = 3,43	p < 0,01

Variables	Beta	Partial Cor.	t(47)	p-level
1. LJ	-0,56	-0,51	-4,01	0,00
2. 20M	-0,02	-0,03	-0,19	0,85
3. TMB	0,13	0,15	1,05	0,30
4. SU	0,07	0,09	0,59	0,56
5. RT	0,03	0,03	0,23	0,82
6. HS	0,08	0,08	0,56	0,58

** R - coefficient of multiple correlation; RI – coefficient of determination; F – F-test; p – level of significance; Beta – standardized beta coefficient; Partial Cor. – coefficient of partial correlation; t – t-test; and p-level – level of significance for predictor variable.*

Discussion

Results similar to the ones obtained in this research are also present in the works of Malina (2003), Swenson & Drust (2005), Vaeyens et al. (2006), Reilly et al. (2000) and other eminent authors. We can confidently state that activities in which the trained football players were engaged in show promise of high sport achievements.

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EFFECTS OF MOTORIC ABILITIES ON THE SPECIFIC MOTORIC ABILITIES WITH FOOTBALL PLAYERS AGED BETWEEN 14 AND 16.

Introduction: The research issue of this work is to examine the effect of motoric abilities on the specific motoric abilities with football players aged from14 to 16. According to the research issue, the following task was set: to establish the influence of the predictor system of six motoric tests on the two-criterion specific motoric tests. Methods: The group of tested persons in this research consists of 54 male football players aged from 14 to 16, who had active training in football club Prishtina. Their active football experience was two years at least. The sample of variables covers 6 motoric and 2 specific motoric variables. For each space individually there are

calculated basic statistic indexes and the effect of the motoric abilities on the specific motoric abilities is established through the linear regressive analysis. Results: From the obtained results, presented in the 3 tables, the conclusion follows that the motoric variables had significant participation in the prediction of success in acquiring specific motoric abilities that are an important part of football. Discussion: Results similar to those obtained in this research are also evident with: Malina (2003), Swenson, & Drust (2005), Vaeyens, et al. (2006), Reilly, et al. (2000) and other eminent authors. We can confidently state that activities in which the trained football players were engaged show promise of high sports achievements. References: Malina RM (2003). Growth and maturity status of young soccer players. In T Reilly & AM Williams (eds.) Science and Soccer. Routledge, New York. Reilly T, Williams AM, Nevill A, Franks A (2000). Journal of Sport Sciences, 18, 695-702. Svensson M, Drust B (2005). Testing soccer players. Journal of Sports Sciences, 23(6), 601–18. Vaeyens R, Malina R M, Janssens M (2006). Br J Sports Med, 40, 928–34.

“Vijesti”, 27. februar 2014.

NAUKA: KONGRES CSA U APRILU

Prihvaćena 102 rada iz 25 država

U Podgorici će se od 3. do 6. aprila 2014. godine održati 11. međunarodna konferencija o transformacionim procesima u sportu "Sportska dostignuća" i 10. kongres Crnogorske sportske akademije (CSA). Konferencija će se odvijati u nekoliko sek-

Prijava završena 15. januara. Najviše radova iz Turske i Irana - po 17

cija, koje će obuhvatiti prirodne, društveno-humanističke i medicinske aspekte savremenog sporta.

- Prijava radova završena je još 15. januara, a recenzenti su od velikog broja pristiglih prihvatili 102 naučna rada, čiji autori su ispunili precizno formulisane propozicije. Prihvaćeni su radovi iz 25 zemalja, a najviše ih je iz Turske i Irana, koji su zastupljeni sa po 17 autora. Osim ličnog izlaganja i prezentacije radova, neki od autora odlučili su se za „poster prezenztacije”, što je Crnogorska sportska akademija prvi put ponudila - kazao je predsjednik CSA, prof. dr **Duško Bjelica.**



Bjelica

Poput prethodnih, i radovi prezentirani ove godine će biti štampani u Zborniku, kao i u renomiranom crnogorskom časopisu "Sport Mont", na našem i engleskom jeziku.

- Najbolji radovi će biti predloženi za objavljivanje u časopisu "Montenegrin Journal of Sports Science and Medicine", u izdanju Crnogorske sportske akademije, a koji je svoje mjesto našao u brojnim međunarodnim naučnim indeksnim bazama, a u toku je prijem čak i u prestižnima „SCOPUS” i „THOMSON REUTERS” - zaključio je Bjelica. **S.Ž.**

UDK: 796.332-053.6(049.5)

Arben Osmani, *Institut za univerzitetsko obrazovanje AAB (Priština, Kosovo),*
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MIŠLJENJA MLADIH FUDBALERA O TRENERIMA, SAIGRAČIMA I FUDBALU

Uvod

U ovom istraživanju autori su primenili upitnik sa 8 pitanja zatvorenog tipa i 2 pitanja otvorenog tipa (Murphy-Black, 2000; Singleton & Straits, 2005; and Vekselberg, 2004).

Glavni cilj ovog istraživanje je da se stekne uvid o tome šta mladi fubdaleri misle o svojim trenerima, saigračima i o fudbalu.

Metoda

Upitnik se sastojao od sledećih pitanja:

1. Da li ste zadovoljni načinom na koji se vaš trener ophodi prema igračima?
2. Da li ste zadovoljni načinom na koji vaš trener realizuje treninge?
3. Da li smatrate da je vaš trener objektivan u odabiru igrača za fudbalske utakmice?
4. Da li biste opisali svog trenera kao osobu sa dobrim ponašanjem i korektnog?
5. Da li vaš trener redovno prisustvuje treninzima?
6. Da li imate prijateljske odnose sa igračima u timu?
7. Da li u vašem timu ima igrača koji kasne na dogovrene termine treninga?
8. Da li očekujete da jednog dana postanete poznati fudbalski igrač?
9. Da li imate predloge za unapređenje rezultata vašeg tima?
10. Šta je po vama najefektivnije da se postane poznati fudbaler?

Istraživanje je obuhvatilo 54 muškaraca koji igraju fudbal a koji imaju redovne treninge u fudbalskom klubu FC “2 korrik” u Prištini. Ovi igrači su u starosnoj dobi od 14 do 16 godina i imaju aktivnog iskustva u treninzima u trajanju od najmanje dve godine.

Nakon objašnjenja cilja istraživanja ispitanicima, davanjem upitnika koji je bio anoniman je započeto istraživanje (Creswell, 2009; Miller, T.I., & Miller, K.M., 2000; Rea & Parker, 1997).

Odgovori na pitanja u upitniku su predstavljeni kroz osnovne statističke indekse: frekvencija, centralna i dominantna vrednost. Mišljenja ispitanika su predstavljena kroz frekvencije testa chi-square (χ^2).

Rezultati

Na prvo pitanje, odgovor “da” je dalo 47 ispitanika, a odgovor “ne” 7 ispitanika. Njihov stav ima statističku razliku u skladu od χ^2= 29,63 i p= 0,00.

Na drugo pitanje, odgovor sa “da” dat je od strane 37 igrača, a odgovor sa “ne”17 igrača. Njihov stav ima statističku razliku u skladu od χ^2= 7,41 i p= 0,01.

Na treće pitanje, odgovor sa “da” dalo je 45 igrača, a sa “ne” 9 igrača. Njihov stav ima statističku razliku u skladu od χ^2= 24,00 i p= 0,00.

Na četvrto pitanje, odgovor sa “da” dalo je 52 igrača, a sa “ne” 2 igrača. Njihov stav ima statističku razliku u skladu od χ^2= 46,30 and p= 0,00.

Na peto pitanje, odgovor sa “da” dalo je 43 igrača, a “ne” 11 igrača. Njihov stav ima statističku razliku u skladu od χ^2= 18,96 i p= 0,00.

Na šesto pitanje, odgovor sa “da” dalo je 40 igrača, a sa “ne” 14 igrača. Njihov stav ima statističku razliku u skladu od χ^2= 12,52 i p= 0,00.

Na sedmo pitanje, odgovor sa “da” dat je od strane 46 igrača, a odgovor “ne” 8 igrača. Njihov stav ima statističku razliku u skladu od χ^2= 26,74 i p= 0,00.

Na osmo pitanje, odgovor sa “da” dalo je 38 igrača, a odgovor sa “ne” 26 igrača. Njihov stav ima statističku razliku u skladu od χ^2= 4,52 i p= 0,03.

Rezultati odgovora predstavljeni su u tabeli br. 1.

Tabela 1. *Test Chi-square (χ^2)*

Pitanje	DA	NE	χ^2	df	p
1	47	7	29,63	1	0,00
2	37	17	7,41	1	0,01
3	45	9	24,00	1	0,00
4	52	2	46,30	1	0,00
5	43	11	18,96	1	0,00
6	40	14	12,52	1	0,00
7	46	8	26,74	1	0,00
8	38	26	4,52	1	0,03

Dobijeni odgovori ukazuju na to da pozitivno osećanje dominira među igračima fudbala kada je reč o treneru, saigračima i fubalu kao sportu.

Posebno interesantni odgovori su dati na dva pitanja otvorenog tipa.

Na deveto pitanje odgovori fudbalera su: bolji teren, posebna ishrana, finansijska podrška, visinske pripreme, psihoterapija..

Na deseto pitanje ispitanici su spomenuli: trening u dugom vremenskom period, upornost, menadžer, utakmice, sreća i dobro zdravlje.

Diskusija

Na osnovu dobijenih odgovora, rezultati ovog istraživanja pokazuju da ispitani fudbaleri imaju dobar stav prema treneru – redovnost na treninzima, profesionalni rad i adekvatan tretman igrača.

Njihovo mišljenje je pozitivno i kada je reč o saigračima (dolazak na vreme na treninge, saradnja i prijateljstvo).

Dodatno, fudbalski igrači imaju pozitivan stav prema fudbalu – želja za treningom, takmičenja i očekivanja postizanja velikog uspeha.

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OPINIONS OF YOUNG FOOTBALL PLAYERS ABOUT THE COACH, TEAM-MATES AND FOOTBALL.

Introduction: In this research the authors used a questionnaire of 8 questions of closed type, and 2 questions of open type. The basic aim of the research is to understand what young football players feel about their coach, team-mates and football as a sports game. Methods: The research involved 54 male football players who have active trainings in football clubs FC "2 korrik" in Prishtina. They are at the age between 14 and 16 and have active training experience of 2 years at least. After explaining the point of the research to the respondents, the inquiry that was of an anonymous type began. Answers to the questions in the questionnaire are presented basic statistic indexes: central and dominant value. Opinions of the respondents are represented through frequencies by chi-square test. Results: The results of the answers are represented in 2 tables and for better exposition they are presented in 8 graphics. The received answers indicate that it is the positive feeling that prevails among the football players with regard to their coach, team-mates and the football game. Particularly interesting answers are given to the two questions of open type. Discussion: On the base of the obtained answers, the results of this research show that the inquired football players have a positive opinion about the coach – his regularity, professional work and proper treatment of the players.

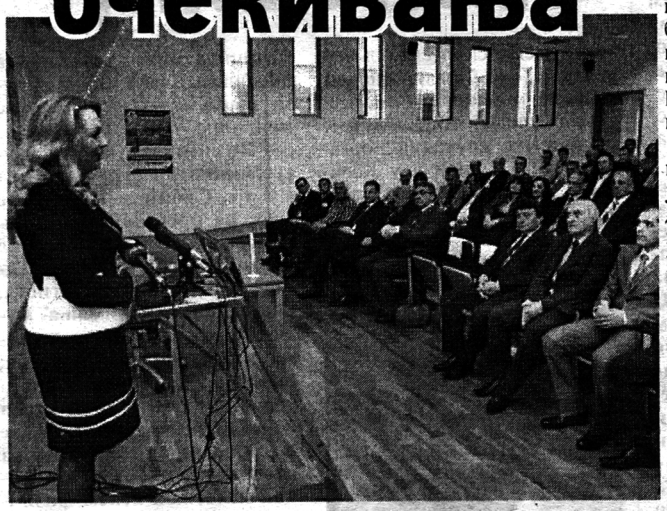
Their opinion is positive towards their team-mates as well (coming on time for training, collaboration and friendship). In addition, the football players have a positive attitude towards football – desire for training, contests and expectation for a high success. References: Creswell JW (2009). Research Design: Qualitative, Quantitative and Mixed Method Approaches. Sage. Miller TI, Miller KM (2000). Ankete za građane: Kako anketirati građane, kako se služiti anketama i što one znače. ICMA, Washington. Murphy-Black T (2000). Questionnaire. The Research Process in Nursing. Black-

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У ПОДГОРИЦИ ОДРЖАНИ НАУЧНИ СКУПОВИ ЦРНОГОРСКЕ СПОРТСКЕ АКАДЕМИЈЕ

Испуњена очекивања



Након Бара, Котора, и Херцег Новог, Подгорица је по други пут заредом била домаћин научних скупова Црногорске спортске академије. На Ректорату Универзитета Црне Горе одржани су 11. међународна научна конференција о трансформационим процесима у спорту „Спортска достигнућа“ и десети Конгрес ЦСА, којем су присуствовала 63 научника из 20 земаља, а радове који су презентирани потписало је 138 аутора и коаутора. По први су коришћене постер сесије на којима су аутори путем постер презентација излагали своја научна достигнућа. Објављен је Зборник сажетака са својим ИСНБ бројем у којем се налазе сви радови који су излагани у Подгорици, док ће адекватно изложени радови стећи право да се нађу у реномираном црногорском часопису „Спорт Монт“ који излази на нашем и енглеском, а исти је индексиран у EBSCO цитатној бази. Са друге стране, најбољи радови ће бити предложени за објављивање у часопису „Montenegrin Journal of Sports Science and Medicine“ који, такође издаје Црногорска спортска академија, а који се поред EBSCO цитатне базе, налази још у седам међународних цитатних база, док је код SCOPUS-a и THOMSON REUTERS-a у току евалуација истог.

– У потпуности сам задовољан остварeним. Све што је планирано спроведено је у дјело. Задовољан сам јер смо имали и помоћ свих партнера на које смо рачунали, не мислим на партнере у финансијском смислу, већ партнере када је у питању наука, издавачка дјелатност, међународна сарадња... Посебан квалитет нашег окупљања је што смо добили међународно признат часопис који третира проблематику наше струке, што ће бити магнет да нам се одазива већи број научника, не само из региона већ и из цијелог свијета. И овога пута смо имали научнике са неколико континената и сви су они понијели много лијепе утиске из Подгорице и Црне Горе. Могу слободно рећи да је ово био најквалитетнији Конгрес до сада, рекао је проф. др Душко Бјелица, предсједник Приређивачког одбора Црногорске спортске академије. Т.Б.

UDK: 796.012.1-053.6

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DIFFERENCES IN THE MOTORIC ABILITIES OF STUDENTS DUE TO THE BODY MASS INDEX (BMI)

Introduction

In kinesiology we can find many articles that discuss the motoric abilities as a major subject of their research.

According to the goal set, namely concerning the motoric abilities or the relations between them, there are completed researches that have determined the following: differences, comparisons, relations, changes, effects, structure, and measure characteristics (established through motoric ability tests).

On the basis of the latest data of Matthiesen & al. (2008), there is an increase of the number of fat children at the adolescent or pre-adolescent age.

According to Biro & Wien (2010) children have a tendency or predisposition to remain in that category as adults as well.

According to Wrotniak & al. (2006) overweight and fat children have weaker motoric abilities.

The research has been conducted in order to establish differences in the motoric abilities determined by the body mass index (BMI) with students tested at the eighth grade of primary education (Barlow, & the Expert Committee, 2007).

Methods

During this research we have tested 160 male students aged 14. On the basis of (BMI) they were divided into 3 groups (normal, overweight, and with obesity). They were tested with 6 motoric tests for following: explosive power - standing a long jump (SLJ); repetitive power - a deep bend on the bench (DBB); coordination – running in eight (RE8); equilibrium – balancing with eyes open (BEO); precision– target shooting with a short stick (STS); and flexibility – inclination forward on the bench (IFV).

Along with basic statistic parameters, the differences between the groups were established through analysis of variance (ANOVA), multivariate analysis of variance (MANOVA) and least significance test (LSD-tests).

Results

The obtained results are presented in following tables.

Results of the basic statistic parameters for each group (table 1, 2 and 3) of the respondents are relatively homogeneous. No discrepancies are noticed with relation to asymmetry and grouping of the results.

On the base of the results in tables 4 and 5 (ANOVA and MANOVA), a statistically significant difference in favor of the group of normal body mass index is recorded

in the following tests: standing a long jump, running in eight and balanced in eyes open. This suggests that the groups of normal weight maintain the characteristics of better explosive power, coordination and balance (equilibrium).

Table 1. *Descriptive Statistics - students with normal BMI (N=60)*

	Mean	Minimum	Maximum	Std.Dev.	Skewness	Kurtosis
1. SLJ	1,56	1,05	2,20	0,20	-0,49	1,32
2. DBB	19,07	1,00	79,00	13,95	0,58	3,48
3. RE8	20,40	17,34	27,01	2,26	0,82	0,09
4. BEO	5,73	1,10	20,00	3,74	1,12	2,95
5. STS	56,33	32,00	68,00	7,05	-1,05	1,63
6. IFV	43,04	26,00	55,00	7,39	-0,38	0,10

1. SLJ – standing a long jump; 2. DBB – a deep bend on the bench; 3. RE8 – running in eight; 4. BEO – balancing with eyes open; 5. STS – target shooting with a short stick; and 6. IFV – inclination forward on the bench.

Table 2. *Descriptive Statistics - students with overweight BMI (N=50)*

	Mean	Minimum	Maximum	Std.Dev.	Skewness	Kurtosis
1. SLJ	1,48	0,80	1,85	0,23	0,20	0,12
2. DBB	18,88	0,00	69,00	14,59	1,27	2,36
3. RE8	21,55	16,29	24,75	1,94	-0,22	-0,20
4. BEO	4,81	1,10	18,30	4,34	1,68	1,97
5. STS	57,04	32,00	66,00	6,39	-1,77	4,54
6. IFV	35,62	18,00	51,00	11,02	0,92	0,55

Table 3. *Descriptive Statistics – obesity students (N=50)*

	Mean	Minimum	Maximum	Std.Dev.	Skewness	Kurtosis
1. SLJ	1,46	0,80	1,85	0,20	-0,46	0,83
2. DBB	14,82	0,00	63,00	14,43	1,58	2,40
3. RE8	22,65	16,00	29,92	3,00	0,72	0,30
4. BEO	4,38	1,00	34,10	5,01	0,63	2,94
5. STS	55,08	24,00	67,00	8,62	-1,65	3,51
6. IFV	46,58	16,00	35,00	15,40	0,56	2,99

Table 4. *Multivariate analysis of variance (MANOVA) between three groups of students (normal, overweight and with obesity)*

	Wilks'Lambda	Rao's R	df 1	df 2	p-level
1	0,68	5,44	12	304	0,00

Table 5. *Analysis of variance (ANOVA) between three groups of students (normal, overweight and with obesity)*

	Mean sqr Effect	Mean sqr Error	F	p-level
1. SLJ	0,15	0,04	3,48	0,03
2. DBB	298,18	204,54	1,46	0,24
3. RE8	81,43	5,90	13,81	0,00
4. BEO	1741,35	132,54	13,14	0,00
5. STS	49,42	54,59	0,91	0,41
6. IFV	2,68	18,99	0,14	0,87

Discussion

The results obtained in this research indicate that obesity and overweight cause negative effects and results in lower performances concerning some motoric abilities.

On the basis of the obtained results, it can be concluded that the group of students with the normal body mass index achieved the best results in the motoric abilities when assessing the following: explosive power, coordination, and equilibrium. As for the motoric abilities concerning precision, repetitive power, and flexibility, there have not been established statistically significant differences between the three groups.

The obtained results correspond with some of the earlier researches (Milanese, et al., 2010; Zhu, Sheng, Wu, & Cairney, 2010), while with some other disagree (De Toia, et al., 2009).

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DIFFERENCES IN MOTOR ABILITIES OF STUDENTS DUE TO THE BODY MASS INDEX (BMI)

Introduction:The research has been conducted in order to establish differences in motoric abilities due to the body mass index (BMI) with the tested students at the eighth grade (Barlow, & the Expert Committee, 2007). Methods: During the research 160 male students aged 14 were tested. On the base of (BMI) they were divided into 3 groups (normal, overweight, and with obesity). They were tested with 6 motor tests for: explosive power, repetitive power, coordination, equilibrium, precision, and flexibility. Along with basic statistic parameters, the differences between the groups are established through: ANOVA, MANOVA and LSD-tests. Results: The obtained results are presented in 5 tables. On the base of the results, a statistically significant difference in favor of the group of normal body mass index is recorded in the following tests: standing a long jump, agility on the ground and keeping balance on one leg. Discussion: The results obtained in this research indicate that obesity and overweight cause a negative effect and result in lower performances concerning some motoric abilities. On the base of the obtained results, it is concluded that the group of students of normal body mass index achieved the best results in the motoric abilities with assessing the following: explosive power, coordination, and equilibrium. As for the motoric ability concerning: precision, repetitive power, and flexibility, there are no established statistically significant differences between the three groups. The obtained results correspond with some former researches (Milanese, et al., 2010; Zhu, Sheng, Wu, & Cairney, 2010), and some do not (De Toia, et al., 2009). References: Barlow SE et al. (2007). Pediatrics, 120, 164–92. De Toia D, Klein D, Weber S, Wessely N, Koch B, Tokarski W, Dordel S, Strüder H, Graf C (2009). European Journal of Obesity, 2(4), 221–5. Zhu YC, Sheng K, Wu SK, Cairney J (2011). Research in Developmental Disabilities, 32(2), 801–7. Milanese C, Bortolami O, Bertucco M, Verlato G, Zancanaro C (2010) Journal of Human Sport & Exercise, 5(2), 265–79.

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BMI OF FEMALE STUDENTS NEWLY ENROLLED AT TODOR KABLESHKOV UNIVERSITY OF TRANSPORT

Introduction

In the academic year 2011/2012 we carried out a study on the anthropometric measurements of the newly-enrolled female students at the Todor Kableshkov University of Transport. According to some previous studies (Popov,1969) a slight increase in height and weight of female has been observed with the increase of age during the studies at the university, while according to other studies (Karapetrov, 1978) such changes in anthropometric measurements are reported also at later age.

Methods

Besides the conventional anthropometry, in our study we calculated the individual body mass index or index Ketle established in the mid-nineteenth century. This index gained wide popularity in the 1950s and 1960s, when the problem of obesity in the USA and Europe reached considerable levels. The BMI values are mainly approximate proportions because the ideal weight depends on whether it is primarily due to muscles or subcutaneous fat. A problem, especially with athletes, is that muscles are heavier than fats. Hence, according to the BMI, athletes may find themselves with "overweight" without that ever being true. It is why BMI has been used mostly for statistical information as an indicator of the degree of population obesity since 1980s.

Results

The study involved 78 female first-year students at the University of Transport. The indicators under examination were height, weight, skin-fold, waist circumference and BMI.

The statistical results of BMI are presented in Table 1.

Table 1. *Statistical characteristics of BMI*

$\overline{X}$	***S***	***mx***	***As***	***Ex***	***V***	***Max***	***Min***	***R***
23,1	1,35	0,21	-0,09	-0,17	1,8	26,1	20,3	5,8

The BMI coefficient of 18.5-24.99 for adults is considered as normal weight. Of the participants in the study, 9/10 fall within this range, but there is a serious displacement (72%) to the upper limit, which proves the tendency to overweight. The coefficient of 25 is considered as obesity, which refers to 10% of the female students.

Table 2 shows the values of the weight and height ratio and the respective physical status of the body.

Table 2. *BMI and body physical status*

Physical status	***Body Mass Index***
Underweight	**below 18.5**
Severe malnutrition	below 16.0
Average malnutrition	16.00 – 16.99
Mild malnutrition	17.00-18.49
Normal weight	**18.5 – 24.99**
Overweight	**over 25.00**
Pre-obesity	25.00 – 29.99
Obesity	**over 30.00**
Excessive obesity	**over 40.00**

Further, the analysis clarifies the main problems, which physical education faces: the reduction of hypo-dynamics and related negative effects that immediately occur in BMI.

According to the examinations connected with the Eurofit test system implementation, the BMI as an indicator of the general health works in combination with coefficients of subcutaneous fat (skin-fold) and the waist/hips ratio. With high values of the three variables, there are high risks to individual's health.

The "skin-fold" indicator facilitates the examinations to establish subcutaneous fat mass. There are disputes about the reliability of the method as it is accompanied by a number of objective and subjective factors during the measurement: the state of the body (hydration or dehydration), skin moisture (using bioelectrical impedance), the quality of equipment used and the experience of those who carry out the study.

The most common method when with using skin-fold is the 7-point method of Jackson and Pollock. It requires 7 measurements at different points of the body, which makes it relatively laborious for the conditions of study. The method is also of long duration and the probability of errors in calculations is high. It is why for the purpose of our examinations we used a reliable way to quickly find the index measuring not the skin-fold itself but directly the amount of subcutaneous fat. The method was developed by P. Deurenberg,1991 and includes BMI index (BMI) and what is most important, it does not require special equipment. The essence of the method is in the following formula:

$$SF\% = (1{,}2 \times BMI) + (0{,}23 \times age) - 5{,}4 \qquad (1)$$

where SF is the subcutaneous fat measured in percentage (%). The calculation is made quickly and the analysis of the results is carried out according to a scale developed by V. Heyward, 1996 (Table 3).

Table 3. *Index of subcutaneous fat (in %)*

Malnutrition	Below average	Average	Over average	Obesity
up to 8%	9-22%	23%	24-31%	more than 32%

The results obtained for subcutaneous fat in the study are closely related to the level of BMI and are presented in Table 4.

Table 4. *Statistical characteristics of subcutaneous fat (in %)*

$\overline{X}$	***S***	***mx***	***As***	***Ex***	***V***	***Max***	***Min***	***R***
26,6	1,6	0,25	-0,11	-0,07	2,48	30,3	23,3	7

All participants, except for 4, fall in the same category: above the average (24-31 % subcutaneous fat), which once again proved the increased tendency to overweight among most examined female students.

In our study the average values of BMI for the entire group of female students are 23.1 and 26.6% of subcutaneous fat respectively. We can compare these data with national survey in Britain where with average BMI values of 25, the subcutaneous fat of females aged 16-24 years is 31%.

Discussion

For the last years a number of publications have reported insufficient security of BMI index regarding body health, even in combination with the index of subcutaneous fat. It has been established that it is significant where fats are located but not just what their quantity is.

Anthropometric indicator "Waist" successfully completes the previous two indicators. According to some studies (Bjorntorp, 1992) the fats in the abdominal wall lead to a greater risk of cardiovascular disease and diabetes than those in other parts of the body. The statistical processing of the results of research in waist circumference is shown in Table 5. The correct measurement of waist circumference in combination with BMI helps to establish the actual physical development of the female students and the risk, if any, for their health (Table 6).

As it can be seen from the table, there is a dependency between the waist circumference and BMI and the potential levels of risk: even with a circumference below the neutral value (88 cm) but with increased values of BMI, the body faces high levels of risk.

Table 5. *Statistical characteristics of waist circumference*

$\overline{X}$	***S***	***mx***	***As***	***Ex***	***V***	***Max***	***Min***	***R***
72,6	2,97	0,46	-0,1	-0,8	8,8	79	67	12

Table 6. *Ratio of BMI, waist circumference and body physical status*

Weight category	**BMI**	**Obesity: type**	**Waist circumference below 88 cm**	**Waist circumference over 88 cm**
Underweight	- 18,5	-	-	-
Normal	18,5-24,9	-	-	-
Overweight	25-29,9	-	Increased risk	High risk
Obesity	30-34,9	I	High risk	Very high risk
Obesity	35-39,9	II	Very high risk	Very high risk
Excessive obesity	40,0+	III	Extremely high risk	Extremely high risk

The data obtained are important for anthropometric study of young people to motivate them to change lifestyle and raising raise awareness of necessity for physical activity.

From the study on BMI and the related anthropometric indicators, the following conclusions can be drawn:

1. A significant part of participants in this study have normal weight, but with a tendency to increase it, which accompanied with the increased levels of hypo-dynamics of young people results in deterioration of the body physical status.
2. Nearly 10 % of those who were surveyed are overweight combined with high levels of subcutaneous fat and waist circumference, which is a prerequisite for an increased risk of diseases.
3. However, it is largely possible to correct a considerable part of the negative results of the study, especially in regard to obesity and waist circumference.

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BMI OF FEMALE STUDENTS NEWLY ENROLLED AT TODOR KABLESHKOV UNIVERSITY OF TRANSPORT

Introduction: The paper presents the results of a study where besides using the conventional anthropometry, the individual Body Mass Index (BMI) or Ketle Index was calculated. Being established in the mid-nineteenth century, Ketle Index gained wide popularity in the 1950s and 1960s when the problem of obesity in the developed countries acquire serious levels. The aim was to prove the relationship between anthropometric parameters and Body Mass Index as well as the possible health risks of the individual. Methods: The study was carried out on 78 first-year female students at the Todor Kableshkov University of Transport (VTU). The indicators examined were: height, weight, skin fold, waist circumference and BMI. Descriptive statistics was used with data processing and different methods were applied to establish the anthropometric parameters: Body Mass Index or Kettle Index; quantitative subcutaneous fat according to the method developed by Deurenberg; comparative analysis of the link between waist circumference; BMI and the state of the individual's body. Results: The study showed that the average BMI for the entire group of students was 23.1 and subcutaneous fat of 26.6% respectively. Nearly 10% of those being examined are overweight combining high levels of subcutaneous fat and waist circumference, which is a prerequisite for increased risk of disease. Discussion: In the academic year 2011/2012 a study of anthropometric indicators of the newly-enrolled female students was carried out at the Todor Kableshkov University of Transport (VTU). In compliance with some studies (Popov, 1969) a slight increase of size and weight is observed with increasing the age of women during the time of study at university while according to others (Karapetrov, 1978) changes in anthropometric indicators are reported to a later age. According to the research related to introduction of Euro fit tests, BMI as an indicator of general health of the body works in combination with the coefficients of subcutaneous fat (skin fold) and the waist/hips ratio. With big values of the three variables, there are high health risks for individuals. According to some studies (Bjorntorp, 1992), the abdomen fat leads to a greater risk of cardiovascular disease and diabetes than the fats in other parts of the body. The considerable part of participants in this study had normal weight but with a tendency of its increasing that could result in bad condition of the organism. Using the advantages of physical education, it is largely possible to correct most of negative results obtained through the study, especially in relation to obesity and waist circumference. References: Deurenberg P, Westrate JA, Seidell JC (1991). Br J Nutr., 65(2),105-14. Bjorntorp P (1992). J Cardiovasc Pharmacol, 8S, 26-8.

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THE EFFECT OF BREATHING ON THE DISTANCE BETWEEN CENTER OF BUOYANCY AND CENTER OF MASS IN COMPETITIVE SWIMMERS

Introduction

Buoyancy is one of the very important parameters determining swimming skill. Some reports indicate that buoyancy affects a swimmer's performance (Cureton, 1933, 1951; Chatard et al., 1990). Swimming is an exercise performed horizontally in water. A human body floating in water is always affected by two kinds of physical influence: buoyancy and gravity. Generally, in a horizontal posture, there is a "gap" between the center of buoyancy (CB) and the center of mass (CM), considering that the CB is around the head and the CM is around the legs (Hay,1993). The longer the distance between the CB and CM (D), the bigger the torque in the water. This causes the legs to sink and is a factor causing reduced performance. Thus, examining the relationship between the magnitude relation or positional relation of these two forces and the swimmer's performance provides an important index to evaluate swimming skill. Past reports have examined the effect on swimming performance of differences of gender, arm position, and lung volume (Gagnon & Montpetit, 1981; McLean & Hinrichs, 1998, 2000; Zamparo et al., 1996). However, these studies alone cannot provide sufficient explanation for the change of buoyancy affecting human bodies in water. The data generated by these studies reflect samples in extremely restricted environments. For example, some data samples were focused on full expiration "All measurements were made when the subject had achieved the state of full expiration" (Gagnon & Montpetit, 1981). Others examined CB positions with phased lung volumes measured separately "CB was computed from the average of three measurements of five different lung volumes (0, 25, 50, 75, and 100% of vital capacity, VC) with participants in a prone position for each submersion level" (McLean & Hinrichs, 2000). These samples cannot clarify how buoyancy is changed by the continuous cycle of repeated expiration and inhalation (the breathing cycle).

Therefore, this research project will examine the increase and decrease of buoyancy and the migration dynamics of CB position associated with breathing as well as the relationship between the D and performance based on changes in the force exerted in a vertical direction on hands and feet with changes in lung ventilation while a swimmer maintains a horizontal position in the water.

Methods

Sample and Center of Mass Procedures

The participants of this study were 14 male (age = 16.9 ±0.7 years) and 22 female (age = 16.4 ± 1.1 years) Japanese junior elite competitive swimmers. The body CM

positions were measured by means of a reaction board (Hay, 1993). The subjects were measured on land while maintaining a streamline posture. In this posture, the length from the foot (lateral malleolar) to the hand (center of the fist) is designated as x, and the length from the foot to the CM position of the body is y. Calculations are made using the following equations with weight (W) and force (F) in vertical direction acting on the hand: $y = F \cdot x / W$ (1)

Center of Buoyancy Apparatus

The measurement of the CB point by McLean & Hinrichs (2000) was referred. The frame was installed to secure the subject's body on the poolside and attached tension/compression load cells (LUR-A-200NSA1, Kyowa Electronic Instruments Co.,Ltd.) on hands and feet in a vertical direction to measure the force exerted on the hands and feet in that direction. The sampled signals were amplified by a digital transducer indicator (TD-250T, Takei Scientific Instruments Co.,Ltd.) and recorded by the computer. In all measurements, each subject was instructed to breathe through a snorkel and wear a nose clip to prevent air from leaking out from anywhere other than the mouth. The tips of the snorkels were attached by Pneumotachograph-type sensors (Arco System Inc.) and connected to the dedicated amplifier (FM-200XB, Arco System Inc.) to develop the pressure difference. A hand grip was set on the hand area (F1) and a tether was set on the foot area (F2). In addition, the hand grip and the tether were set up at depths of 40cm below the water's surface. Furthermore, Four and half kg weight was attached on the hand grip and 2 kg weight was attached on the foot tether so that the subject could stay in water in a stable streamline posture (see Figure 1).

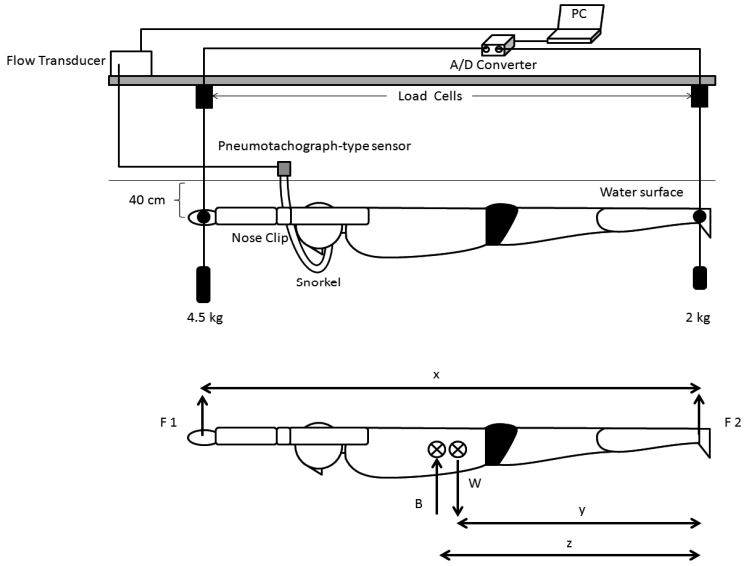


Figure 1. *Apparatus used to measure CB and the associated free body diagram*

We completely synchronized the data measured by a ventilation flowmeter and a load cell. We implemented calibration with all the experimental apparatus in the set position, offset buoyancy acting on the weights attached on the hand grip and the foot tether, and set the reference value to 0. Calibration was performed in still water.

Center of Buoyancy Measurements and Procedures

The subjects were measured in the CB position while maintaining the streamline posture just as in the CM measurement. The subjects' bodies were completely submerged in water. The load cell was installed on the vertical line passing through the center of the hand grip held by the subject (F1) and on the vertical line passing through the center of the ankles of the subject (F2).

If we assume that the subject stays still in the water, the Buoyancy force (B) can be calculated with the following formula: $B + W + F1 + F2 = 0$

$B = -W - F1 - F2 \quad (2)$

The CB position from the foot area (z) can be calculated by using (1) and (2) with the following: $F1x + Bz - Wy = 0$

$Z = (F1x + Wy) / W \quad (3)$

Hence, the D in the horizontal posture underwater can be calculated with the following formula: $D = z - y \quad (4)$

The measuring time was on each attempt be 90 seconds and the sampling frequency was 100Hz. All measurements were performed in still water. The time-dependent change of the D was examined as well as the relationship between the distance and the performance by means of quantifying the relationship between the ventilation and forces in vertical direction on the hand and foot areas.

Performance test protocol

A glide-swimming test was used to assess the performance. The calibration was implemented by setting the markers every 2.5m from the starting point of the wall. The subjects started by kicking the wall with both feet to get the longest distance and maintained the streamline posture as long as their breath lasted. The subjects were shot with two underwater video cameras. The real coordinates of the vertex points were calculated by the two-dimensional DLT method. The total moving distance, the average velocity of each 2.5m, and the velocity decrement rate (VDR) of the test also were calculated.

Results

The characteristics of the subject and results of this experiment were shown Table1.

Table 1. *Result of the body characteristics, the center of buoyancy (CM) and of mass (CM), the distance between the CB and CM (D), the lung volume and glide-swimming test*

Variable	Males (N=14)	Females (N=22)	*p*
Body length (cm)	212.1 ± 5.9	200.1 ± 7.1	<0.01
Body weight (kg)	61.9 ± 4.5	51.0 ± 4.0	<0.01
CM (cm)	102.0 ± 2.3	96.8 ± 2.3	<0.01
D at neutral buoyancy (cm)	1.93 ± 0.21	1.36 ± 0.17	<0.01
D at full inhalation (cm)	2.28 ± 0.44	2.01 ± 0.35	=0.058
Lung volume at neutral buoyancy (ml)	2366.38 ± 831.67	1327.69 ± 483.71	<0.01
Lung volume at full inhalation (ml)	3185.26 ± 906.55	2604.98 ± 570.01	=0.052
Distance of glide-swimming (m)	13.3 ± 1.2	14.0 ± 1.6	n.s.

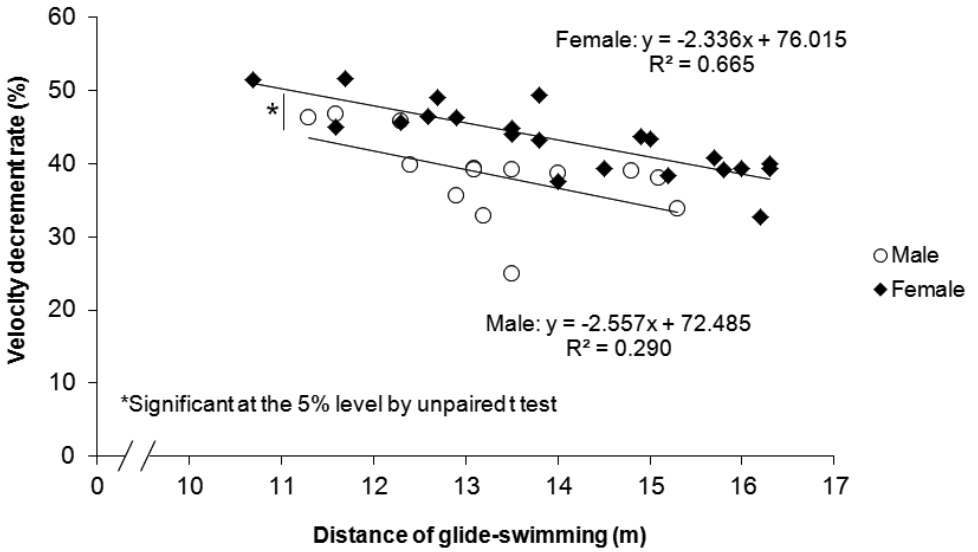


Figure 2. *Relationship between velocity decrement (from section B to section C) and distance of glide-swimming*

As regards the average velocity at the glide-swimming test in the three sections of 2.5m to 5m (section A), 5m to 7.5m (section B) and 7.5m to 10m (section C), the velocity of male swimmers was significantly faster than that of female swimmers ($p<.01$). The VDR from section B to section C was smaller for women than men ($p<.05$) (see Figure 2). Furthermore, A negative correlation was indicated ([male: $R= -0.539$, $p<.05$], [female: $R= -0.816$, $p<.001$]) between the distance of the glide-swimming test and the VDR from section B to section C.

Discussion

The preceding study by McLean and Hinrichs (1998) reported that the CB/CM distance is shorter for females than males. McLean and Hinrichs indicated that this is caused by a difference in body-fat percentage and the distribution difference of fat tissue between men and women. The authors stated that the volumetric distribution difference of parts of the body submerged in water may affect the CB positions of males and females. On the other hand, as Delavier (2003) stated, because "the lumbar curve is greater in women and the pelvis is tilted," we infer that the female-specific skeletal structure may contribute to lifting lower limbs and may be involved in maintaining the horizontal posture. The result obtained by this study also revealed that the D is significantly shorter for females than males, which supported the result of McLean and Hinrichs.

A statistically significant difference was observed on the lung volume at a neutral buoyancy between male and female. Furthermore, the lung volume at full inhalation of male was observed larger tendency than one of female. When we compare male and female using the increasing ratio of the lung volume at a neutral buoyancy to the lung volume at full inhalation, the ratio is 34.6% and 96.2% in male and female, respectively. The influence exerted by a difference in thoracic flexibility is considered one of the factors that made the lung ventilation change rate in water bigger for female swimmers than for male swimmers. Generally, it is said that the female skeletal structure is smaller and moves more smoothly and finely than the male one (Delavier, 2003). The female thoracic cage is generally more rounded and not as big as the male's. Proportionately, the skeletal width of the shoulders is the same as in the male, but the larger muscular development of the latter makes it seem wider. It is considered that the male muscle group around the thoracic cage functions strongly to maintain posture. Because the development of female muscles around the thoracic cage is less than in a male, extra pressure is not put on the thoracic cage. Thus it is inferred that the female thoracic cage has high mobility.

In other words, these results indicate that female swimmers can ventilate more air volume while maintaining the buoyancy than male swimmers in the horizontal posture. Thus the results suggest that not only the difference of fat tissue in the body, which has been indicated, but also the difference in lung ventilation ability may influence the ability to maintain a horizontal posture in water. These results indicate that female swimmers have a potential to use buoyancy more effectively and could maintain a better horizontal streamline position.

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THE EFFECT OF BREATHING ON THE DISTANCE BETWEEN CENTER OF BUOYANCY AND CENTER OF MASS IN COMPETITIVE SWIMMERS

Introduction: Buoyancy is an important parameter in swimming. Previous studies suggested that gender, arm position, and lung volume influence natural buoyancy characteristics (Gagnon & Montpetit, 1981; McLean & Hinrichs, 2000). However, these data have not fully described the changes in natural buoyancy. For example, most previous studies measured center-of-buoyancy when participants held their breath. The purpose of this study was to examine the effect of breathing on the distance (d) between Center-of-buoyancy (CB) and Center-of-mass (CM), and its relation to glide-swimming performance. Method: The participants of this study were 14 male and 22 female Japanese Junior elite competitive swimmers. A reaction board (Hay, 1993) was used to locate CM for each participant while they lay in prone position with both arms held above the head (a streamline posture). The participant submerged and took the same posture for

the measurement of CB. In both measurements, the changes of CM and CB were measured in relation to the changes of the lung volume which was measured by a flow instrument. The distance covered by glide-swimming was measured with the participant pushing off from the wall. Results: The result of d showed significant differences ($p<.05$) between the male (1.93 ± 0.21 cm) and the female swimmers (1.36 ± 0.17 cm) during hovering position (a neutral buoyancy). However there was no significant difference during full inspiration (male: 2.28 ± 0.44 cm, female: 2.01± 0.35 cm). The distance of the glide-swimming was not significantly different between the male and the female swimmers. Discussion: The results of this study showed that the change of CB with breathing was larger for the female swimmers than for the male swimmers. Also, the distance between CB and CM became smaller in the female swimmer during neutral buoyancy. These results indicated that the female swimmers have a potential to use buoyancy more effectively and could maintain a better horizontal streamline position. References: Gagnon M, Montpetit R (1981). Journal of Biomechanics, 14, 235-41. McLean SP, Hinrichs RN (2000). Research Quarterly for Exercise and Sport, 71(2), 182-9.

“Dan”, 3. april 2014.

МЕЂУНАРОДНИ 10. КОНГРЕС И 11. КОНФЕРЕНЦИЈА ЦРНОГОРСКЕ СПОРТСКЕ АКАДЕМИЈЕ ПОЧИЊУ СЈУТРА У ПОДГОРИЦИ

Из 18 држава 138 научника

Свечано отварање 11. међународне научне конференција о трансформационим процесима у спорту „Спортска достигнућа“ и десетог Конгреса Црногорске спортске академије обавиће се у петак у 16 часова у згради Ректората Универзитета Црне Горе, док рад по сесијама почиње истог дана у 10 часова и наставља се наредног дана у истом термину. Поред двије оралне паралелне сесије, на програму су, по први пут и двије паралелне постер сесије гдје ће аутори путем постер презентација изложити своја научна достигнућа. Иначе, међу гостима који ће се обратити учесницима су проф. др Предраг Мирановић, ректор УЦГ и министри из Владе РЦГ – просвјете и спорта Славољуб Стијеповић и науке Сања Влаховић.

– На овогодишњој конференцији регистровано је 63 научника који ће излагати своје радове, док је укупан број аутора и коаутора на радовима 138. Интересантно је истаћи да овогодишње скупове краси чињеница да је национална структура аутора веома шаролика, тј. аутори су са свих страна свијета, рекао је проф. др Душко Бјелица, предсједник прирећивачког одбора 10. Конгреса ЦСА. – Према програму рада, одмах након свечаног отварања предвиђена су пленарна предавања проф. др Зорана Милошевића са Факултета спорта и физичког васпитања и доц. др Селчука Акпинара са Департмана за спорт Невшехир Хаџи Бекташ Вели Универзитета, рекао је проф. Бјелица.

Т.Б.



Отварање у петаку у 16 часова

UDK: 613.25:796.011.1

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INFLUENCE OF FOOD SUBSTITUTES' DIET ON WEIGHT REDUCTION IN PHYSICALLY ACTIVE OBESE PEOPLE

Introduction

According to a study of the National Centre of Social Health in 2010-2011 30% of Bulgarian students aged between 6 and 19 were overweighed and 12% were obese. The data for the countries in the Euro zone were even more alarming: between 36. 9% and 56. 7% of women and between 51% and 69. 3% of men were overweight and obese (Health status statistics, 2013). Higher risks for morbidity of diseases with big social impact (such as type 2 diabetes and cardiovascular disease) are associated with obesity in young people (Levine, J. A. and Kotz, C. M., 2005, Pisunyer FX., 1993). At the same time we couldn't find in the scientific literature any widely accepted methodologies (which combined physical activity and dieting) designed to address these problems. In our opinion the methodology presented in this article could be used as a practitioner's guide for treating obesity.

There are a number of studies treating similar problems (Cullinen K, Caldwell M., 1998; Borsheim E, Bahr R., 2003). Despite the fact that there are studies of daily regimens which combined resistance exercises and negative energy balances, we did not found one which had tested the effectiveness of a methodology similar to ours. The conclusion is that combining resistance training workouts of anaerobic-lactic type with a low-calorie diet is an entirely new approach for treating obesity.

Methods

The aim of the study was to evaluate quantitatively the influence of a daily regimen, consisting of resistance training sessions of anaerobic-lactic type combined with a low-calorie diet on the body mass components and the quality of life perception of obese people.

We studied 15 sedentary subjects, 12 women and 3 men, aged between 20 and 45 with Body Mass Index (BMI)>27. We used the Miflin et al. (Mark D Miflin, 1990) methodology and the Levine and Kotz (Levine, J. A. and Kotz, C. M., 2005) methodology to estimate the theoretical energy expenditure in rest and the theoretical daily energy expenditure for every participant. All subjects completed the experiment successfully.

For every subject was the following parameters were measured:

1. Using the bioimpedance methodology (Nuñez C et al., 1997) the body composition has been estimated (as proportions of lean body mass and fat tissue) in the beginning and after that every two weeks;

2. Using the World Health Organization Quality of Life Index Inquiry, 1999 (WHO Quality of Life Index, 1999) the quality of life perception was measured (twice – once in the beginning and once at the end of the study)

The energy deficiency was achieved via reduction of the calorie intake using either food substitutes (for group 1) or conventional food sources (for group 2). We used the products of EURODIET Company.

We separated the participants randomly into 3 groups. The first two groups (4 women and 1 man for the first one and 6 women and 1 man for the second one) were put on a diet with 30% calorie deficiency (comparing to the theoretical daily energy expenditure) with the following proportions of food ingredients: 55-60% of carbohydrates, 15-20% of protein and 25-30% of fats. The diet consisted of 5 meals and the first experimental group consumed Eurodiet food substitutes for 3 of them. We controlled the pursuance of the regimen using a feedback loop mechanism – every participant had to complete protocols for the food he/she consumed on a daily basis. The third group (consisting of 2 female and 1 male) was a control one – no restrictions on the food intake were put on the subjects.

Every participant went through physical training sessions with the following parameters: Duration – 8 weeks; Workouts duration – 30 min; Frequency– 3 times a week; Intensity – about 70% of the maximum, determined as a subjective feeling of muscle failure (12-15 repetitions); Density and volume – 3 sets of a circuit training program, consisting of 10 exercises with 10 – 15 sec. resting periods between them.

The idea behind putting the participants on a training program with such parameters was to achieve maximum density of the workouts combined with a great variety of exercises in order to keep the interest and the motivation of the subjects elevated. We tried to use (as far as it was possible considering the bodyweights of the subjects) complex, basic exercises, which engaged big muscles and muscle groups in order to increase as much as possible the energy expenditure of the participants (Peeva, D, Antonov, A, Ianchev, N, 2007). These types of exercises spend a lot of energy and have low values of the Coefficient of Useful Action (Basalkin, Vl, Slepchuk, NA, 1991, Hawkins D[1], Molé P, 1997). These way great amounts of energy substrates have to be chemically decomposed for energy. These substrates are oxidized only partially during the activity and their remainders are decomposed during the rest periods and energy is spent even then. Thus these processes spend a lot more energy then the aerobic exercises which are more energy sparing (D.A. Winter and H.J. Yuck, 1987).

In order to improve the cardiovascular fitness of the participants before we switched to abovementioned training methodology, we had put the subjects on a two-week endurance training program consisting of 30 min. jogging or cycling workouts 3 times a week.

Table 1. *ANOVA*

		Total Mean squares	Mean square	F	Significance
Body mass	**Between groups**	35.35	17.67	0.12	0.89
	In the groups	1768.77	147.40		
	Total	1804.12			
% fat tissue	**Between groups**	7.77	3.88	0.09	0.91
	In the groups	516.54	43.05		
	Total	524.31			
BMI	**Between groups**	5.73	2.87	0.20	0.82
	In the groups	169.42	14.12		
	Total	175.15			
Inquiry points	**Between groups**	2090.21	1045.11	1.89	0.19
	In the groups	6623.52	551.96		
	Total	8713.73			

Table 2. *Variation analysis*

Group	Measure	Body mass	% fat tissue	BMI	Inquiry points
1	**Range**	9.2	32.6	15.8	5
1	**Minimum**	72.1	72.1	29.5	29
1	**Maximum**	81.3	104.7	45.3	34
1	**Mean**	89.24	89.240	38.380	31.60
1	**Standard error**	4.62	5.4738	2.8847	.964
1	**Standard deviation**	12.24	12.2398	6.4503	2.155
1	**Variance**	149.81	149.813	41.607	4.645
2	**Range**	29.60	74.30	103.90	86.4143
2	**Minimum**	19.90	22.50	42.40	37.9714
2	**Maximum**	14.20	28.00	42.20	32.4143
2	**Mean**	68.00	32.00	100.00	58.8571
2	**Standard error**	29.60	74.30	103.90	86.4143
2	**Standard deviation**	19.90	22.50	42.40	37.9714
2	**Variance**	14.20	28.00	42.20	32.4143
3	**Range**	30.4	9.1	3	23
3	**Minimum**	78.2	30.6	32	32
3	**Maximum**	108.6	39.7	35	55
3	**Mean**	89.833	36.400	33.33	43.33
3	**Standard error**	9.4728	2.9092	.788	6.642
3	**Standard deviation**	16.4074	5.0388	1.365	11.504
3	**Variance**	269.203	25.390	1.863	132.333

Results

For checking differences between the groups for each variable we conducted a standard test for differences in mean values – ANOVA (table 1) (Introduction to ARIMA, DU, 2013, The ARIMA procedure, SAS Online, 2013, TS models algirithms, IBM Support Portal, 2013). We did this to test for the success of the randomization of the groups. We considered the data met the assumptions of the test (approximately). Based on the results shown on the table we could conclude that there are no reasons to reject the hypothesis that there are no differences between the means of the studied variables between the groups ($p \leq 0.05$). Table 2 exhibits the variation analysis of the studied variables.

The results of the studied variables in the beginning and at the end of the experiment are presented on table 2. We used t-test for paired samples to calculate the statistical significance of the differences (Papoulis, A., 1991).

Discussion

There were no significant differences between the values of the variables in the beginning and at the end of the study for the control group. The differences in the experimental groups were significant for all of the variables with one exception – the proportion of fat tissue for the first experimental group. Nevertheless the mean differences for the second group were greater (and almost equal for the body mass) everywhere. Interestingly the margins of error for the differences in BMI in experimental groups suggest that there were a (slight) chance that the subjects increased (or did not change) their BMI during the experiment.

Table 2. *Paired Samples t-tests*

	Mean	Standard deviation	Standard error	t	Significance	Margin of error
Group 1						
Body mass	3.94	2.11	0.95	4.17	0.01	3.96
% fat tissue	1.36	1.82	0.81	1.67	0.17	1.35
BMI	1.38	0.72	0.32	4.31	0.01	<1.38
Inquiry points	-14.40	18.46	8.26	-1.74	0.05	14.37
Group 3						
	Mean	**Standard deviation**	**Standard error**	**t**	**Significance**	**Margin of error**
Body mass	3.91	2.58	0.97	4.02	0.01	3.9
% fat tissue	2.17	2.31	0.87	2.49	0.05	2.17
BMI	1.44	1.03	0.39	3.72	0.01	1.45
Inquiry points	-26.86	19.00	7.18	-3.74	0.01	26.85

Group 3						
	Mean	**Standard deviation**	**Standard error**	**t**	**Significance**	**Margin of error**
Body mass	1.70	0.82	0.47	3.60	0.07	1.69
% fat tissue	-1.03	3.47	2.00	-0.52	0.66	1.04
BMI	0.03	0.92	0.53	0.05	0.96	0.027
Inquiry points	-2.67	1.53	0.88	-3.02	0.09	2.66

We found that the percentages of the fat tissue had changed for the participants in the experimental groups (although insignificantly for the first group). We consider this an important result because it means that the body weight reduction was achieved largely by decreasing the quantity of the fat tissue and sparing the muscle tissue. It follows that the relative quantity of lean body mass increased and it is well known that lean body mass consumes a lot more energy than fat tissue. This would eventually permit the subjects to consume more energy while keeping the energy balance of the body (compared with the same body weight and the previous body composition). This is especially important for obese people for the reason that to achieve a negative energy balance these people are obliged to maintain very restrictive diets (at least initially) and it is pretty difficult to adhere to such diets for long periods of time. The discontinuance of the regimen and the following (in most cases – in our experience) switching to a strongly positive energy balance leads to a yo-yo effect and an increasing of the fat tissue proportion. This way a vicious circle could be entered – after every consecutive round of such diet – failures the patient ends up with more fat tissue than in the beginning.

We reached to the following conclusions:

1. These results are quite different from the ones we found in our previous studies. In our opinion the reason for the insignificance of the differences for the fat tissue proportion of the first group is the relatively small number of the participants in this group. In this study the results were not in favor of the presumption of a superiority of food substitutes to natural food sources when dealing with obesity;
2. Combining low-calorie diet with resistance training induces an effect of sparing of lean body mass while losing weight – a process of big importance for subjects with a lot of fat tissue;
3. We consider the lack of significant differences in the results of the control group as an evidence in favor of the hypothesis that physical activity alone is insufficient for body weight and fat tissue reduction – probably the participants in this group had adjusted their energy intakes to the elevated energy expenditures due the physical activity this way reaching an energy balance. It is important, however, to mention that the studied sample was quite small for that group;

4. Considering the margins of error for the statistically significant differences, the results have to be interpreted cautiously.

Acknowledgement
The experiment was fully funded by The National Sports Academy of Bulgaria.

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INFLUENCE OF FOOD SUBSTITUTES' DIET ON WEIGHT REDUCTION IN PHYSICALLY ACTIVE OBESE PEOPLE

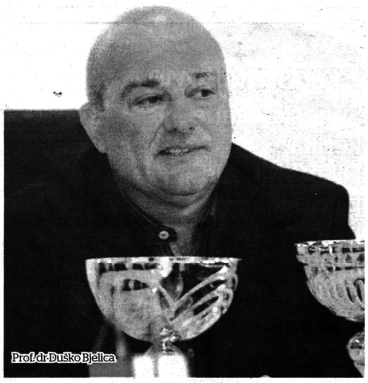
Introduction: The rate of obesity among people in many countries escalated in recent years. A lot of different methodologies were implemented to address this problem. To address these problems in this study we tried to evaluate the impact of a daily schedule, consisting of physical activity of anaerobic-lactic type (20-30 sec), combined with an energy deficient diet (achieved using either EURODIET food substitutes or conventional food sources) on the components of body mass and the Quality of Life Index. Methods: The participants were 15 healthy adults of both sexes with Body Mass Index (BMI) values above 27. They were randomly assigned to 3 groups – the first one underwent an energy deficient diet using the products of EURODIET for 3 of the daily meals. The second one achieved the energy deficit adhering to a diet consisting of conventional food sources. The third group was the control one with no dietary restrictions imposed on the subjects. All 3 groups performed 30 min. circuit training sessions of resistance exercises 3 times a week. The study was 8 weeks long. Results. The differences between the initial and the final values of BMI, the body mass, the percentage of the fat tissue and the Quality of Life Index were compared. We detected statistically significant differences ($p \leq 0.05$) in the following variables and groups: 1. Body mass and BMI in Eurodiet group; 2. Body mass, Quality of Life Index and BMI in conventional diet group. No significant differences ($p \leq 0.05$) between the initial and the final values of the studied variables of the control group. Discussion: We found no evidence that a diet with food substitutes is superior to a conventional diet for losing body weight. Contrary to our previous studies we found that a conventional diet is superior to a food substitutes' diet in sparing the lean body mass. In our opinion implementing physical activity alone is insufficient for achieving weight loss. It is possible that these findings were due to the relatively short duration of the study. When interpreting the results of the study we have to consider the relatively small number of participants in all 3 groups.

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„Pobjeda“, 31. januar 2014.

Odabrano više od stotinu naučnih radova

Prve sedmice aprila biće organizovani međunarodna konferencija i kongres Crnogorske sportske akademije



Prof.dr Duško Bjelica

NIKŠIĆ - Prijavljivanje radova za 11. Međunarodnu naučnu konferenciju o transformacionim procesima u sportu, pod nazivom „Sportska dostignuća“, i za učešće na 10. kongresu Crnogorske sportske akademije zaključeno je 15. januara.

Recezenti su odabrali 102 rada, čiji su se autori strogo pridržavali formulisanih propozicija. Prijavilo se i 13 učesnika koji će pratiti konferenciju bez ponuđenog rada.

Prema riječima predsjednika prireďivačkog odbora kongresa, prof.dr Duška Bjelice, značaj ovog skupa prepoznali naučni radnici sa svih strana svijeta.

U Crnu Goru na proljeće stižu gosti iz Albanije, Brazila, Bugarske, Kanade, Hrvatske, Češke, Finske, Francuske, Indije, Irana, Iraka, Japana, Kosova, Makedonije, Malezije, Portugala, Rumunije, Srbije, Slovenije, Španije, Tajvana, Tajlanda, Turske, Velike Britanije.

- Autori su prepoznali konferenciju koju organizuje Crnogorska sportska akademija kao referentno mjesto za izlaganje svojih naučnih dostignuća.

Prije svega, na naučnoj konferenciji, radiće se u sekcijama o sportskoj ishrani, adaptivnoj fizičkoj aktivnosti, sportskom menadžmentu, sociologiji sporta, pedagogiji sporta, statistici u sportu, biohemiji, biomehanici i molekularnoj biologiji u sportu, koučingu, zdravlju i fitnesu, motornom učenju, fizičkom vaspitanju, psihologiji sporta, rehabilitaciji i testiranju u sportu - rekao je Bjelica.

Ovaj događaj biće organizovan prve sedmice aprila.

Ra.P.

UDK: 615.874:796.011.1

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CHANGES IN SERUM CHOLESTEROL AND GLUCOSE LEVELS OF OBESE PEOPLE DURING A 8 WEEK LONG CYCLE OF PHYSICAL ACTIVITY COMBINED WITH ENERGY DEFFICIENT DIET

Introduction

According to a study of the National Centre of Social Health in 2010-2011 30% of Bulgarian students aged between 6 and 19 were overweighed and 12% were obese. The data for the countries in the Euro zone were even more alarming: between 36.9% and 56.7% of women and between 51% and 69.3% of men were overweight and obese (Health status statistics, 2013). Higher risks for morbidity of diseases with big social impact (such as type 2 diabetes and cardiovascular disease) are associated with obesity in young people (Levine, J. A. and Kotz, C. M., 2005, Pisunyer FX., 1993). At the same time we couldn't find in the scientific literature any widely accepted methodologies (which combined physical activity and dieting) designed to address these problems. In our opinion the methodology presented in this article could be used as a practitioner's guide for treating obesity.

There are a number of studies treating similar problems (Cullinen K, Caldwell M., 1998; Demling RH, DeSanti L., 2000; Doi T, Matsuo T, Sugawara M, et al., 2001; Borsheim E, Bahr R., 2003). Despite the fact that there are studies of daily regimens which combined resistance exercises and negative energy balances, we did not found one which had tested the effectiveness of a methodology similar to ours. The conclusion is that combining resistance training workouts of anaerobic-lactic type with a low-calorie diet is an entirely new approach for treating obesity.

Methods

The aim of the study was to evaluate quantitatively the influence of a daily regimen, consisting of resistance training sessions of anaerobic-lactic type combined with a low-caloric diet on the blood glucose and cholesterol fractions levels in obese people.

We studied 20 sedentary subjects, 16 women and 4 men, aged between 19 and 45 with Body Mass Indexes (BMI)>27. We used the Miflin et al. (Mark D Miflin, 1990) methodology and the Levine and Kotz (Levine, J. A. and Kotz, C. M., 2005) methodology to estimate the theoretical energy expenditure in rest and the theoretical daily energy expenditure for every participant. All subjects completed the experiment successfully.

The following blood tests were made for each participant: glucose (Glu); total cholesterol (TC); high density lipoproteins (HDL); low density lipoproteins (LDL); triglycerides (TG).

We separated the participants randomly into 2 groups. The first one (consisting of 12 female and 4 male) was put on a diet with 30% calorie deficiency (comparing to

the theoretical daily energy expenditure) and the following proportions of the food ingredients: 55-60% of carbohydrates, 15-20% of protein and 25-30% of fats. The diet consisted of 5 meals daily. We controlled the completion of the diet using a feedback loop mechanism – every participant had to fill protocols for the food he/she consumed on a daily basis. The second group (consisting of 4 female and 2 male participants) was a control one – no restrictions on the food intake were put on the subjects.

Every participant accomplished physical training schedule with the following parameters: Duration – 8 weeks; Workouts duration – 30 min; Frequency– 3 times a week; Intensity – about 70% of the maximum, determined as a subjective feeling of muscle failure (12-15 repetitions); Density and volume – 3 sets of a circuit training program, consisting of 10 exercises with 10 – 15 sec. time for rest between them.

The idea behind putting the participants on a training program with such parameters was to achieve maximum density of the workouts combined with a great variety of exercises in order to keep the interest and the motivation of the subjects elevated. We tried to use (as far as it was possible considering the bodyweights of the subjects) complex, basic exercises, which involved big muscles and muscle groups in order to increase as much as possible the energy expenditure of the participants (Peeva, D, Antonov, A, Ianchev, N, 2007). These types of exercises spend a lot of energy and have low values of the Coefficient of Useful Action (Basalkin, Vl, Slepchuk, NA, 1991, Hawkins D[1], Molé P, 1997). These way great amounts of energy substrates have to be chemically decomposed for energy. These substrates are oxidized only partially during the activity and their remainders are decomposed during the rest periods and energy is spent even then. Thus these processes spend a lot more energy then the aerobic exercises which are more energy sparing (D.A. Winter and H.J. Yack, 1987).

In order to improve the cardiovascular fitness of the participants before we switched to abovementioned training methodology, we had put the subjects on a two-week endurance training program consisting of 30 min. jogging or cycling workouts 3 times a week.

Results

For checking differences between the groups for each variable we conducted a standard test for differences in mean values – ANOVA (table 1) (Introduction to ARIMA, DU, 2013, The ARIMA procedure, SAS Online, 2013, TS models algirithms, IBM Support Portal, 2013). We did this to test for the success of the randomization of the groups. We considered the data met the assumptions of the test (approximately). Based on the results shown on the table we could conclude that there are no reasons to reject the hypothesis that there are no differences between the means of the studied variables between the groups ($p \leq 0.05$). Table 2 exhibits the variation analysis of the studied variables.

Table 1. *Variation analysis*

Group	Measure	TC	LDL-C	HDL-C	Glu	TG
1	**Range**	3.15	3.51	6.66	5.13	0.23
1	**Minimum**	1.98	2.07	4.05	3.22	0.15
1	**Maximum**	0.60	0.94	1.54	1.22	0.04
1	**Mean**	2.55	4.73	7.28	5.38	0.18
1	**Standard error**	1.91	0.47	2.38	1.09	0.13
1	**Standard deviation**	3.15	3.51	6.66	5.13	0.23
1	**Variance**	1.98	2.07	4.05	3.22	0.15
2	**Range**	1.73	4.12	5.85	4.98	0.23
2	**Minimum**	1.37	2.58	3.95	3.11	0.19
2	**Maximum**	0.25	0.96	1.21	1.10	0.04
2	**Mean**	1.29	4.30	5.59	5.08	0.18
2	**Standard error**	1.20	0.90	2.10	1.27	0.18
2	**Standard deviation**	1.73	4.12	5.85	4.98	0.23
2	**Variance**	1.37	2.58	3.95	3.11	0.19

Table 2. *ANOVA*

		Total Mean squares	DF	Mean square	F	Significance
TC	**Between groups**	0.11	1.00	0.11	0.17	0.68
	In the groups	10.92	18.00	0.61		
	Total	11.02	19.00			
LDL-C	**Between groups**	0.05	1.00	0.05	0.15	0.70
	In the groups	5.47	18.00	0.30		
	Total	5.51	19.00			
HDL-C	**Between groups**	0.07	1.00	0.07	3.11	0.10
	In the groups	0.40	18.00	0.02		
	Total	0.46	19.00			
Glu	**Between groups**	0.37	1.00	0.37	0.97	0.34
	In the groups	6.84	18.00	0.38		
	Total	7.20	19.00			
TG	**Between groups**	0.13	1.00	0.13	0.56	0.46
	In the groups	4.16	18.00	0.23		
	Total	4.28	19.00			

The differences of the studied variables between the beginning and the end of the experiment are presented table 3. We used t-test for paired samples to calculate the statistical significance (Papoulis, A., 1991).

Table 3. *Paired Samples t-tests*

	Mean	Standard deviation	Standard error	t	Significance	Margin of error
Group 1						
TC	0.31	0.54	0.14	2.11	0.06	0.3
LDL-C	0.29	0.39	0.10	2.84	0.01	0.28
HDL-C	0.04	0.12	0.03	1.30	0.22	<0.04
Glu	0.06	0.48	0.13	0.50	0.63	0.07
TG	.00	0.51	0.14	0.03	0.98	0.00
Group 3						
	Mean	**Standard deviation**	**Standard error**	**t**	**Significance**	**Margin of error**
TC	-0.19	0.71	0.29	-0.65	0.06	0.19
LDL-C	0.25	0.26	0.11	2.32	0.07	0.28
HDL-C	-0.02	0.13	0.05	-0.43	0.69	0.02
Glu	-0.04	0.02	0.01	-5.56	0.00	0.06
TG	-0.96	0.85	0.35	-2.77	0.04	0.97

Discussion

As seen on tables 3 and 4 there are no significant differences between the initial and the final values of the studied variables in the first groups with one exception only – LDL-C. We are obliged to mention that an improvement of the profiles means positive differences in all of the variables, but LDL-C, where the opposite is true. In the second group there are significant differences for two of the variables – Glu and TG, but all of the differences (excluding LDL-C) are in fact negative. Which means that in the second group an overall worsening in the fat and glucose profiles of the blood is detected. When the margins of error (±0.06 for Glu and ±0.97 for TG) are considered, the interpretation of these results becomes more problematic. The exception is LDL-C which profile worsened at a significance level very close to the benchmark of 95% - 93.2% (with a margin of error ±0.26). In group one the significance of TC is in fact quite close to the limit, too – 0.06. This means that probably if a bigger sample was studied this difference would probably be significant.

We reached the following **conclusions**:

1. There are preliminary evidence that a program with such parameters (especially the duration in our opinion) may have a harmful effect on blood levels of LDL-C, but further studies are necessary;
2. The worsening of the blood profiles of Glu and TC in the control group may be considered as preliminary evidence that the physical activity alone is not

sufficient for the improvement of blood lipid profiles. It is possible that the subjects elevated their calorie intake because of the physical activity;

3. In our opinion the lack of statistically significant differences between the values of the other variables in group 1 could be a result of the combined influence of the comparatively low volume of the sample and the short duration of the study. On the other hand some of the significance levels measured are so high that it is quite possible that a bigger sample size would not correct them. Which means that the kind of methodology we implemented had no effect on them whatsoever.

Acknowledgement
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CHANGES IN SERUM CHOLESTEROL AND GLUCOSE LEVELS OF OBESE PEOPLE DURING A 8 WEEK LONG CYCLE OF PHYSICAL ACTIVITY COMBINED WITH ENERGY DEFFICIENT DIET.

Introduction. The rate of obesity among people in many countries escalated in recent years. A lot of different methodologies were implemented to address this problem. To address these problems in this study we tried to evaluate the impact of a daily schedule, consisting of physical activity of anaerobic-lactic type (duration of 20-30 sec), combined with an energy deficient diet on the blood cholesterol and glucose levels in obese people. Methods: The participants were 20 healthy adults of both sexes with Body Mass Index (BMI) values above 27. They were randomly assigned to 2 groups – the first one underwent an energy deficient diet with a energy restriction of 30% of the theoretically calculated energy balance. The second group was the control one with no dietary restrictions. All participants performed 30 min. circuit training sessions of resistance exercises 3 times a week. The study was 8 weeks long. We measured the following blood components twice – once in the beginning and once at the end of the experiment: 1. Glucose; 2. Total cholesterol; 3. High density lipoproteins (HDL); 4. Low density lipoproteins (LDL); 5. Triglycerides. Results. We found no statistically significant differences ($p \leq 0.05$) in all of the blood serum variables we studied in both groups of participants. Discussion: We found no evidence of any favorable effects of a daily regimen consisting of anaerobic-lactic type of physical exercises and low caloric diet on the serum levels of cholesterol and glucose. When interpreting the results one must consider two facts (important in our opinion): 1. The relatively low number of the subjects and 2. the duration of the study, which was only 8 weeks. It is possible that such a methodology has to be applied for longer periods of time for the achievement of

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“Blic”, 1. mart 2014.

Sportska dostignuća Bjelice u Podgorici

»Organizacioni odbor 11. međunarodne konferencije o transformacionim procesima u sportu “Sportska dostignuća” i 10. Kongresa Crnogorske sportske akademije trenutno vrijedno radi na pripremi programa akademskih i socijalnih aktivnosti koje će se održati u Podgorici od 3. do 6.aprila.

- Pored najavljenih plenarnih izlaganja, akademski dio konferencije će se odvijati u nekoliko multidisciplinarnih sekcija, koje će obuhvatiti prirodne, društveno-humanističke i medicinske aspekte savremenog sporta - kazao je predsjednik prireditačkog odbora prof. dr Duško Bjelica.

Prema njegovim riječima, organizacioni odbor se potrudio i da će svi od međunarodnih recenzenata prihvaćeni radovi biti štampani u Zborniku sažetaka sa ISNB brojem, dok će adekvatno izloženi radovi steći pravo da se nađu u renomiranom crnogorskom časopisu



Duško Bjelica

“Sport Mont” koji izlazi na crnogorskom jeziku uz sažetak na engleskom jeziku, a isti je indeksiran u EBSCO citatnoj bazi. S druge strane, najbolji radovi će biti predloženi za objavljivanje u časopisu “Montenegrin Journal of Sports Science and Medicine” koji takođe izdaje Crnogorska sportska akademija, a koji se pored EBSCO citatne bace, nalazi još u sedam međunarodnih citatnih baza, dok je kod SCOPUSa i THOMSON REUTERS-a u toku evaluacija istog. ■

UDK: 796.323.2.012.11

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DIFFERENCES IN MORPHOLOGICAL CHARACTERISTICS BETWEEN JUNIOR BASKETBALL PLAYERS WHO HAVE DIFFERENT LEVELS OF EXPLOSIVE STRENGTH

Introduction

Basketball is a complex changeable polistructural activity, which is characterized by cyclic and acyclic types of movement (Jukic, 1998). Basketball is an aerobic-based anaerobic sport (Delextrat & Cohen, 2009; Meckell, et al., 2009; Metaxas, et al., 2009) which requires high intensity activities such as jumping (for rebounds, blocks and shots), turns, dribbles, sprints, screens and low intensity activities such as walking, stopping and jogging.

Morphology is a scientific discipline that studies structure and development of living organisms and their component parts at the level of visibility to the naked eye and microscope (Sekulic & Metikos, 2007).

Explosive strength in basketball represents capability of neuromuscular system that enables sportsman maximal acceleration of own body and some subject of relatively bigger mass like ball in the activities like throwing, jumping and sprint (Milanovic, 2005). It is known that morphological dimensions define explosive strength to some eytent (Sekulic & Metikos 2007), however, there is an evident lack of studies which examined the problem in the basketball.

The aim of this research is to define differences in morphological characteristics between junior basketball players who have different level of explosive power.

Methods

Subjects

The research is conducted on the sample of 84 junior basketball players from Bosnia and Herzegovina, age category from 16-18 years.

Variables

Sample variables in this study included three tests of explosive strength: vertical jump, standing long jump, throwing a medicine from chest with 3 kg in a standing position, and ten morphological characteristics: body height, leg length, body weight, upper arm girth in extension, calf girth, triceps skinfold, abdominal skinfold, front thigh skinfold, body mass index, relative percentage of fat (Salaj & Markovic, 2011; Delextrat & Cohen, 2009; Jelicic, et al., 2002).

Statistical analyses

Descriptive statistics were calculated for all variables (Means, Standard deviations). Next, on a basis of the explosive strength variables, the subjects were clustered using the hierarchical cluster analysis (Wards method, based on the Euclidean distances). Formed homogenous were then differentiated by means of analysis of variance (and additional post-hoc Schafee test), first - for their explosive strength, and then – for the studied morphological characteristics. Such approach allowed us to indirectly define the influence of morphological variables to the manifestation of explosive strength. Statistical significance of 95% ($p < 0.05$) was applied, while Statsoft's Statistica (ver. 11) was used for all analyses.

Results

On a basis of explosive strength performance, the hierarchical analysis defined four groups of subjects (clusters), (GROUP 1 = 23, GROUP 2 = 20, GROUP 3 = 18 and GROUP 4 = 23 subjects), (Figure 1).

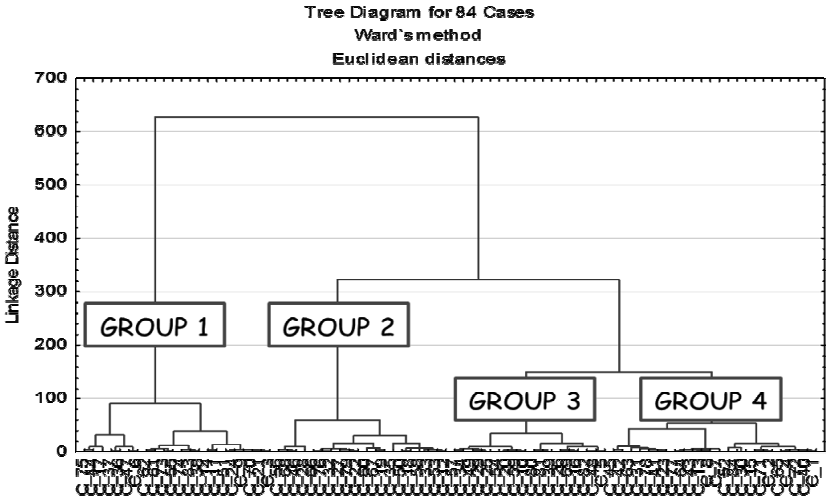


Figure 1. *Dendogram of hierarchical grouping of 84 respondents based on the three tests of explosive strength (vertical jump, standing long jump, throwing a medicine ball from chest) of junior basketball players*

ANOVA revealed significant differences between clusters in vertical jump and standing long jump. The post-hoc analysis indicated significant differences in the variables standing long jump between all groups. In the variable vertical jump, groups 1 and 3 differ from groups 2 and 4 (Table 1).

Table 1. *Descriptive statistics and analysis of the differences between clusters for explosive strength variables (ANOVA – univariate analysis of variance, M - arithmetic mean, SD - standard deviation, F - F value)*

Variables	ALL GROUPS	GROUP 1	GROUP 2	GROUP 3	GROUP 4	ANOVA
	M±SD	M±SD	M±SD	M±SD	M±SD	F
VJ (cm)	52.95±5.82	48.78±4.47 $_{2,4}$	57.45±3.85 $_{1,3}$	49.44±3.09 $_{2,4}$	55.96±5.63 $_{1,3}$	20.82*
SLJ (cm)	243.07±17.78	221.91±12.01 $_{2,3,4}$	265.15±6.82 $_{1,3,4}$	239.22±3.98 $_{1,2,4}$	248.04±6.89 $_{1,2,3}$	103.68*
MBT (m)	7.77±0.99	7.44±0.87	8.10±0.91	7.50±0.85	8.02±1.17	2.62

Legend: 1,2,3,4 - number of exhibits that indicates a significant difference between groups calculated post-hoc analysis by Scheffe-in; *- level of significance 0.05.

Analysis of variance showed statistically significant differences between clusters in variables: forearm skinfold-triceps, abdomen skinfold and thigh skinfold. Post-hoc analysis showed differences between groups more accurately. In general members of the cluster 2 have lowest values of the subcoutaneous fat, while the highest levels are evidenced for cluster 1 (Table 2).

Table 2. *Descriptive statistics and analysis of the differences between clusters for anthropometric variables (ANOVA – univariate analysis of variance, M - arithmetic mean, SD - standard deviation, F - F value)*

Variables	ALL GROUPS	GROUP 1	GROUP 2	GROUP 3	GROUP 4	ANOVA
	M±SD	M±SD	M±SD	M±SD	M±SD	F
Body height	186.48±8.06	185.73±8.45	186.81±6.37	187.00±8.71	186.54±8.91	0.10
Leg length	113.80±6.44	113.27±6.33	114.09±6.16	114.96±7.02	113.18±6.62	0.32
Body weight	76.54±10.66	76.49±11.73	74.68±8.48	75.76±11.80	78.83±10.60	0.58
Upper arm girth	27.63±2.44	27.47±2.72	27.15±2.15	27.68±2.73	28.16±2.20	0.65
Calf girth	37.98±2.65	37.84±2.70	37.72±2.17	37.49±3.07	38.73±2.63	0.90
Triceps skinfold	10.24±3.31	12.34±4.30 $_{2,4}$	8.63±1.66 $_{1}$	10.53±3.03	9.31±2.33 $_{1}$	6.35*
Abdominal skinfold	10.58±3.99	12.67±4.47 $_{2}$	7.59±1.70 $_{1,3}$	11.73±4.44 $_{2}$	10.20±2.89	8.08*
Front thigh skinfold	14.07±4.78	15.23±5.07	11.47±2.61	15.52±5.91	14.03±4.28	3.22*
BMI ($kg \cdot m^{-2}$)	21.95±2.48	22.15±3.13	21.32±1.67	21.59±2.63	22.59±2.20	1.12
FAT (%)	8.44±3.75	8.88±4.42	8.03±4.13	8.61±3.16	8.22±3.25	0.22

Legend: BMI - body mass index, FAT- relative percentage of fat.

Discussion

This research has several main findings. First, methodological approach of defining homogeneous clusters in a set of explosive strength variables and subsequent differentiation of these clusters with regard to morphological characteristics allowed the definition of indirect influence of morphological variables on the explosive capacities. Secondly, concerning that it is the case of negative influence of adipose tissue on explosive strength of relative type, such defined influence of morphological variables on explosive strength can be considered expected.

Gholamali, et al. (2012), studied 34 athletes cadets and didn't find statistically significant influence of relative fat percentage and index of body mass on the performance of the long jump. The negative influence of the sum of skinfolds to the explosive performances has been confirmed in research of Milanese, et al. (2010) who studied 152 boys and girls, age groups 6-12 years, while skinfold measures were the strongest predictor of motor manifestiations. The possible explanations are discussed in the following text.

During the performance of vertical jump and long jump, respondents have manifested relative component of explosive strength. In this case, the ballast was actually their body weight and especially subcutaneous adipose tissue. The respondents of the first group who had the largest skinfolds of the upper extremity achieved the poorest performance in explosive strength, as they had to overcome their own excess weight. Respondents of the second group with the lowest skinfold upper reaches of the limbs and body weight achieved the best results in the performance of relative explosive strength. Possible explanations can be sought in the number of trainings, intensity and training quality. Although at this point we cannot determine with certainty about which of these factors was the case, this can be confirmed by the results of research conducted by Piucoo, et al. (2009). In this study conducted on 12 amateur volleyball players, the authors concluded that the reason for the high percentage of fat is relatively low frequency, intensity and greater representation of anaerobic regime of work in training. As the basketball trainings in this age category are mainly of anaerobic type, it takes a long time, and the appropriate intensity and frequency of training in order to reach the reduction of subcutaneous fat. A more intensive use of aerobic regime for 6 weeks can create the conditions for the reduction of subcutaneous fat and indirect effects on the improvement of explosive strength (Males, et al., 2007). This issue should be further explored in the coming longitudinal researches which would include other significant motor performances important for the success in this activity (agility, speed, accuracy, balance etc.).

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Sekulic, D. i Metikos, D. (2007). Introduction to basic kinesiology transformation: Fundamentals of transformation processes in kinesiology. University of Split, Faculty of Natural Sciences, Mathematics and Kinesiology, Split.

DIFFERENCES IN MORPHOLOGICAL CHARACTERISTICS BETWEEN JUNIOR BASKETBALL PLAYERS WHO HAVE DIFFERENT LEVELS OF EXPLOSIVE STRENGTH

Introduction: The aim of this study was to determine differences in morphological characteristics between junior basketball players who have different levels of explosive strength. Methods: The study was conducted on a sample of 84 junior basketball players from (B&H) Bosnia and Herzegovina (16-18 years) in spring 2013th. The sample of morphological variables consited of: body height, leg length, body weight,

upper arm girth in extension, calf girth, triceps skinfold, abdominal skinfold, front thigh skinfold, BMI, the relative body fat percentage. The variables of explosive strength were: vertical jump (VJ), broad jump (BJ) and throwing a medicine ball from chest with 3 kg from a standing position. Ward's method of cluster analysis, based on variables of explosive strength we formed four homogeneous groups. Subsequently, using the ANOVA and post-hoc analysis, these groups are differentiated with regard to morphological characteristics. Results: Clusters differed significantly in BJ and VJ. ANOVA found significant differences between clusters in variables of skinfolds, such as the: triceps, abdomen and thigh. Discussion: Defined the influence of morphological variables on explosive strength can be regarded as expected, given that it is primarily about a negative influence of the amount of body fat on relative explosive strength type. This research has shown that junior basketball players in B&H are shorter and ligther when compared to top-level European juniors (Jelicic et al., 2002). Subjects with the lowest skinfolds of the upper limbs and body weight, achieved the best results in the manifestation of relative explosive strength, which has so far rarely been found in samples of trained subjects (Milanese et al., 2010). Possible explanations can be required in a number of training, the intensity and quality of training. Although at this point with certainty, we can't determine on which of these factors involved. This can be confirmed by the results of research of Piucco et al., 2009 who studied female amateur volleyball athltes. References: Jelicic M, Sekulic D, Marinovic M (2002). Coll. Antropol, 26, 69-76. Milanese C, Bortolami O, Bertucco M, Verlato G, Zancanaro C (2010). Journal of Human Sport and Exercise, 5(2), 265-79. Piucco T, Santos SG (2009). Fitness Performance Journal, 8(1), 9-15.

„Dan“, 5. april 2014.

НАУЧНИ СКУПОВИ ЦРНОГОРСКЕ СПОРТСКЕ АКАДЕМИЈЕ ПОЧЕЛИ РАД НА РЕКТОРАТУ УНИВЕРЗИТЕТА ЦРНЕ ГОРЕ

Научна елита на окупу


Скуп отворила министар Сања Влаховић

Традиционални скупови Црногорске спортске академије – 11. међународна научна конференција о трансформационим процесима у спорту „Спортска достигнућа“ и десети Конгрес почели су са радом јуче на Ректорату Универзитета Црне Горе. Званично отварање уприличено је у свечаној сали Ректората у присуству бројних гостију и научника са свих страна свијета, а након поздравног говора ректора, проф. др **Предрага Мирановића,** присутнима се, занимљивом елаборацијом свог вишења науке и спорта обратила и скуп званично прогласила отвореним министарка науке **Сања Влаховић.** Иначе, овогодишњој конференцији присуствује 63 научника који ће излагати своје радове, док је укупно на радовима 138 аутора и коаутора. Поред двије оралне паралелне сесије, на програму су први пут и двије паралелне постер сесије гдје аутори путем постер презентација излажу своја научна достигнућа.

Т.Б.

UDK: 796.015:612.3

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ZNANJE TRENERA O SPORTSKOJ ISHRANI

Uvod

Decenije istraživanja podržavaju teoriju da od kada postoje sportska takmičenja prisutno je pitanje šta jesti i piti da bi se poboljšao sportski rezultat. Ishrana je jedan od najvažnijih činilaca u postizanju vrhunskih perfomansi sportista. Prema većini istraživanja sprovedenih u svijetu sportisti najviše informacija dobijaju od svojih trenera kada je u pitanju sportska ishrana, a pogotovo od trenera koji se bave kondicionim treningom. (Burns, Schiller, Merrick & Wolf, 2004). Prilikom sastavljanja preporuka za ishranu sportista, moraju se uzeti u obzir specifične energetske potrebe određenog sporta, obim dnevnog treninga, starost, pol i sklonost ka određenoj ishrani (vrste namirnica koje sportista najradije konzumira). Na osnovu današnjih istraživanja sigurno znamo da ishrana sportista utiče na njihovo zdravlje, sastav tijela i masu, način utroška energenata za vrijeme aktivnosti, oporavak i izvođenje. (Manore & Thompson, 2000). Ne postoji samo jedan plan ishrane koji će doprinijeti poboljšanju takmičarske sposobnosti. U planiranju modela ishrane treba uzeti u obzir energetske potrebe, makronutritivni sastav namirnica, unos mikronutrijenata i balans tečnosti sportiste. Cilj ovog istraživanja je utvrđivanje znanja o sportskoj ishrani kod sportskih trenera.

Metod

Uzorak ispitanika bio je sastavljen od 30 licenciranih trenera iz Crne Gore (fudbal, rukomet, košarka, odbojka, atletika i tenis). Znanje o sportskoj ishrani utvrđeno je putem odgovarajućeg standardizovanog anketnog upitnika koji je preuzet i modifikovan (Matković, Knjaz, Cigrovski 2006). Upitnik je bio koncipiran tako da se utvrdi znanje trenera o ishrani sportista, o sastojcima koji su neophodni da bi se obezbijedila dovoljna količina energije za trening i takmičenja, o dodacima ishrani, obrocima prije takmičenja kao i dehidraciji i rehidraciji za vrijeme treninga i takmičenja. Anketa je bila anonimna. Dobijeni podaci su obrađeni statističkim postupcima, pomoću statističkog paketa STATISTICA kojim je dobijen uvid u kvantitativne i kvalitativne vrijednosti istraživanja.

Rezultati

U tabeli 1. prikazan je anketni upitnik sa pitanjima na koja su ispitanici dali svoje odgovore kao i odnos tačnih i netačnih odgovora. Kada se sagledaju rezultati u cjelini, može se zaključiti je da je znanje trenera o sportskoj ishrani na zadovoljavajućem nivou. Od ukupno 600 odgovora, ostvareno je 469 tačnih odgovora, odnosno 78,1%.

Međutim kada se pogledaju pojedinačni odgovori onda se zadovoljstvo zbog relativnog visokog procenta gubi jer se uočavaju veliki propusti o vrlo bitnim pitanjima vezanim za sportsku ishranu.

Tabela 1. *Anketni upitnik sa tačnim odgovorima i odnosom tačnih i netačnih odgovora*

	Pitanja koja su bila ponuđena ispitanicima u anketnom upitniku	**Tačni odgovori**	**Odnos tačnih i netačnih odgovora**
1.	Proteini su glavni izvor energije?	N	21 - 9
2.	Prekomjeran unos proteina hranom opterećuje rad bubrega i jetre?	T	28 - 2
3.	Sportistima je potrebno 3 puta više proteina od netreniranih osoba?	N	6 - 24
4.	Sportistima je potrebno više ugljenih hidrata od netreniranih osoba?	T	29 - 1
5.	Žeđ nije adekvatan pokazatelj potrebe za vodom tokom vježbanja?	T	13 - 17
6.	Tečnost se mora unositi prije, za vrijeme i poslije takmičenja?	T	30 - 0
7.	Preskakanje obroka je opravdano kada se želi postići brzi gubitak težine?	N	28 - 2
8.	Brzi gubitak tjelesne težine s jako restriktivnom dijetom može negativno uticati na sportsko izvođenje?	T	30 - 0
9.	Gubitak težine restriktivnim kratkotrajnim dijetama najvećim je dijelom posljedica gubitka tečnosti?	T	21 - 9
10.	Nedostatak kalcijuma može uzrokovati prelom kostiju (fraktura) i osteoporozu?	T	29 - 1
11.	Unos mješavine različitih aminokisjelina može izazvati nutritivni disbalans – višak jedne aminokisjeline utiče na drugu?	T	22 - 8
12.	Citrusi (limun, narandža) su jedini izvor vitamina C u hrani?	N	27 - 3
13.	Obrok poslije takmičenja važan je samo ako je sportista gladan?	N	27 - 3
14.	Uravnotežena ishrana važna je samo prije takmičenja?	N	22 - 8
15.	Posljednji čvrsti obrok treba pojesti 3-4 sata prije takmičenja?	T	28 - 2
16.	Nadoknadu tečnosti i ugljenih hidrata treba započeti neposredno poslije takmičenja?	T	21 - 9
17.	Nemoguće je pobijediti bez suplemenata?	N	23 - 7
18.	Voće i povrće su dobar izvor vitamina i minerala?	T	30 - 0
19.	Velike doze vitamina i minerala mogu biti opasne po zdravlje?	T	27 - 3
20.	Vitaminu i minerali su izvor energije?	N	5 - 25

Diskusija

Analizirajući i upoređujući rezultate istraživanja (Matković, Knjaz & Cigrovski, 2006) koji su na uzorku od 56 trenera košarke i skijanja, dobili 77,8% ispravnih odgovora i uvidom u dobijene rezultate našeg istraživanja, više je nego jasno da su rezultati približnih vrijednosti u oba rada, što je pokazatelj kvalitetnijeg obrazovanja trenera. Međutim, sagledajući pojedinačne odgovore, zabrinjavajuće djeluje podatak da jedna trećina anketiranih ima izuzetno nizak nivo znanja o proteinskoj ishrani i smatra da su proteini glavni izvor energije, a još više to što gotovo 80 % ispitanika ne poznaje metabolizam proteina. Ako se uzme u obzir činjenica da sportisti često koriste aminokisjeline kao dodatak ishrani upravo po preporuci trenera, bilo bi za očekivati da osobe koje savjetuju uzimaju takvih dodataka znaju i o problemima ili negativnim pojavama koje mogu ugroziti zdravlje sportista. Međutim ispitivani treneri pokazali su što je i očekivano da znaju pravilnoi rasporediti obroke i tečnosti prije, u toku i poslije treninga i takmičenja, ali nažalost nešto više od 50% anketiranih trenera ne zna da žeđ nije adekvatan pokazatelj potrebe za vodom tokom vježbanja. Kad je riječ o vitaminima i mineralima koji se vrlo često koriste kao dodatak u ishrani sportista anketirani treneri su pokazali dosta visok nivo informisanosti, što je bilo i očekivano. Ipak, zabrinjavajući podatak je da približno 85% anketiranih trenera misli da su vitamini i minerali izvor energije. Vitamini i minerali sami po sebi nijesu izvor energije i nemaju energetsku vrijednost kako se ponekad pogrešno misli. Svake sekunde u tijelu se zbiva na hiljade hemijskih procesa koji nam omogućavaju da mislimo, osjećamo, vidimo, čujemo, pokrećemo se i drugo. Za sve te procese potrebni su nam vitamini i drugi makro i mikro sastojci (ugljeni hidrati, proteini i masti). Bez dovoljnih količina tih sastojaka u tijelu nastaju brojni poremećaji koji mogu uzrokovati čak i teška oboljenja.

Zaključak

Kada se sagledaju rezultati u cjelini, može se zaključiti je da je znanje trenera o sportskoj ishrani na zadovoljavajućem nivou. Od ukupno 600 odgovora, ostvareno je 469 tačnih odgovora, odnosno 78,1%., međutim kada se pogledaju pojedinačni odgovori onda se zadovoljstvo zbog relativno visokog procenta ispravnih odgovora donekle gubi jer se mogu jasno uočiti značajni propusti u sveukupnom znanju i to o vrlo bitnim pitanjima vezanim za sportsku ishranu. Na osnovu svega navedenog zaključak je da bi svaki sportski kolektiv trebao da ima sportskog nutricionistu kako bi se propusti u sportskoj ishrani sveli na minimum jer u planiranju modela ishrane treba uzeti u obzir energetske potrebe, makronutritivni sastav namirnica, unos mikronutrijenata i balans tečnosti sportiste. Očuvanje i unapređenje zdravstvenog statusa, poboljšanje kondicije, redukcija masnih naslaga i postizanje optimalne tjelesne konstitucije, pražnjenje negativne energije, lakše podnošenje stresnih situacija su osnovni benifitikoji se dobijaju redovnim treningom i optimalnom ishranom. Sportski nutricionista bi trebalo da edukuje igrače, trenere i roditelje, da programira prehrambene navike i da na vrijeme intervenište i da se pobrine za uspostavljanje pravilnih navika u ishrani, a sve u svrhu postizanja bojleg rezultata i očuvanja zdravlja. (Lacey & Pritchett, 2003). Poznato je da su

redovni treninzi i optimalna ishrana dva neraskidiva faktora i samo njihovom kombinacijom mogu se postići optimalni rezultati.

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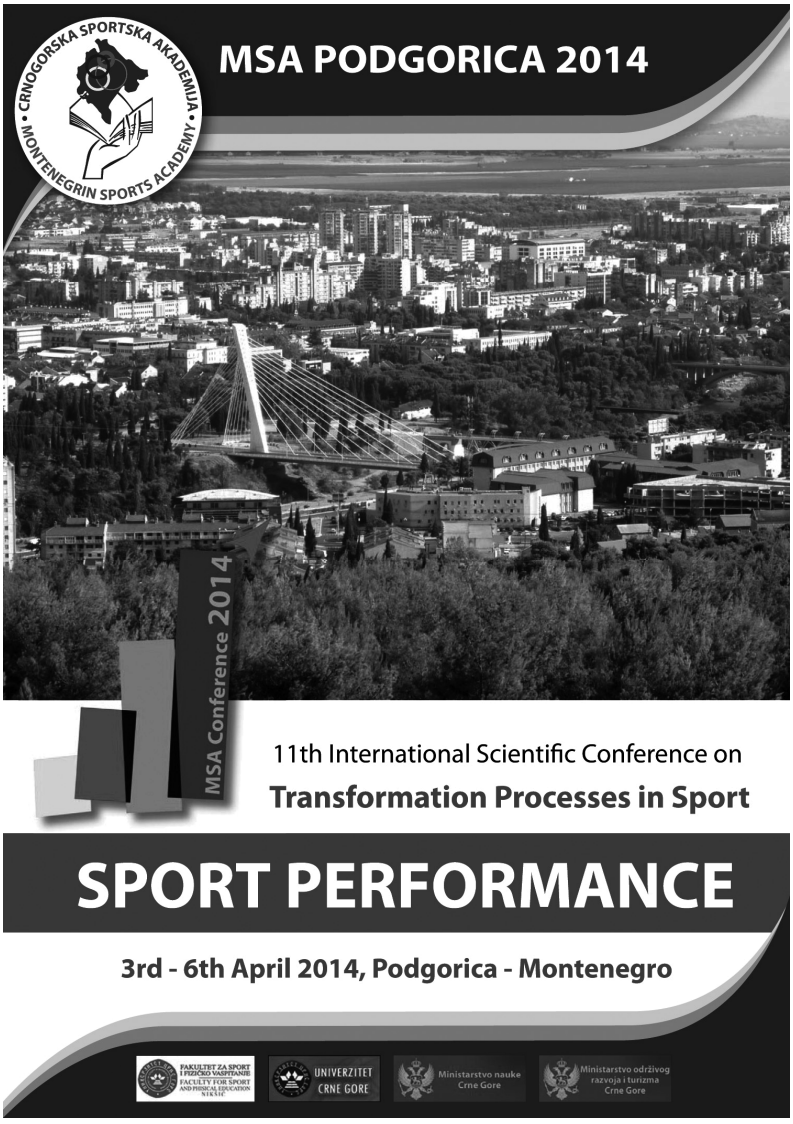
Manore M, Thompson J (2000). Sport nutrition for health and performance. Champaign, IL:Human Kinetics.

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SPORT NUTRITION KNOWLEDGE OF COACHES

Introduction: Decades of research support the theory that when there are sports competitions the question of what to eat and drink in order to enhance sport performance. Nutrition is one of the most important factors in achieving top performance athletes. According to most studies conducted in the world's top athletes receive information from their coaches when it comes to sports nutrition, especially of the coaches involved in fitness training. (Burns, Schiller, Merrick & Wolf, 2004).The aim of this study was to determine the knowledge of sports nutrition in sports coaching. Mthods: The sample was composed of 30 licensed coaches from Montenegro (football, handball, basketball, volleyball, athletics and tennis). Knowledge of sports nutrition was tested by means of a standardized questionnaire. The questionnaire was designed to determine the knowledge manager on sports nutrition, the ingredients that are necessary in order to provide a sufficient amount of energy to training and competition, the dietary supplements, meal prior to the competition as well as dehydration and rehydration during training and competition. The survey was anonymous. The data were analyzed by statistical methods, using the statistical software STATISTICA for WINDOWS. Results: According to the results as a whole, it can be concluded that the trainer's knowledge of sports nutrition at a satisfactory level. Out of 600 responses was achieved 469 correct answers, or 78.1%. However, when looking at individual responses then satisfaction with the relative high percentage loss since the observed large gaps on very important issues related to sports nutrition. Discussion: By analyzing and comparing research results (Matkovic, Prince & Cigrovski, 2006) that in a sample of 56 coaches basketball and skiing, received 77.8% of correct answers and insight into the results of our study, it is clear that the results of the approximate value of both work, which is an indicator of quality education trainers. However, viewing individual responses, worrying is the fact that one-third of respondents have very low levels of

knowledge about protein supplements and believes that proteins are the main source of energy. If we take into account the fact that athletes are often used as a dietary supplement exactly as recommended by coaches, it would be expected that people advise taking these supplements know about any problems or negative occurrences that may endanger the health of athletes. References: Burns RD, Schiller R, Merrick MA, Wolf KN (2004). J Am Diet Assoc, 104, 246-9. Matkovic B, Knjaz D, Cigrovski V (2006). Croatian Sports Medicine Journal, 21, 3-7.



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URBAN PARAMETERS FOR PLANNING THE NETWORK OF PHYSICAL EDUCATION FACILITIES IN MONTENEGRO

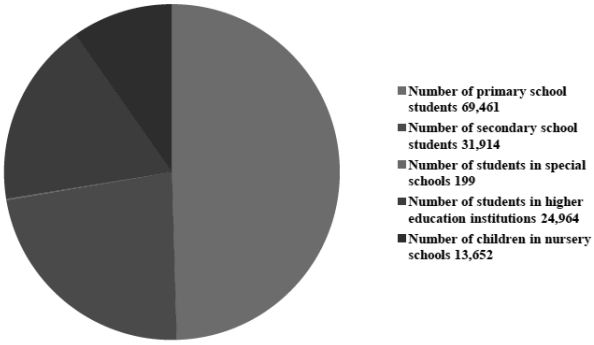
Introduction

The evolution of sports areas in Montenegro in the late twentieth and early twenty-first century, the period of quality sport development, led to the construction of a large number of modern facilities for various sports. A large sports construction fund is evident. In despite of this, experience from the past period tells us about an inadequate planning approach in building sports facilities, as well as their spatial distribution on a territory that is specific in its spatial and geographical form. The main parameters for forming a concept for development of areas for sports and recreation are given through spatial and urban plans, through which an objective need for sport and recreational activities is considered. The construction and development of facilities for sport and recreation require great financial resources. After the research conducted in 2013 in the north of Montenegro, it can be concluded that there are significant deviations from standards prescribed in this field. Namely, from 59 surveyed primary schools 31 has a gym, and form 17 secondary schools only 12 of them have gyms with good conditions. For more efficient planning of areas for sports and sports recreation in our conditions, the introduction of an information system is imposed.

Methods

By observing urban design as a very important factor for proper development of a city, both in a physical as well as an economic, social and cultural sense, the urban indicators which derive from such planning are very important for determining the disposition and size of structures intended for physical education facilities - areas of urban recreation and sports. The network of sports facilities in Montenegro is perceived in this example - the network of physical education facilities of educational institutions and the network of sports and recreational facilities of the municipalities, which are presented by graphical and analytical indicators. The research method conducted in this paper is based on certain indicators and analyzes that are defined through: spatial and geographical conditions and limitations, given the specificity of the morphology of Montenegro, socio-demographic conditions, which give us the population number with the planned natural and migration growth; on indicators related to the expressed needs for sport and recreational activities; on analysis of the existing areas (of outdoor and indoor type) in which sports activities are performed, which are based on records of the existing and planned facilities, as well as on defining the needed areas that would be formed on free sites. All these indicators are followed by appropriate algorithmic and transformational vector processes that give the network structure of sports facilities.

The State of Montenegro (13,812 km^2) borders with Albania, Kosovo (as defined under UNSCR 1244/99), Serbia, Bosnia and Herzegovina and Croatia. Its total surface is dominated by an area over 200 meters above the sea level, where hilly and mountainous areas from 200 - 1000 meters above the sea level cover about 35% of the territory, the mountainous area from 1000-1500 meters above the sea level covers about 45%, while the highest mountain parts over 1500 meters above the sea level account for about 15% of the territory[1]. The total population of Montenegro according to the 2011 census was 620,029 inhabitants, of which 293,509 inhabitants live in the Central region, 148,683 inhabitants in the Southern region and 177,837 people in the Northern region. In comparison with the 2003 census the number of inhabitants in 14 Montenegrin municipalities has decreased. The largest population decline was recorded in Šavnik by 29% and by 23% in Plužine. The largest increase was recorded in Budva by 24%. The total number of inhabitants who have changed their place of residence within the borders of the state was 4,369, which represents 0.7% of the estimated population of Montenegro which is 620,029 inhabitants. The education process in Montenegro includes 126,532 inhabitants (20.40%) of the total population, and the number of those in preschool is 13,652 (2.20 %) [2, 3].



Picture 1. *Number of students in Montenegro – beginning of school year 2011/2012*

Urban planning for construction of sports facilities[4] relies on analysis of all types of activities that will take place in a certain area, that is in a particular environment, taking into account the spatial and geographical conditions, facility location, technological possibilities as well as the possibilities of usage depending on the space purpose (school sport, recreational sport, professional sport). The normative equipment of recreational space for facilities intended for outdoor sports is 3m^2/inhabitant, of which the usable area is 1.3m^2/inhabitant, while the supporting area is 1.7m^2/inhabitant. Facilities intended for indoor sports according to valid standards are from 0.50m^2/inhabitant. Standards for free recreational areas such as areas around schools and children's institutions, outside the city, are applied for educational institutions and should be 25-35m^2 per student, taking into consideration only one

school shift. In the dense tissue of block buildings the optimal area per student can be 10-15m^2 and in no case less than 4m^2. In this case, physical education classes are held at the nearest sports centre. When planning the network of facilities in certain areas on every 1,000 inhabitants the number of facility units is provided in accordance with the table.

Table 1[5]***.*** *The program of physical education facilities in the municipalities*

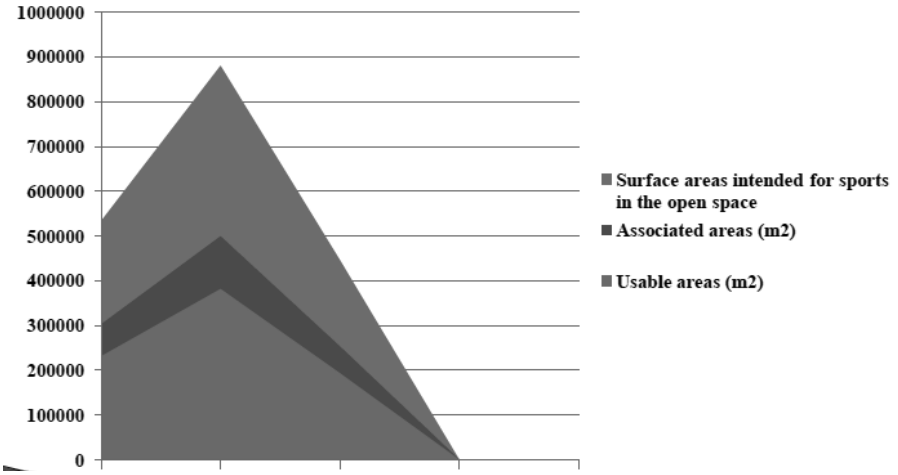
Inhabitants	Playgrounds for children and youth	Sports grounds	Athletics tracks	Warehouse and bowling	Playground for indoor sports	Gyms	Total m^2
for 1,000 inhabitants	1,000m^2	60x90m 5,400m^2	4 tracks	1,000m^2	1,000m^2	10x18m	8,5000m^2
1-3,000 inhabitants	1,000m^2	70x100m 7,000m^2	100-1,000m^2	1,000m^2	1,000m^2	12x24m 18x33m	11,0000m^2
3-5,000 inhabitants	1,000m^2	100x110m 12,000m^2	4 tracks - 100m or 6 round	1,000m^2	1,000m^2	12x24m Or 18x33m	16,0000m^2

Results

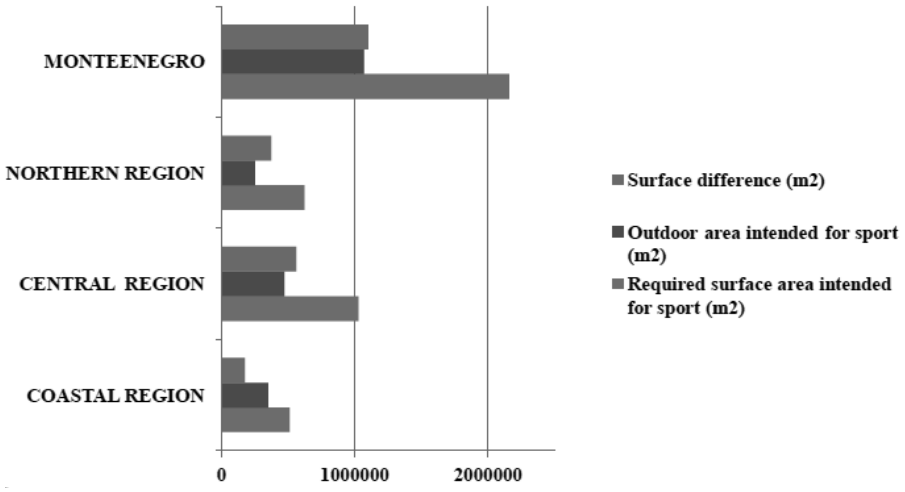
Based on the analyzes carried out on the overview of the existing facilities that are located on the territory of Montenegro, the anticipated or planned facilities and elements that are defined by rulebook standards, arising from certain legal standards for this type of facilities, a distribution network of physical education facilities has been set.

Public facilities of physical education

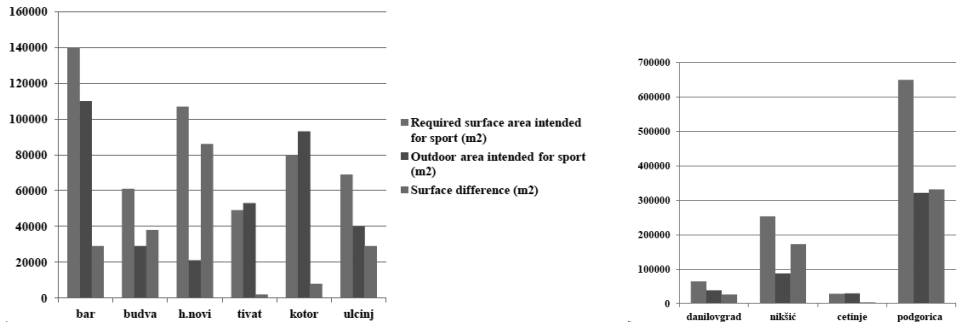
The normative equipment of recreational space for facilities intended for sports in the open air is 1,860,87m^2, of which the usable area is 806,037m^2, while the supporting area is 1,054,049m^2. The surface of facilities intended for indoor sports is 310,014 m^2. The example of facilities distribution in the municipalities of Montenegro, which is a result of urban parameters, can be subjected to serious criticism regarding the criteria on the basis of which the distribution is performed.



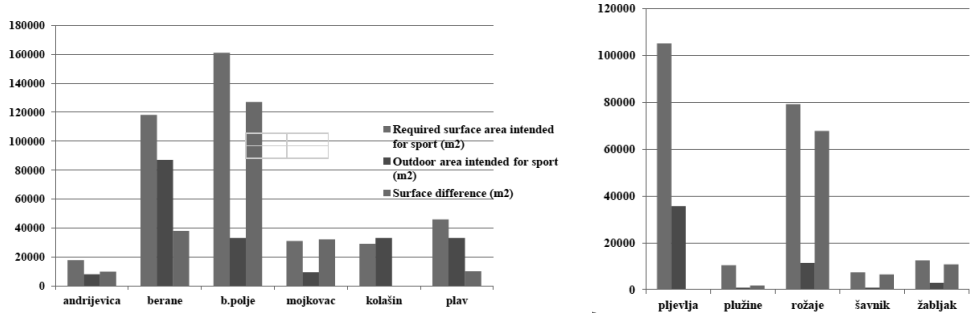
Graph 1. *The ratio of areas intended for sports in the whole of Montenegro*



Graph 2. *Review of areas intended for sports by region*



Graph 3. *Review of areas intended for sports by city (Coastal and Central region)*



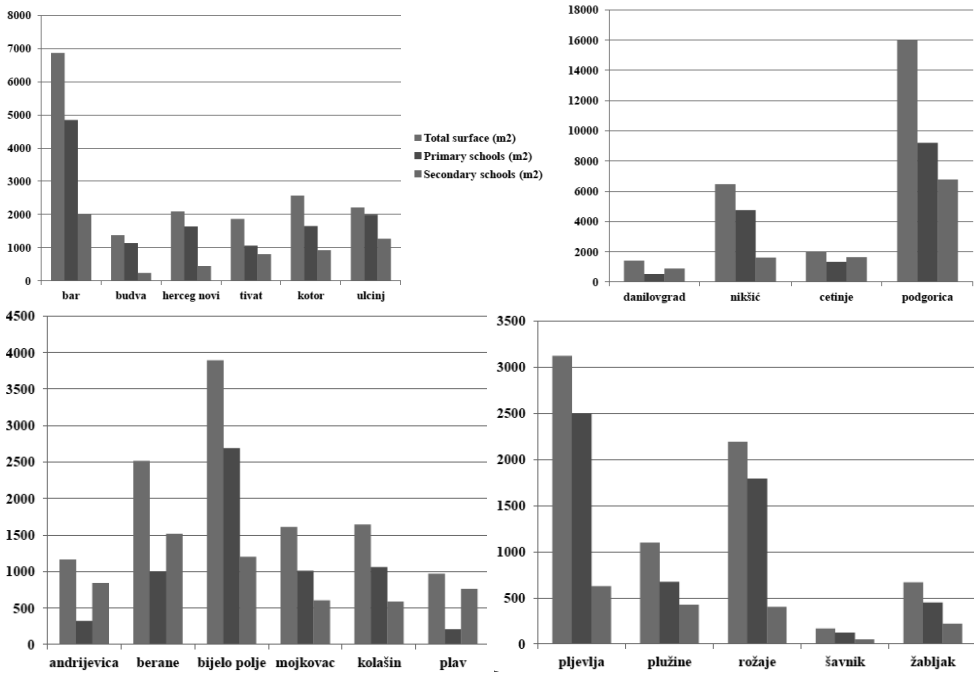
Graph 4. *Review of areas intended for sports by city (northern region)*

In the coastal region, in regards to meeting the standards, the following towns lead: Bar with 8,500m^2 of indoor space and 23,956m^2 of outdoor space, then Kotor which fully meets the standard for outdoor space intended for sports and recreation with 22,469m^2 of surplus, while a lack of indoor space of 7,963m^2 has been recorded. In the northern region the town of Kolašin fully meets the standards for outdoor and indoor surfaces with a positive balance of 860m^2 and 3,110m^2. The following indicators are evident at the national level: out of the total required areas 51% is developed space for outdoor facilities and 49% is space for indoor facilities.

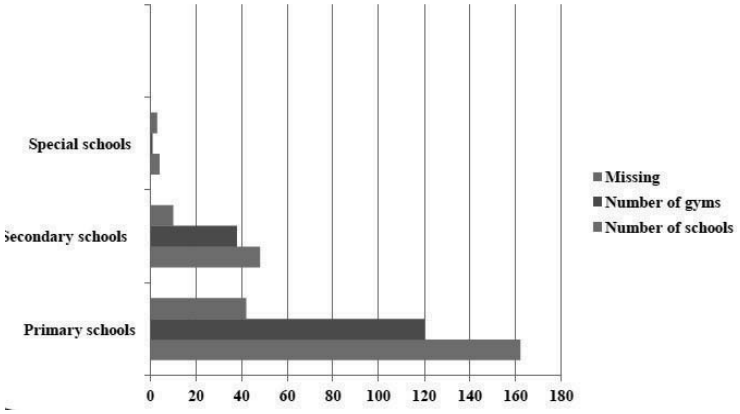
Physical education facilities in educational institutions

Regarding physical education facilities in educational institutions, the study showed the following: in primary schools they are represented with an area of 0.61m^2/student on the level of Montenegro, in the coastal region with 0.77m^2/student, in the Central region with 0.47m^2/student and in the Northern region with 0.59m^2/student. Physical education facilities in secondary education are represented with 0.72m^2/student at the state level. This makes only 20.44% in the total amount in relation to the anticipated indoor areas intended for sports facilities. The spatial

distribution of physical education facilities is uneven at the municipal level. These activities are mainly developed in major cities: Podgorica (0.42m^2/student), Nikšić (0.60 m^2/student), Bijelo Polje (0.47 m^2/student) Pljevlja (0.84 m^2/student) and in Bar (1.04 m^2/student). Out of 207 school buildings 55 have no gym, inadequate conditions for physical activities, respectively.



Graph 5. *Review of surfaces of indoor school sports facilities by municipality (Coastal, Central and Northern region)*



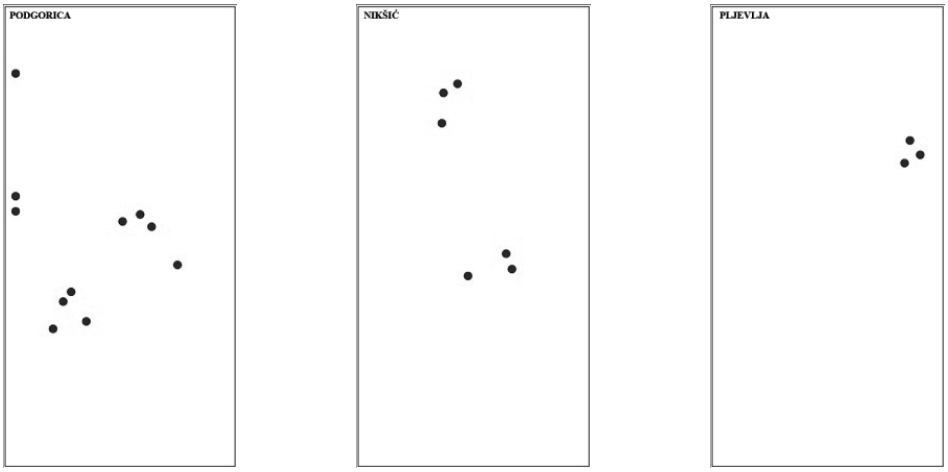
Graph 6. *Number of gyms in relation to the number of schools*

Discussion

Analysis of the current distribution of physical education facilities in Montenegro on the basis of established determinants (defining a unique standard, standardization of facilities and equipment, availability and quality of access to facilities, access to planning resources) for sport and recreation should result in a new model for distribution of areas for urban physical education.

The network of sports facilities in Montenegro

In the process of previous analysis, which was perceived through several parameters such as: the distribution of potential users, belonging to a territory (accessibility), attachment to corridors, time accessibility followed through isochronous lines, access to facilities in the winter and summer period, the size of the catchment area in accordance with certain urban parameters and regulations for this type of facilities in Montenegro, four groups for linking sports facilities can be formed as follows: a completely separate network where each element operates independently and separately, a dispersed network as a group of sports points of facilities scattered in space and time while each facility has its own development which gives the impression of complete independence, a grouped network which is a result of a specific cohesion force that attracts them to be similar in content, space and time, but remain independent in developing and a concentrated network which is a result of a concentration of a larger number of facilities in a common cohort where they can still act independently but safely effect each other. [6,7,8.]



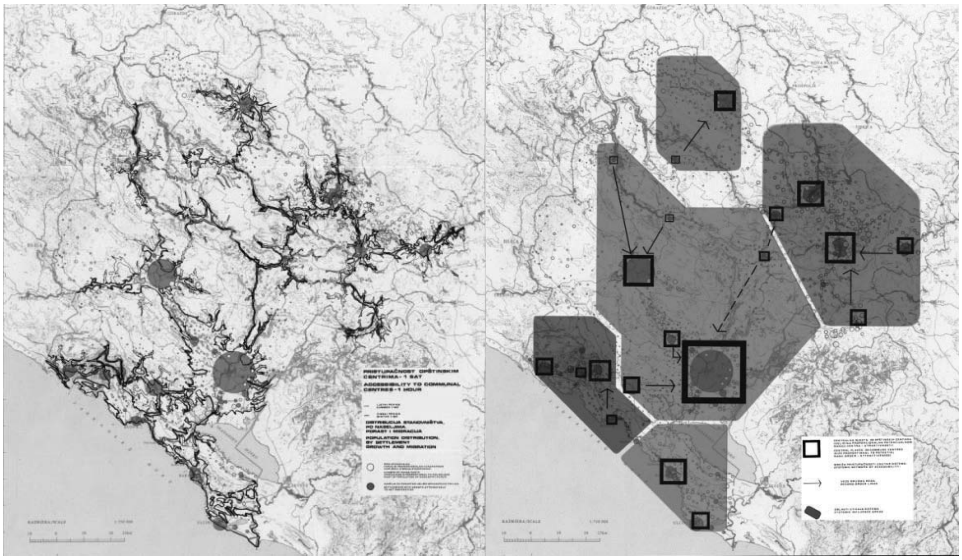
a) Dispersed network ***b) Grouped network*** ***c) Concentrated network***

Graph 7. *Linking sports facilities on the level of cities*

On the basis of a comprehensive analytical approach, which is based on the fact that, according to the character of the (relevant) components of urban systems and their content attributes, all elements that make the network structure are clearly identified.

Bijelo Polje and Berane with 165,673m^2 (7.8%) of required areas form a centre of regional importance. Herceg Novi and Kotor in conjunction with Tivat and Budva with 134,736m^2 (6%) of required areas also create a centre of regional importance. Bar and Ulcinj with 76,203m^2 (3.6%) of required areas form a centre on the south-eastern part of the Montenegrin coast. In the central region a linear systems strategy has been applied, linking several points from Nikšić, Podgorica Danilovgrad with Cetinje that is gravitating towards them, which includes within its urban areas 32% of the total population of Montenegro and the required surface area of 529,799m^2 (25%), where the corridor, adequately to its values and capacities, becomes the backbone of development of the entire system.

Picture 2 ***Picture 3***



Picture 2. *Distribution of population by settlements with isochronous lines*
Picture 3. *Network zones*

This model requires the introduction of a unique information system of sports facilities that would consist of individual network zones and would contain information that would include a basic record of sporting facilities, valorisation of sports facilities and an annual report on the use of facilities.

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URBAN PARAMETERS FOR PLANNING THE NETWORK OF FACILITIES FOR PHYSICAL CULTURE IN MONTENEGRO

The aim of this paper is to indicate, through researches related to the overview of the existing network of physical education facilities in the municipalities of Montenegro, the urban parameters on the basis of which systematisation and classification of space used for active physical education is carried out. A special emphasis is placed on the ratio of the anticipated areas (outdoor and indoor sport areas) which amount to 2.122.418m^2 in relation to the entire territory of Montenegro. Through graphical illustrations the ratio of developed and missing areas in the municipalities classified by region can be seen, as well as their difference, which is particularly pronounced in the northern region of Montenegro. At the end, a recommendation is given that emerged from the researches and relies on specific determinants in terms of linking sports facilities at a municipal and regional level, with an emphasis on the information system of sports facilities.

Key words: *inhabitants, area, number, sports facility, network*



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THE RELATION OF SOME MORPHOLOGICAL CHARACTERISTICS vs. MOTOR ABILITIES IN BASKETBALL

Introduction

The aim of this study is to determine whether there are differences present in anthropometric characteristics and motor abilities between junior basketball club players and their peers from high school in regard to the environment in which they reside and coaching influence. Based on scientific knowledge and scientific research so far conducted mainly by foreign researchers in the field of basketball game and relying on the scope of this paper it was expected (anticipated) the study will show differences in morphological, motor and motor situational variables specific to the basketball game. Basketball is a relatively multifaceted and complex team game combining cyclic and acyclic movement structures, which mainly consist of fast and dynamic movements with the ball and without it (Erčulj, 1998). Play is characterised by many explosive movements such as short sprints, abrupt stops, fast changes in direction, acceleration, different vertical jumps as well as shots with and passes of the ball (Zwierko & Lesiakowski, 2007; Erčulj, Dežman, & Vučković, 2004). The successful and efficient execution of all these movements and, consequently, the playing performance of basketball players of different age categories mainly depend on several motor factors (explosive strength of the legs, strength of the arms and shoulder girdle, agility with the ball and without it, co-ordination, speed of single and alternate movements) (Brack, 1985; Erčulj, 1998; Stone, 2007; Erčulj & Bračič, 2007);physiological factors (anaerobic lactate and alactate capacities)(Jukić, Milanović & Vuleta, 2005; Stone, 2007) and also morphological factors (especially length dimensions) (Erčulj, 1998; Trninić, Dizdar & Dežman, 2000; Karpowitz, 2006). Motor and motor specific abilities are very important skills to every sportmen, especially basketball players; as this could help to prepare themselves when they are facing different complex situations in a training sessions and games and it is also directly related to the athletes' performance and achievement. Therefore, it is important to acknowledge the role of anthropometric and motor abailities and its influence in the achievement of the basketball team.

Objectives of the Study

1. To compare the anthropometric characteristics, motor and situational specific abilities between players of junior Basketball Club "Skenderaj", in Skenderaj municipality and students of Economics Secondary High School, in Mitrovica. Goals and objectives of the research are:

1. Analysis and comparison of results obtained from anthropometric measurements
2. Analysis and comparison of results obtained from motor parameters.

3. Analysis and comparison of the results obtained from specific situational tasks.

Relying on the scope of this research and based on knowledge gained from similar research works done in basketball, relevant hypotheses are:

H 1 - There are significant differences in the morphological characteristics between tested groups.

H 2 - There are significant differences in the motor abilities between tested groups.

H 3 - There are significant differences in the specific to basketball situational tasks between tested groups.

Methods

Participants; The sample of the research was composed of (N=24) in total, (N=12) young adults (male, 15-18 years; mean age 16.91±1.16), players of Basketball Club (B.C). “ Skenderaj”, and their peers (N=12) mean age, 17.00±1.20), male students of Economics Secondary High School from Mitrovica; randomly selected during the fall semester of 2013/2014 school year.

All participants of the research were naïve about the purpose of the study and have no history of pathologies. The exclusion criteria for taking part in the research were: (1) not fitting into one of the age groups, (2) having injuries/pathology and/or the uptake of medication (s) that could affect the behavioural consequences of the research participants. All basketball players of B.C. “ Skenderaj”, (subjects of the research) representing team in First Kosova National League, held their training sessions on weekly basis (twice/weekly) in Sports Gym of Gymnasium in Skenderaj. They represent the best quality of sport in the Skenderaj town. The entire measurement process was carried out by visits to basketball club venue, (Gymnasium Gym) where, in agreement with school directors and team coaches, the set assignments were realized. To get the relevant data, the system of variables consists of (14 items in total), (5) variables were used to assess morphological characteristics, (5) basic motor variables and (4) motor situational specific to basketball variables.

Procedure: Half an hour after the beginning of the training session, participants were instructed to perform tasks that consists of morphologic measurements (5) variables; motor area (4) variables and 4-four situational motor specific to basketball variables(1-(see. Table 1.), Before the start of data recording, the subjects received 2 min of practice trials, sufficient to familiarize the task (tested variable). Subjects were asked to perform the task(s) as well as possible and were instructed to concentrate as much as they can to give their best. Each participant underwent three trial sessions of each test either basketball players or high school students. Tests were monitored visually by two experimenters (Physical Education Teachers) to confirm accuracy of data recording of the results. The details of morphologic and motor variables, tests and units of measurement are displayed in Table 1. To achieve the results after the collection of data, Descriptive statistics such as the mean and standard deviation, min./max., skewnes, and kurtosis were calculated of all variables. To seek for statistically significance between

groups on selected variables the T-test discriminative analysis was used. The level of significance was set at ($p<0.05$) level. Results are processed with the help of statistical package, SPSS version 21 for Windows

Results

Table 1. shows basic descriptive statistics data of all the variables (morphologic and motoric) tested in this research, (n=12 junior basketball players)

Table 1. *Basic descriptive statistics (n=12) Basketball players*

Variable	Min	Max	Mean	SD.	Skew	Kurt
APT	52.00	100.00	72.83	12.48	.509	1.082
ALT	154.00	190.00	175.66	9.80	-.590	1.043
AGJSHD	17.00	20.00	18.50	1.00	.000	-.764
AGJKR	150.00	190.00	176.16	11.42	-.975	1.196
AGJKER	37.00	48.00	43.66	3.20	-.735	.107
MKGJV	140.00	240.00	207.50	28.95	-1.289	1.536
MKLV	35.00	50.00	41.16	4.44	.351	-.091
MV20M	3.03	4.07	3.14	.29	3.438	11.871
MTAPD	39.00	52.00	45.58	3.67	-.258	-.244
MHMED	380.00	598.00	472.00	66.52	.503	-.624
SGJK	4.00	8.00	5.58	1.16	.588	.362
SGJKM	5.00	10.00	7.08	1.31	.690	1.159
SGJKD	2.00	8.00	4.16	1.94	1.407	1.059
SGJKM	3.00	7.00	4.83	1.40	.351	-1.097

Table.1. Morphologic variables APT-body mass, ALT-body high, AGJASHD- palm length, AGJKR-arm length, AGJKER- knee high, motor variables; MKGJV-standing long jump, MKLV-standing vertical jump, MV20M- 20 m. running, MTAPD, sitting hand tapping MHMED-medicine ball throwing), situational motoric variables ;SGJK-free throws, SGJKM-free throws in target (square in wall), SGJKDJ-free throws right wing, SGJKMA-free throws left wing.

The results expressed the basic statistical data basketball players juniors, mean and standard deviation of all selected morphologic and motor measures are: Age (16.95±1.16), height 175.66 cm), weight (72.83 kg), palm length (18.50 cm), arm span (176.16 cm), knee heigh (43.66 cm), basic motoric; standing long jump (207.50 cm), standing gvertical jump (41.16 cm), 20m running (3.14s.), hand tapping (45.58), medicine ball throwing (472 cm), situational motoric variables ; free throws (5.58.p), free throws in target (square in wall) (7.08) free throws right wing (4.16p.), free throws left wing 4.83p.

The rest of data of secondary high school students are displayed in Table.2.

Table 2. *Basic descriptive statistics (n=12) Secondary High school students*

Variable	Min	Max	Mean	SD.	Skew.	Kurt.
APT	53.00	87.00	68.83	8.95	.664	1.242
ALT	166.00	193.00	180.75	7.68	.011	.061
AGJSHD	18.00	20.00	19.08	.90	-.185	-1.865
AGJKR	169.00	192.00	180.75	7.68	-.061	-.928
AGJKER	39.00	50.00	43.41	3.23	.635	-.145
MKGJV	200.00	245.00	226.50	14.92	-.560	-.837
MKLV	36.00	58.00	43.91	6.58	.761	.159
MV20M	3.03	4.04	3.46	.49	.385	-2.255
MTAPD	23.00	47.00	36.83	7.28	-.536	-.476
MHMED	340.00	510.00	454.91	57.48	-.697	-.668
SGJK	1.00	7.00	3.58	1.97	.531	-1.151
SGJKM	4.00	10.00	6.16	2.03	.659	-.703
SGJKD	2.00	8.00	4.16	1.94	.875	-.259
SGJKM	2.00	8.00	5.25	1.76	-.335	-.474

Table.2. Morphologic variables APT-body mass, ALT-body high, AGJASHD- palm length, AGJKR-arm length, AGJKER- knee high, motor variables ; MKGJV-standing long jump, MKLV-standing vertical jump, MV20M- 20 m. running, MTAPD, sitting hand tapping MHMED-medicine ball throwing), situational motoric variables ;SGJK-free throws, SGJKM-free throws in target (square in wall), SGJKDJ-free throws right wing, SGJKMA- free throws left wing.

The results expressed the basic statistical data basketball players juniors, mean and standard deviation of all selected morphologic and motor measures are: Age (16.95±1.16), height 180.75cm), weight (68.83kg), palm length (19.08cm), arm span (180.75cm), knee heigh (43.41cm), basic motoric; standing long jump (226.50 cm), standing vertical jump (43.91cm), 20m running (3.46 s.), hand tapping (36.83), medicine ball throwing (454.91 cm), situational motoric variables ; free throws (3.58.p), free throws in target (square in wall) (6.16 p.) free throws right wing (4.16p.), free throws left wing 5.25 p.

Table 3 T-test					
	Group	N	Mean	SD	Std. Error Mean
APT	Students	12	68.83	8.95	2.58
	Basket.players	12	72.83	12.48	3.60
ALT	Students	12	180.75	7.68	2.219
	Basket.players	12	175.66	9.80	2.82
AGJSHD	Students	12	19.08	.90	.25
	Basket.players	12	18.50	1.00	.28
AGJKR	Students	12	180.75	7.68	2.21
	Basket.players	12	176.16	11.42	3.29
AGJKER	Students	12	43.41	3.23	.93
	Basket.players	12	43.66	3.20	.92

MKGJV	Students	12	226.50	14.92	4.30
	Basket..players	12	207.50	28.95	8.35
MKLV	Students	12	43.91	6.58	1.90
	Basket.players	12	41.16	4.44	1.28
MV20M	Students	12	3.46	.49	.14
	Basket.players	12	3.14	.29	.08
MTAPD	Students	12	36.83	7.28	2.10
	Basket.players	12	45.58	3.67	1.06
MHMED	Students	12	454.91	57.48	16.59
	Basket.players	12	472.00	66.52	19.20
SGJK	Students	12	3.58	1.97	.57
	Basketball players	12	5.58	1.16	.33
SGJKM	Students	12	6.16	2.03	.58
	Basket.players	12	7.08	1.31	.37
SGJKD	Students	12	4.16	1.94	.56
	Basket.players	12	4.16	1.94	.56
SGJKM	Students	12	5.25	1.76	.50
	Basket.players	12	4.83	1.40	.40

T-test, p= 0.99. the statistically significance was set .0.01

The only one variable designed as a statistically significant, that was hand tapping. This shows that the only variable we have statistically significant differences between the groups, while the other variables have no statistical significance The explanation of this difference might be due to the fact that basketball players spend more time on working with ball, hand manipulation they have to perform their coach instructions during training sessions and games, fulfilling the technical and tactical roles and responsibilities. Based on research findings the effect of coaching and training is statistically non-significant.p=0.99

Discussion

In spite of the large number of works being developed, sometimes the information is highly dispersed and there is some difficulty in getting a common language between people of different background concerned with the problematic of morphological characteristics and motor /motor specific abilities in athletes vs non athletes mainly in junior group ages. We have no much evidence of researches done and published papers of local researchers on group differences in regard to morphologic and motoric characteristics in youngster (basketball players vs Secondary High school students).Various studies have examined the morphological characteristics and their differences due to the specifics of each player position of elite and successful teams in basketball of both male (Dežman, Trninić, & Dizdar, 2001; Erčulj, 1998; Jeličić, Sekulić, & Marinović, 2002; Trninić, Dizdar, & Fressl, 1999) and female basketball players (Ackland, Schreiner, & Kerr, 1997; Bale, 1986; Carter et al., 2005, Erčulj, F., & Bračič, M. (20010). The FIBA changes in rules of 2000 may have contributed to modifying the

morphological and physiological profile of basketball players, by generally increasing their level of fitness (Cormery, Marcil, & Bouvard, 2008). Morphologic and physiological profiling can contribute to selection procedures in junior basketball; however, determinants of success are multi-factorial (Hoare, 2000). So far these concerns have been lacking in Kosovo basketball, due to the fact that Kosovo Basketball Federation is not recognized by FIBA yet, and is not recognized as a member of that association. According to the findings obtained from the research, it was seen that there was not any statistically significant difference between morphologic characteristics, motoric abilities, and situational specific to basketball skills scores of the participant sample group (n=24) (young basketball players vs high school students. The fact that there was not any significant difference in terms of motor specific situational skills variables may be attributed to the fact that, unprofessional coaches are not following basics of basketball coaching; there is no any talent identification of prospective basketball players, there is no any selection process basketball team structure of players, they are using old coaching methodologies. According to (Stanković, V. et al. 2009) findings obtained after the comparison of the morphologic characteristics among top handball, basketball and football players on sample of 158 top sportmen of male gender (51 hendball players, 51 basketball players and 56 football players) basketball players have the highest values of the variables of longitudinal and transversal dimension of the skeleton. it can be concluded that there are various morphological structures of the sportsmen according to the sports We can say that there are different findings about young athletes and non athletes ,these different findings may be resulting from the differences of coach qualities and competencies, also due to absence of initial selection process of prospective basketball players and unknown characteristics of the sample groups (small number of tested subjects)..We consider that statistically non-significant results observed among the groups which could be attributed to genetic influences reflect the “variability” in the morphological characteristics of basketball players and their peers from secondary high school. In this research it was found out that the players of both teams had similar results also in motor and motor specific to basketball abilities, its very interesting and surprising result, and its matter of the “influence” of training. Surprisingly, these results obtained from tested groups shows that there is no any statistically significance projected in the motoric and specific to basketball situational motor abilities between basketball players and students non athletes. One single method is not sufficient to determine the relation of morphologic, motor and situational motor specific to basketball abilities. Ability selection and orientation is necessary for sport conception directed to high performance. In conclusion, we can say that the current situation in which kosovar basketball today is not what we are looking for, because it must be admitted that the neuralgic point is the lack of expertise and competencies of professional staff (coaches-trainers) to administer and manage their duties and responsibilities correctly. So, some possible recommendations for the development of Kosovos’ basketball in the right direction can be:

- Developing a national basketball strategy in accordance with the advanced international standards of modern basketball.

- Implementation in practice of that national basketball strategy,(organizing basketball summer schools, sport clinics, workshops with invited international experts) that will have a positive effect for public health in general, especially for majority of young population in particular.
- There is a need for strong cooperation between the Faculty of Sport Sciences (the only one Public University in country – Prishtina University) and National Olympic Committe to establish as soon as possible and make it work Kosovo's National Sport Coaching Academy.

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THE RELATION OF SOME MORPHOLOGICAL CHARACTERISTICS vs. MOTOR ABILITIES IN BASKETBALL

The main purpose of the present study was to give a try for clarifying if there is difference present and how the level of differences is in morphologic characteristics and motor abilities (basic and situational specific to basketball abilities) between junior basketball club players and their peers –students from secondary high school and to examine some of the properties(causes) reasons of the difference. According to the findings obtained from the research, there was not found any statistically significant difference between scores of the participant sample group (n=24) (young basketball players (12) vs high school students (12). Acoording to the study results obtained, basketball coaches should follow the new strategies and developments of modern basketball if they want to fulfill the goals and objectives of every single team. The lack of expertise and competencies of professional staff (coaches-trainers) to fulfill their duties and responsibilities correctly is evident in Kosovo's Junior Basketball League.

Key words: *morphological chractaristics, motor abilities, basketball, differencee*

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KOMPARATIVNA ANALIZA RUKOMETAŠA KADETA I MLAĐIH KADETA U MOTORIČKIM I SPECIFIČNO-MOTORIČKIM SPOSOBNOSTIMA

1. UVOD

Za savremeni rukomet, kojeg na najbolji način prezentuju veliki evropski klubovi, moglo bi se reći da je dostigao vrhunac u svom razvoju. Ipak, svjedoci smo da navedeni klubovi i reprezentacije konstantno daju rukometu nešto novo što ga unaprijeđuje i pomiče granice karakteristika i sposobnosti rukometaša do granica mogućeg. Kao takav, rukomet zahtjeva visok nivo usvojenih motoričkih struktura, u cilju rješavanja određenih specifičnih zadataka koji se javljaju u toku igre, u fazi odbrane i u fazi napada.

Istraživanja koja se bave problematikom upoređivanja dvije ili više grupa rukometaša različitog uzrasta nije baš česta pojava. Značajan doprinos ovim istraživanjima dali su hrvatski autori analizirajući razlike između rukometaša različitog uzrasta, kao i razlike različitog ranga takmičenja.

Osnovni cilj ove studije bio je da se utvrdi postojanje razlika između rukometaša kadeta i mlađih kadeta u motoričkim i specifično motoričkim sposobnostima.

2. MATERIJAL I METODE

Uzorak ispitanika u ovoj studiji sastojao se od 30 rukometaša podijeljenih na kadete (15) RK "Cepelin" iz Cetinja, uzrasta 16-17 godina koji se takmiče u crnogorskoj rukometnoj kadetskoj ligi i mlađe kadete(15) RK "Bar" iz Bara, uzrasta 13-14 godina koji su takođe u istom rangu takmičenja.

Uzorak mjernih instrumenata sačinjavalo je ukupno 16 testova za procjenu opštih (12) i specifičnih motoričkih sposobnosti (4).

Za procjenu opštih motoričkih sposobnosti primjenjeno je 12 testova i to:

- Za procjenu frekvencije pokreta: taping rukom (TR) i taping nogom (TN);
- Za procjenu fleksibilnosti: duboki pretklon na klupi (DPK) i iskret palicom (IP);
- Za procjenu eksplozivne snage: skok udalj s mjesta (SDM) i trčanje 20 m- visoki start (S20M);
- Za procjenu eksplozivne snage ruku i ramenog pojasa: bacanje rukometne lopte iz sijeda raznožnog sa tla (BRL) i bacanje medicinke iz ležanja na leđima (BMLL);
- Za procjenu repetitivne snage: podizanje trupa za 30 sek (PT30) i zgibovi iz visa na vratilu (ZVV);
- Za procjenu koordinacije: osmica sa sagibanjem (OS), koraci u stranu (KS).

Za procjenu specifično-motoričkih sposobnosti primjenjena su 4 testa i to: preciznost iz skok šuta sa 9 m (PSS9M), brzina vođenja lopte u kvadratu (BVLK), sposobnost u bacanju i hvatanju lopti odbijenih od zid (SBHL) i slalom u prostoru između 6-9 m (SP 6-9).

Za sve dobijene rezultate kod primjenjenih varijabli izračunati su osnovni statistički parametri. Statistička značajnost razlika aritmetičkih sredina između kadeta i mlađih kadeta utvrđena je t-testom za male nezavisne uzorke.

3. REZULTATI I DISKUSIJA

U tabeli su prikazani rezultati t-testa za male nezavisne uzorke u cilju utvrđivanja značajnosti razlika između aritmetičkih sredina za svaku varijablu između kadeta i mlađih kadeta.

Tabela 1. *T-test za male nezavisne uzorke*

Varijable	Grupa	Mean	SD	F	Sig.	t (DF28)	Sig. (2-tailed)
TAPR	Mladji kadeti	33,47	3,25	0,80	0,38	-0,05	0,96
	Kadeti	33,53	3,66				
TAPN	Mladji kadeti	19,93	1,91	0,35	0,56	-0,30	0,77
	Kadeti	20,13	1,77				
DPK	Mladji kadeti	44,27	4,59	3,25	0,08	-1,84	0,08
	Kadeti	48,60	7,89				
ISP	Mladji kadeti	84,67	14,06	0,09	0,76	0,93	0,36
	Kadeti	79,80	14,66				
SDM	Mladji kadeti	1,83	0,16	0,31	0,58	-3,76	0,00
	Kadeti	2,06	0,18				
S20M	Mladji kadeti	3,63	0,28	1,12	0,30	1,93	0,06
	Kadeti	3,46	0,20				
BRL	Mladji kadeti	16,36	3,09	0,00	1,00	-2,95	0,01
	Kadeti	19,80	3,29				
BMLL	Mladji kadeti	9,54	1,61	3,03	0,09	-3,87	0,00
	Kadeti	12,13	2,03				
PT30	Mladji kadeti	28,40	2,85	0,02	0,90	1,24	0,23
	Kadeti	27,07	3,03				
ZVV	Mladji kadeti	5,60	4,78	5,56	0,03	0,18	0,86
	Kadeti	5,73	3,11				
OSSAG	Mladji kadeti	18,22	1,05	0,85	0,36	-1,09	0,29
	Kadeti	18,69	1,32				
KOSTR	Mladji kadeti	8,56	0,73	1,14	0,30	-6,05	0,00
	Kadeti	10,33	0,87				
PSS9M	Mladji kadeti	3,47	0,99	3,41	0,08	-2,37	0,03
	Kadeti	4,47	1,30				
BVLK	Mladji kadeti	6,06	0,54	0,09	0,77	1,01	0,32
	Kadeti	5,86	0,52				
SBHL	Mladji kadeti	22,40	1,80	0,95	0,34	-1,13	0,27
	Kadeti	23,20	2,08				
SP6-9	Mladji kadeti	13,87	0,80	0,00	0,98	-3,39	0,00
	Kadeti	14,96	0,96				

Legenda: Mean – aritmetička sredina; SD – standardna devijacija; F – F-test ili Levenov test testiranja varijanse; Sig. – značajnost razlike varijansima; t (DF28) – t-test uz 28 stepeni slobode; Sig. (2-tailed) – nivo značajnosti sa vjerovatnoćom 95%.

Podaci dobijeni na osnovu testiranja razlike aritmetičkih sredina između grupe rukometaša kadeta i mlađih kadeta, utvrđeno je da su rukometaši kadeti postigli statistički značajno bolje rezultate od mlađih kadeta u četiri varijable i to: skok udalj iz mjesta (SDM), bacanje rukometne lopte iz sijeda raznožnog sa tla (BRL), bacanje medicinke iz ležanja na leđima (BMLL) i preciznost iz skok šuta sa 9 m (PSS9M). Mlađi kadeti su postigli statistički značajno bolje rezultate od kadeta u dvije varijable i to: koraci u stranu (KOSTR) i slalom u prostoru između 6-9m (SP6-9). U preostalim varijablama u kojima nije utvrđena statistički značajna razlika, rukometaši kadeti su postigli nešto bolje rezultate od mlađih kadeta u sedam varijabli: taping rukom (TAPR), duboki pretklon na klupi (DPK), iskret palicom (ISP), sprint iz visokog starta na 20 m (S20M), zgibovi iz visa na vratilu (ZVV), brzina vođenja lopte u kvadrat (BVLK) i sposobnost u bacanju i hvatanju lopti odbijenih od zid (SBHL). Mlađi kadeti su postigli nešto bolje rezultate u tri varijable: taping nogom (TAPN), podizanje trupa za 30 s (PT30) i osmica sa sagibanjem (OSSAG).

S obzirom da su rezultati pokazali da rukometaši kadeti imaju u većem broju varijabli bolje rezultate u odnosu na mlađe kadete, ovo istraživanje korespondira prethodnim istraživanjima koja su imala za cilj da analiziraju razlike rukometaša različitog uzrasta (Vuleta i sar. 2004, 2012).

4. ZAKLJUČAK

Prema dobijenim rezultatima između grupe kadeta i grupe mlađih kadeta, statistički značajna razlika između njih uočena je kod šest varijabli od ukupno šesnaest primjenjenih.

Studija je utvrdila postizanje statistički značajno boljih rezultata kadeta u odnosu na mlađe kadete, što se može pripisati njihovom biološkom rastu i razvoju.

Statisički značajno bolji rezultati kod mlađih kadeta postignuti su u testovima za procjenu koordinacije, što ukazuje da je trenažni proces bio sistematski programiran i usmjeren na razvoj koordinacionih sposobnosti. Iako je poznato da u ovom uzrastu može doći do slabe koordinacije sportista zbog izrazitog rasta i razvoja, ipak, dobro osmišljen program treninga može dati pozitivne rezultate u cilju poboljšanja ove motoričke sposobnosti, što proizilazi iz dobijenih rezultata ovog istraživanja.

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COMPARATIVE ANALYSIS OF HANDBALL CADETS AND YOUNGER CADETS IN THE MOTOR AND THE SPECIFIC-MOTOR SKILLS

Studies that deal with the problem of comparing two or more groups of handball players of different ages, are not so frequent. A number of Croatian authors contributed to these studies

In a way that they have analyzed the differences between handball players at defferent levels of competition. In this study, a survey was conducted in order to determine whether there are differences between handball cadets and junior cadets in the motor and the specific motor skills.

The sample in this study consisted of 30 handball players split in this way : the cadets (15), aged 16-17 years old and younger cadets (15) aged 13-14 years.

There were 12 tests (of measuring instruments) for estimating general motor abilities and 4 tests for estimating specific-motor skills. Basic statistical parameters were calculated for all the results in the variables. Statistically significant difference between the arithmetic means of cadets and junior cadets was determined by t-test for small independent samples. The data obtained from the testing of differences between group of handball cadets and junior cadets showed that the handball cadets had significantly better results in the four variables (long jump in here, throwing a handball ball from the gray straddle the ground, throwing a medicine ball from lying on back and the accuracy of jump shot from 9 m), while the younger cadets achieved significantly better results in the two variables (side steps and slalom in the area between 6-9 m).

Since the results showed that handball cadets had better results (in a number of variables) than younger cadets , this study was consistent with the previous studies attempted to analyze the differences between handball players of different ages.

***Key words**: handball, cadets, motor abilities, specific-motor abilities*

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THREATS OF NEW GENERATION ON PHYSICAL ACTIVITY LEVEL IN ALBANIAN CHILDREN

Introduction

Obesity is caused by an imbalance between energy input and energy expenditure. This epidemic is rapidly and constantly growing and affects all socioeconomic levels and ethnicities (Ogden et al., 2006). Recent reports from different studies have highlighted the severity of obesity in children by suggesting: "today's generation of children will be the first for over a century for whom life expectancy falls" (Hills et al., 2007). Data from several sources (Boreham et al., 2004; Venn et al., 2007) have identified overweight and obesity in children as a major contributing factor of low levels of physical activity and as a cause for becoming obese adults as they will grew up compared with those children of normal weight in the future. Venn et al. (2007) identified obesity in childhood as a stronger predictive of obesity in early adulthood and most of obese young adults were a healthy weight as children. As obesity is already a health risk in childhood because of its association with a clustering of cardiovascular disease (CVD) risk factors and atherosclerosis, is believed to progress throughout life, (Andersen et al., 2008). Increase in obesity has been suggested to be the result of reduced physical activity (Kuboonchoo, 2001; Ekelund et al., 2004; Patrick et al., 2004). In children, physical inactivity and lack of fitness are associated with increasing prevalence of cardiovascular risk factors (McKenzie et al., 1997). Studies have reported the increased prevalence of overweight and obesity in children, more noticeably in industrialized western countries (Wang and Lobstein, 2006; Wang and Lim, 2012; Lobstein et al., 2004) than in some developing countries. Physical activity is a key component of the expenditure aspect of energy balance and provides an outlet for daily caloric usage (Luke et al., 2004) and is labelled (Morris, 1994) as "today's best buy in public health" . For children and young people, physical activity includes play, games, sports, transportation, chores, recreation, physical education, or planned exercise, in the context of family, school, and community activities (WHO, 2010). The decline in physical activity levels of young children appears to be increased and combined with a high prevalence of obesity in Europe (Wang and Lim, 2012; Lobstein et al., 2004). Albania, is a country in Southeast Europe, emerged in 1990 from the most isolated and xenophobic communist regime (Nuri and Tragakes, 2002; Rechel and McKee, 2003). Over the past 15 years changes in life-style (diet, tobacco, alcohol consumption, and physical exercise) have taken place, particularly in urban settings (Rechel andMc- Kee, 2003). In Tirana have been conducted different cross sectional

studies focusing on sport participation, obesity, physical fitness from elementary and secondary school children but only a few of them has been published. To date, there are no internationally published data on the prevalence of physical activity among Albanian children and little is known about the gender difference and the current level of inactivity among age groups. With the ever-increasing interest in exploring the actual level of children's physical activity in Albania, a study was carried out aiming to obtain the actual level on physical activity on children aged 7-year-old to 15-year-old and to compare the percentage of inactivity among gender and age groups.

Methods

This study is a cross sectional and is part of a project approved by the Faculty of Physical Activity and Recreation in Tirana where children will be monitored in health related variables, fitness components, gross motor coordination and the level of physical activity at baseline (year 2012) followed at annually intervals over five consecutive years (till 2015). During February and March of 2012 a total of 9003 questionnaires were carried out with a nationwide sample of children from Albanian population aged 7-year-old to 15-year-old (4513 boys and 4490 girls). The total group is maintained to be representative of the Albanian population for children ages 7 and older till 15 years old.

Physical activity evaluation

Physical activity was assessed by PAQ-C questionnaire. The Physical Activity Questionnaire for Children (PAQ-C) was used as a means for children to self-report their own levels of physical activity over the past seven days. Children reported how many times in the previous week they participated in a wide range of physical activity behaviors such as recreational activities, sports, and other types of exercise (Crocker et al., 1997; Kowalski et al., 1997). Other physical activity behaviors related to children physical education class, free time, recess, extracurricular sports, weekend activities, and evening activities are also addressed within this instrument. Summed scores are calculated and then averaged across the different categories within the instrument. A final overall score is obtained as an indicator of activity level for the student. Reference scores in PA questionnaire were (1- inactive; 2.5- normal; 5- very active). The PAQ-C questionnaire was validated in Albanian language (Jarani, 2013) in 452 children (7-10 years) with a reliability coefficient from first (r=0.71)- fourth grade (r=0.78) and used to assess the current level of PA. Convergent validity for this instrument was established through correlations with other measures of physical activity, specifically an aerobic step test and a questionnaire related to perceptions of athletic competence Janz et al. (2008); Kowalski et al. (1997). All questionnaires of physical activity (PAC-C) for first grade children were distributed by school classes in coded envelopes. The PA questionnaires were filled out by the children themselves. The teachers collected the questionnaires some days later.

Statistical analysis

Main descriptive statistics (frequency) were calculated for mean age, percentage of children on PA level and gender distribution participated in the study. A weighting technique was used to balance the data to reflect the total Albanian population ages six to fifteen above. The following variables were used: gender, age, region, place, and birthplace and population density. The total population figure used was 428435 children ages six to fifteen (Indicators by prefectures, INSTAT 2009). The results of the PA questionnaire were filled in a database excel file. All the statistics were carried out using the SPSS 18.0 statistical package.

Results

The results showed that 42.7% of children fell below the normal level of PA (results not shown in table). Data split by gender showed a higher percentage of inactivity among girls (49.6%) compared to boys (36%). There was a general pattern of rate increases among children at normal level of PA from 6.6 until 12.5 years of age and then this rates declines (Table 1, 2).

The prevalence of the normal level of physical activity was 36% among 6.5 yrs old children (41% for boys and 31% for girls, respectively). Among boys, only 41% aged 6.6-7 participated in normal PA while more than 62% aged 12.1-12.5 engaged in normal level of PA (Table 1, 2). Likewise, fewer girls engaged in normal level of PA than boys (31% aged 6.6-7 and 60% aged 11.1-11.5).

Results for physical activity revealed boys being more active than girls. Percentage of inactive children who fall below the normal level of PA at 6.5 to 7 yrs was 61% and continued to decline at 12.1 to 12.5 yrs with 33% and started to grow till 15.1 to 15.5 yrs with 53% (Table 3). In the table 3, the second line represents the percentage of boys that are totally inactive while the third line represents the percentage of inactive girls ages six and older.

Results show that in every age group the percentage of inactive boys is lower compared to percentage of inactive girls. Inactivity percentage among children ages ten to 12 yrs fell slightly from 39 percent to 33 percent. Conversely, among children age 12 to 16 yrs, the percentage of inactivity increase from 33 percent to 53 percent. The inactivity rate for elementary school children is 50 percent (boys 44% and girls 57%) while for secondary school children is 42 percent (boys 35% and girls 49%). Age group 6.6 to 7 yrs has the highest rate of inactivity at almost 61 percent (boys 56% and girls 67%).

Discussion

This article provides an overview of the physical inactivity rates of Albanian children aged 6 to 15 years, based on the first objectively measured physical activity data collected for a representative sample. This study illustrates that 42.7% of children fell below the normal level of PA (inactivity). This finding corraborates with the World Health Organization (2004) which show that poor diet and physical inactivity will soon become the leading contributor to disability, disease, and premature mortality.

The most important finding is that inactivity percentage among children ages ten to 12 yrs felt slightly from 39 percent to 33 percent. This may be an early indication that efforts to get children off the couch and outside started to have an effect on their level of activity. While these advances are modest, they are moving in the right direction.

The percentage of children in elementary school (50%) aged 6.6-11 years old failed below the normal level of physical activity levels compare to fewer rates that were for secondary school children (42%). A possible explaantion is that physical education hours during elementary school are taught by general teacher compare to secondary school taught by proffesional PE teacher. Gordon- Larsen et al (2000) also found important association between participation in school physical education with activity patterns of children and adolesents in their study.

In children age 12 to 16 yrs, the percentage of inactivity increase from 33 percent to 53 percent. This evidence goes constant with other findings that indicate a grade related decline in physical activity trajectories of adolescents (Hobin et al., 2014). Another reason is that the decline in physical activity levels of young children appears to be increased and combined with a high prevalence of obesity in Europe (Wang and Lim, 2012; Lobstein et al., 2004).

Results from this study show that in every age group the percentage of inactive boys is lower compared to percentage of inactive girls. The findings of the current study are consistent with those of Lasheras et al., 2001 and Sallis et al 2000 who found that physical activity declines with age particular with girls at all ages substantially less active than boys.

Current understanding of the appropriate amount of physical activity required to obtain this data based on precise and direct measurement. The weakness of self-reported questionnaires in childnre is understood and is an important area of future research to focus more on subjective measurement of PA (ex. accelerometers).

Health problems in children that come as a result of the epidemic of obesity need to spread rapidly in the social environment where we live. The first step to be taken, especially in developing countries such as Albania is to create annual database for the identification of the problem of obesity in the population as well as further to create sustainable and continuously programs adapted to the culture and social environment. The problem of obesity should be a primary priority in the health care system implemented by the school and family intervention-based programs.

In conclusion, the high percentage of inactive children poses a threat for increased obesity in Albanian children. Another concern emphasized the inactivity due to the changes of their lifestyle and behavior.

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Table 1. *Percentage (%) of self-reported physical activity levels in Albanian children, by gender and age (elementary school)*

	Level PA/ Age	6.6- 7	7.1- 7.5	7.6- 8	8.1- 8.5	8.6- 9	9.1- 9.5	9.6- 10	10.1- 10.5	10.6- 11
Total	very low	**6.0**	**6.6**	**3.2**	**4.0**	**3.1**	**4.0**	**2.6**	**2.1**	**1.2**
	low	**54.8**	**50.6**	**51.6**	**45.0**	**49.3**	**47.6**	**42.4**	**40.9**	**37.9**
	normal	**36.2**	**41.0**	**41.8**	**47.3**	**43.8**	**44.3**	**50.2**	**51.9**	**52.5**
	high	**2.8**	**1.8**	**3.4**	**3.5**	**3.8**	**3.8**	**4.9**	**5.1**	**8.3**
	very high	**.2**			**.2**		**.2**			**.2**
Boys	very low	**4.5**	**4.7**	**1.2**	**3.7**	**2.3**	**3.9**	**2.1**	**2.4**	**.8**
	low	**51.2**	**47.6**	**48.8**	**35.9**	**41.6**	**37.4**	**34.1**	**37.7**	**33.9**
	normal	**41.1**	**45.1**	**47.6**	**55.3**	**50.5**	**53.1**	**57.6**	**54.5**	**55.5**
	high	**3.3**	**2.5**	**2.4**	**4.8**	**5.6**	**5.1**	**6.2**	**5.4**	**9.8**
	very high				**.4**		**.4**			
Girls	very low	**7.7**	**8.6**	**5.1**	**4.5**	**3.8**	**4.1**	**3.1**	**1.8**	**1.6**
	low	**58.8**	**53.6**	**54.2**	**55.1**	**56.4**	**56.5**	**50.7**	**44.4**	**41.9**
	normal	**30.8**	**36.7**	**36.5**	**38.5**	**37.7**	**36.6**	**42.7**	**49.1**	**49.4**
	high	**2.3**	**1.1**	**4.3**	**2.0**	**2.1**	**2.7**	**3.5**	**4.7**	**6.7**
	very high	**.5**								**.4**

Table 2. *Percentage (%) of **s**elf-reported physical activity levels in Albanian children, by gender and age (secondary school)*

	Level PA/ Age	11.1-11.5	11.6-12	12.1-12.5	12.6-13	13.1-13.5	13.6-14	14.1-14.6	14.6-15	15.1-15.5
Total	very low	**1.8**	**.8**	**.7**	**.7**	**2.9**	**1.0**	**1.7**	**2.0**	**3.0**
	low	**33.3**	**38.0**	**32.5**	**39.2**	**37.0**	**38.4**	**48.6**	**46.9**	**49.4**
	normal	**58.6**	**50.1**	**57.3**	**52.9**	**52.5**	**54.1**	**43.8**	**45.7**	**41.2**
	high	**6.1**	**10.9**	**9.3**	**7.2**	**7.6**	**6.5**	**5.8**	**5.5**	**6.4**
	very high	**.2**	**.2**	**.2**				**.2**		
Boys	very low	**2.6**	**.4**	**1.1**	**.4**	**2.4**	**.4**	**.9**	**2.1**	
	low	**31.6**	**36.7**	**26.0**	**34.7**	**32.1**	**32.9**	**36.7**	**34.8**	**40.4**
	normal	**57.6**	**49.6**	**62.8**	**52.9**	**54.1**	**57.5**	**52.7**	**53.6**	**48.2**
	high	**7.8**	**12.9**	**9.7**	**12.0**	**11.4**	**9.2**	**9.3**	**9.4**	**11.4**
	very high	**.4**	**.4**	**.4**				**.4**		
Girls	very low	**.9**	**1.2**	**.4**	**1.1**	**3.3**	**1.7**	**2.6**	**1.9**	**5.6**
	low	**35.2**	**39.5**	**39.4**	**43.3**	**42.1**	**43.9**	**62.6**	**57.6**	**57.1**
	normal	**59.6**	**50.6**	**51.4**	**52.8**	**50.8**	**50.6**	**33.2**	**38.5**	**35.2**
	high	**4.2**	**8.7**	**8.9**	**2.8**	**3.8**	**3.8**	**1.6**	**1.9**	**2.0**
	very high									

Table 3. *Percentage (%) of physical inactivity (PA very low+ PA low) in Albanian children, by gender and school level (elementary and secondary)*

		Elementary school (%)								
	All/ Age	6.6- 7	7.1- 7.5	7.6- 8	8.1- 8.5	8.6- 9	9.1- 9.5	9.6- 10	10.1- 10.5	10.6- 11
Total	**50.3**	**60.8**	**57.2**	**54.8**	**49.0**	**52.4**	**51.6**	**45.0**	**43.0**	**39.1**
Boys	**43.8**	**55.7**	**52.4**	**50.0**	**39.6**	**43.9**	**41.3**	**36.2**	**40.1**	**34.6**
Girls	**56.9**	**66.5**	**62.2**	**59.2**	**59.5**	**60.2**	**60.6**	**53.8**	**46.2**	**43.5**
		Secondary school (%)								
	All/ Age	11.1- 11.5	11.6- 12	12.1- 12.5	12.6- 13	13.1- 13.5	13.6- 14	14.1- 14.6	14.6- 15	15.1- 15.5
Total	**42**	**35.1**	**38.8**	**33.2**	**40.0**	**39.9**	**39.4**	**50.2**	**48.9**	**52.5**
Boys	**35.1**	**34.2**	**37.1**	**27.1**	**35.1**	**34.6**	**33.3**	**37.6**	**36.9**	**40.4**
Girls	**48.8**	**36.2**	**40.7**	**39.8**	**44.4**	**45.4**	**45.6**	**65.3**	**59.5**	**62.8**

THREATS OF NEW GENERATION ON PHYSICAL ACTIVITY LEVEL IN ALBANIAN CHILDREN

Introduction: The decline in physical activity levels of young children appears to be increased and combined with a high prevalence of obesity in Europe (Wang and Lim, 2012; Lobstein et al., 2004). With the ever-increasing interest in exploring the actual level of children's physical activity in Albania, a study was carried out aiming to obtain the actual level on physical activity. Methods: A cross-sectional study was conducted on 9003 children aged 7-year-old to 15-year-old (4513 boys and 4490 girls). The PAQ-C questionnaire was validated in Albanian language and used to assess the current level of PA. Results: The results showed that 42.7% of children fell below the normal level of PA (inactivity). Data split by gender showed a higher percentage of inactivity among girls (49.6%) compared to boys (36%). Finally, the results revealed a higher percentage of inactive children living in rural areas (49.2%) compared to children in urban areas (45.4%). Discussion: In conclusion, the high percentage of inactive children poses a threat for increased obesity in Albanian children. Another concern emphasized the inactivity in rural areas due to the changes of their lifestyle and behavior. References: Lobstein T, Baur L, Uauy R and Isoiot (2004). Obes Rev, 5 (Suppl 1), 4–104. Wang Y and Lim H (2012). Int Rev Psychiatry, 24(3), 176–88.

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EFEKTI RADA U PRIPREMNOM PERIODU NA BRZINU VOĐENJA LOPTE PETNAESTOGODIŠNJIH FUDBALERA

Uvod

Fudbal je sport koga karakterišu raznovrsne i brojne složene dinamičke kinezioloske aktivnosti u kojima pored cikličnih ima i acikličnih kretanja. Polazeći od situacija u igri, mora se konstatovati da realizacija napada ili odbrane zavisi od mogućnosti igrača da izvede određeno kretanje različitog intenziteta, u različitim pravcima i različitim dionicama igrališta, koje pored bazičnih motoričkih sposobnosti, zahtijevaju i specifične motoričke sposobnosti, između ostalih i vođenje lopte.

Brzini bez lopte i brzini sa loptom se pridaje veliki značaj u fudbalu. Do sada su u fudbalu prioriteti bili na razvoju tehničke sposobnosti, zatim snage, da bi danas stručni i naučni radnici isticali faktor brzine i povezivali ga sa uspjehom u fudbalskoj igri. Zaciorski (1975) pod brzinom, kao motoričkim svojstvom, podrazumijeva sposobnost čovjeka da izvrši pokrete za najkraće vrijeme u datim uslovima. Brzina fudbalera predstavlja kompleksnu sposobnost sastavljenu od različitih antropoloških sposobnosti kao što su: brzina opažanja, brzina predviđanja, brzina odlučivanja, brzina reakcije, ciklična i aciklična brzina, akciona brzina, brzina djelovanja. Kratki i brzi pokreti, brzo kretanje u svim smjerovima, sposobnost brzog startovanja i zaustavljanja, brzina reakcije, brzina djelovanja s loptom – sve su to znaci brze igre. Brzina kao motorička sposobnost je najvećim dijelom genetski determinisana. Koeficijent urođenosti prema nekim autorima iznosi čak 90-95%, što znači da se na brzinu može vrlo malo uticati. Brzina je u tijesnoj vezi sa snagom određenog dijela tijela koji izvodi pokret ili čitavog tijela koje učestvuje u pokretu. Zatim, učestalost ili frekvencija pokreta je u neposrednoj vezi sa stepenom izdržljivosti i spretnosti. Prema Taloviću (2001), a na osnovu dosadašnjih istraživanja, možemo definisati nekoliko faktora brzine. Prvi faktor je faktor brzine pokreta udova, drugi je faktor brzine sprinta, zatim treći je faktor promjene pravca ili faktor agilnosti i četvrti je faktor brzine izvođenja kompleksnih motoričkih zadataka ili faktor brzine koordinacije.

Problem ovog istraživanja moguće je posmatrati sa dva aspekta:

U primarnom smislu, problemska orijentacija istraživanja odnosila se na utvrđivanje efekata ponuđenog modela trenažnih stimulusa u okviru pripremnog perioda u trajanju od šest nedjelja i njihovog uticaja na kvantitativne promjene brzine vođenja lopte fudbalera kadetskog uzrasta.

U sekundarnom smislu, problem istraživanja je predstavljao i sagledavanje nivoa brzine vođenja lopte fudbalera kadetskog uzrasta prije i poslije pripremnog perioda.

Predmet ovog istraživanja je bila brzina vođenja lopte fudbalera kadeta, kao i njena varijabilnost izazvana ponuđenim modelom treninga u pripremnom periodu.

Osnovni cilj ovog istraživanja je bio da se utvrdi nivo kvantitativnih promjena brzine vođenja lopte kod fudbalera kadetskog uzrasta, pod uticajem programiranog fudbalskog treninga koji je obuhvatio jedan pripremni period u trajanju od šest nedjelja, odnosno, da li je pod uticajem programiranog fudbalskog trenažnog procesa došlo do značajnih kvantitativnih promjena brzine vođenja lopte kod ove uzrasne kategorije fudbalera.

Metode

Prema vremenskoj usmjerenosti ovo je bilo longitudinalno istraživanje sa ciljem da se u vremenski različite dvije tačke utvrde kvantitativne promjene brzine vođenja lopte kod fudbalera kadetskog uzrasta (15–godišnjaka ± 6 mjeseci) pod uticajem programiranog trenažnog rada, koji je obuhvatio ljetnji pripremni period za takmičarsku sezonu u jedinstvenoj kadetskoj ligi Crne Gore i kadetskoj ligi srednje regije Crne Gore. Trenažni program je trajao 42 dana i sproveden je na pomoćnom terenu FK Sutjeska u Nikšiću. Trenažni program je obuhvatio 44 trenažne jedinice, u sklopu kojih je odigrano i 8 prijateljskih utakmica.

Za obradu podataka su uzeti samo rezultati onih ispitanika koji su prošli kompletan program rada i koji su pristupili inicijalnom i finalnom mjerenju.

U ovom istraživanju je obuhvaćen uzorak od 120 mladih fudbalera kadetskog uzrasta (15–godišnjaka ± 6 mjeseci), članova FK Sutjeska, FK Čelik, FK Polet Stars i OFK Nikšić, svih iz Nikšića. Svi ispitanici su prije programiranog rada uredno prošli sistematske preglede da bi sa sigurnošću mogli pristupiti trenažnom procesu.

Prilikom izbora mjernih instrumenata (testova) vodilo se računa da oni zadovoljavaju osnovne metrijske karakteristike, da su prikladni uzrastu i objektivnim materijalnim i prostornim uslovima. Za procjenu brzine vođenja lopte upotrijebljeni su slijedeći testovi:

1. Brzina vođenja lopte na 20m sa startom iz mjesta (SMBV20)
2. Brzina vođenja lopte na 60m sa startom iz mjesta (SMBV60)
3. Brzina vođenja lopte sa promjenom pravca pod pravim uglom (SMBVPP)

Koristeći dugogodišnja lična iskustva u radu sa svim uzrasnim kategorijama fudbalera, poznavajući metode rada koje se odnose na obučavanje i usavršavanje elemenata fudbalske igre, zatim na razvoj motoričkih sposobnosti, autori ovog rada su odlučili da najveći dio programa čini situacioni trening.

Po *Michelsu (2001)*, situacioni trening zasnovan je na modernoj viziji fudbalskog treninga mlađih uzrasta koju propagira UEFA, odnosno usvajanja elemenata fudbalske igre kroz igru.

Vremenska struktura treninga je iznosila od 60 do 120 minuta, zavisno od cilja i zadataka trenažne jedinice i podijeljena je u 3 faze:

- Uvodno-pripremni dio (od 25–30% trajanja treninga)
- Osnovni dio (od 60–65% trajanja treninga)
- Završni dio (do 10% trajanja treninga)

U uvodno-pripremnom dijelu treninga akcenat je bio na podizanju radne temperature kod djece. Kao sredstvo korišćene su razne elementarne igrice sa loptom koje su omogućile rad na elementarnoj tehnici i osnovama taktike, zatim korišćeni su i razni poligoni sa vježbama koordinacije. Razne igre i vježbe za povećanje pokretljivosti zglobova i jačanja muskulature takođe su primjenjivane u ovoj fazi.

U prvoj fazi osnovnog dijela treninga intenzitet se nešto povećavao u odnosu na fazu zagrijavanja i trenažni program je realizovan kroz razne igre sa loptom (3:0 u ograničenom prostoru; 3:1 u ograničenom prostoru; 4:2 u ograničenom prostoru; 5:2 u ograničenom prostoru; 6:2 u ograničenom prostoru; igre sa tri boje; 1:1 sa završnicom na gol; 2:1 sa završnicom na gol, 2:2 sa završnicom na gol, razne elementarne igrice sa pomoćnim igračima i džokerima u ograničenim prostorima ili sa završnicom na gol; i druge). Metodom igre ispitanici su učili, uvježbavali i usavršavali fudbalske vještine kroz veliki broj ponavljanja.

U drugoj fazi osnovnog dijela treninga igrači su imali uglavnom slobodnu igru na dva gola koja im je omogućila kreativno djelovanje i isticanje pojedinca, maštu, slobodno mišljenje i zalaganje, primjenjivanje elemenata koje uče metodom igre u prvoj fazi osnovnog dijela, a samim tim jačanje voljnih kvaliteta. U ovoj fazi treninga intenzitet je bio najveći.

U završnom dijelu treninga zadatak je bio spuštanje fiziološke krive na optimalan nivo, a korišćeni su sadržaji niskog intenziteta: vježbe istezanja i relaksacije, takmičarske igre izvođenja penala, slobodnih udaraca.

Podaci dobijeni istraživanjem obrađeni su postupcima deskriptivne i komparativne statistike.

U segmentu deskriptivne statistike, za svaku varijablu i u inicijalnom i u finalnom stanju obrađeni su centralni i disperzioni parametri kao i mjere asimetrije i spljoštenosti. Hipoteza o normalnoj distribuciji rezultata testirana je na osnovu Kolmogorov i Smirnov testa.

U segmentu komparativne statistike, za utvrđivanje razlika primijenjenih varijabli za procjenu brzine vođenja lopte na početku (inicijalno stanje) i kraju (finalno stanje) trenažnog programa u pripremnom periodu, korišćena je diskriminativna parametrijska procedura Studentov t-test za velike zavisne uzorke.

Rezultati

U tabelama 1. i 2. prikazani su osnovni deskriptivni statistički parametri varijabli za procjenu brzine vođenja lopte u inicijalnom i finalnom mjerenju, gdje su izračunate vrijednosti mjera centralne i disperzione tendencije i to: aritmetička sredina (Mean), standardna devijacija (Std. Dev.), standardna greška aritmetičke sredine (Std. Error), koeficijent varijacije (CV%), minimalne (Minimum) i maksimalne (Maximum)

vrijednosti, raspon rezultata (Range), koeficijenti zakrivljenosti (Skewness) i izduženosti (Kurtosis), kao i vrijednosti Kolmogorov i Smirnov testa (K-S test).

Prvo će biti analizirani centralni i disperzioni parametri varijabli za procjenu brzine vođenja lopte u inicijalnom stanju (tabela 1.)

Tabela 1. *Centralni i disperzioni parametri varijabli za procjenu brzine vođenja lopte u inicijalnom stanju*

R.br.	Varijable	Mean	Std. Dev.	Std. Error	CV%	Mini-mum	Maxi-mum	Range	Skew-ness	Kurto-sis	K-S test
1.	SMBV20I	3,99	0,31	0,03	7,69	3,40	4,75	1,35	0,43	0,06	0,43
2.	SMBV60I	10,35	0,58	0,05	5,64	9,28	11,52	2,24	0,28	-0,72	0,13
3.	SMBVPPI	11,00	0,82	0,07	7,46	9,69	13,35	3,66	0,39	-0,34	0,26

Analizirajući centralne i disperzione parametre varijabli za procjenu ***brzine vođenja lopte*** u inicijalnom stanju – vidi se da su standardne devijacije male, da su rasponi rezultata mali, što govori o izuzetnoj homogenosti rezultata u ovim testovima, a to dokazuju i vrijednosti koeficijenata varijacije, znači igrači su vrlo slični po ovoj situaciono–motoričkoj sposobnosti. Vrijednosti Kolmogorov i Smirnov testa nam pokazuju da su rezultati normalno distribuirani, a vrijednosti skewnessa i kurtosisa pokazuju da zakrivljenost i izduženost podataka statistički značajno ne odstupa od normalnog rasporeda.

Centralni i disperzioni parametri varijabli za procjenu brzine vođenja lopte u finalnom mjerenju pokazali su slijedeće vrijednosti (tabela 2.)

Tabela 2. *Centralni i disperzioni parametri varijabli za procjenu brzine vođenja lopte u finalnom stanju*

R.Br.	Varijable	Mean	Std. Dev.	Std. Error	CV%	Mini-mum	Maxi-mum	Range	Skew-ness	Kurto-sis	K-S test
1.	SMBV20F	3,74	0,29	0,03	7,84	3,11	4,47	1,36	0,19	-0,23	0,83
2.	SMBV60F	10,03	0,58	0,05	5,74	9	11,12	2,12	0,28	-0,81	0,40
3.	SMBVPPF	10,57	0,80	0,07	7,59	9,41	12,88	3,47	0,46	-0,37	0,35

Pogledom na tabelu 2., gdje su predstavljeni centralni i disperzioni parametri varijabli za procjenu brzine vođenja lopte u finalnom stanju, dakle posle trenažnog programa u pripremnom periodu, uočljivo je da su rezultati u svakoj od 3 varijable bolji u odnosu na inicijalno stanje. Ovdje će biti opisani samo centralni i disperzioni statistički parametri varijabli za procjenu brzine vođenja lopte u finalnom mjerenju, jer deskriptivna statistika ne daje odgovore na pitanja da li su te razlike u dva mjerenja statistički značajne, te odgovore će dati komparativna statistika.

Analizirajući centralne i disperzione parametre varijabli za procjenu ***brzine vođenja lopte*** u finalnom stanju – primijetno je po vrijednosti aritmetičkih sredina, smanjenje vremena potrebnog za obavljanje testova, znači prosječno bolji rezultati u odnosu na inicijalno mjerenje. Rezultati u sve tri varijable su normalno distribuirani, svi pripadaju izuzetno homogenim skupovima i svi su nagnuti u stranu boljih rezultata, što i ne čudi, jer u svakoj trenažnoj jedinici programa se vodilo računa o poboljšanju ove situaciono–motoričke sposobnosti.

Za utvrđivanje statističke značajnosti (signifikantnosti) razlika aritmetičkih sredina (parcijalne kvantitativne promjene) varijabli za procjenu brzine vođenja lopte, primijenjen je **t-test** za velike zavisne uzorke.

Vrijednosti t-testa su bile na nivou značajnosti ili signifikantnosti (Sig.) od 0.01 ($p \leq .01$) u svim varijablama za procjenu brzine vođenja lopte.

Razlike artimetičkih sredina inicijalnog i finalnog mjerenja varijabli za procjenu brzine vođenja lopte, prikazane su u tabeli 3.

Tabela 3. *Vrijednosti t-testa izmedju aritmetičkih sredina inicijalnog i finalnog mjerenja varijabli za procjenu brzine vođenja lopte*

	Varijable	Mean	Std. Deviation	Std. Error	Correlation	T-test	Sig.
Par 1	SMBV20I	3,99	0,31	0,03	0,98	40,77	0,00
	SMBV20F	3,74	0,29	0,03			
Par 2	SMBV60I	10,35	0,58	0,05	0,99	51,42	0,00
	SMBV60F	10,03	0,58	0,05			
Par 3	SMBVPPI	11,00	0,82	0,07	0,99	40,91	0,00
	SMBVPPF	10,57	0,80	0,07			

Na osnovu dobijenih rezultata može se primijetiti da postoje statistički značajne razlike kod svih varijabli za procjenu brzine vođenja lopte, te se stoga može reći da je došlo do pozitivnih statistički značajnih parcijalnih efekata trenažnog programa u pripremnom periodu, a vrijednosti t-testa bile su značajne na nivou pouzdanosti $p<.01$ kod svih varijabli za procjenu brzine vođenja lopte.

Diskusija

Na osnovu uvida u dobijene parametre može se zaključiti da su statistički značajni parcijalni kvantitativni efekti (promjene) kod svih varijabli za procjenu brzine vođenja lopte dobijeni kao rezultat primijenjenog trenažnog programa u pripremnom periodu.

Statistički značajna poboljšanja koja su se dogodila kod ovih varijabli mogu se objasniti mnogo boljom kontrolom lopte od strane fudbalera u sprintu, jer situacioni metod rada koji je primijenjen u ovom trenažnom programu obiluje vježbama u kojima dominiraju brza vođenja lopte, i pravolinijska i sa promjenama pravca.

Na osnovu rezultata t-testa za velike zavisne uzorke, kod varijabli za procjenu brzine vođenja lopte utvrđene su statistički značajne razlike u svim parovima varijabli

između inicijalnog i finalnog stanja, na nivou statističke značajnosti (signifikantnosti) p<.01. Može se zaključiti da je trenažni program rada u pripremnom periodu doveo do pozitivnih transformacija kod svih varijabli koje su procjenjivale, po strukturi hipotetski postavljenog modela, brzinu vođenja lopte.

U ovom istraživačkom radu autori su se rukovodili činjenicom da je ovakav trenažni program rada u pripremnom periodu, gdje uglavnom dominira situacioni model treninga, veoma efikasan način rada u pogledu podizanja nivoa brzine vođenja lopte fudbalera kadeta. Autori zaključuju da je ljetnji period od 42 dana kod fudbalera kadeta, sa ovakvim trenažnim programom rada, optimalan za podizanje brzine vođenja lopte na nivo potreban za takmičenje. Dobijeni rezultati se mogu usmjeriti u pravcu inoviranja planova i programa rada u pripremnom periodu, te prilagođavanju istih potrebama dotične populacije.

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THE EFFECTS OF THE TRAINING IN THE PREPARATION PERIOD ON THE DRIBBLING SPEED WITH FIFTEEN YEARS OLD FOOTBALL PLAYERS.

Introduction: The main aim of the research was to identify a level of quantitative changes of the dribbling speed with fifteen years old football players under the influence of the programmed football training of a six weeks preparation period. Methods: According to the time orientation this was a longitudinal study with the aim to define in a two timely different points a quantitative changes of the dribbling speed under the influence of the programmed football training with fifteen years old football players under the influence of the programmed training process, which involved a

summer preparation period and lasted forty-two days. The training programme covered forty-four training units. The research was made on a sample of 120 fifteen years old football players of cadet rank. For the assessment of ball handling the three tests were used: horizontal ball rebounding from a wall 20s, dribbling speed of the ball in slalom and juggling alternating with both feet in a square space of 1x1m. In the area of comparative statistics, we used discriminant parametric procedure t-test for big paired samples. Results: Based on the numerical values of the t-test it can be concluded that there are no statistically significant differences in all three variables to estimate the dribbling speed. This confirmed the hypothesis that the expected significant positive quantitative changes of situational-motor abilities influenced by the proposed model of training in preparation period with fifteen years old football players. Discussion: In this research the authors were guided by the fact that this kind of training program in preparation period, where dominates the situational model training is very effective in terms of raising the dribbling speed with fifteen years old, because the model that is used in this training period abounds in exercises in which dominates dribbling speed, in stright line and with changes in direction. The obtained results can be directed towards innovation plans and programs in the preparation period, and the adaptation of the same needs of the respective population. References: Bajramovic I, Talovic M, Alic H, Jeleskovic E (2008). Sport Mont, 15, 16, 17./VI, 104–9. Bjelica D (2003). The effect of football training on biomotor status of cadets in Montenegro, Ph.D. Thesis, Faculty of Sports and Physical Education of University of Belgrade. Bjelica D (2004). Sport Mont, 4/II, 58-71. Bjelica D (2005). Sport Mont, 8-9, 26-41. Michels R (2001). Teamcoaching: Der Weg zum erfolg durch Teambuilding, Bpf Versand-onli Verlag.

„Blic“, 3. april 2014.

Naučna konferencija „Sportska dostignuća“

PODGORICA - Medunarodna naučna konferencija o transformacionim procesima u sportu "Sportska dostignuća" i 10. Kongresu Crnogorske sportske akademije počinju sjutra u zgradi Rektorata Univerziteta Crne Gore. Pored dvije oratorske paralelne sesije, na programu su, prvi put i dvije paralelne poster sesije gdje će autori putem poster prezentacija izlagati svoja naučna dostignuća.

Na ovogodišnjoj konferenciji učestvuje 63 naučnika koji će izlagati svoje radove, a autora i koautora ima ukupno 138. Ovogodišnju Konferenciju krasi šarolika nacionalna struktura autora koji stižu sa svih strana svijeta. To su naučnici iz Albanije (3 autora), Bugarske (3), Kameruna (2), Hrvatske (1), Češke republike (5), Finske (1), Francuske (1), Japana (1), Kosova (10), Makedonije (2), Portugala (1), Srbije (5), Španije (1), Tajvana (3), Tajlanda (2), Turske (5), Velike Britanije (1), i iz Crne Gore (16). Predsjednik pripremačkog odbora X Kongresa CSA prof. dr Duško Bjelica kaže da je iz štampe već izašao zbornik svih radova koji će biti prezentirani, kao i da će se neki od njih naći u renomiranom crnogorskom časopisu „Sport Mont“. **M.J.** ■



UČESTVOVAĆE 63 NAUČNIKA. Rektorat

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PERCEPTION OF BOSNIA AND HERZEGOVINA'S QUALIFICATION TO FIFA WORLD CUP 2014 BY DIFFERENT ETHNIC GROUPS

Introduction

Any given cultural fact should be examined through the holistic context of the dynamics in which it appears. In this sense, the culture of football like many aspects of the culture should be examined within a general context of "culture". Within this context development of football in Bosnia and Herzegovina (BiH) should be dealt considering three different periods, namely: Pre-Socialist Yugoslavia, Socialist Yugoslavia and independent BiH (post-Yugoslav Bosnia).

From 1878 to 1918, BiH was annexed to Austria-Hungary and despite the Habsburg rule did not last longer than 40 years, not only the economical and political, but also the social and cultural impacts were beyond expectations. Among other spheres, football was respectively brought to BiH by Austrians. The beginning of 20th Century had the first signs of establishment of football clubs in Bosnia. Among them Zrinjski was established in Mostar in 1905 as a Croat team and FK Slavija was established in Sarajevo by Bosnian Serbs in 1908. However, the political turmoil in Balkans, followed by Balkan Wars and First World War, halted development of football like many other aspects of social and cultural life.

Despite the Habsburg Empire was dispersed after the First World War, the social and cultural impacts of Austria continued to be influential in the newly established Kingdom of Serbs-Croats and Slovenes (later on changed to "Yugoslavia" in 1929). In fact, the Ecole Danube, or as also recognized as Viennese School had the golden era during the interwar period. The competitive Viennese system was recognized with highly technical skills of players which soon began to be the rival of English W-M system. (Lafranchi, 271) The impact of Ecole Danube was so much mighty that Mitropa tournament, organized by Czechoslovakian, Hungarian, Austrian and Yugoslav football teams was getting more and more prestigious and popular in European football. (Lafranchi, 271) Unsurprisingly, Romania and Yugoslavia (both implying Viennese system) were the ones to represent Europe with Belgium and France in the first World Cup organized in Uruguay in 1930, under the name of Jules Rimmet Cup.

Most of the football clubs which were established in Austria at the end of the 19th Century and the beginning of the 20th Century were formed by working class. (Horak, 310) Similarly, the football teams blossomed all over Yugoslavia were mostly established by workers in general, and in BiH respectively. The names of the clubs which were established in that era gives the hints about the general characteristics of the teams: Radnički (Workers) Lukavac (1921), Rudar (Miner) Ugljevik (1925), Proleter Teslić (1926), Rudar Prijedor (1928), Rudar Kakanj (1928) are the recognized football clubs which are still active in Bosnian football. Even if the name of the clubs did

not have any denominator signifying the working class background of the teams, some clubs like Sloboda Tuzla which were established in 1919 by workers in Tuzla, did have working class dynamics as well.

Unsurprisingly, football was halted during the Second World War, and the newly emerging state socialism in Yugoslavia had also direct impacts on Bosnian football. The rapid impact was the prohibition of those football teams like Zrinjski and Slavija who were accused of collaborating with Nazis, or Croatian or Serbian nationalists, namely Ustašas and Četniks against Partisans. The new regime leaded establishment of new football clubs in all over Yugoslavia. For example, Drina Zvornik, Kozara Gradačac, Sutjeska Foča were established in 1945 honoring the legendary battlefields of partisan warfare against Nazis. The newly emerging regime was also supporting establishment of new football clubs which were connected with working class, or newly emerging urban elites which had political connections with the Communists League of Yugoslavia. For example, in 1946, FK Sarajevo was established by the local branch of Yugoslav Communists League in Sarajevo.

Duke and Crolley mention that among the main ingredients of such a society was a system of central planning of all aspects of economy, which included sports as well. (Duke and Crolley, 85) A strong institutional structure behind sportive activities in socialist countries was a key for the international sportive success. In football, implementation of socialism was not only practiced in the sportive activities, but also into the tactics of the teams. The highly competitive Yugoslav football, following Ecole Danube was furbished with the collectivist ideological impact of game tactics. Yugoslav football was not only recognized by technically superb players, but also with their stamina and physical strength, but especially with their speed. (Wilson, 101) As a consequence, Yugoslav football unsurprisingly became one of the outshining football schools not only in Europe, but also in global scale. By 1970's and 80's, Yugoslav football players and trainers were recognized in Europe's leading national leagues. Wilson argues that; "There was a time when Yugoslavia was the Brazil of Europe. (Wilson, 98) It also has to be noted that, Yugoslav football and Yugoslav national football team respectively was seen as a tool for the integration of Yugoslavia. (Foer, 12)

Paradoxically, Yugoslav football was at its peak just before the breakup of Yugoslavia when Red Star managed to claim for the UEFA Cup in 1991. It has to be noted that Red Star had players from all of the Yugoslav republics. However, on the other side, football acted as one of the main determinants of dissolution as well. It is widely argued that the match between Red Star and Dinamo Zagreb on May 13th, 1990 in Maksimir Stadium in Zagreb can be recognized as the beginning of the civil war in Yugoslavia. (Giulianotti, 13) As expressed by Vrcan and Lalić; "The 'tribal' activity of football following, particularly 'hooligan' actions, was transferred from the ends to the trenches." (Vrcan and Lalić, 176) The symbolism of fan aggression was easily transferred, first into aggressive political symbolism, then into military symbolism. During Yugoslav Wars, it was very common that the fan groups in all over Yugoslavia, which were mainly established in 1980's, became basic sources of recruitment for

paramilitary units infamous by their bloody actions. Without any doubt, politicians were involved in transferring hooliganism to the bloodshed. (Vrcan and Lalić, 182)

1990's in all over East Europe was emphasized with socio-economical crisis, where in Yugoslavia it was doubled as a result of ethnic warfare. The ex-Yugoslav countries still lack in having "quality" leagues. On the other side they can keep up relative success of national football teams relying on players who are living in Diaspora. Among all ex-Yugoslav countries, BiH, suffering from one of the bloodiest warfare since The Second World War, did also suffered in re-organizing the football, not only in terms of football league, but also the national football team. The main obstacle behind this was (and still is) the ethnic tension in the country. It has to be mentioned that, Dayton Peace Agreement which was signed in December 1995, resulted in confirmation of a politically and socially fragmented country which divided BiH into two entities and 10 cantons, defined due to geographical distribution of ethnic communities, which also made it difficult to organize a football league and a national football team that could include representatives from each ethnic groups. A common league could only be established in 2000 by involvement of Bosnian Muslim and Bosnian Croat teams, where Bosnian Serb teams were involved in 2002, which used to play previously in the league of Serbia.

Despite the institutional problems that BiH had faced, since they could have been represented in international competitions, BiH national football team has had relative successes. The new millennium brought brighter successes for the BiH national football team. Although BiH national football team missed the chances to attend any World Cup or Euro Cups until 2014, their performance in the qualification group matches were appreciated by football authorities. Finally, they succeeded to be the leader of the qualification group to attend to the World Cup 2014 in Brazil.

In fact, it would not be wrong to argue that football on international level had been one of the few occasions which made the nation to be proud of. Most of the politicians have appreciated the success of BiH national football team, since it was expected that this would help the three ethnic groups to be united under the flag of BiH for the first time. However, apparently it did not happen to be so. It is known that support for the BiH national football team among Bosnian Serbs and Bosnian Croats is marginal. The research, presented in this paper aimed to understand the reasons behind this fact.

Methods

The research relies on two basic sources of information. Firstly, an ethnographic study was conducted in Bosnia in 2007/2008 as a part of PhD dissertation titled *Football Fandom as a Factor Behind Formation of Cultural Differences: A Case Study on FK Sarajevo and FK Željezničar Football Fans* and the writer of this article pursues Bosnian football since then, since he settled down in Sarajevo by December 2009 and have been living there. Secondly, deep interviews with leading football fan groups of different clubs with different ethnic backgrounds, journalists and academics were also conducted prior to "11th International Scientific Conference on Sport Performance".

Results

Unsurprisingly, it has been found out that both Bosnian Serbs and Bosnian Croats do not have support or even a sort of sympathy for the BiH National Football Team, since they do not have a feeling of belonging for it. One of the main finding outs of the previous research in 2007 was that, the Bosnian nationalism had a more inclusionist character. (Özkan, 2009; 102) Bosnian nationalism simply is not built on the existence of an *ethos,* but more established on a territorial unity. In this sense, the ontological existence of the "nation" of BiH itself does not have any implications regarding *ethos*. However, on the other side, BiH nationalism, and even the "nation of BiH" is always regarded as Bosnian Muslims or Bosniak, since the Bosnian Muslim community have been the political authority and since they have been holding the demographical superiority in the country. On the other side, Catholic, namely Bosnian Croat, and Orthodox, namely Bosnian Serb communities have their own separated political, cultural and economical centers that are Zagreb for Bosnian Croats and Belgrade for Bosnian Serbs.

A short analysis on the logos of the clubs in BiH will give some clue about the nature of national inclusion and exclusion in BiH. Looking at the logos of football clubs in BiH, one can easily find out the predominant ethnic background of the team: Simply, if the letters on the logo are written in Cyrillic script, it is a football team from Bosnian Serb territory. A logo decorated with red-white squares is a sole gauge signifying the Croatian identity. However, on the other side, it is hard to find any symbolic sign in the logos of the clubs which are pre-dominantly Bosnian Muslim. Indeed, it is not difficult to recognize them. One can simply differentiate a predominantly Bosnian Muslim team, if the logo neither has Cyrillic scripted letters, nor it is decorated with red-white squares. Similarly, not only the club logos but also the discourse of the clubs' management and the fans' also imply the unessentialist claim of identity construction, while majority of the fans of Bosnian Muslim teams would identify their team's identity with the location, or with other cultural and sometimes political determiners. While on the other side, Bosnian Croat and Bosnian Serb counterparts have highly noticeable symbolic and verbal discursive action exerting the essentialist components of the process of identity construction. The issue of representation of Bosnian Croats and Bosnian Serbs in the BiH national football team should be dealt within this contextual comparison between the inclusionist and exclusionist identity paradigms.

Discussion

Most of the Bosnian Croat or Bosnian Serb football fans, or football professionals, or even those who are not actively taking part in football as fans or as professionals would claim that BiH national football team does not represent Bosnian Croats and Bosnian Serbs, which does not sound unrealistic when looking at the players who played in World Cup 2014 qualification group groups.

Although the management of the team seems evenly distributed as a result of political consensus, more than a sportive success based decision, where the manager Safet Susić is a Bosnian Muslim, and his assistant is Borče Sredojević, a Bosnian Serb and the goalkeeper trainer Tomislav Piplica, a Bosnian Croat, a similar scene cannot be

claimed for the players of the team. Tino Sunjić who has Bosnian Croat origins, but also nephew of the manager Safet Susić, Ognjen Vranješ and Zvijezdan Misimović who have origins from Republika Srpska (from the Serbian entity) are the regular members of the squad who does not have Bosnian Muslim origin. Moreover, Miroslav Stevanović of Bosnian Serb origin, and Ivan Sesar or Bosnian Croat origin are the irregular players in national team who do not have Muslim background.

In this sense, the argument that "there is no place for Bosnian Serbs and Bosnian Croats in the national team" seems to be correct if we do not go deeper in the reality behind the scene. A glance over the squad of the Croatian national team would give us some clues in understanding the issue. Among the regular members of the Croatian squad, five of them are born in BİH: Nikica Jelavić (born in Čapljina, plays for Hull City), Mateo Kovačić (born in Kotor Varoš, plays for Inter Milan), Ivan Rakitić (born in Žepče, plays for Sevilla), Dejan Lovren (born in Zenica, plays for Southampton) and Vedran Čorluka (born in Derventa, plays for Lokomotiv Moscow). It has to be noted that Croatian national football team outshines among other ex-Yugoslav countries with the success in international competitions, which have been a basic motivation for Bosnian Croat football players to decide playing for Croatia since every single Bosnian Croat has right to hold Croatian citizenship. In this context, preferring to play for a more successful Croatian national team than playing in a relatively weak Bosnian national team can be identified as the basic motivation for Bosnian Croat football stars to decide to play for Croatia.

On the other side, the strong relationship between Bosnian Croat authorities and Croatia are well known. As mentioned above, every single Bosnian Croat holds Croatian citizenship as well as Bosnian citizenship, a policy which is implemented by right wing, conservatist and nationalist governments of Croatia. In fact, this have always been an issue of debate between Croatian right wing and left wing politicians, where Bosnian Croats have got the right to vote for Croat parliament and unsurprisingly they mostly vote in favor of right wing HDZ (Hrvatska Demokratska Zajednica – Croatian Democratic Union). Moreover, as expressed by a club professional of Široki Brijeg, one of the leading Bosnian Croat teams, the Bosnian Croats identify themselves as citizens of BiH, but member of "Hrvatski Narod", which literally means Croatian people/nation. In this sense, it is a question, if Bosnian Croats themselves construct a type of exclusionist national identity, which results isolation of themselves from social and political institutions of BiH, including the Bosnian national football team.

A similar perspective while looking at the national squad of Serbia will not show similar tendencies. The only Bosnian originated Serbian player who plays for Serbian national football team is Neven Subotić, who was born in Banja Luka / Republika Srpska. Contrary to Croatia, Serbia under Milosević rule was a semi-isolated country which had its impacts on football as well. Football in Serbia was not only isolated from the world, but also it was under heavy political influence and under dominance of mafiatic groups. (Foer, 10) It was known that neither Milosević, nor Radovan Karadzić were fond of football, but they were benefitting from it by using the fan management of the clubs as a tool for political pressure, and using fan clubs like recruitment

agencies for paramilitary groups. Within this context, football in Serbia had passed through an era of relative decline. Under those conditions, despite the football players from Republika Srpska were playing in Serbian League, neither had they had the opportunity to improve their capabilities, nor display their talents.

In the meantime, for the children of Bosnian refugees in West European countries, football was one of the main tools for social upward mobility. Their parents, who had passed through Yugoslav education system and had an influential perception of sports education, backed their children's taking part in local football clubs in Western Europe. Unsurprisingly, almost all of the football players in Bosnian national team are comprised of those from Diaspora, where most of them are children of refugees who seeked asylum from the BiH. As a result of atrocity and ethnic cleansening directed towards Bosnian Muslim population, most of the refugees were Bosnian Muslims, where relatively smaller in size, Bosnian Serbs and Bosnian Croats seeked asylum either in Croatia, or in Serbia, which can be defined as the basic reason behind the fact that the skeleton of the Bosnian national football is comprised of Bosnian Muslims. For those who were forced to leave their homeland torn by a bloody warfare, who had social and cultural, as well as economical problems as children of refugees, being part of the national football team of BiH had been an excellent symbolic mean for showing and feeling belongingness and constructing a national identity. In that sense, apart from a few exceptions like Zlatan Ibrahimović, most of the Bosnians in Diaspora have preferred to play in Bosnian team, rather than playing in the national teams of the countries where they were grown up. A similar loyalty can even be seen among the fans of national football team of BiH. The fan groups such as BH Fanaticos, Belaj Boys, BH Legion, or Armija Zmajeva are established in Diaspora and almost all of their members are not living in Bosnia. During an interview, a Bosnian journalist Boro Kontić expresses that being a member of BH Fanaticos is an indicator for identity, a mean to bind Bosnian youngsters in Diaspora to their homeland. (Özkan, 2007; 111) On the other hand, such an excitement for the national team is not visible among football fans who reside in BiH.

Keeping football fans from Zenica out, where Bosnian national football team plays most of the home matches there and recognized by fierce fan support, research conducted in 2007 shows that especially football fans of FK Sarajevo and Željezničar, leading football clubs from Sarajevo which are predominantly Bosnian Muslim, consider themselves more attached to their clubs when compared with the national football team of BiH. (Özkan, 2009; 185) Lidija Jularić, an anthropologist recognized by her ethnographic research on coffeehouses in Sarajevo mentions about the "collective ego of Sarajevo", which establishes the exclusionist discourse with the term "papak" (rural). In that sense, it can be asserted that if exclusion exists in BiH, such exclusion is not directed only towards Bosnian Serbs and Bosnian Croats, but also to Bosnian Muslims as well.

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PERCEPTION OF BOSNIA AND HERZEGOVINA'S QUALIFICATION TO FIFA WORLD CUP 2014 BY DIFFERENT ETHNIC GROUPS

Introduction: Generally, in Balkans, particularly in Bosnia and Herzegovina, football fandom is very much associated with the fact of ethnic tension. Football is often used as a metaphor for warfare, while in turn, during the Yugoslav Wars, ironically football terminology was used to metaphorise the significance of ethnic slaughtering. In fact, it is very commonly uttered that the starting flame of the Yugoslav Wars was sparkled in Zagreb Maksimir Stadium in May 13, 1990 after a match between Red Star Belgrade and Dinamo Zagreb. During the Yugoslav Wars, fan groups acted as recruitment agencies for organizing paramilitary groups who were convicted for organizing war crimes. This was the case in Bosnia as well. Although almost two decades have passed since the war in Bosnia, the effects of ethnic nationalism in football fandom is still inevitable. Recently, national football team of

Bosnia succeeded to participate in the 2014 World Cup, which will be organized in Brazil, causing euphoria in the country. However, it is a controversial issue whether if all the ethnic groups, namely Bosnian Croats and Bosnian Serbs respectively did attend the celebrations. In other words, it is a question mark if they perceive Bosnian National Football as their "national" team. In this sense, this paper aims to discuss the perception of this success by different ethnic groups relying on interviews with different fan groups in the country. Methods: The presentation will rely on two basic resources: [1] An ethnographic study which was conducted in Bosnia in 2007/2008 as a part of PhD dissertation titled Football Fandom as a Factor Behind Formation of Cultural Differences: A Case Study on FK Sarajevo and FK Zeljeznicar Football Fans and ongoing observations of the presenter on Bosnian football since then. [2] Deep interviews with leading football fan groups of different clubs with different ethnic backgrounds like Velež Mostar, Čelik Zenica, Sloboda Tuzla (predominantly Bosnian Muslim), Zrinjski, Široki Brijeg (predominantly Bosnian Croat), Borac Banja Luka, FK Slavija (predominantly Bosnian Serb) which will be organized due to the start of the second half of the Premier League of Bosnia and Herzegovina by March 2014. Results: The results of the interviews will be analyzed at the end of the interviews. On the other side, it has been observed that Bosnian Serbs' and Bosnian Croats' perception of national team of BIH differs from Bosnian Muslims'. The paper will discuss this perceptional difference due to different dynamics of identity construction. Discussion: The discussion will discuss the inclusionist and exclusionist cultural dynamics and their effect on the process of identity formation. The concept of identity deriving from the Latin origin idem, which means „sameness" does not in fact only refer to absolute sameness, but also to differentiation. In this sense, it is not enough only to construct identity through similarities, but also it is important to construct differences as well. Constructing, or defining differences is not only important on how we define the others, but also how others define us. References: Duke V, Crolley L (1996) Football, Nationality and the State, 83-100. Giulianotti R (2003) Football: A Sociology of the Global Game, 1-39. Jenkins, R. (1996) Social Identity. Kuper S (2003). Futbol Asla Sadece Futbol Değildir (Football Against Enemey), 7-74. Wilson J (2006). Behind the Curtain: Travels in Eastern European Football, 98-183. Vrcan S, Lalic D (1999) From Ends to the Trenches, and Back: Football in the Former Yugoslavia (in Armstrong G, Giulianotti R, Football Cultures and Identities), 176-189.

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MORFOLOŠKE KARAKTERISTIKE DEVOJČICA KOJE SE BAVE MODERNIM PLESOM UZRASTA 7-9 GODINA

UVOD

Pronalaženje talenata u modernom plesu prilično je težak i složen proces, naročito zbog estetskih elemenata koji su veoma važni za postizanje maksimalnih sportskih rezultata. Selekcija u modernom plesu, a pogotovo u plesnom stilu „umetnički plesovi“, sve više je orijentisana na traženje odgovarajućih morfoloških tipova, sa izuzetnim motoričkim i individualnim kreativnim sposobnostima. Programi modernog plesa predstavljaju odličan početak bavljenja fizičkom aktivnošću, a zasnivaju se na učenju elemenata klasičnog baleta, koreografije i gimnastičkih veština i samim tim pružaju mogućnost usvajanja i razvijanja osnovnih motoričkih umeća, znanja i sposobnosti. Raznovrsnim kretnim aktivnostima, upoznajući svoje telo, devojčice razvijaju i usavršavaju motoriku, stiču raznovrsna motorička umenja i navike, razvijaju motoričke sposobnosti i poboljšavaju kvalitet morfoloških karakteristika pogotovo u domenu voluminozosti i mase tela kao i potkožne masti.

Kada je u pitanju masa tela i potkožno masno tkivo, može se reći da one imaju najveći uticaj na performansu u modernom plesu, jer ove karakteristike utiču kako na brzinu frekvencije pokreta, tako i na manifestaciju eksplozivne, statičke i repetitivne snage, agilnosti, izdržljivosti i dr. (Viskić-Štalec at al., 2007.; Steinberg et al, 2008.; Uzunović, Kostić i Živković, 2010. i dr.), Plesači klasičnog i modernog baleta imaju manju telesnu masu, manju količinu masnog tkiva ali i veću gustinu kostiju u odnosu na neplesače (Van Marken Lichtenbelt, W. D. et al, 1995; Yannakoulia, et al., 2000; Cieślicka, et al. 2012) i to najvećim delom zbog intenzivnog mišićnog naprezanja tokom višegodišnjeg trenažnog procesa. Takođe, plesači sa idealnim BMI postižu bolje rezultate u sportskom plesu (Kostić, Zagorc i Uzunović, 2004).

Cilj ovog rada bio je da se procene morfološke karakteristike devojčica uzrasta 7-9 godina koje se bave modernim plesom najmanje godinu dana u kontinuitetu i uporede sa devojčicama istog uzrasta koje se nikada nisu bavile nekom organizovanom fizičkom aktivnošću.

METOD

Uzorak ispitanica koje se ne bave organizovanom fizičkom aktivnošću sačinjavalo je 75 devojčica uzrasta 7-9 godina, dok je uzorak ispitanica koje se bave modernim plesom sačinjavalo 65 devojčica uzrasta 7-9 godina starosti definisanih na osnovu decimalnih godina.

Uzorak antropometrijskih mera definisan je na osnovu dvodimenzionalnog morfološkog modela Bale (1980) preporučen za mlađe uzrasne kategorije ispitanika. On se odlikuje jednim faktorom koji objedinjuje longitudinalnu i transverzalnu dimenzionalnosti skeleta, što se odnosi na koštani deo, drugim faktorom koji definiše volumen i masu tela i potkožno masno tkivo. Tako definisanu bateriju antropometrijskih mera za procenu morfoloških karakteristika ispitanica sačinjavale su sledeće mere; Za procenu dimenzionalnosti skeleta: 1. Telesna visina (mm); za procenu voluminoznosti i mase tela: 2. Telesna masa (kg), 3. Srednji obim grudnog koša (mm), 4. Obim nadlaktice (mm) i 5. Obim podlaktice (mm) i za procenu potkožnog masnog tkiva: 6. Kožni nabor na trbuhu (0,2 mm), 7. Kožni nabor na leđima (0,2 mm) i 8. Kožni nabor na nadlaktici (0,2 mm). Merenja su sprovedena u skladu sa IBP standardom.

Za utvrđivanje kvantitativnih razlika između sistema antropometrijskih varijabli dve grupe ispitanica primenjena je multivarijatna analiza varijanse (MANOVA). Za utvrdivanje razlike između svake pojedinačne antropometrijske mere i to za obe uzrasne grupe, primenjena je univarijatna analiza varijanse (ANOVA). Kao nivo statističke značajnosti definisan je kriterijum od P=0,05. Svi rezultati obrađeni su statističkim programom SPSS 20.

REZULTATI

Razlike u morfološkom prostoru ispitanica analizirane su za svaku uzrasnu grupu devojčica posebno. U tabeli 1. prikazana je analiza razlika antropometrijskih varijabli grupe devojčica koje se ne bave nekim organizovanim fizičkim vežbanjem i grupe devojčica koje se bave modernim plesom, uzrasta 7-9 godina. Pored toga, radi boljeg sagledavanja razlika između grupa devojčica, prikazani su i osnovni centralni i disperzioni statistici za obe grupe ispitanica. Uzorak grupe devojčica uzrasta 7-9 godina koje se ne bave organizovanom fizičkom aktivnošću sačinjavalo je 75 devojčica, dok je uzorak ispitanica koje se bave modernim plesom sačinjavalo 65 devojčica.

Tabela 1. *Analiza razlika antropometrijskih varijabli dve grupe devojčica*

VARIJABLA	Gr	AS	S	f	p
1. Telesna visina (mm)	1	1322,29	60,51	1,34	0,25
	2	1310,40	60,55		
2. Telesna masa (kg)	1	29,74	3,86	**7,11**	**0,01**
	2	27,84	4,59		
3. Obim grudi (mm)	1	610,72	29,85	0,15	0,70
	2	608,34	42,99		
4. Obim nadlaktice (mm)	1	216,99	17,67	**57,36**	**0,00**
	2	194,35	17,59		

5. Obim podlaktice (mm)	1	195,92	10,69	**32,10**	**0,00**
	2	185,37	11,32		
6. Kožni nabor na trbuhu (0,2mm)	1	121,44	46,75	**23,13**	**0,00**
	2	87,05	36,24		
7. Kožni nabor na leđima (0,2mm)	1	80,56	23,88	**20,90**	**0,00**
	2	63,45	19,81		
8. Kožni nabor na nadlaktici (0,2mm)	1	121,07	29,61	**28,15**	**0,00**
	2	95,02	28,21		
F = 17,95		**P = 0,00**			

Gr – grupe ispitanica:
1) ne bave se fizičkom aktivnošću
2) bave se modernim plesom
AS – aritmetička sredina
S – standardna devijacija
f – f-test za univarijatnu analizu varijanse
p – nivo statističke značajnosti za f
F – F-test za multivarijatnu analizu varijanse
P – nivo statističke značajnosti za F

Za utvrđivanje kvantitativnih razlika između sistema antropometrijskih varijabli dve grupe ispitanica primenjena je multivarijatna analiza varijanse (MANOVA). Na osnovu rezultata analize utvrđene su statistički značajne razlike između sistema antropometrijskih varijabli ispitivanih grupa i to na nivou statističke značajnosti P=0,00. Nakon toga je primenjena univarijatna analiza varijanse (ANOVA), sa ciljem da se utvrde razlike između svake pojedinačne antropometrijske mere.

Rezultati univarijatne analize varijanse pokazuju da se kod ispitanica ovog uzrasta javljaju razlike u većini tretiranih antropometrijskih varijabli i to na nivou statističke značajnosti od p=0,00. osim u varijabli "telesna masa" gde je razlika na nešto blažem nivou statističkog zaključivanja p=0,01. Izuzetak predstavljaju varijabla telesna visina i varijabla za procenu voluminoznosti grudnog koša gde je utvrđeno da ne postoje statistički značajne razlike.

DISKUSIJA

Uvidom u rezultate aritmetičkih sredina svake varijable, jasno se zapažaju veći rezultati u svim varijablama u korist devojčica koje nisu uključene u program modernog plesa. To praktično znači da su devojčice koje su uključene u program modernog plesa nešto niže rastom, lakše i sa manjim obimom gornjih ekstremiteta od svojih vršnjakinja. Najveća razlika se uočava kod svih mera za procenu potkožnog masnog tkiva, što upućuje na mnogo kvalitetniju strukturu mekog tkiva devojčica koje se bave modernim plesom. Može se zaključiti da je upravo taj manji obim gorinjih ekstremiteta devojčica koje su uključene u program modernog plesa evidentan zbog mnogo manje količine potkožne masti na tim telesnim segmentima.

To je i očekivano obzirom da su ispitanice koje se bave modernim plesom redovni učesnici državnih i međunarodnih takmičenja gde su zahtevi za gracilnom morfološkom strukturom takmičarki veoma izraženi kako zbog lakoće izvođenja plesnih, akrobatskih i svih drugih elemenata koreografije, tako i zbog samog vizuelnog

doživljaja plesačice na sceni i utiska koji ostavlja na sudijsku komisiju koja procenjuje imidž takmičarki. Na taj način se i u samom trenažnom procesu stavlja imperativ na korigovanje ishrane kao i rad na smanjenju telesne mase a najviše smanjenju potkožne masti svih telesnih segmenata što dodatno utiče na kvalitetniji i lepši izgled plesačice što su potvrdili i neki drugi autori (Kostić, Zagorc i Uzunović, 2004, Viskić-Štalec at al (2007), Steinberg et al., 2008 i dr.).

Koreografije u modernim plesovima obiluju atraktivnim i koordinativno veoma složenim skokovima, pokretima velikih amplituda svih telesnih segmenata, najrazličitijim okretima i ravnotežama, poluakrobatskim i akrobatskim elementima i dr. Osim toga, u koreografijama preovladavaju zahtevi za dobro razvijenim anaerobnim vidom izdržljivosti koja predstavlja sposobnost plesača da što duže radi na intenzitetu koji je blizak maksimalnom. To su najčešće situacije izvođenja serije skokova, okreta, eksplozivnih zamaha i elemenata u kojim preovladava veliko mišićno angažovanje muskulature plesača (izdržaji, specifične ravnoteže …). i kao takve zahtevaju odličnu motoričku pripremljenost i specifičnu morfološku strukturu plesača koja je u najvećoj meri determinisana što manjom količinom balastne mase tela.

Rezultati analize pokazuju da u istraživanoj uzrasnoj grupi od 7 do 9 godina. ne postoje statistički značajne razlike u telesnoj visini među ispitanicama, što nedvosmisleno potvrđuje činjenicu da u modernom plesu telesna visina nikako nije limitirajući faktor za uspešno vežbanje što je veoma važno prilikom selekcije u modernom plesu.

Pomalo iznenađuje nepostojanje značajnosti razlike u telesnoj masi ali to bi se moglo objasniti činjenicom da devojčice koje nisu uključene u neki vid organizovanog fizičkog vežbanja značajno gojaznije od devojčica koje se bave modernim plesom najviše na račun potkožne masti koja je, što je poznato, mnogo lakša od mišićne mase koja je znatno prisutnija kod plesačica. To se posebno uočava kod obima grudnog koša gde se uočavaju veći rezultati kod plesačica ali manji kožni nabor na tom telesnom segmentu upućuje da je taj obim veći na račun mišićne mase plesačica. Do istog zaključka su došli i Madić, Mikalački i Popović, 2008; Madić, Popović i Kaličanin, 2009; Popović, 2010, ali na devojčicama istog uzrasta koje se bave razvojnom gimnastikom čiji se sadržaji u značajnoj meri podudaraju sa treninzima modernog plesa u ovom uzrastu.

Ovakvi rezultati potvrđuju rezultate raznih autora koji su isticali značaj i prednosti bavljenja organizovanom fizičkom aktivnošću a naročito plesnih i gimnastičkim sportovima za poboljšanje morfoloških karakteristika dece, pogotovo predškolskog i mlađeg školskog uzrasta (Blažević, Katić i Zagorac, 2002; Madić, Mikalački, Popović, 2008; Madić, Popović, Kaličanin, 2009; Popović, 2010; Uzunović, Kostić i Živković, 2010. i drugi).

Generalno, može se zaključiti da su sadržaji modernog plesa uticali na morfološki status devojčica uzrasta 7-9 godina a naročito na dimenzije odgovorne za voluminoznost i masu tela, kao i na potkožno masno tkivo. Ta razlika ogleda se u kvalitetnijem morfološkom statusu definisanom manjim volumenom, masom tela, kao i manjim potkožnim masnim tkivom što navodi autora na zaključak kakav morfološki tip devojčica mlađeg školskog uzrasta je poželjan za uspešno bavljenje modernim plesom, u zavisnosti od plesne kategorije kojom se ispitanica bavi.

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MORPHOLOGICAL CHARACTERISTICS OF GIRLS, 7-9 YEARS OF AGE, ENGAGED IN MODERN DANCING

Introduction: Selection in modern dancing, especially in the "artistic dance" style, is increasingly directed towards finding proper morphological types with exceptional motor and individual creative abilities. The aim of this paper was to determine morphological characteristics of 7-9 years old girls engaged in modern dancing for a continuous period of at least one year, as well as to compare them with the girls that have never been engaged in an organized physical activity. Methods: The aim was accomplished by using a battery of eight anthropometric tests that evaluate to a greatest extent body voluminosity and body mass as well as subcutaneous fat tissue of the test subjects as they could be affected to a greatest extent by means of physical education. Multivariate analysis of variance (MANOVA) was used for determining the quantitative differences between the systems of anthropometric variables from the two groups of respondents. For determining the difference between each individual anthropometric measure and for both age groups, an univariate analysis of variance (ANOVA) was applied. P = 0.05 was the criterion adopted for the level of statistical significance. All results have been analyzed using the software for statistical analysis SPSS 20. Results: Research results indicate a statistically significant difference in terms of a quality morphological status defined by smaller volume, body mass and lesser fat tissue at all age categories of female subjects which is in favor of girls engaged in modern dancing. According to these results the author concludes which morphological type of girls at younger school age is desirable for successful engagement in modern dancing. Discussion: By looking at the general morphological space of analyzed groups of respondents it can be concluded that the girls engaged in modern dancing, statistically significantly differ in a quantitative manner from their peers who are not involved in organized physical activity, at the most strict level of statistical inference. This difference is reflected in the higher-quality morphological status defined by lower volume, body weight, and less subcutaneous adipose tissue which lead the author to conclusion about morphological type of girls aged 7-9 years which is desirable for successful engagement in modern dancing, depending on the dance category respondents are engaged in. Generally, it can be concluded that the contents of modern dances represent a positive impact on the morphological status of girls aged 7-9 years and in particular on the dimensions responsible for the volume and mass of the body, as well as the subcutaneous adipose tissue. As such, these contents are highly recommendable for implementation in physical education, both in school and after school, by engaging in dance studios and clubs dealing with this type of dance. References: Kostić J, Zagorc M, Uzunović S (2004). Acta Universitatis Palackianae Olomucensis., Gymnica, 34 (1), 59-64. Medved R, Barbir Ž, Brdarić R, Gjurić Z, Heimer S, Kesić B, Medved V, Miheli Z, Pavišić-Medved V, Pećina M. Todorović B, Tucak A, Vuković M (1987). Sportska medicina. Zagreb: JUMENA. Popović B (2008). Glasnik Antropološkog društva Srbije, 43, 455-65, Novi Sad. Steinberg N, Siev-Ner I, Peleg S, Dar G, Masharawi Y, Hershkoviz I (2008). American Journal of Human Biology, 20 (3), 299-307. Viskić – Štalec N, Štalec J, Katić R, Podvorac Đ, Katović D (2007). Collegium Antropologicum, 31 (1), 259-66.

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PROCENA ANAEROBNIH SPOSOBNOSTI FUDBALERA U ODNOSU NA DUŽINU SPORTSKOG STAŽA

UVOD

Savremeni fudbal zahteva od igrača ispoljavanje visokog nivoa funkcionalnih sposobnosti, tehničko-taktičke efikasnosti, jednom reči morfo-funkcionalne univerzalnosti, kako bi uspešno delovali u različitim nepredviđenim situacijama igre, ograničenom prostoru i uz aktivno ometanje od strane protivnika. Dakle, dobar nivo motoričkih i funkcionalnih sposobnosti omogućuje tako fizičko stanje fudbalera da efikasno deluje u uslovima visokog psiho-fizičkog opterećenja tokom svih 90 minuta utakmice. Savremeni fudbal karakteriše značajan rast kvaliteta igre fudbalskih ekipa, kako vrhunskih tako i ekipa iz nižih rangova takmičenja. Istovremeno to zahteva mobilizacija svih morfo-funkcionalnih i motoričkih resursa igrača. U delu anaerobne strukture fudbalske igre, ključne aktivnosti tokom utakmice čine sprintevi, skokovi, agresivni i snažni dueli koji su eksplozivnog karaktera. Neophodno je da vrhunski fudbaler poseduje visok nivo kako aerobnih tako i anaerobnih sposobnosti, što ukazuje na značaj trenažnog procesa i razvijanje određenih sposobnosti u fazama životne dobi kada je efekat razvoja istih maksimalan.

METOD

Grupe u istraživanju određene su u odnosu na dužinu sportskog staža. Prvu grupu čine fudbaleri dužine sportskog staža do 5 godina (11 ispitanika), drugu od 6-7 godina (21 ispitanik) i treću od 8 do 10 godina (28 ispitanika). Ukupan uzorak ispatinika u ovom istraživanju čini 60 fudbalera kadetskog uzrasta (14-16 god.) zdravstveno sposobnih za bavljenje sportom-fudbalom i bez ikakvih morfoloških i motoričkih aberacija.

Za istraživanje se koristio terenski Rast test kojeg karakteriše velika lakoća izvođenja. Primenjuje se radi testiranja anaerobnih sposobnosti sportista. Rast test je namenjen sportovima gde je trčanje osnovni oblik kretanja. Veoma često kod testiranja anaerobnih sposobnosti fudbalera koristi se i modifikovani Bangsbo test (Sayers i sar. 2008) koji se sastoji od sedam 35-metarskih sprintova sa promenom pravca prilikom trčanja i 25 sekundi hodanja između sprintova. Prema protokolu testa (Mackenzie, 2005) ispitanici imaju deset minuta za zagrevanje i pet minuta za oporavak. Nakon toga, sledi izvođenje testa koji se sastoji od šest 35-metarskih trčanja maksimalnom brzinom. Između sprinteva ispitaniku je dozvoljena pauza od 10 sekundi, namenjena prvenstveno za

okretanje i pripremu za narednu deonicu. Iz dobijenih vremena šest 35-metarskih trčanja izračunava se snaga za svako trčanje i zatim se određuje: *maksimalna snaga* (najviša vrednost)- predstavlja meru najviše ispoljene snage i pruža informaciju o snazi i maksimalnoj sprinterskoj brzini; *minimalna snaga* (najniža vrednost) – predstavlja meru najniže ispoljene snage i koristi se za izračunavanje indexa zamora; *prosečna snaga* (suma svih šest vrednosti/šest) – ukazuje na sposobnost sportiste da održi snagu tokom vremena. Viša vrednost prosečne snage ukazuje na bolje sposobnosti ispitanika za održavanje anaerobnih sposobnosti i *index zamora* (maksimalna snaga – minimalna snaga) / ukupno vreme za 6 sprinteva – ukazuje u kojoj meri snaga opada kod ispitanika.

U ovom radu će se prikazati deskriptivni parametari, srednja vrednost, standardna devijacija (Sd), minimum i maksimum svih vrednosti, koeficijenta varijacije (Cv) intervala poverenja, mere asimetrije Skjunis, mere spoljoštenosti Kurtozis i vrednost testa Kolmogorov-Smirnov. Koristiće se multivarijantni postupci MANOVA i diskriminativna analiza. Od univarijantnih postupaka primeniće se ANOVA t-test i Roy-ev test.

REZULTATI

Analiza se sprovela na četri varijable za procenu anaerobnih sposobnosti, i to: vrednosti maksimalne snage (RMAXS), vrednosti minimalne snage (RMINS), vrednosti prosečne snage (RPROS) i indexa zamora (RINZA).

Obradom podataka fudbalera prema dužini sportskog staža u odnosu na anerobne sposobnosti dobijene su vrednosti prikazane u tabeli 1. Iz rezultata koeficijenta varijacije mogu se uočiti velike vrednosti u gotovo svim analiziranim varijablama, što nam ukazuje na značajne razlike, odnosno izraženu heterogenost u svim grupama. Distribucija vrednosti se kreće u okviru normalne raspodele (p) kod grupe sa najkraćim sportskim stažom, kod druge grupe imamo odstupanje kod vrednosti minimalne snage (RMINS), dok u grupi sa najdužim sportskim stažom sve analizirane vrednosti odstupaju od normalne raspodele. Pregledom dobijenih mera distribucije standardizovanog koeficijenta asimetrije (skjunisa) uočava se da većina varijabli značajno ne odstupa od očekivanog Gaus-Laplasovog zakona normalne raspodele podataka. Negativne vrednosti kurtozisa u svim varijablama, osim minimalne snage kod grupe od 8 do 10 godina, ukazuju na spljoštenost krive, odnosno koncentracija vrednosti je manja oko aritmetičke sredine.

Tabela 1. *Osnovni statistički parametri anaerobnih sposobnosti fudbalera u odnosu na dužinu sportskog staža*

od 2 do 5 god.											
	sr.vr	***std.d***	***grš***	***min***	***maks***	***k.var***	***interv. pov.***		***sk***	***ku***	***p***
RMAXS	472.58	157.48	47.48	247.8	637.3	**33.32**	366.76	578.40	-.33	**-1.67**	.817
RMINS	303.23	94.85	28.60	139.7	409.7	**31.28**	239.49	366.96	-.55	-.98	.992
RPROS	380.41	128.12	38.63	181.6	544.0	**33.68**	294.32	466.50	-.24	**-1.38**	.917
RINZA	4.87	2.51	.75	1.4	8.1	**51.41**	3.19	6.56	-.00	**-1.50**	.869

od 6 do 7 god.											
RMAXS	502.60	105.63	23.05	317.8	721.6	**21.02**	454.51	550.69	-.04	-.67	.185
RMINS	336.29	66.27	14.46	232.2	439.2	19.70	306.12	366.46	.15	**-1.23**	**.019**
RPROS	405.95	75.43	16.46	287.2	544.8	18.58	371.60	440.29	.08	**-1.05**	.932
RINZA	4.69	1.83	.40	1.7	8.5	**38.90**	3.86	5.53	.17	-.63	.431
od 8 do 10 god.											
RMAXS	580.47	128.08	24.20	357.3	793.7	**22.06**	530.79	630.14	.14	**-1.02**	**.000**
RMINS	364.70	79.28	14.98	200.0	543.3	**21.74**	333.95	395.45	.42	.07	**.000**
RPROS	455.77	93.28	17.63	286.0	668.8	**20.47**	419.59	491.95	.40	-.23	**.000**
RINZA	6.27	2.36	.45	2.0	10.7	**37.60**	5.36	7.19	.16	-.91	**.000**

Upoređujući prosečne vrednosti posmatranih grupa, uočava se trend rasta rezultata u odnosu na dužinu sportskog staža, što nam govori o poboljšanju anaerobnih sposobnosti. Međutim, prilikom analize rezultata mora se obratiti pažnja da je kod grupe sa najdužim sportskim stažom index zamora najveći (6,27 W/s), a što su vrednosti niže bolja je i sposobnost fudbalera za održavanjem anaerobnih sposobnosti. Međutim, niže vrednosti indeksa zamora od 10 W/s u svim analiziranim grupama upućuju na dobru sposobnost izvođenja rada u anaerobnom režimu. Da li su te razlike značajne, i koliki je uticaj sportskog staža na poboljšanje anaerobnih sposobnosti utvrdiće se primenom narednih statističkih postupaka.

Tabela 2. *Značajnost razlike u prostoru anaerobnih sposobnosti fudbalera u odnosu na dužinu sportskog staža*

	n	F	P
MANOVA	4	1.925	.063
DISKRIMINATIVNA	4	1.877	.071

Rezultati multivarijantne analize varijanse (p = .063), pokuzuju da su grupe različite u posmatranom prostoru anaerobnih sposobnosti fudbalera. Primenom diskriminativne analize (p = .071), potvrđene su razlike dobijene multivarijantnom analizom varijanse, što znači da postoji značajna razlika i jasno definisana granica između nekih obeležja za procenu anaerobnih sposobnosti u odnosu na dužinu sportskog staža (tabela 2).

Tabela 3. *Značajnost razlike i koeficijent diskriminacije po pojedinim obeležjima procene anaerobnih sposobnosti u odnosu na dužinu sportskog staža*

ANOVA	*F*	*p*		*koeficijent diskriminacije*
RMAXS	3.824	.028	*RMAXS*	.103
RMINS	2.585	.084	*RINZA*	.097
RPROS	3.112	.052	*RMINS*	.060
RINZA	3.526	.036	*RPROS*	.005

Vrednosti univarijantne analize varijanse (p <.1) ukazuju na postojanje statistički značajne razlike u svim posmatranim varijablama za procenu anaerobnih sposobnosti u odnosu na dužinu sporskog staža (tabela 3).

Koeficijent diskriminacije upućuje na doprinos varijabli diskriminaciji grupa podeljenih prema dužini sportskog staža u odnosu na procenu anaerobnih sposobnosti primenom RAST testa, i dobijenim vrednostima ukazuje da je razlika najveća kod vrednosti maksimalne snage (RMAXS .103) i index zamora (RINZA .097), a nešto manja kod vrednosti minimalne snage (RMINS .060) i vrednosti prosečne snage (RPROS .005).

Na osnovu redosleda stepena diskriminacije, počev od najveće razlike: vrednosti maksimalne snage, indexa zamora, vrednosti minimalne snage i vrednosti prosečne snage, dobijamo karakteristike grupa koje nam daju informacije za određivanje homogenosti grupa.

Tabela 4. *Homogenost fudbalera različite dužine sportskog staža u odnosu na procenu anaerobnih sposobnosti*

	m/n	*%*
od 2 do 5 god	6/11	54.55
od 6 do 7 god	13/21	61.90
od 8 do 10 god	16/28	57.14

Vrednosti iz tabele 4, pokazuju nam da definisane karakteristike grupe sa sportskim stažom od 2 do 5 godina ima 6 od 11 ispitanika, tj. homogenost je 54.5% (manja), što znači da 5 ispitanika ima druge karakteristike a ne karakteristike svoje grupe. Definisane karakteristike grupe sa sportskim stažom od 6 do 7 godina ima 13 od 21 ispitanika, homogenost je 61.9% (veća) jer 8 ispitanika ima druge karakteristike. Definisane karakteristike grupe sa sportskim stažom od 8 do 10 godina ima 16 od 28 ispitanika, odnosno homogenost je 57.1% (manja) jer 12 ispitanika ima druge karakteristike.

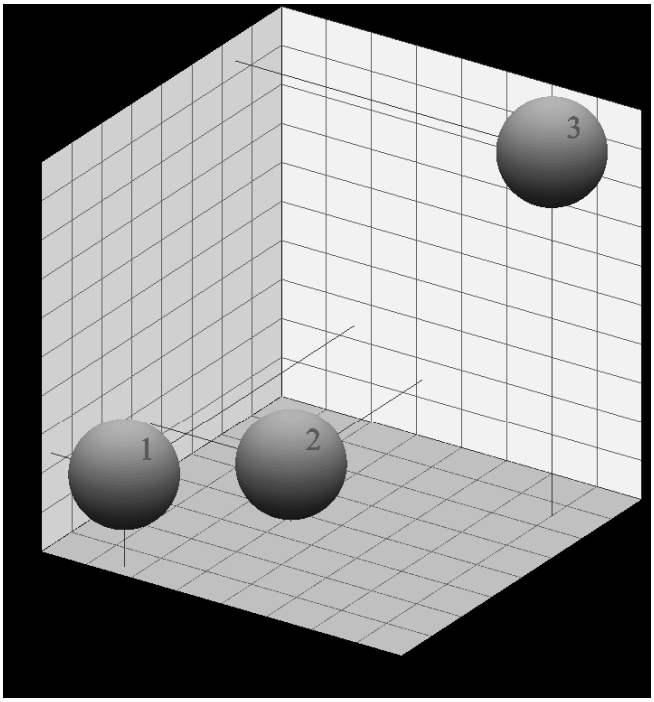
Tabela 5. *Distanca (Mahalanobisova) fudbalera različite dužine sportskog staža u odnosu na procenu anaerobnih sposobnosti*

	od 2 do 5 god.	*od 6 do 7 god.*	*od 8 do 10 god.*
od 2 do 5 god.	.00	1.07	1.10
od 6 do 7 god.	1.07	.00	.75
od 8 do 10 god.	1.10	.75	.00

Računanjem distance između grupa (tabela 5) podeljenih prema dužini sportskog staža dobija se još jedan pokazatelj sličnosti ili razlika. Rezultati iz tabele ukazuju da je najmanje rastojanje (umereno) kod grupa sa sportskim stažom od 8 do 10 godina i od 6 do 7 godina (.75), a najudaljenije su grupe (veće rastojanje) sa sportskim stažom od 8 do 10 godina i od 2 do 5 godina (1.10).

DISKUSIJA

Prikazom u formi grafika (grafikon 1) moguće je uočiti međusobni položaj i karakteristiku svake od grupa podeljenih prema dužini sportskog staža (od 2 do 5 (1), od 6 do 7 (2) i od 8 do 10 (3)), u odnosu na tri najdiskriminativnija obeležja za procenu anaerobnih sposobnosti primenom rast testa i to: vrednosti maksimalne snage (rst1), index zamora (rst4) i vrednosti minimalne snage (rst2).



Grafikon 1. *Međusobni položaj grupa u odnosu na tri najdiskriminijativnija obeležja*

Trodimenzionalnim grafikom, potvrđene su razlike srednjih vrednosti, koje nam govore da igrači sa najdužim sportskim stažom imaju najbolje rezultate. Međutim, pošto veće vrednosti indexa zamora ne znače i bolje rezultate, elipse prikazane na grafikonu 1, moraju se prihvatiti sa izvesnom rezervom, iako niže vrednosti indeksa zamora od 10 W/s ukazuju na dobru sposobnost izvođenja rada u anaerobnom režimu. Analizom rezultata može se zaključiti da dužina sportskog staža i rad u ovom uzrasnom dobu ima pozitivne efekte na anaerobnu snagu. Do sličnih zaključaka, primenom baterije testova za procenu anaerobnih sposobnosti došli su Cedric i sar. (2007). Na uzorku od 186 igrača reprezentacije Belgije (U 15, U 16, U 17, U 18 i U 19) došli su do zaključka da anaerobna snaga progresivno raste sa godinama života (od 15 do 19 god.), ali da je najveći porast između 15 i 17 godine.Vrednosti anaerobnih sposobnosti primenom RAST testa četrdeset fudbalera prve juniorske Češke lige (Cipryan i Gajda, 2011)

prosečne starosti (17,3±1,36 godina) i sportskog staža od minimum deset godina, potvrđuju ranije navedeno istraživanje da do značajnijeg porasta dolazi do 17 godina. Takođe, kao i u ovom istraživanju godine sportskog staža utiču na dobijene vrednosti, koje iznose: maksimalna snaga 748,6±85,46 W, minimalna snaga 486,7±68,94 W, prosečna snaga 599,6±66,25 W i index zamora 8,2±2,08 W/s.

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ASSESSMENT OF ANAEROBIC CAPABILITIES OF FOOTBALL PLAYERS IN RELATION WITH LENGTH OF THEIR SPORTS ENGAGEMENT.

Introduction: The general objective of this research is to determine how much influence the length of sports engagement has on anaerobic endurance of the football players, as well as on the maximum sprint ability of the players. In addition to the primary objective, the research seeks to determine the maximum power, minimum power, average power and fatigue index in players of cadet age group. Methods: The total sample of respondents in this study is made of 60 players of cadet age group (14-16 years of age), divided in relation to length of their sports engagement, into groups of up to 5 years (11 respondents), 6-7 years (21 respondents) and from 8 to 10 years (28 respondents). The study used field RAST test. The RAST test was designed for sports where running is a basic form of movement. According to the protocol of the test respondents have ten minutes to warm up and five minutes to recover. That is followed by the performance of the test, which is composed of six 35-meter sprints at maximum speed. Between sprints respondent is allowed to pause for 10 seconds, intended primarily for turning and preparing for the next section. Based on the obtained time results from six 35-meter sprints, power is calculated for each run and then the following parameters are determined: maximum power (the highest value); minimum power (the lowest value); average power (the sum of all six values/six) and fatigue index which indicates the extent to which strength decreases for each respondent. This paper shall present a descriptive parameters, mean, standard deviation (SD), minimum and maximum of all values, the coefficient of variation (CV) of confidence intervals,

skewness as measure of asymmetry, kurtosis as measure of flatness and value of the Kolmogorov-Smirnov test. Multivariate procedures MANOVA and discriminant analysis shall be used. Out of univariate procedures ANOVA t-test and Roy's test shall be applied. Results: Results obtained by multivariate analysis of variance in this study show that groups are different regarding the observed space of anaerobic abilities of football players. Discriminant analysis confirmed these differences, which means that there is a significant difference and clearly defined boundary between some characteristics for assessing anaerobic abilities in relation to the length of sports engagement. The values obtained by univariate analysis of variance indicate statistically significant differences in all observed variables for the assessment of anaerobic abilities in relation to the length of sports engagement. Discussion: By analyzing the results, it can be concluded that the length of sports engagements and work in this age has positive effects on anaerobic power. Cedric et al. (2007) reached the similar conclusions using the battery of tests for the assessment of anaerobic abilities. On a sample of 186 players of the national team of Belgium (U 15, U 16, U 17, U 18 and U 19) they came to the conclusion that anaerobic power increases progressively with age (15 to 19 yrs.), but the highest increase can be observed between 15th and 17th year of age. References: Cedric L, Marc GV, Thierry B (2007). Journals of Sports Science and Medicine, 10, 115. Cipryan L, Gajda V (2011). Journal of Human Kinetics, 28, 63-71. Mackenzie B (2005). 101 Performance Evaluation Tests. London: Electric Word plc. Sayers A, Sayers B, Binkley H (2008). Strength and Conditioning Journal, 30, 2.

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Najavljen kongres Crnogorske sportske akademije

Narednog mjeseca konferencija o sportu

A. LJUMOVIĆ



CILJ NAUČNO-ISTRAŽIVAČKI RAD: Miranović i Bjelica

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Sa.P.

UDK: 796.332.015

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PROCENA ANAEROBNOG PRAGA FUDBALERA RAZLIČITIH IGRAČKIH POZICIJA PRIMENOM CONCONI TESTA

UVOD

Fudbalska igra zahteva od igrača maksimalna naprezanja, sa čestim i naglim promenama veličine opterećenja, što od igrača traži visok nivo fizičke radne sposobnosti. Zahtevi i potrebe pravilno programiranog trenažnog procesa, pre svega u pripremnom periodu, traže precizno definisanje funkcionalnih parametara svih igrača. Nivo anaerobnog praga, može biti dobar pokazatelj pravilno određenog operećenja kod fudbalera različitih stepena takmičenja. Pomoću Konkoni testa dobijamo vrednosti maksimalne srčane frekvence i frekvence srca na anaerobnom pragu što predstavlja osnovu za pravilno formiranje zona rada svakog fudbalra ponaosob. Kod vrhunskih fudbalera kadetskog uzrasta (14-16 godina), vrednost maksimalne srčane frekvence se kreće između 190 i 210 otk/min. Postoje značajne individualne razlike u maksimalnoj srčanoj frekvenci čak i kod osoba podjednake dobi i stanja treniranosti, što ukazuje na značaj primene Konkoni testa. Maksimalna srčana frekvencija i frekvence srca na anaerobnom pragu predstavlja važan fiziološki parametar za trenere. Pomoću njih mogu se za svakog fudbalera odrediti zone intenziteta opterećenja ili rada u treningu. Na osnovu formiranih zona i vremena provedenog u pojedinim zonama trener lakše prati strukturu opterećenja i intenziteta tokom treninga, I može da vrši neposrednu korekciju u cilju poztizanja boljih rezultata.

METOD

Uzrast kadeta po fudbalskoj kategorizaciji obuhvata dečake od 14 do 16 godina. Uzorak ispatinika u ovom istraživanju obuhvata 60 fudbalera. Kriterijum za izbor ispitanika bio je sledeći: da je ispitanik hronološke starosti 14-16 godina; da je ispitanik osoba muškog pola; da je zdravstveno sposobna za bavljenje sportom-fudbalom i da je bez ikakvih morfoloških i motoričkih aberacija. Uzorak ispitanika podeljen je prema igračkom mestu, i to: centralni bekovi (12 fudbalera), spoljni bekovi (15 fudbalera), igrači veznog reda (14 fudbalera), igrači napada (13 fudbalera) i golmani (6 golmana).

Procena maksimalnog pulsa i anaerobnog praga urađena je primenom Conconi testa – (Conconi i sar. 1996). Postoje različite modifikacije ovog testa ali sve one se baziraju na postepenom povećanju opterećenja na deonici određenoj prema protokolu. U ovom istraživanju primenio se Conconi test trčanjem koji je po prirodi kretanja najbliži

fudbalskoj igri. Pre početka testiranja fudbaleri su imali deset minuta za zagrevanje i nakon nekoliko minuta odmora pristupilo se izvođenju testa. Fudbaleri započinju test laganim trčanjem (10 km/h) i nakon svakih 200 m brzina trčanja se povećava za 0,5 km/h. Unutar određene deonice opterećenje je konstantno što se postiže ubrzanjem nakon prolaska svakih 200 m, a zatim održavanje te brzine do kraja deonice. Tokom realizacije testa jedan od merilaca je pratio ipitanike vozeći biciklu pored njih i diktirao brzinu trčanja predviđenu po protokolu testa. U jednoj grupi startovalo je po četri ispitanika. Registrovanje pulsa vršilo se na svakih 5 sekundi, a posebno se beležio puls prilikom pretrčavanja svakih 200 m. Nakon obrade rezultata u određenom programu ("Polar Precision Performance SW") dobije su vrednosti potrebne za ovo istraživanje.

U radu će se primeniti multivarijantni postupci MANOVA i diskriminativna analiza. Od univarijantnih postupaka primeniće se ANOVA t-test i Roy-ev test. Prikazaće se deskriptivni parametri, srednja vrednost, standardna devijacija (Sd), minimum i maksimum svih vrednosti, koeficijenta varijacije (Cv) intervala poverenja, mere asimetrije Skjunis, mere spoljoštenosti Kurtozis i vrednost testa Kolmogorov-Smirnov.

REZULTATI

Procena anaerobnog praga fudbalera u odnosu na igračko mesto u ovom istraživanju izvršena je na osnovu sledećih varijabli: vrednosti frekvencije srca na anaerobnom pragu (ANPRP), brzine trčanja na anaerobnom pragu (ANPRV) i procentualne vrednosti anaerobnog praga u odnosu na maksimalnu frekvenciju srca (AN%HR). U tabeli 1, prikazani su osnovni statistički parametri primenjenih varijabli za procenu anaerobnog praga fudbalera u odnosu na poziciju igrača u timu. Može se konstatovati da nema statistički značajnih odstupanja distribucija rezultata kod varijabli za procenu anaerobnog praga fudbalera u odnosu na normalnu distribuciju. Vrednosti koeficijenta varijacije ukazuju na homogenost rezultata fudbalera unutar tri posmatrane grupe za sve analizirane varijable.

Tabela 1. *Osnovni statistički parametri anaerobnog praga fudbalera u odnosu na igračko mesto*

centralni bekovi											
	sr.vr	***std.d***	***grš***	***min***	***maks***	***k.var***	***interv. pov.***		***sk***	***ku***	***p***
ANPRP	183.92	10.25	2.96	160.0	201.0	5.57	177.40	190.43	-.76	.87	.985
ANPRV	13.96	1.56	.45	12.5	18.0	11.17	12.97	14.95	1.53	1.77	.729
AN%HR	91.50	2.43	.70	88.0	95.0	2.66	89.96	93.04	-.30	**-1.33**	.824
spoljni bekovi											
ANPRP	184.80	6.68	1.72	176.0	198.0	3.61	181.10	188.50	.67	-.67	.257
ANPRV	13.40	.81	.21	12.0	14.5	6.02	12.95	13.85	-.41	-.85	.999
AN%HR	91.80	1.37	.35	90.0	94.0	1.50	91.04	92.56	.20	**-1.14**	.673
igrači veznog reda											
ANPRP	186.36	6.92	1.85	175.0	198.0	3.71	182.36	190.36	.37	-.81	.915
ANPRV	14.07	1.05	.28	12.5	16.0	7.49	13.46	14.68	.37	**-1.02**	.591
AN%HR	92.07	1.73	.46	89.0	95.0	1.88	91.07	93.07	-.11	-.86	.999

igrači napada											
ANPRP	183.00	5.80	1.61	173.0	190.0	3.17	179.49	186.51	-.10	-1.28	.962
ANPRV	13.69	.97	.27	12.5	15.5	7.08	13.11	14.28	.43	-1.01	.531
AN%HR	91.69	2.21	.61	88.0	95.0	2.41	90.36	93.03	-.03	-.88	.968
golmani											
ANPRP	182.50	5.68	2.32	175.0	188.0	3.11	176.53	188.47	-.26	-1.61	.996
ANPRV	13.58	1.39	.57	11.5	15.0	10.26	12.12	15.05	-.37	-1.20	.999
AN%HR	91.33	1.97	.80	89.0	93.0	2.15	89.27	93.40	-.33	-1.68	.943

Na osnovu minimalnih i maksimalnih vrednosti uočava se da nema ekstremno velikih ili malih rezultata, tj. nalaze se u očekivanom rasponu. Smanjene vrednosti skjunisa (sk) ukazuju da je raspodela negativno asimetrična, to znači da kriva raspodele rezultata naginje ka manjim vrednostima, odnosno da ima više manjih vrednosti u odnosu na normalnu raspodelu, kod centralnih i spoljnih bekova za procentualnu vrednost anaerobnog praga u odnosu na maksimalnu frekvenciju srca (AN%HR) i brzine trčanja na anaerobnom pragu (ANPRV) kod igrača veznog reda. Upoređujući srednje vrednosti posmatranih grupa, uočava se sličnost grupa u svim varijablama, odnosno sa izvesnom rezervom može se konstatovati da razlika između grupa ne postoji. Ipak, rezultati koji su postigli igrači veznog reda za vrednost frekvencije srca na anaerobnom pragu (186.36 otk/min), brzine trčanja na anaerobnom pragu (14.07 km/h) i procentualne vrednosti anaerobnog praga u odnosu na maksimalnu frekvenciju srca (92.07%) izdvaljaju ih od ostalih igračkih pozicija i upućuju na postojanje razlika.

Tabela 2. *Značajnost razlike anaerobnog praga fudbalera u odnosu na igračko mesto*

	N	*F*	*p*
MANOVA	3	.463	.933
DISKRIMINATIVNA	2	.632	.749

Primenom multivarijantne analize varijanse i na osnovu rezultata (p = .933), može se potvrditi predpostavka na osnovu srednjih vrednosti, odnosno da nije uočena statistički značajna razlika. Diskriminativnom analizom, koja je superiornija metoda od multivarijantne analize varijanse jer pored kvantitativnih vrednosti analiziranih obeležja posmatra i njihov međusobni odnos, takođe nije uočena značajna razlika (tabela 2).

Tabela 3. *Značajnost razlike po pojedinim obeležjima anaerobnog praga fudbalera u odnosu na igračko mesto*

ANOVA	*F*	*p*
ANPRP	.491	.743
ANPRV	.775	.546
AN%HR	.218	.927

Primenom univarijantne analize potvrđene su vrednosti diskriminativne analize i multivarijantne analize varijanse, tabela 3, odnosno nije uočena značajna razlika grupa

u posmatranim varijablama. Kako je p=.794 (diskriminativna analiza) ne postoji jasno definisana granica fudbalera prema igračkom mestu, pa nije moguće odrediti karakteristike ispitanika prema igračkom mestu u najširem smislu, u odnosu na procenu anaerobnog praga.

Tabela 4. *Homogenost fudbalera različitog igračkog mesta u odnosu na anaerobni prag*

	m/n	*%*
CENBEK	5/12	41.67
SPOBEK	10/15	66.67
VEZRED	8/14	57.14
NAPADA	7/13	53.85
GOLMAN	3/6	50.00

Analizom homogenosti grupa fudbalera prema igračkom mestu u odnosu na anaerobni prag (tabela 4), pokazalo se da jedino spoljni bekovi imaju veću homogenost. Ostale grupe imaju manju homogenost i ona se kreće u rasponu od 41.7% kod centralnih bekova do 57.1% kod igrača veznog reda.

DISKUSIJA

Rezultati ovog istraživanja ukazuju na slične vrednosti procene anaerobnog praga između grupa podeljenih u odnosu na igračku poziciju. Međutim, srednje vrednosti igrača veznog reda u svim posmatranim parametrima imaju najviše vrednosti, i to: frekvencije srca na anaerobnom pragu (186.36 otk/min), brzina trčanja na anaerobnom pragu (14.07 km/h) i procentualna vrednosti anaerobnog praga u odnosu na maksimalnu frekvenciju srca (92.07%), i izdvalja ih od ostalih igračkih pozicija i upućuje na postojanje izvesnih razlika. Poredeći rezultate ovoga rada sa istraživanjem Dillerna i sar. (2012) dobijeni su slični rezultati, odnosno najbolje rezultate ostvarile su igračice veznog reda. Grupa autora je na uzorku od 32 fudbalera ženskog pola prosečne starosti 17,4±2,4 god. testirala aerobne sposobnosti. Posmatrano po igračkim pozicijama postigle su sledeće prosečne vrednosti: odbrambene igračice (brzina na anaerobnom pragu 9,2±0,9 km/h; % u odnosu na maks.fr.srca 85,2±7,3%); igračice veznog reda (10,0±0,6 km/h; 89,3±5,0%); igračice napada (9,3±1,1 km/h; 86,5±5,2%) i golmani (7,9±1,1 km/h; 87,3±5,3%). Takođe, na uzorku od devetnaest Brazilskih fudbalera prosečne starosti 16,94±0,55 god., Da Silva i sar. (1999) utvrdili su da igrači u proseku ostvaruju brzinu na anaerobnom pragu pri 14,50±0,74 km/h, što je približno rezultatu igrača veznog reda dobijenog u ovom istraživanju. Prilikom upoređivanja rezultata treba uzeti u obzir i da više vrednosti anaerobnog-laktatnog praga teoretski znače da igrači poseduju i veću sposobnost odigravanja utakmice na višem prosečnom nivou bez akumulacije laktata (Helgerud i sar., 2001).

Merenjem srčane frekvencije tokom zvaničnih utakmica, Coelho i sar. (2011), kod 26 fudbalera U-17 i 18 fudbalera U-20 (16,38±0,5 i 18,24±0,66 godina) na četrnaest i petnaest utakmica, odredili su strukturu takmičarske opterećenosti. Fudbaleri su podeljeni u odnosu na svoje igračke pozicije, na: spoljne bekove, centralne bekove,

igrače veznog reda i napada. Analiza je sprovedena u odnosu na pet radnih zona formiranih u odnosu na maks. frekvenciju srca, i to: zona 1 (<70%), zona 2 (70-85%), zona 3 (85-90%), zona 4 (90-95%) i zona 5 (95-100%). Igrači veznog reda procentualno provode najviše vremena u zoni 3 ($p<0,05$), i provode više vremena u zoni 4 u odnosu na igrače napada i centralne bekove ($p<0,05$).

Navedena istraživanja ukazuju na karakteristiku pozicije veznog igrača, odnosno njegovog značajnijeg angažovanja u višim zonama rada. Takođe, veliki broj statističkih analiza utakmica ukazuje da igrači veznog reda pretrče najdužu distance tokom igre. Preduslov za te pokazatelje veznih igrača svakako su delom i više funkcionalne sposobnosti.

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ASSESSMENT OF ANAEROBIC THRESHOLD IN FOOTBALL PLAYERS ON DIFFERENT POSITIONS, USING THE CONCONI TEST

Introduction: Requirements and needs of properly programmed training process, especially in the pre-season, look for a precise definition of the functional parameters of all the players. The level of anaerobic threshold, as well as research on the same, may be a good indicator of proper dosage of loading. The aim of the research is to determine the differences in running speed and heart rate at the level of anaerobic threshold in relation to the position of the player.

Methods: Age of the respondents in this study included boys from 14 to 16 years of age (60 football players). The sample of respondents was divided according to playing position, as follows: center-backs (12 players), wing-backs (15 players),

midfielders (14 players), forwarders (13 players) and goalkeepers (6 goalkeepers). An estimation of maximum heart rate and anaerobic threshold was performed using the Conconi test – (Conconi et al. 1996). Prior to testing players had ten minutes to warm up and after a few minutes of rest the testing began. Players started with jogging test (10 km/h) and after every 200 m running speed was increased by 0.5 km/h. Within certain sections the load is constant which is achieved by increasing speed after each 200 m, and then maintaining that speed until the end of the section. After processing the results within the particular software ("Polar Precision Performance SW") the values needed for this research were collected. Multivariate methods MANOVA and discriminant analysis will be applied in the paper. Regarding the univariate procedures, ANOVA t-test and Roy's test shall be applied. The descriptive parameters, mean value, standard deviation (SD), minimum and maximum of all values, the coefficient of variation (CV) of confidence intervals, skewness as the measures of asymmetry, kurtosis as the measure of flatness and the value of the Kolmogorov-Smirnov test, shall be presented. Results: By using the multivariate analysis of variance and based on the results, no statistically significant difference was observed. Discriminant analysis, which is a superior method compared to multivariate analysis of variance, because in addition to the quantitative values of the analyzed features it also observes their mutual relationship, revealed no significant difference also. Univariate analysis confirmed the assumption, which means no significant differences were found between the groups regarding the observed variables. However, the mean values for midfield players in all monitored parameters were the highest. Discussion: The results of this study indicate similar estimates of values of the anaerobic threshold between the groups divided according to their playing position. However, the mean values for midfield players in all monitored parameters were the highest: heart rate at the anaerobic threshold (186.36 beats/min), running speed at anaerobic threshold (14.07 km/h) and percentage value of anaerobic threshold in relation to the maximum heart rate (92.07 %), which separates them from other playing positions and points to the existence of certain differences. Comparing the results of this study with research performed by Dillerna et al. (2012) shows that similar results were obtained, and the best results are achieved by female midfield players. Also, by measuring heart rate during official games, Coelho et al. (2011), within the sample of 26 players from U-17 and 18 players from U-20 category, found that midfield players, presented in percentage, spent the most of the time in the zone 3 ($p<0.05$), and spent more time in zone 4 compared to the forward players and center-backs ($p<0.05$). The above studies indicate a significantly higher engagement of midfield players compared to other positions. References: Coelho BD, Mortimer AL, Condessa AL, Morandi FR, Oliveira MB, Marins JC, Soares DD, arcia SE (2011). Rev. Bras. Cineantropom Desempenho Hum., 13 (5), 341-7. Conconi F, Grazzi G, Casoni I, Borsseto C, Ballarin E, Mazzoni G, Gatracchini M, Manfredini F (1996). Int. Journ. ff Sport Medicine, 17, 7-12. Da Silva SG, Kaiss L, Campos W, Ladewig I (1999). Journal of Sports Sciences, 17, 823. Dillern T, Ingebrigtsen J, Shalfawi S (2012). Serbian Journal of Sports Sciences, 6 (2), 43-9. Helgerud J, Engen L, Wisloff U, Hoff J (2001). Medicine & Science in Sports & Exercises, 33(11), 1925-31.

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MOTORIČKE SPOSOBNOSTI U PREDIKCIJI PRECIZNOSTI DODAVANJA LOPTE KOD KOŠARKAŠA

1. UVOD

Košarka je kompleksan sport kojeg čine strukture jednostavnih ili složenih pokreta, koje izvode članovi tima u igri. Složenost košarkaške igre u informacionom i motoričkom smislu zahtijeva visok nivo tehničko- taktičke pripremljenosti. Upravo zato, nivo tehničko-taktičke pripremljenosti predstavlja značajan faktor u ostvarivanju vrhunskih košarkaških rezultata. Sposobnost rješavanja jednostavnih i komplikovanih zadataka u košarkaškoj igri u velikoj mjeri zavisi od različitih antropoloških dimenzija.

Dodavanja i hvatanja lopte pripadaju bogatoj grupi kretanja obzirom na oblike pojavljivanja u igri. Lopta se hvata jednom ili sa obje ruke, na mjestu, u kretanju ili skoku, na različitim visinama u odnosu na tijelo igrača, te u različitim položajima ili pravcima kretanja u odnosu na pravac i brzinu dolazeće lopte. Hvatanje mora biti sigurno kako bi nova akcija s loptom mogla započeti istog trenutka nakon prijema lopte. U skladu s tim zahtijevom značajan je prijem lopte jednom rukom na koji se nadovezuje izbačaj.

Značaj dodavanja u igri je velik, te je i statistički utvrđeno da broj izgubljenih lopti zbog lošeg dodavanja vrlo često odlučuje o pobjedniku. Lopta se dodaje jednom ili sa obje ruke na malu, srednju ili veliku udaljenost, s mjesta, u skoku ili u kretanju, igraču koji miruje ili se kreće. Pravac izbačene lopte može biti različit u odnosu na igrače koji dodaju loptu kao i u odnosu na igrače kome se lopta dodaje. Putanja težišta lopte najčešće je horizontalnog, a ređe elevacionog oblika. Dodavanje mora biti precizno, pravovremeno, izvedeno strukturom koja je najprikladnija trenutnoj situaciji, te usmjerenom k onom igraču koji se nalazi u najpovoljnojoj situaciji za dalji razvoj akcije.

Cilj ovog istraživanja jeste utvrđivanje prediktivne vrijednosti (stepena uticaja) bazičnih motoričkih sposobnosti na preciznost dodavanja lopte kod košarkaša.

2. METOD RADA

2.1 Uzorak ispitanika

Istraživanje je provedeno na uzorku od 100 košarkaša uzrasta 18 do 20 godina starosti, koji se takmiče u republičkoj ligi.

2.2 Uzorak varijabli

U ovom istraživanju upotrijebljen je 21 motorički test kompozitnog tipa, kao sistem prediktorskih varijabli, namijenjeni procjeni latetnih dimenzija koje pripadaju prostorima strukturalne i energetske regulacije kretanja te tri situaciono-motorička testa

za procjenu preciznosti dodavanja lopte, takođe kompozitnog tipa, proizašla iz istraživanja Blaškovića i sar., 1982., kao kriterijska varijabla. U sistemu prediktorskih varijabli odabrani su slijedeći motorički testovi:

Taping rukom – MBFTAP, Taping nogom – MBFTAN, Taping nogama o zid – MBFTAZ, Gađanje horizontalnog cilja rukom – MPGHCR , Gađanje vertukalnog cilja nogom – MPGVCN, Ciljanje kratkim štapom – MPCKRS, Pretklon na klupi – MFLPRK, Iskret sa palicom – MFLISK , Bočni raskorak – MFLBOS, Vođenje lopte rukom – MKAVLR, Okretnost u zraku – MKTOZ, Poligon natraške – MREPOL, Okretnost na tlu – MAGONT, Koraci na stranu – MAGKUS, Trčanje u pravougoniku – MAGTUP, Skok u dalj iz mjesta – MFESDM, Skok uvis iz mjesta – MFESVM, Bacanje medicinke iz ležanja – MFEBML, Sklekovi na razboju – MRASKR, Zakloni trupa u ležanju – MRCZTL, Dizanje nogu ležeći – MRCDNL

Kriterijsku varijablu u ovom istraživanju predstavlja rezultat u tri situaciono-motorička testa i to:

Elevaciona preciznost dodavanja lopte jednom rukom sa strane – SKPEP 1

Elevaciona preciznost dodavanja lopte s dvije ruke s grudi – SKPEP 2

Horizontalna preciznost dodavanja lopte jednom rukom sa strane – SKPHOR

2.3 Metode obrade podataka

U skladu sa ciljem istraživanja izabrane su odgovarajuće metode statističke obrade podataka.

Za utvrđivanje prediktivne vrijednosti bazičnih motoričkih sposobnosti i kriterijskih (preciznost dodavanja lopte) varijabli primjenjena je regresiona analiza u manifesnom prostoru.

Statistička značajnost regresionih koeficijenata testirana je na nivou greške $p<.05$. Značajnost koeficijenta determinacije testirana je preko F testa na nivou greške $p<.05$.

3. REZULTATI I DISKUSIJA

Pregledom tabele 1 u kojoj je prikazana regresiona analiza testa SKPEP1 – elevaciona preciznost dodavanja lopte jednom rukom sa strane, može se vidjeti u koloni vektora koji sadrži parcijalne regresione koeficijente da se značajne vrijednosti pozitivnog predznaka kreće u rasponu od .21 do .30.

Tabela 1. *Regresiona analiza testa S K P E P 1 – elevaciona preciznost dodavanja lopte jednom rukom sa strane*

	nes.koefic.	std.greška	std.koefic.	t	Sig.
	B	**B**	**BETA**		
MBFTAP	.21	.27	**.25**	5.24	**.00**
MBFTAN	-.05	-.19	-.19	.91	.08
MBFTAZ	-.12	-.10	-.10	1.21	.35
MPGHCR	.11	.25	**.23**	2.69	**.01**
MPGVCN	.11	.10	.09	.93	.36

MPCKRS	.21	.20	**.21**	4.52	**.05**
MFLPRK	.29	.28	**.28**	8.23	**.00**
MFLISK	-.15	.08	.08	-1.19	.45
MFLBOS	.03	-.14	-.15	-.43	.17
MKAVLR	-.22	-.22	**-.26**	5.78	**.04**
MKTOZ	-.04	-.06	-.07	.28	.57
MREPOL	-.07	-.24	**-.26**	1.91	**.02**
MAGONT	.30	-.01	-.01	-.37	.92
MAGKUS	.04	.17	.18	.72	.09
MAGTUP	-.12	-.03	-.03	.36	.77
MFESDM	.32	.21	**.20**	6.51	**.05**
MFESVM	.21	.09	.10	2.11	.38
MFEBML	.08	.23	**.21**	1.77	**.03**
MRASKR	-.03	-.13	-.13	.47	.22
MRCZTL	.21	.16	.20	4.19	.13
MRCDNL	.13	-.06	-.05	-.72	.59
	R^2	**R**	**Sig.**		
	.460457	.69134	.00003		

Legenda: nes.koefic.B- *nestandardizovani beta koeficijent;* **std.greškaB-***standardna greška;* **std.koefic.BETA** - *standardizovani koeficijent BETA;* **t-** *t-test;* **Sig. –** *statistička značajnost;* **R-** *koeficijent multiple korelacije;* **R^2-** *koeficijent determinacije;*

Najveći uticaj na rezultat u kriteriju imaju testovi namjenjeni za procjenu: fleksibilnosti (MFLPRK) koordinacije (MKAVLR, MREPOL), preciznost (MPGHCR, MPCKRS), frekvencija pokreta (MBFTAN) i eksplozivna snaga (MFESDM, MFEBML). Dakle, na rezultatski ishod u kriterju učestvuju skoro sve hipotetske motoričke strukture, osim varijabli za procjenu agilnosti i repetitivne snage. Ovaj nalaz je ujedno i potvrda nekih istraživanja u kojima je utvrđeno da preciznost predstavlja vrlo složenu motoričku dimenziju.

Multipla korelacija izmedju varijabli prediktorskog i kriterijskog sistema iznosi (R .69), a postotak zajedničke varijance (**R^2** .46).

Pregledom tabele 2, na osnovu vrijednosti multiple korelacije prediktorskih i kriterijske varijable, te na osnovu zajedničkih informacija, može se reći da se linearnom kombinaciom manifestnih motoričkih varijabli može objasniti 35% varijance rezultata u elevacionoj preciznosti dodavanja lopte s dvije ruke s grudi – SKPEP 2.

Tabela 2. *Regresiona analiza testa S K P E P 2 – elevaciona preciznost dodavanja lopte s dvije ruke s grudi*

	nes.koefic. B	std.greška B	std.koefic. BETA	t	Sig.
MBFTAP	.07	.13	.13	.92	.21
MBFTAN	-.04	-.10	-.111	.49	.34
MBFTAZ	-.20	-.18	-.20	4.03	.09
MPGHCR	.09	.06	.06	.50	.59

MPGVCN	-.13	-.15	-.15	1.94	.16
MPCKRS	.03	.23	**.26**	.91	**.03**
MFLPRK	.21	.11	.12	2.54	.29
MFLISK	-.29	-.28	**-.31**	-.8.87	**.00**
MFLBOS	.04	-.01	-.01	-.03	.95
MKAVLR	-.04	-.02	-.03	.12	.84
MKTOZ	06	.08	.11	.65	.44
MREPOL	-.10	-.13	-.15	1.50	.23
MAGONT	.09	.14	.19	1.68	.18
MAGKUS	.13	.03	.03	.42	.78
MAGTUP	.03	.15	.17	.60	.16
MFESDM	-.16	-.13	-.14	2.14	.23
MFESVM	.07	.18	.22	1.59	.08
MFEBML	.10	.07	.07	.74	.50
MRASKR	.13	-.01	-.01	-.15	.92
MRCZTL	.21	.18	.25	5.45	.08
MRCDNL	.15	-.04	-.04	-.62	.71
	R^2	**R**	**Sig.**		
	.35422	.58571	.00602		

Legenda: nes.koefic.B- *nestandardizovani beta koeficijent;* **std.greškaB-***standardna greška;* **std.koefic.BETA** - *standardizovani koeficijent BETA;* **t-** *t-test;* **Sig. –** *statistička značajnost;* **R-** *koeficijent multiple korelacije;* **R^2-** *koeficijent determinacije;*

Najveće vrijednosti na vektorima u kojima se nalaze korelacioni i parcijalni regresioni koeficijenti imaju samo varijable iskret sa palicom – MFLISK i ciljanje kratkim štapom – MPCKRS, što upučuje na činjenicu da je za rezultatski ishod u kriteriju vrlo važna (8,87%) pokretljivost zgloba u ramenom pojasu.

Nešto ispod granice statističke značajnosti (p= .05) značajne parcijalne regresione koeficijente imaju testovi zakloni trupa u ležanju – MRCZTL, skok uvis s mjesta – MFESVM, te taping nogom o zid – MBFTAZ. Pomenute motoričke manifestacije neznatno učestvuju u formiranju rezultata u kriterijskoj varijabli.

Pregledom tabele 3, pruža se mogućnost realnog prognoziranja rezultata u horizontalnoj preciznosti dodavanja lopte s dvije ruke s grudi – SKPHOR. Primijenjeni skup prediktorskih motoričkih testova ima 39% zajedničkih informacija sa rezultatskom efikasnošću u kriteriju.

Tabela 3. *Regresiona analiza testa S K P H O R – horizontalna preciznost dodavanja lopte s dvije ruke s grudi*

	nes.koefic. B	std.greška B	std.koefic. BETA	t	Sig.
MBFTAP	.14	.03	.03	.42	.76
MBFTAN	.25	.14	.14	3.66	.20
MBFTAZ	.25	.26	**.28**	7.06	**.01**
MPGHCR	.27	.34	**.36**	9.53	**.00**

MPGVCN	.31	.32	**.32**	10.01	**.00**
MPCKRS	.01	-.10	-.11	-.111	.33
MFLPRK	.03	.04	.04	.14	.68
MFLISK	-.15	-.04	-.05	.72	.67
MFLBOS	.17	-.04	-.06	-.79	.68
MKAVLR	-.33	-.24	**-.31**	10.21	**.01**
MKTOZ	-.13	.12	.15	-1.97	.26
MREPOL	-.01	.03	.03	-.05	.77
MAGONT	-.02	-.24	**-.32**	.53	**.02**
MAGKUS	-.18	.20	**.21**	-3.98	**.05**
MAGTUP	-.28	-.17	-.18	5.23	.11
MFESDM	.03	-.12	-.12	-.41	.25
MFESVM	-.11	-.14	-.17	1.94	.18
MFEBML	-.00	-.05	-.05	.00	.60
MRASKR	-.07	.06	.06	-.43	.59
MRCZTL	.08	-.27	**-.36**	-2.85	**.01**
MRCDNL	.03	.00	.01	.02	.95
	R^2	**R**	**Sig.**		
	.38883	.62356	.00072		

Legenda: nes.koefic.B- *nestandardizovani beta koeficijent;* **std.greškaB-***standardna greška;* **std.koefic.BETA** - *standardizovani koeficijent BETA;* **t-** *t-test;* **Sig. –** *statistička značajnost;* **R-** *koeficijent multiple korelacije;* **R^2-** *koeficijent determinacije;*

Struktura korelacionih i regresionih koeficijenata pokazuju da dominantnu prediktivnu vrijednos na kriterij imaju motoričke manifestacije koje se nalaze pod uticajem mehanizma za srukturisanje kretanja (gađanje horizontalnog cilja rukom – MPGHCR, gađanje vertukalnog cilja nogom – MPGVCN, vođenje lopte rukom – MKAVLR, okretnost na tlu – MAGONT, koraci u stranu – MAGKUS i taping nogama o zid – MBFTAZ). Može se uočiti da na rezultatski ishod u sitaciono-motoričkom testu preciznosti dominantno utiču složene motoričke strukture, kao što su preciznost, koordinacija i agilnost.

4. ZAKLJUČAK

Primarni cilj ovog istraživanja bio je utvrđivanje prediktivne vrijednosti bazičnih motoričkih sposobnosti na rezultatsku upiješnost u preciznosti dodavanja lopte u košarci.

U tu svrhu je na uzorku od 100 košarkaša, izvršeno je mjerenje pomoću 21 motoričkog testa. Isto tako prikupljeni su podaci o uspiješnosti ispitanika u tri situaciono-motorička testa namijenjena procjeni preciznosti dodavanja lopte.

Na osnovu dobijenih rezultata primijenjene regresione analize moguće je izvesti generalni zaključak o relativno visokom i značajnom uticaju bazičnih motoričkih sposobnosti na rezultatsku upiješnost u preciznosti dodavanja lopte.

Dominantnu prediktivnu vrijednost imali su motorički testovi koji se nalaze pod uticajem složenih regulacionih struktura kretanja.

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SUMMARY

The aim of this research was to fortify predictive values (degree of influence) of basic motor capabilities on result of successfulness at precise passing the ball in basketball.

Based on gained results of regressive analyze was concluded that dominate predictive value related on criteria had motor tests which are under influence of mechanism for regulation of movement.

Key words: *basketball / basic motor/ situate motor / precise passing / regressive analyze / sportsman /*

“Pobjeda”, 15. mart 2014.

Sve spremno za međunarodnu konferenciju i kongres o sportu

PODGORICA - Organizacioni odbor 11. međunarodne konferencije o transformacionim procesima u sportu „Sportska dostignuća“ i 10. kongresa Crnogorske sportske akademije radi na pripremi programa akademskih i socijalnih aktivnosti koje će biti održane u Podgorici od 3. do 6. aprila – saopšteno je sa Fakulteta za sport i fizičko vaspitanje.



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Osim najavljenih plenarnih izlaganja, akademski dio konferencije biće realizovan u nekoliko multidisciplinarnih sekcija, koje će obuhvatiti prirodne, društveno-humanističke i medicinske aspekte savremenog sporta. Kongres će biti otvoren 4. aprila. U radu skupa učestvovaće naučnici iz 25 država, a biće predstavljeno 118 naučnih radova. **Đ.Ć.**

UDK: 796.011.1-053.4(049.5)

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UPOREDNA ANALIZA STAVOVA RODITELJA IZ SUSJEDNIH DRŽAVA O FIZIČKOJ AKTIVNOSTI NJIHOVE DJECE PREDŠKOLSKOG UZRASTA

Uvod

U predškolskim ustanovama Crne Gore i Republike Srpske sprovedeno je istraživanje s ciljem da se kroz praćenje i uvid u stavove roditelja o fizičkoj aktivnosti njihove djece koja pohađaju predškolske ustanove, dobiju smjernice za poboljšanje nastave fizičkog vaspitanja u predškolskim ustanovama kao i za preduzimanje mjera kojima bi se roditelji djece koja pohađaju te ustanove edukovali u smislu unapređenja znanja o značaju fizičke aktivnosti za rast i razvoj djece pretškolskog uzrasta Dosadašnja istraživanja su potvrdila da je porodična podrška u pozitivnoj korelaciji sa višim stepenom fizičke aktivnosti predškolskog djeteta. Problem ovog istraživanja sastoji se u pokušaju da se na osnovu stavova roditelja djece predškolskog uzrasta iz navedenih susjednih država procijeni u kojoj mjeri su njihova djeca fizički aktivna u periodu izvan boravka u predškolskim ustanovama.

Metode

Istraživanje je sprovedeno metodom anketiranja anonimnim upitnikom, koju su popunjavali roditelji djece koja su upisana u predškolske ustanove susjednih država: Crne Gore i Republike Srpske.

Uzorak ispitanika iz Crne Gore činio je 1356 roditelja djece predškolskog uzrasta koja pohađaju predškolske ustanove iz sve tri crnogorske regije.

Uzorak ispitanika iz Republike Srpske činio je 386 roditelja djece predškolskog uzrasta koja pohađaju predškolske ustanove u raznim gradovima Republike Srpske.

Cilj istraživanja se sastojao u procjenjivanju stavova roditelja o obimu i karakteristikama fizičke aktivnosti njihove djece i pokušaju da se na osnovu dobijenih podataka preduzmu odgovarajuće mjere na osnovu kojih bi se optimizovale njihove fizičke aktivnosti.

Za anketiranje je korišten upitnik posebno konstruisan za ovu namjenu, u kojem su pitanja bila grupisana s ciljem procjene karakteristika fizičke aktivnosti djece predškolskolskog uzrasta iz susjednih država.

Rezultati

Pri statističkoj obradi korištene su metode deskriptivne statistike, kojima je numerički i procentualno predstavljena učestalost pojedinih odgovora ispitanika, a odgovori su prikazani uporedno tabelarno za oba uzorka. S obzirom na ograničenja u

pogledu maksimalne dužine radova, samo su najinteresantniji odgovori posebno diskutovanni.

Tabela 1. *Fizička aktivnost djece i roditelja - prvi dio*

	Broj dana u nedjelji								Ukupno anketiranih
	0	1	2	3	4	5	6	7	
1. Tokom tipične nedjelje, koliko dana Vaše dijete je fizički aktivno (vježba, trči, u prosjeku najmanje oko 20-30 minuta dnevno?									
Crna Gora									
Broj anketiranih	63	17	130	674	132	68	135	137	1356
Udio %	4,65	1,26	9,59	49,70	9,73	5,01	9,96	10,10	
Republika Srpska									
Broj anketiranih	17	3	31	195	36	19	39	46	386
Udio %	4,41	0,77	8,04	50,51	9,32	4,92	10,11	11,92	
2. Tokom tipične nedjelje, koliko dana podstičete Vaše dijete da vježba ili da bude fizički aktivno?									
Crna Gora									
Broj anketiranih	62	13	190	746	61	15	135	134	1356
Udio %	4,57	0,96	14,01	55,01	4,49	1,12	9,95	9,89	
Republika Srpska									
Broj anketiranih	16	2	56	209	19	4	39	41	386
Udio %	4,14	0,52	14,51	54,14	4,92	1,05	10,10	10,62	
3. Tokom tipične nedjelje, koliko dana Vi (ili druga osoba u kući) učestvujete u fizičkoj aktivnosti sa svojim djetetom?									
Crna Gora									
Broj anketiranih	203	15	407	339	135	20	138	134	1356
Udio %	12,74	1,01	30,01	24,95	9,96	1,41	10,11	9,81	
Republika Srpska									
Broj anketiranih	52	6	107	94	43	9	40	35	386
Udio %	13,47	1,56	27,72	24,35	11,14	2,33	10,36	9,07	
4. Tokom tipične nedjelje, koliko dana Vi ili drugi član porodice obezbjeđujete odvođenje ili prevoz Vašeg djeteta do mjesta gdje može da bude fizički aktivno ili da se bavi sportom?									
Crna Gora									
Broj anketiranih	339	135	132	558	63	68	61	7	1356
Udio %	24,95	9,96	9,73	40,95	4,65	5,01	4,23	0,52	
Republika Srpska									
Broj anketiranih	97	35	39	151	21	24	15	4	386
Udio %	25,13	9,07	10,10	39,11	5,44	6,21	3,89	1,05	
5. Koliko dana nedjeljno Vaše dijete ima organizovan čas fizičkog vaspitanja u vrtiću?									
Crna Gora									
Broj anketiranih	61	618	341	131	137	68	10	4	1356
Udio %	4,23	44,59	25,38	9,66	10,10	5,01	0,74	0,29	

				Republika Srpska					
Broj anketiranih	19	168	101	33	36	22	5	2	386
Udio %	4,92	43,52	26,17	8,55	9,33	5,70	1,29	0,52	
6. Tokom tipične nedjelje, koliko dana Vi učestvujete u fizičkoj aktivnosti ili vježbanju (u slobodno vrijeme, ne na poslu), umjerenog intenziteta, najmanje 30 minuta dnevno, bilo u kontinuitetu ili u "porcijama" od po 10 ili više minuta?									
				Crna Gora					
Broj anketiranih	459	242	140	301	134	14	63	3	1356
Udio %	33,85	17,85	10,32	22,20	9,88	1,03	4,65	0,22	
				Republika Srpska					
Broj anketiranih	140	73	40	89	41	4	18	1	386
Udio %	37,52	15,25	10,32	21,19	9,81	1,04	4,65	0,22	

Na osnovu tabele 1 može se konstatovati da se kao odgovor na pitanje o nedeljnom obimu i intenzitetu fizičke aktivnosti djece u obje susjedne države najčešće pojavljuju srednje vrijednosti, odnosno navodi se das u djeca aktivna u prosjeku 3-4 dana u nedjelji.

Vrlo mali broj djece je potpuno neaktivan ili aktivan 6-7 dana u nedjelji, što je lako uočljivo pregledom uporednih tabelarnih podataka.

Tabela 2. *Fizička aktivnost djece i roditelja - drugi dio*

Koliko se slažete ili ne slažete sa sljedećim tvrdnjama (zaokruži broj)						
	Veoma se ne slažem	Donekle se ne slažem	Neutralno	Donekle se slažem	Veoma se slažem	Ukupno anketiranih
1. Moje dijete uživa u bavljenju fizičkom aktivnošću / sportom.						
			Crna Gora			
Broj anketiranih	2	68	203	271	812	1356
Udio %	0,15	5,02	14,97	19,98	59,88	
			Republika Srpska			
Broj anketiranih	1	20	61	80	224	386
Udio %	0,26	5,18	15,80	20,72	58,03	
2. Važno je da se moje dijete bavi najmanje 30 minuta umjerenom fizičkom aktivnošću skoro svaki dan						
			Crna Gora			
Broj anketiranih	3	66	135	540	610	1356
Udio %	0,22	4,87	9,96	39,97	44,98	
			Republika Srpska			
Broj anketiranih	1	21	40	152	172	386
Udio %	0,26	5,45	10,36	39,37	44,56	
3. Važno je da moje dijete ima kvalitetno fizičko vaspitanje u vrtiću skoro svaki dan						
			Crna Gora			
Broj anketiranih	2	64	137	679	474	1356
Udio %	0,15	4,72	10,10	50,07	34,96	

			Republika Srpska			
Broj anketiranih	1	30	44	189	122	386
Udio %	0,26	7,77	11,40	48,96	31,61	
4. Važno je da redovno podstičem svoje dijete da bude fizički aktivno						
			Crna Gora			
Broj anketiranih	5	68	67	678	538	1356
Udio %	0,37	5,01	4,94	50,00	39,68	
			Republika Srpska			
Broj anketiranih	2	29	23	197	135	386
Udio %	0,52	7,51	5,96	51,04	34,97	
5. Ja lično uživam u fizičkoj aktivnosti i sportu						
			Crna Gora			
Broj anketiranih	72	65	339	610	270	1356
Udio %	5,31	4,79	25,00	44,98	19,92	
			Republika Srpska			
Broj anketiranih	19	18	96	174	77	386
Udio %	4,92	4,67	24,87	45,08	19,95	
6. Moje dijete se igra radije na otvorenom prostoru nego u stanu						
			Crna Gora			
Broj anketiranih	72	74	6	333	871	1356
Udio %	5,31	5,46	0,44	24,56	64,23	
			Republika Srpska			
Broj anketiranih	18	23	3	89	253	386
Udio %	4,66	5,96	0,78	23,06	65,54	

Slična je situacija i sa uporednim podacima o fizičkoj aktivnosti djece i roditelja prikazanim u tabeli 2.

Tabela 3. *Uključenost djece u sportske i rekreativne klubove)*

	DA	*NE*	*Ukupno*
1. Tokom protekle godine da li je Vaše dijete bilo uključeno u rad nekog sportskog kluba, sportske školice, rekreativnog kluba i sl.?			
	Crna Gora		
Broj anketiranih	345	1011	1356
Udio %	25,44	74,66	
	Republika Srpska		
Broj anketiranih	90	296	386
Udio %	23,32	76,68	

Na osnovu Tabele 3. možemo vidjeti da je u Crnoj Gori samo 25,44 % djece uključeno u rad nekog sportskog kluba, sportske školice ili rekreativnog kluba.

U Republici Srpskoj je taj procenat nešto manji i iznosi 23,32%.

Tabela 4. *Bavljenje djece određenim sportom*

Vrsta aktivnosti		Broj anketiranih sa odgovorom DA	Udio %
Tenis	Crna Gora	15	4,02
	Republika Srpska	12	3,22
Atletika	Crna Gora	6	1,61
	Republika Srpska	5	1,35
Fudbal	Crna Gora	72	19,30
	Republika Srpska	93	24,93
Ples	Crna Gora	84	22,52
	Republika Srpska	80	21,45
Košarka	Crna Gora	97	26,01
	Republika Srpska	92	24,66
Borilačke vještine	Crna Gora	65	17,42
	Republika Srpska	60	16,08
Odbojka	Crna Gora	11	2,94
	Republika Srpska	14	3,75
Plivanje	Crna Gora	9	2,41
	Republika Srpska	2	0,54
Gimnastika	Crna Gora	2	0,54
	Republika Srpska	5	1,34
Aerobik	Crna Gora	8	2,14
	Republika Srpska	4	1,07
Drugo	Crna Gora	4	1,07
	Republika Srpska	6	1,61
UKUPNO		373	

Od 373 djeteta iz Crne Gore koja su uključena u rad nekog spotrskog kluba *(Tabela 4.),* najviše ih je uključeno u rad: košarkaških klubova 28,41%, plesnih 22,52%, fudbalskih 19,30% i borilačkih klubova 17,42%. Najmanja uključenost djece predškolskog uzrasta u rad sportskih klubova je evidentna kod gimnastike 1,34, atletike 1,61, i plivanja 2,41 što je razumljivo sa stanovišta mane razvijenosti i manje popularnosti ovih sportova kod nas.

U Republici Srpskoj je slična situacija, pa je najviše djece uključeno u rad: košarkaških klubova 24,66%, fudbalskih 24,93%, plesnih 21,45 %, i borilačkih klubova 16,08%. Najmanja uključenost djece predškolskog uzrasta u rad sportskih klubova je evidentna, kao i u Crnoj Gori kod gimnastike 1,34, atletike 1,61, i plivanja 2,41 iz vjerovatno istih razloga.

Tabela 5. *Aktivnosti djece tokom jučerašnjeg dana (koji je prethodio anketiranju roditelja)*

Aktivnosti tokom prethodnog dana	*Broj anketiranih:*		*Ukupno vrijeme (h,mm)*	*Prosječno vrijeme (h,mm)*	*Udio u vremenu %*
Vožnja bicikla	Crna Gora	67	82,03	0,23	4,94
	Republika Srpska	20			5,18
Plivanje	Crna Gora	3	1,21	0,27	0,37
	Republika Srpska	1	0,20	0,30	0,26
Gimnastika (razboj, vratilo, krugovi, greda i sl)	Crna Gora	3	1,45	0,35	0,22
	Republika Srpska	1	0,45	0,45	0,26
Vježbe: sklekovi, trbušnjaci, preskakanje konopca	Crna Gora	5	1,35	0,27	0,37
	Republika Srpska	3	1,18	0,26	0,78
Košarka	Crna Gora	173	4,33	0,20	12,76
	Republika Srpska	48	13,6	0,17	12,43
Fudbal	Crna Gora	226	8,67	0,20	16,67
	Republika Srpska	65	15,6	0,24	16,84
Odbojka	Crna Gora	14	4,66	0,20	1,04
	Republika Srpska	5	1,92	0,23	1,29
Rroleri, skejtbord . . .	Crna Gora	52	13,87	0,16	3,83
	Republika Srpska	14	3,92	0,28	3,63
Sportovi sa reketom (tenis, stoni tenis, badminton)	Crna Gora	13	2,17	0,10	0,96
	Republika Srpska	4	1,08	0,17	1,04
Igre loptom: Izmedju 2 ili 4 vatresl.	Crna Gora	95	50,67	0,32	7,00
	Republika Srpska	27	9,45	0,21	6,99
Aktivne igre: vije, školice	Crna Gora	88	24,93	0,17	6,49
	Republika Srpska	25	7,92	0,19	6,47
Igre napolju: hvatalica, žmurke, i sl.	Crna Gora	78	54,6	0,42	5,75
	Republika Srpska	20	7,66	0,23	5,81
Igre u vodi (bazen)	Crna Gora	3	2,00	0,10	0,89
	Republika Srpska	-	-	-	-
Borilačke vještine: džudo, karate . . .	Crna Gora	14	12,37	0,53	1,03
	Republika Srpska	5	3,08	0,37	1,29
Ples (narodni, društveni, balet)	Crna Gora	13	2,17	0,10	0,96
	Republika Srpska	3	1,45	0,29	0,78
Kućni poslovi: usisavanje, raspre-manje,prenošenje i sl	Crna Gora	15	1,23	0,05	1,11
	Republika Srpska	7	1,98	0,17	1,81

Vožnja bicikla.	Crna Gora	14	11,67	0,50	1,03
	Republika Srpska	5	2,17	0,26	1,29
Hodanje	Crna Gora	292	13,43	0,46	21,53
	Republika Srpska	83	2,82	0,34	21,50
Trčanje	Crna Gora	177	91,45	0,31	13,05
	Republika Srpska	46	19,17	0,25	11,92
UKUPNO	Crna Gora	1356	723,2	0,32	
	Republika Srpska	386	186,57	0,29	

Na osnovu Tabele *5* vidimo da su tokom dana koji je prethodio anketiranju kod djece anketiranih roditelja iz navedenih susjednih zemalja bile zastupljene skoro sve navedene aktivnosti a najviše hodanje, trčanje, fudbal i košarka. Osim toga, dosta su zastupljene pokretne igre na otvorenom prostoru kao i vožnja bicikla.

Rezultati ovog istraživanja ukazuju na trend opadanja fizičke aktivnosti djece predškolskog uzrasta i u Crnoj Gori i u Republici Srpskoj. Diskusija i komentari su integralno predstavljeni i diskutovani za sve grupe odgovora na anketna pitanja.

Diskusija

Dinamičan razvoj i sve značajnija uloga fizičke kulture u razvoju modernog društva i životu savremenog čovjeka, podstakla je znatno aktivniji odnos nauke prema ovom području ljudske djelatnosti, Bjelica, D. & Krivokapić, D., (2010). Ipak, zbog očiglednog trenda opadanja nivoa fizičke aktivnosti djece predškolskog uzrasta, nameće se potreba za njenim intenziviranjem, kako bi se obezbijedio što optimalniji uticaj na njihov psihofizički razvoj. “Fizički razvoj jedinke najbolje se ostvaruje kroz aktivnosti koje su intenzivne, dobro osmišljene i svestrane,” Bjelica, D. & Krivokapić, D., (2011). Iako fizičko vaspitanje u našem predškolskom sistemu ima dugu tradiciju, savremene životne navike zahtijevaju adekvatne promjene u ciljevima, strukturi, sadržajima i oblicima realizacije nastave, pa isti autori navode: (2011) navode: „aktuelni fond časova i nastava oblikom i sadržajom ne može u potpunosti odgovoriti na ciljeve i zadatke koji se u savremenim uslovima života postavljaju pred ovaj predmet. Prije svega se tu misli na neadekvatan intenzitet, ali iznad svega i obim rada“. Sve su to razlozi zbog kojih je potrebno posvetiti odgovarajuću pažnju intenziviranju fizičke aktivnosti djece pretškolskog uzrasta, posebno sada, kada pasivni oblici provođenja slobodnog vremena, po svom trajanju i učestalosti, značajno nadmašuju vrijeme koje je ispunjeno fizičkim aktivnostima.

Zaključak

Rezultati ovog istraživanja nesumljivo ukazuju na trend opadanja fizičke aktivnosti djece predškolskog uzrasta u navedenim susjednim državama. Svakako da su savremeni stilovi života i ekspanzija digitalne tehnologije u mnogome doprinijele pasivnom provođenju slobodnog vremena i kod djece predškolskog uzrasta. U nastojanju da se ta tendencija umanji, analiza položaja i uloge vaspitača/ica kao i stvaranje

stimulativnog ambijenta kroz koji se omogućava, podspješuje i stimuliše njihov profesionalni razvoj i permanentno usavršavanje, od posebnog je značaja. Porodični uslovi su značajni u pružanju podrške za bavljenje fizičkom aktivnosti i uopšte u integralnom razvoju djeteta. Dosadašnja istraživanja su potvrdila da je porodična podrška u pozitivnoj korelaciji sa višim stepenom fizičke aktivnosti predškolskog djeteta. Treba napomenuti da se porodična podrška ne ograničava samo na verbalnu podršku, već podrazumijeva i obezbjeđivanje materijalnih pretpostavki i stvaranje pozitivne i prijatne atmosfere za bavljenje fizičkom aktivnošću. S obzirom na dobijene rezultate ovog istraživanja nameće se mišljenje da bi dodatna edukacija roditelja djece predškolskog uzrasta o značaju optimalne fizičke aktivnosti za rast i razvoj djece, u tom periodu djetinjstva mogla djelimično umanjiti negativne posledice koje proističu iz nezadovoljavajućeg nivoa njihove fizičke aktivnosti.

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COMPARATIVE ANALYSIS OF PARENTS` ATTUTUTES FROM NEIGHBOUR COUNTRIES ON PHYSICAL ACTIVITIES OF THEIR PRE-SCHOOL CHILDREN

Introduction: A research has been done in pre-school institutions of Montenegro and Serb Republic whose aim was to get directions for improvement of physical education in pre-school institutions as well as for taking measures in order to educate parents of the children attending those institutions in the sense of improving knowledge on importance of physical activity for growth and development of pre-school children through monitoring and insight into attitudes of parents on physical activity of their children. Problem of this research is consisted of an attempt to use the parents` attitudes to estimate how active their children are within the time period when there are not on the pre-school institutions. Methods: The research was done by the poll method of anonymous questionnaire, with was filled by parents of the children attending pre-school institutions in Montenegro and Serb Republic. Sample of the examinees from Montenegro was made of 1356 of parents of the pre-school children attending pre-school institutions from all three Montenegrin regions. Sample of the

examinees from the Serb Republic was made of 386 parents of the pre-school children attending pre-school institutions. Aim of the research was consisted of estimation of the parents` attitudes on volume and features of the physical activity of their children and of attempt to use the given data to take certain measures on the base of which their physical activities would be optimized. For this poll, a specially structured questionnaire for this purpose was used, in which the questions were set into groups with the aim of estimating features of physical activity of the pre-school children. Results: For the statistics processing methods of descriptive statistics were used, which were used for numerical and percent presentation of frequency of some answers of the examinees, and the answers were presented comparatively in tables for both samples. Results of this research indicate to trend of decrease in physical activity of the pre-school children in both Montenegro and Serb Republic. Discussion and comments were integrally presented and discussed for all groups of answers to polled questions. Discussion: Dynamic development and more and more important role of physical education in modern society development as well as in the life a modern man has encouraged much more active attitude of science towards the field of the human activity (Bjelica, D. & Krivokapić, D., 2010.). Anyway, for the obvious trend of decrease in physical activity of the pre-school children, there is a need for its intensifying, in order to provide as optimal as possible influence on their mental and physical development. ``Physical development of an individual is best realized through activities that are intensified, conceived and versatile``(Bjelica, D. & Krivokapić, D., 2011). In that attempt, analysis of the position and role of the teacher as well as creating of stimulating ambient that enables, stimulates and encourages their professional development and permanent education is especially important. Taking into account the given results of this research, there is an opinion that additional education of parents of the pre-school children on importance of optimal physical activity for growth and development of the children in that period of their childhood, could partially decrease negative consequences resulting from unsatisfying level of their physical activity. References: Bjelica D, Krivokapic D (2010). Teorijske osnove fizicke kulture, Fakultet za sport i fizicko vaspitanje i Crnogorska sportska akademija, 37-38. Bjelica D, Krivokapic D (2011). Teorija igre, Univerzitet Crne Gore, 115-116.

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SUBJEKTIVNA I OBJEKTIVNA PROCJENA NIVOA FIZIČKE AKTIVNOSTI U SLUŽBI OČUVANJA I UNAPREĐENJA ZDRAVSTVENOG STATUSA

Uvod

Rezultati sve većeg broja istraživanja koja ukazuju na brojne benefite redovne fizičke aktivnosti uticali su na formiranje brojnih smjernica o preporučenom obimu i intenzitetu vježbanja koje je u službi očuvanja i unapređenja zdravstvenog stanja savremenog čovjeka. Sa aspekta procjene rizika po ugrožavanje zdravlja najveća pažnja bi trebala da se poklanja identifikovanju osoba koje ne ispunjavaju ni neophodne minimume po pitanju učestvovanja u fizičkoj aktivnosti. Učešće u nekom vidu fizičke aktivnosti predstavlja najvarijabilniju komponentu ukupne dnevne kalorijske potrošnje sedentarne populacije jer u najvećoj mjeri zavisi od nivoa znanja o uticaju fizičke aktivnosti, od stepena autokontrole i upornosti svakog pojedinca da istraje u nastojanju da očuva i unaprijedi svoje zdravlje.

Svijest i saznanje o potrebi i vrijednostima intenziviranja fizičke aktivnosti prvi je uslov za formiranje trajnih aktivnih interesa za nihovo sistematsko aktivno upražnjavanje. U tom smislu, treba kontinuirano raditi na:

-formiranju svijesti i saznanja o osnovnim biološkim, socijalnim psihološkim efektima fizičke aktivnosti na organizam savremenog čovjeka;

-aktivnom učešću u sportsko rekreativnim aktivnostima i ovladavanjem osnovnim elementima sportske tehnike u odabranim aktivnostima;

-razvijanju pozitivnih emocija i prijatnog doživljavanja kao posledicu aktivnog učestvovanja u raznim oblicima fizičkih aktivnosti.

Da li će se, kako i koliko čovjek u tom smislu angažovati zavisi:

-od toga u kolikoj mjeri poznaje i da li je na sebi osjetio biološke, socijalne, psihološke i materijalne vrijednosti tih aktivnosti;

-od društvenih uslova i praktičnih mogućnosti za uključivanje u željene programe vježbanja;

-od stepena autokontrole, odnosno upornosti svakog pojedinca da istraje u nastojanju da zadovoljava svoje želje za učešćem u tim aktivnostima.

Metode

Ovaj rad je koncipiran na preporukama Američkog koledža za sportsku medicinu (American College of Sports Medicine – ACSM, 2009) koji je jedan od najreferentnijih izvora u promociji pozitivnih efekata fizičke aktivnosti na zdravlje savremenog čovjeka. Njihova sugestija ljekarima, stručnjacima za razvoj fizičke forme, kao i svima koji se bave zdravljem ljudi je da moraju više nego ikada do sada ovladti znanjima koja će im omogućiti kvalitetno programiranje fizičke aktivnosti namijenjene osobama

raznih hronoloških doba, različitog zdravstvenog stanja, sa različitim potrebama i mogućnostima.

Poznato je da fizička forma predstavlja mjerljiv indikator navika pojedinca o učešću u nekom od oblika fizičke aktivnosti. Zbog toga je veoma značajno da stručnjaci iz oblasti vježbanja i zdravlja budu dobro upoznati sa metodama procjene elemenata fizičke forme povezane sa zdravljem, kao i da na adekvatan način interpretiraju dobijene rezultate.

Treba podsjetiti da fizička forma predstavlja skup karakteristika pojedinca čiji nivo direktno zavisi od učešća u nekom od oblika fizičke aktivnosti. Naravno, važno je napomenuti da i genetika igra važnu ulogu kada je u pitanju dostizanje optimalnog nivoa određenog elementa fizičke forme. Osobe koje se odlikuju najvišim nivoom fizičke forme mogu na tome da zahvale kako genotipu, tako i kvalitetnom trenažnom procesu.

Rezultati

Dosadašnja istraživanja utvrdila su jasnu vezu između fizičke aktivnosti i zdravlja. Jedna od najznačajnijih publikacija u kojoj se naglašava ova povezanost jeste izvještaj američkog Ministarstva za zdravlje iz 1996. godine pod nazivom *Fizička aktivnost i* zdravlje (Physical Activity and Health 1996). Ovaj izvještaj pruža detaljan pregled istraživanja koja su utvrdila brojne korisne efekte po zdravstveni status osoba koje su učestvovale u nekom od oblika fizičke aktivnosti, a ujedno i naglašava šta predstavlja pojam odnosa *obima i odgovora. Obim,* u ovom slučaju označava količinu fizičke aktivnosti i/ili vježbanja, dok se *odgovor* odnosi na ishod po pitanju zdravstvenog statusa. Jasni su dokazi da fizička aktivnost pozitivno utiče na brojne aspekte zdravlja pojedinca.

Tačan minimalan obim i intenzitet fizičke aktivnosti i/ili vježbanja dovoljan da sa sigurnošću izazove pozitivne efekte po zdravstveni status još uvijek nije poznat; međutim, američki Koledž za sportsku medicinu i američka Asocijacija za bolesti srca (American Heart Association, 2007) su dopunili preporuke i iznijeli ih u izvještaju pod nazivom Fizička aktivnost i javno zdravlje. Ova publikacija se preporučuje svim stručnjacima koji rade u oblasti vježbanja i zdravlja. Treba uvijek imati na umu da upravo vježbanje podstiče održavanje i napredak nivoa fizičke forme. Drugim riječima, fizička forma predstavlja mjerljivu komponentu navika pojedinca po pitanju učešća u fizičkoj aktivnosti i vježbanju. Zbog toga je procjena elemenata fizičke forme povezane sa zdravljem postala značajna za brojne institucije koje se bave zdravljem ljudi.

Među bitnim razlozima za procjenu elemenata fizičke forme povezane sa zdravljem, kao što je naznačeno u publikaciji „Smjernice za testiranje i dizajniranje programa vježbanja ACSM“ (U.S. Department of Healt and Human Services Physical Activity Guidelines, 1998), posebno se naglašava edukacija klijenata o njihovom trenutnom nivou elemenata fizičke forme povezane sa zdravljem, kao i poređenje dobijenih parametara sa standardima za pol i uzrast.

Približan obim i intenzitet fizičke aktivnosti dovoljan da izazove pozitivne efekte po zdravstveni status svakog pojedinca se individualno određuje i zavisi od niza ličnih specifičnosti, pa se subjektivnoj i objektivnoj procjeni odgovarajućeg nivoa

fizičke aktivnosti pridaje veliki značaj. Takođe, procjena elemenata fizičke forme povezane sa zdravljem postala značajna za brojne institucije koje se bave zdravljem ljudi.

U nastavku teksta navešćemo osnovne smjernice na osnovu kojih se može približno odrediti obim i intenzitet fizičke aktivnosti koja može izazvati pozitivne adaptilne promjene na organizam vježbača raznih hronoloških doba, različitog zdravstvenog stanja kao i različitog nivoa fizičke forme.

Značaj procjene fizičke forme povezane sa zdravljem

Fizička aktivnost čini jednu od komponenti ukupne dnevne kalorijske potrošnje, dok u ostale spadaju bazalni metabolizam i termički efekat hrane. Zbog toga što učešće u nekom od oblika fizičke aktivnosti determiniše slobodna volja pojedinca, to je čini najvarijabilnijom komponentom ukupne dnevne kalorijske potrošnje. Zbog brojnih dobrobiti redovne fizičke aktivnosti (U.S. Department of Healt and Human Services Physical Activity Guidelines 1998) nastale su raznovrsne smjernice o preporučenom obimu i intenzitetu vježbanja koji je u službi očuvanja i unapređenja zdravstvenog stanja. Naime, ove preporuke se odnose na učešće u minimum 30 minuta aerobnih aktivnosti umjerenog intenziteta pet ili više dana u nedjelji ili učešće u aerobnim aktivnostima visokog intenziteta u trajanju od 20 minuta, tri ili više dana u nedjelji. Dalje, smjernice brojnih zdravstvenih organizacija govore u prilog tome da preporučeno vrijeme trajanja aktivnosti može da se podijeli na nekoliko cjelina u trajanju od 8 do 10 minuta više puta u toku dana. Pridržavajući se ovih preporuka, veoma je važno da se odredi tačan intenzitet, učestalost, trajanje i tip fizičke aktivnosti za svakog pojedinca. Ova procjena dobija na značaju kada se u obzir uzmu činjenice kao što su obim fizičke aktivnosti i njen uticaj na zdravlje, utvrđivanje obrazaca ponašanja o učešću u nekom od oblika fizičke aktivnosti ili kada se vrši procjena u kojoj mjeri treba promovisati fizičku aktivnost i uticati na podizanje nivoa učešća pojedinca ili društva u njoj. Sa aspekta procjene rizika, najveća pažnja se poklanja identifikovanju osoba koje ne ispunjavaju minimume preporuka po pitanju učešća u fizičkoj aktivnosti (neaktivna ili sedentarna populacija). Da podsjetimo da se sedentarnom osobom smatra ona koja nije učestvovala u umjerenim aktivnostima u trajanju od 30 minuta minimum tri dana u nedjelji u poslednja tri mjeseca.

Procjena stepena fizičke aktivnosti pojedinca najčešće se vrši primjenom subjektivnih i objektivnih metoda.

Subjektivna procjena fizičke aktivnosti

Subjektivna procjena fizičke aktivnosti uključuje primjenu upitnika ili redovno evidentiranje dnevnih aktivnosti, najbolje u formi dnevnika fizičke aktivnosti. Preciznost upitnika može se kretati od onih koji imaju za cilj da utvrde opšti nivo fizičke aktivnosti (npr. niski naspram visokog intenziteta aktivnosti), do detaljnijih koji obuhvataju različite parametre kao što su obim fizičke aktivnosti na poslu ili u slobodnom vremenu, određujući i intenzitet, trajanje, učestalost i tip fizičke aktivnosti. Postoji veliki broj upitnika koji je kreiran da bi se utvrdio obim učešća pojedinca u fizičkoj aktivnosti.

U posljednje vrijeme često se u tu svrhu koristi kraća verzija međunarodnog Upitnika fizičke aktivnosti (International Phvsical Activitv Questionnaire – IPAQ).

Instrukcije o popunjavanju upitnika nalaze se u upitniku, a primjeri oblika fizičke aktivnosti mogu se modifikovati i prilagoditi posebnim potrebama klijenta. Iako se u upitniku ponuđeni odgovori za svako pitanje preporučuje se da klijent ipak procijeni ukupno vrijeme koje je utrošio za određeni oblik fizičke aktivnosti. U ovom upitniku koristi se promjenljiva nazvana metabolički ekvivalent (metabolic equivalent - MET) u minutima na nedjeljnom nivou pri klasifikovanju dobijenih rezultata. Rezultat MET x(puta) min x(puta) nedjeljno se računa tako što se nivo MET-a za tip aktivnosti pomnoži sa trajanjem aktivnosti izražen u minutima tokom dana, kao i sa brojem dana u nedjelji kada je taj oblik fizičke aktivnosti izvođen. Hodanje se vrednuje sa 3.3 MET, aktivnosti umjerenog intenziteta sa 4 MET, a visokointenzivne sa 8 MET. Na primjer, osoba koja je odgovorila da je učestvovala pet puta nedeljno u aktivnostima umjerenog intenziteta u trajanju od 30 minuta dostigla je vrednost od 600 MET x min x nedeljno (4 MET-a x 30 minuta dnevno x 5 dana u nedjelji). Klasifikacija nivoa fizičke aktivnosti na osnovu IPAQ upitnika prikazana je u tabeli 1.

Tabela 1. *Klasifikacija nivoa fizičke aktivnosti prema međunarodnom upitniku fizičke aktivnosti (IPAQ)*

Kategorija 1 (neaktivni)	Nedovoljno aktivni da bi ispunili kriterijume za kategorije 2 i 3
Kategorija 2 (minimalno aktivni)	≥3 dana intenzivnih aktivnosti u trajanju ≥ 20 min/dnevno; ILI: ≥5 dana umjerenih aktivnosti ili hodanja u trajanju ≥ 30 min/dnevno; ILI: ≥ 5 dana bilo kakve kombinacije hodanja, umjerenih i intenzivnih aktivnosti koje ostvaruju minimum od 600 MET x min x nedjeljno.
Kategorija 3 (nivo fizičke aktivnosti koji unapređuje zdravstveno stanje)	≥ 3 dana u nedjelji ostvarujući minimum 1.500 MET x min x nedjeljno**;** ILI: 7 dana bilo kakve kombinacije hodanja, umjerenih i intenzivnih aktivnosti koje ostvaruju minimum od 3.000 MET x min x nedjeljno.

Objektivna procjena fizičke aktivnosti

Objektivna procjena fizičke aktivnosti uključuje upotrebu aparata kao što su senzori pokreta (npr., akcelerometri i pedometri, monitore srčane frekvencije ili kombinovanu primjenu ovih uređaja (npr., upotreba akcelometra, monitora srčane frekvencije i aparata za mjerenje unutrašnje temperature). Ove vrste monitora najčešće se nose spolja na tijelu ili ekstremitetima. Proizvođači ovih uređaja obično ukazuju koje je najbolje mjesto na kom bi trebalo da se postavi njihov proizvod. Treba napomenuti da su ovakvi monitori najčešće mali i laki za upotrebu.

Prednosti i nedostaci kako objektivnih, tako i subjektivnih metoda procjene fizičke aktivnosti prikazani su u tabeli 2. Pri odabiru adekvatne metode procjene uvijek treba imati na umu nedostatke i prednosti koji su definisani u pomenutoj tabeli, kao i mogućnost odabira metode koja najviše odgovara za procjenu fizičke aktivnosti svakog specifičnog pojedinca. Prilikom stratifikacije rizika uglavnom se preporučuje primjena

onih metoda koje će osigurati brzo i kvalitetno prikupljanje podataka o navikama klijenta. U takvim situacijama prednost se uvijek daje upitniku. Ipak, pri detaljnijem planiranju i dizajniranju programa vježbanja, opravdana je upotreba i objektivnih načina procjene fizičke aktivnosti. Da bi se utvrdio nivo fizičke aktivnosti pojedinca pomoću objektivnih parametara, neophodno je da prođe određeno vrijeme. Osnovna preporuka je da procjena traje tokom tri dana radne nedjelje i jednog dana tokom vikenda. Zbog toga se procjena fizičke aktivnosti najčešće sprovodi tokom sedam dana.

Tabela 2. *Poređenje objektivnih i subjektivnih parametara za procjenu nivoa fizičke aktivnosti*

	OBJEKTIVNI PARAMETRI	SUBJEKTIVNI PARAMETRI
PREDNOSTI	-Mjerenje aktivnosti u realnom vremenu – svaki pokret I aktivnost se mjeri i snima. Mogućnost stalnog snimanja podataka tokom više dana. -Imaju mogućnost memorisanja parametara u svakom vremenskom trenutku tokom trajanja aktivnosti. To omogućava naknadni uvid u podatke i njihovu analizu.	Nijesu skupi. Specifični za određenu populaciju. Mogu da se primjenjuju za procjenu fizičke aktivnosti velikog broja ljudi.
NEDOSTACI	-Visoka cijena. -Ne postoji mogućnost naknadnog utvrđivanja oblika aktivnosti (npr. vježbe snage, trčanje uzbrdo, nizbrdo ili po ravnom, fartlek, i sl.).	-Oslanjaju se na samoprocjenu -Zavise od memorisanja klijenta/pacijenta - nepodesni su za procjenu tipičnih aktivnosti tokom dana.

Interpretacijom nivoa fizičke aktivnosti pojedinca može da se ukaže na obrazac ponašanja i da se klasifikuje osoba ili kao dovoljno fizički aktivna ili kao nedovoljno aktivna i klasifikuje se kao sedentarna. Sezonske varijacije, tj. promjene obrazaca kretanja ili vježbanja uslijed godišnjih doba takođe treba uzeti u obzir jer one mogu značajno da utiču na obrazac ponašanja, tj. učešća pojedinca u fizičkoj aktivnosti. U tabeli 3 prikazan je sistem klasifikacije klijenata/pacijenata na osnovu odnosa prema fizičkoj aktivnosti ili učešća u njoj.

Tabela 3. *klasifikacija na osnovu odnosa prema fizičkoj aktivnosti*

Sedentarni/neaktivni	Ne učestvuje u umjerenim i intenzivnim aktivnostima.
Nedovoljno aktivni	Učestvuje u umjerenim i intenzivnim aktivnostima u određenoj mjeri.
Aktivni	30 minuta umjerene fizičke aktivnosti > 5 dana nedjeljno i/ili 20 minuta intenzivne fizičke aktivnosti tri dana u nedjelji ili kombinacija ove dvije varijante.

Diskusija

Za sve elemenate fizičke forme povezane sa zdravljem utvrđene su različite subjektivne i objektivne procedure koje mogu da se koriste za njihovu procjenu, Carpensen CJ. et al (1985). Pri tome je od bitnog značaja imati u vidu jasan cilj zbog kojeg se određena procjena sprovodi, jer to omogućava da se za procjenu svakog elementa fizičke forme primijeni najprikladniji protokol. U tom smislu, subjektivna i objektivna procjena nivoa fizičke aktivnosti učesnika je od presudnog značaja za očuvanje i unapređenja njegovog zdravstvenog statusa.

Zaključak

Moguće je izvesti različite zaključke nakon prikupljanja podataka o nivou fizičke aktivnost pojedinca, a to zavisi od metoda koji je bio korišćen za procjenu. Na primjer, neki upitnici mogu da ukažu na kalorijsku potrošnju pojedinca; drugi da daju ocjenu od 1 do 4, gdje 1- označava nizak nivo, a 4-visok nivo aktivnosti. Osim toga, akcelometri mogu da nam pruže informacije o vremenu koje je pojedinac proveo u aktivnostima niskog, umjerenog i visokog intenziteta, dok nam pedometri daju informacije o ukupnom broju koraka koje je osoba napravila tokom određenog dana. Veliki broj podataka koji se dobije primjenom ovih različiti metoda nije međusobno uporediv ili je manje validnosti kada se vrijednosti konvertuju radi komparacije. Zbog toga uvijek treba uzeti u obzir validnost primijenjenog metoda i dobijenih parametara prije procjene nivoa fizičke aktivnosti svakog pojedinca.

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SUBJECTIVE AND OBJECTIVE ESTIMATION OF THE LEVEL OF PHYSICAL EDUCATION IN SERVICE OF CONSERVING HEALTH STATUS IMPROVEMENT

Introduction: Results of ever increasing number of research indicating to number of benefits of regular physical activity has influenced formation of many directions on recommended volume and intensity of exercise which is in the service of keeping and improving of a modern man`s health. From the aspect of risk estimation on health endangering, the major attention should be paid on identification of people who do not fulfill even necessary minimums regarding doing the physical activity. Participation in some kind of physical activity represents the most variable component of the overall daily calorie consumption of sedentary population because it mostly depends on the level of knowledge on influence of the physical activity, degree of self control and persistence of each individual to persist in attempting to keep and improve their health. Methods: This paper was conceived on methods of the American College for Sports Medicine ACSM (2009) which is one of the most referent sources in promotion of positive effects of physical activity on a modern man`s health. According to directions in the above mentioned source, there will be five elements of physical form to be analyzed that are related to health: cardio respiratory form, defined as a competence of cardiovascular and respiratory system to `deliver` oxygen to active musculature during continued physical activity; body structure referring to relative or percent share of different tissues within the body and which are related to health status; muscular strength, representing the ability of the human body to do the activity for which a high level of muscular strength is necessary; muscular endurance, defined as an ability of muscles or muscular group to do repeated contractions within a long time period; flexibility, representing the ability to make big amplitude moves in a particular joint. Results: Results of so far research have established a clear connection between physical activity and health. One of the most important publications in which this connection is emphasized is the report of the American Ministry of Health, called Physical activity and health (1996), which gives a number of useful effects on health status of people who participated in some form of physical activity. Exact minimal volume and intensity of physical activity enough to cause positive effects on health status is still unknown, so the estimation of elements of physical form related to health became important for many institutions occupied with health of people. Discussion: For each of the above mentioned elements of physical form related to health, there were different subjective and objective procedures established that can be used for their estimation. Carpensen CJ. Powell KE, Cristenson GM Besides (1985), it is very important to take into account a clear aim for which a certain estimation is done, because it enables implementation of the most appropriate protocol for estimation of each element of physical form. In that sense, subjective and objective estimation of the level of physical activity of an individual is essential for preservation and improvement of their health status. References: American College for Sports Medicine, Guildelines for exericise testing and Prescription.8th ed. Philadelphia: 2009 Lippincott Williams&Wilkins, 248-52. Carpensen CJ, Powell KE, Cristenson GM (1985).

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“Dnevne novine”, 4. april 2014.



MEĐUNARODNA KONFERENCIJIA

Nauka i sport ruku pod ruku

U Podgorici danas naučnici sa svih strana svijeta izlažu radove

Miloš Antić

U zgradi rektorata Univerziteta Crna Gora danas u 16 časova svečano počinje 11. međunarodna naučna konferencija o transformacionim procesima u sportu "Sportska dostignuća" i 10. kongres Crnogorske sportske akademije (CSA).

Izlaganje naučnih radova počinje u 10 sati, u istom terminu održaće se i sjutra, dok će između ove dvije sesije autori svoja dostignuća predstaviti putem poster prezentacija.

Radove će predstaviti 63 naučnika, koje potpisuje 138 autora i koautora iz cijelog svijeta: Albanije (3 autora), Bugarske (3), Kameruna (2), Hrvatske (1), Češke Republike (5), Finske (1), Francuske (1), Japana (1), Kosova (10), Makedonije (2), Portugala (1), Srbije (5), Španije (1), Tajvana (3), Tajlanda (2), Turske (5), Velike Britanije (1) i iz Crne Gore (16).

"Navedeni naučni radovi će se odvijati u sekcijama: sportska ishrana, adaptivna fizička aktivnost, sportski menadžment, sociologija sporta, pedagogija sporta, statistika u sportu, biohemija, biomehanika i molekularna biologija u sportu, kondicioni trening, zdravlje i fitnes, motorno učenje, fizičko vaspitanje, psihologija sporta, rehabilitacija u sportu i testiranje u sportu", rekao je prof. dr **Duško Bjelica**, predsjednik pripremačkog odbora X Kongresa CSA i naglasio:"CSA je uradila Zbornik sažetaka svih radova koje će biti izloženi, a oni će se naći i na stranicama crnogorskog časopisa Sport mont, na našem i engleskom jeziku. Najbolji radovi će biti objavljeni u časopisu "Montenegrin Journal of Sports Science and Medicine", koji takođe izdaje Crnogorska sportska akademija", istakao je Bjelica.

63

naučnika iz cijelog svijeta izlagaće svoje radove na ovogodišnjoj 11. međunarodnoj konferenciji ●●●

UDK: 796.342.012.1

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RAZLIKE U MOTORIČKIM SPOSOBNOSTIMA TENISERA RAZLIČITOG POLA

UVOD

Tenis je polistrukturalna aktivnost acikličnog tipa kretanja. Veliki broj kretnih struktura i situacija u teniskoj igri (tehničkih i taktičkih varijanti) ukazuje da je uspešnost tenisera određena nivoom i strukturom velikog broja motoričkih sposobnosti, znanja i osobina od kojih se neke mogu izmeriti i analizirati. Merenje tih sposobnosti i osobina omogućuje kvalitetnije planiranje, programiranje i kontrolu trenažnog procesa te poboljšanje sportske forme (Groppel, Loehr, Melville, & Quinn, 1989; Šentija, 1991; Baumgartner, & Jakson, 1995).

Interdisciplinarni pristup rešavanja problema vrhunskog bavljenja tenisom i postaje sve više uslov za dalji razvoj i programiranje tog sporta, jer bez saradnje sa drugim naukama, upoređivanjem rezultata između grupa i pojedinaca, ne postoji mogućnost postizanja vrhunskih rezultata. Dijagnostika u sportu, pa tako i u tenisu podrazumeva prikupljanje upotrebljivih informacija o inicijalnom, tranzitivnom i finalnom stanju sportista u prostoru sposobnosti i osobina koje su bitne za uspešnost u takmičarskom sportu (Schieb, 1986; MacDougall, Wenger, & Green, 1991; Walsh, & Davis 1990). Po dominaciji motoričkih sposobnosti tenis pripada sportovima u kojima prevladava koordinacija (spretnost) i agilnost (okretnost) sportista (Milanović, 2004). Tenis karakteriše veoma velik broj različitih tehnika (udaraca i kretanja) koje se pretežno izvode maksimalnom brzinom u dugom vremenskom periodu. Logično je da na uspešnost utiče više motoričkih sposobnosti (Zmajić, 2003).

U jednom od istraživanja utvrđeno je da postoji statistički značajna razlika između tenisera i teniserki uzrasta od 12-14 godina u motoričkim sposobnostima u korist tenisera kod testova snage, kako u anaerobnim tako i u aerobnim sposobnostima. U uzrastu 12-14 godina, upoređujući tenisere i teniserke uočavaju se razlike. Dečaci teniseri su višlji i teži i s većim rasponom ruku od djevojčica teniserki. Snaga mišića tenisera je izraženija. Dati uzrast, posebno kod dečaka, je period kada su prisutne izuzetno velike razlike u motoričkim sposobnostima vezane uz biološko sazrevanje (Rowland, 2005; Guyton, 2006). U tenisu je većina dobrih i slabih karakteristika i motoričkih sposobnosti igrača, u prvom redu posledica određenog načina treniranja i celokupnog trenažnog i takmičarskog procesa. Međutim, jedan broj karakteristika i sposobnosti je određen telesnom konstitucijom igrača (Bala, 1997).

U literaturi koja se bavi kondicionom pripremom sportista, pa i tenisera (Pearson, 2001; Graham, 2000) u poslednje se vreme brzina, agilnost i eksplozivna snaga mogu pronaći u zajedničkom kontekstu. Zajednički naziv za ove tri motoričke sposobnosti je brzinsko-eksplozivna svojstva, odnosno SAQ (speed, agility and quickness). Ove se sposobnosti tretiraju zajednički, zbog nekoliko zajedničkih karakteristika: koriste iste energetske resurse, na sličan način podražuju nervni sistem, imaju zajedničke faktore o kojima o zavisi nivo pojedine sposobnosti i potrebno je zadovoljiti iste preduslove za intenzivan trening pojedine motoričke sposobnosti. Takođe se smatra da sportisti, pa i teniseri sa izraženijim brzinsko-eksplozivnim svojstvima lakše kontrolišu svoje telo u urgentnim trenažnim i takmičarskim situacijama što uveliko pridonosi prevenciji povreda.

U sistemu treninga brzine, agilnosti i eksplozivnosti, utvrđeno je postojanje sedam etapa (Pearson, 2001). Svaka od etapa posmatra se u kontekstu pojedinačnog treninga, ali i u kontekstu dugoročnog unapređenja brzinsko-eksplozivnih svojstava tenisera, te se o njoj mora voditi računa prilikom rada sa mlađim teniserima (MacDougall, Wenger & Green, 1991).

U istraživanju sa ciljem utrđivanja pojedinih relacija motoričkih sposobnosti i uspešnosti u takmičarskom rangu mladih teniserki, dobijeni rezultati su pokazali statistički značajnu povezanost selektiranih varijabli motoričkih testova specifičnih za tenis i kriterijske varijable takmičarska efikasnost (Filipčić, A. i Filipčić, T., 2005).

Za uspešnost u tenisu najviše su odgovorne sposobnosti koje čine brzinsko-eksplozivna svojstva (brzina, agilnost, eksplozivna snaga) zbog reaktivnih zahteva igre i trajanja pojedinog gema koje zavise od podloge na kojoj se igra, ali se energetskom potrošnjom zadržava u anaerobnom režimu rada. Iz tog razloga kondicioni trening tenisera mora imati za cilj razvoj i održavanje ovih sposobnosti.

Važno je naravno izmeriti i utvrditi one sposobnosti i osobine koje znatno sudeluju u jednačini uspeha u određenoj sportskoj disciplini, a u našem slučaju vezano za tenis koji postaje sve popularniji u našoj zemlji kako bismo dobili što ranije otkrili talentovu decu i omladinu za ovaj „beli“ sport. Vrhunska sportska dostignuća rezultat su čitavog niza različitih faktora, od nasleđa do sportskog treninga.

U dijagnostici treniranosti tenisera poseban je naglasak na funkcionalnoj dijagnostici, odnosno utvrđivanju aerobnih i anaerobnih sposobnosti tenisera i teniserki.

Cilj istraživanja je bio usmeren ka utvrđivanju razlika u motoričkim sposobnostima u zavisnosti od pola.

METODE

Na uzorku od 51 ispitanika uzrasta 7 godina (±6 meseci), od čega 23 dečaka i 28 devojčica polaznika škole tenisa TK „Palić“ sa Palića, sprovedeno je merenje motoričkih sposobnosti. Uzorak testova činilo je 12 testova: poligon natraške, poligon sa preskakanjem i provlačenjem, okretnost palicom, gađanje horizontalnog cilja rukom, gađanje u okvir, ciljanje štapom, vođenje lopte rukom, odbijanje loptice reketo, lepeza, specifična preciznost malog vertikalnog cilja, specifična preciznost velikog vertikalnog cilja, specifična preciznost horizontalnog cilja. Razlike u motoričkim sposobnostima

tenisera različitog pola utvrđena je primenom multivarijatne analize varijanse (MANOVA).

REZULTATI

Vrednosti deskriptivnih statistika motoričkih varijabli (Tabela 1) ukazuju na homogenost rezultata u varijabli *Poligon sa preskakanjem i provlačenjem, Vođenje lopte rukom* i *Lepeza* kod oba subuzorka. U ostalim varijablama može se konstatovati povećan varijabilitet rezultata, prouzrokovan različitim nivoom koordinacije i preciznosti. Izrazit varijabilitet se uočava u varijablama za procenu specifične preciznosti i bazične preciznosti.

Tabela 1. *Deskriptivni statistici motoričkih varijabli za ispitanike različitog pola*

Varijabla	Pol	AS	S	MIN	MAX	CV (%)
Poligon natraške (s)	Dečaci	25,66	8,14	16,60	42,00	31,72
	Devojčice	22,89	9,98	12,40	49,00	43,60
Poligon sa preskakanjem i provlačenjem (s)	Dečaci	32,83	3,03	28,52	37,14	**9,23**
	Devojčice	32,71	1,84	29,98	36,87	**5,63**
Okretnost palicom (s)	Dečaci	5,73	0,60	4,99	7,02	10,47
	Devojčice	6,22	0,99	5,00	8,88	15,92
Gađanje horizontalnog cilja rukom (poen)	Dečaci	1,83	0,84	0	3	45,90
	Devojčice	1,28	0,96	0	3	75,00
Gađanje u okvir (poen)	Dečaci	3,00	0,95	2	5	31,67
	Devojčice	2,28	1,02	0	4	44,74
Ciljanje štapom (poen)	Dečaci	0,92	0,79	0	2	85,87
	Devojčice	1,11	0,83	0	3	74,77
Vođenje lopte rukom (s)	Dečaci	38,58	2,05	35,17	42,22	**5,31**
	Devojčice	38,41	1,68	34,61	41,64	**4,37**
Odbijanje loptice reketom (poen)	Dečaci	3,67	0,99	2	5	26,98
	Devojčice	3,28	0,96	2	5	29,27
Lepeza (s)	Dečaci	37,63	2,24	34,64	42,17	**5,95**
	Devojčice	38,11	1,71	34,55	41,80	**4,49**
Specifična preciznost malog vertikalnog cilja (poen)	Dečaci	2,42	0,79	1	4	32,64
	Devojčice	2,06	0,87	0	3	42,23
Specifična preciznost velikog vertikalnog cilja (poen)	Dečaci	1,92	0,67	1	3	34,90
	Devojčice	2,00	0,77	1	3	38,50
Specifična preciznost horizontalnog cilja (poen)	Dečaci	2,67	0,89	1	4	33,33
	Devojčice	1,94	0,73	1	3	37,63

Legenda: AS – aritmetička sredina; S – standardna devijacija; MIN – minimalni zabeleženi rezultat merenja; MAX – maksimalni zabeleženi rezultata merenja; CV – koeficijent varijacije

Pregledom rezultata normalnosti distribucije za motoričke varijable koje su obuhvaćene ovim istraživanjem (Tabela 2) može se konstatovati da nisu zabeležena statistički značajna odstupanja dobijenih distribucije rezultata od normalne (teorijske)

distribucije ni kod dečaka niti kod devojčica (p>0,01). Detaljnijim posmatranjem maksimalnih ekstremnih razlika, uočava se da nijedna distribucija ne odstupa od normalne za više od 0,33 z-skorova koje su zabeležene u varijabli *Gađanje horizontalnog cilja rukom* kod dečaka.

Tabela 2. *Vrednosti Kolmogorov – Smirnov testa za motoričke varijable kod ispitanika različitog pola*

Varijabla	Grupa	K-S	p	MEA
Poligon natraške (s)	Dečaci	0,77	0,59	0,22
	Devojčice	0,96	0,32	0,23
Poligon sa preskakanjem i provlačenjem (s)	Dečaci	0,50	0,97	0,14
	Devojčice	0,51	0,96	0,12
Okretnost palicom (s)	Dečaci	0,77	0,60	0,22
	Devojčice	0,74	0,64	0,17
Gađanje horizontalnog cilja rukom (poen)	Dečaci	1,14	0,15	**0,33**
	Devojčice	0,96	0,32	0,23
Gađanje u okvir (poen)	Dečaci	0,87	0,44	0,25
	Devojčice	0,96	0,32	0,23
Ciljanje štapom (poen)	Dečaci	0,73	0,67	0,21
	Devojčice	1,17	0,13	0,28
Vođenje lopte rukom (s)	Dečaci	0,58	0,89	0,17
	Devojčice	0,48	0,97	0,11
Odbijanje loptice reketom (poen)	Dečaci	0,87	0,44	0,25
	Devojčice	0,96	0,32	0,23
Lepeza (s)	Dečaci	0,83	0,50	0,24
	Devojčice	0,51	0,96	0,12
Specifična preciznost malog vertikalnog cilja (poen)	Dečaci	0,98	0,29	0,28
	Devojčice	1,07	0,20	0,25
Specifična preciznost velikog vertikalnog cilja (poen)	Dečaci	1,04	0,23	0,30
	Devojčice	0,64	0,34	0,22
Specifična preciznost horizontalnog cilja (poen)	Dečaci	0,80	0,55	0,23
	Devojčice	1,07	0,20	0,25

Legenda: K-S – Kolmogorov – Smirnovljev Z koeficijent; p – nivo statističke značajnosti Kolmogorov – Smirnovljevog Z koeficijenta; MEA – maksimalna ekstremna razlika između dobijene i očekivane distribucije.

Uvidom u vrednosti multivarijatnog Wilksovog F testa (Tabela 3) može se zaključiti da ne postoji statistički značajna razlika (P=0,19) između ispitanika različitog pola u pogledu tretiranih motoričkih sposobnosti pri vrednosti F=1,59 na datom uzorku ispitanika. Pojedinačnom analizom svake ispitane motoričke varijable, zaključuje se da te razlike postoje u varijabli za procenu specifične preciznosti, *Specifična preciznost horizontalnog cilja* (p=0,02) u korist subuzorka dečaka. U ostalim posmatranim varijablama, statistički značajne razlike nisu konstatovane, te su subuzorci sličnog stanja koordinacije, preciznosti i specifične preciznosti (p>0,05).

Dobijeni rezultati istraživanja razlika ukazuju na slično stanje koordinacije i preciznosti dece mlađeg školskog uzrasta različitog pola. Treba naglasiti da efektorski sistem organa, njegove srukture i funkcionalne karakteristike, nikako ne egzistiraju samostalno, nego funkcionišu zahvaljujući postojanju i ostalih sistema. Efekat ovih sistema („koordinativnog i sistema preciznosti“) je suprasumativan i nastao u složenoj interakciji između elemenata sistema. Očigledno je da se radi o latentnim dimenzijama motoričko koordinacionih svojstava, koje su produkt međudejstva više sistema.

Tabela 3. *Razlike između ispitanika različitog pola u motoričkim varijablama*

Pol	Varijabla	f	p	F	P
Dečaci Devojčice	Poligon natraške	0,64	0,43	1,59	**0,19**
	Poligon sa preskakanjem i provlačenjem	0,02	0,90		
	Okretnost palicom	2,30	0,14		
	Gađanje horizontalnog cilja rukom	2,67	0,11		
	Gađanje u okvir	3,81	0,06		
	Ciljanje štapom	0,41	0,53		
	Vođenje lopte rukom	0,06	0,81		
	Odbijanje loptice reketom	1,16	0,29		
	Lepeza	0,43	0,52		
	Specifična preciznost malog vertikalnog cilja	1,32	0,26		
	Specifična preciznost velikog vertikalnog cilja	0,09	0,76		
	Specifična preciznost horizontalnog cilja	5,97	**0,02**		

Legenda: f – univarijatni f test; p – nivo statističke značajnosti f testa; F – multivarijatni Wilksov F test; P – statistička značajnost multivarijatnog F testa

DISKUSIJA

Na osnovu sprovedenog istraživanja može se konstatovati da ne postoje statistički značajne razlike između dečaka i devojčica u pogledu tretiranih motoričkih sposobnosti.

Tenis karakteriše vrlo velik broj različitih tehnika udaraca i kretanja, koje se pretežno izvode maksimalnom brzinom u dugom vremenskom periodu, te je onda logično da na uspešnost u tenisu utiče veći broj motoričkih sposobnosti (Zmajić, 2003). Razvoj brzine, agilnosti i eksplozivnosti vrlo je bitan za uspeh u teniskoj igri, jer se teniska igra sastoji od velikog broja različitih ekplozivnih reakcija na različite promene situacija (McCarthy, 1998).

Struktura takmičarske aktivnosti u teniskoj igri ukazuje da je uspešnost tenisera određena nivoom i strukturom velikog broja motoričkih sposobnosti, znanja i osobina od kojih se neke mogu izmeriti i analizirati. Merenje tih sposobnosti i osobina omogućuje kvalitetnije planiranje, programiranje i kontrolu trenažnog procesa te poboljšanje sportske forme (Groppel, Loehr, Melville, & Quinn, 1989; Šentija, 1991; Baumgartner, & Jakson, 1995).

Brzina, agilnost i eksplozivna snaga imaju visok uticaj na uspeh u tenisu, te zbog toga pliometrijski trening treba da bude sastavni deo svakog kondicionog treninga

koji mora biti kvaliteno programiran u odnosu na nivo sposobnosti tenisera, te na period sezone u kojem se nalazi (Savić, 2014).

Sprovedeno istraživanje doprinelo je postojećem korpusu saznanja o razvojnom poremećaju tretiranih motoričkih sposobnosti (koordinacije i preciznosti) kod dece u našoj sredini. Takođe, za praksu su dobijeni rezultati značajni za potvrdu uobičajene prakse da primenom motoričkih testova, pedagozi sude i o opštoj koordinaciji, odnosno, zastupljenosti smetnji sa koordinacijom.

Ovaj rad može da bude od pomoći trenerima u radu sa teniserima početnicima, kao i samim igračima za bolji razvoj i brži napredak. Rad treba da predstvalja samo deo dijagnostike treniranosti sportista, koja treba da se nastavi kroz celokupno njihovo bavljenje sportom. Treba da predstvalja samo jedan deo daljih istraživanja, a ovu grupu ispitanika bi bilo pozežljno pratiti u njihovom daljem radu, kako bi se dobili podaci od većeg značaja, da bi se mogla sagledati i struktura faktora tretiranih motoričkih sposobnosti, jer se promene mogu očekivati i u skorijoj budućnosti.

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DIFFERENCES IN MOTOR ABILITIES TENNIS PLAYERS OF DIFFERENT SEX

Introduction: Tennis is polistructural activity acyclic type of movement. A large number of movement structures and situations in a tennis game (technical and tactical variants) indicates that the success of players determined by the level and structure of a large number of motor abilities, knowledge and qualities, of which some can be measured and analyzed. The measurement of these abilities and traits allows better planning, programming and control of the training process and to improve the sports form. The aim of the research was directed to determining the differences in motor abilities, of different sexes. Methods: The sample of 51 subjects aged 7 years (± 6 months), of which 23 boys and 28 girls tennis school participants TC "Palic" from Palic, carried out the measurement of motor abilities. The sample tests consisted of 12 tests: backward polygon, polygon with skipping and swiping, bat quickness, shooting horizontal objectives handed, shooting in the frame, target stick, keeping the ball with his hand, refusing racquet balls, fans, precision small vertical specific objectives, specific precision large vertical target, the specific objectives of the horizontal accuracy. Differences in motor abilities tennis players of different sexes was determined by using multivariate analysis of variance (MANOVA). Results: On the basis of the research it can be concluded that there are no statistically significant differences between boys and girls in terms of treated motor abilities. Discussion: Tennis is characterized by a very large number of different techniques strokes and movements, which are mostly performed at maximum speed for a long time, and it is logical that the success in tennis affects a larger number of motor skills (Zmajić, 2003). Development of speed, agility and explosiveness is very important for success in a tennis game, because tennis game consists of a number of different explosive reaction to a variety of changes in the situation (McCarthy, 1998). References: Filipčić, A. Filipčić, T. (2005). Correlation meet their particular motor skills and competitive effectiveness young female tennis players. Kinesiology, 37, 164-172. Groppel, J.L, Loehr, J.E., Melville, D.S. & Quinn, AM (1989). Science of coaching tennis. Champain IL: Leisure Press, 2, 13-19. McCarthy, J. (1998). Tennis Pattern Running. Strength Cond. J., 20(3), 23 – 30. MacDougall, J., Wenger, H., & Green, H. (1991). Physiological Testing of the high-performance athlete. Champain IL: Human Kinetics, 4, 53-64. Rowland, T (2005). Developmental exercise physiology. Human Kinetics, 1, 55-64. Zmajić, H. (2003). Competitive tennis. Zagreb: Gopal.

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KOMPARACIJA MOTORIČKIH SPOSOBNOSTI MLADIH FUDBALERA I UČENIKA OSNOVNIH ŠKOLA

UVOD

Fudbal kao kompletni sport koji obiluje najrazličitijim mogućim kretanjima svrstava se u polistrukturalne, kompleksne sportove (Malacko, 2000). Da bi fudbaler bio u stanju izvršavati fudbalske zadatke mora između ostalog posedovati i potreban nivo motoričkih sposobnosti koji je moguće postići jedino sistematskim sprovođenjem treninga fizičke pripreme (Verheijen 1997, Weineck 2000.). Kondiciona priprema podrazumeva razvoj svih telesnih sposobnosti koje su potrebne za postizanje vrhunskog sportskog rezultata u fudbalu (Grosser 1997). Motoričke sposobnosti su oblici motoričke aktivnosti koji se pojavljuju u kretnim strukturama koje se mogu opisati jednakim parametrijskim sistemom, a mogu se izmeriti istim skupom mera u kojima nastupaju analogni fiziološki, biološki i psihički procesi, odnosno mehanizmi (Zaciorski, 1975).

Utvrđeno je da su antropološke karakteristike, svaka na svoj način, važne u rešavanju trenažnih zadataka (Malacko i Radosav 1985; Vučetić i saradnici, 2003) sa fudbalerima. Motoričke sposobnosti prema rezultetima dosadašnjih istraživanja (Kuleš, Jerković i Marić, 1991; Petrić, 1994; Joksimović, 1997; Miljković, Jerković i Šimens, 2002, Vučetić, Ivanjko, Šentija i Sedak, 2003), uz morfološke karakteristike najviše su ispitivane, te je i utvrđeno da integralno najviše i doprinose rezultatima unapređenja fudbalske igre.

Praksa je pokazala da bi inicijalna selekcija dece za fudbal trebalo da počne već sa sedam godina a zadatak nauke a ovom polju je da utvrdi određene principe i zakonitosti tranformacionih procesa antropoloških karakteristika bitnih za fudbal, a trenažna tehnologija bi trebalo da pronađe optimalne trenažne sadržaje (sredstva, metode i opterećenja) za tranformaciju navedenih karakteristika (Molnar, 1998; Smajić, 2005) a samim tim i motoričkih sposobnosti koje predstavljaju predmet istraživanja.

Cilj istraživanja je bio da se utvrde razlike u nekim motoričkim sposobnostima između dve ispitivane grupe.

METODE

Na uzorku od 196 ispitanika, prosečne starosti 12.45±0.03 godina, izvršena je komparacija motoričkih sposobnosti. Prvu grupu ispitanika činilo je 82 fudbalera – pioniri FK “*Crvena Zvezda*” iz Beograda a drugu 114 učenika osnovnih škola iz Novog

Sada. Uzorak od 9 testova za procenu motoričkih sposobnosti činili su: skok u dalj iz mesta, trčanje 20 m, trčanje 60 m, pretklon raznožno u sedu, izdražaj u zgibu, poligon natraške, slalom sa tri lopte, taping rukom i podizanje trupa. Komparacija motoričkih sposobnosti mladih fudbalera i učenika osnovnih škola izvršena je primenom multivarijantne analize varijanse (MANOVA).

REZULTATI

U skladu sa utvrđenim nacrtom istraživanja analizirana je tematska celina procene motoričkih sposobnosti mladih fudbalera i učenika. Prvo su prikazani centralni disperzioni parametri, mere asimetrije i spljoštenosti između grupa, a potom je analizirana razlika između fudbalera i učenika, da bi na kraju bile definisane karakteristike grupa, određena distanca i homogenost između njih. Na kraju su dobijeni rezultati grfički prikazani.

Minimalne (min) i maksimalne (max) vrednosti testova za procenu motoričkih sposobnosti mladih fudbalera ukazuju da se vrednosti nalaze u očekivanom rasponu (Tabela 1.).

Tabela 1. *Centralni i disperzioni parameri motoričkih sposobnosti mladih fudbalera*

	N	**Min.**	**Max.**	**Mean**	**Std. Dev.**	**Skewness**		**Kurtosis**	
	Statis.	Statis.	Statis.	Statis.	Statis.	Statis.	Std. Er.	Statis.	Std. Er.
Trcanje (60m)	82	85	122	104.63	7.591	-.501	.266	.131	.526
Trcanje (20m)	82	30	41	36.09	2.486	-.466	.266	-.146	.526
Poligon natraške (s)	82	91	173	133.06	16.531	-.187	.266	.336	.526
Slalom sa tri lopte (s)	82	255	410	331.01	32.369	.086	.266	-.336	.526
Taping rukom (frek)	82	22	37	28.83	3.189	-.124	.266	-.254	.526
Pretklon u sedu raznožno (frek)	82	37	69	48.17	6.993	.768	.266	.445	.526
Skok udalj iz mesta (cm)	82	131	223	178.34	21.221	-.104	.266	-.333	.526
Izdržaj u zgibu (s)	82	214	695	358.51	98.833	1.301	.266	1.657	.526
Podizanje trupa (frek)	82	33	54	43.02	4.570	.092	.266	-.456	.526

N – broj ispitanika; Range – raspon; Min. – minimalna vrednost; Max. – malsimalna vrednost; Std. dev. – standardna devijacija, Skewness – koeficijent asimetričnosti, Kurtosis – koeficijent homogenosti

Povećane vrednosti skjunisa ukazuju na to da je raspodela *negativno asimetrična*, to znači da kriva raspodele rezulteta naginje ka većim vrednostima, odnosno da ima više većih vrednosti, odnosno lošijih, u odnosu na normalnu raspodelu kod: sla-

loma sa tri lopte (.09), pretklon u sedu (.77), izdržaj u zgibu (.1.30), podizanje trupa (.92). Smanjena vrednosti skjunisa ukazuju da je raspodela pozitivno asimetrična, što znači da kriva raspodele rezultata naginje ka manjim vrednostima, odnosno da ima više manjih vrednosi u odnosu na normalnu raspodelu kod: trčanje na 60 m (-.50), trčanje na 20 m (-.47), poligon natraške (-.18), taping rukom (-.12), skok u dalj iz mesta (-.10).

Veća vrednost kurtosis**a** ukazuju da je kriva leptokurtična, odnosno izdužena, kod: trčanje na 60 m (.13), poligon natraške (.34), pretklon u sedu raznošno (.44), izdršaj u zgibu (1.66). Negativne vrednosti kurtosisa ukazuju da je kriva platikurtična, odnosno spljoštena, kod: trčanje na 20 m (-.15), slalom sa tri lopte (-.34), taping rukom (-.25), skok u dalj (-.33), podizanje trupa (-.46).

Minimalne (min.) i maksimalne (max.) vrednosti testova za procenu motoričkih sposobnosti učenika osnovnih škola ukazuju da se vrednosti nalaze u očekivanom rasponu (Tabela 2.).

Tabela 2. *Centralni i disperzioni parametri motoričkih sposobnosti učenika osnovnih škola*

	N	**Min.**	**Max.**	**Mean**	**Std. Dev.**	**Skewness**		**Kurtosis**	
	Statis.	Statis.	Statis.	Statis.	Statis.	Statis.	Std. Er.	Statis.	Std. Er.
Trcanje 60m (0,1s)	114	90	141	109.25	9.702	.449	.226	.412	.449
Trèanje 20m (0,1s)	114	34	54	41.68	4.350	.283	.226	-.453	.449
Poligon natraške (0,1s)	114	84	340	154.44	48.528	1.239	.226	1.928	.449
Slalom sa tri lopte (0,1s)	114	217	533	347.79	69.539	.389	.226	-.477	.449
Taping rukom (frek)	114	16	40	27.64	4.282	-.190	.226	.438	.449
Pretklon u sedu raznožno (cm)	114	23	62	42.55	8.760	-.033	.226	-.619	.449
Skok udalj iz mesta (mm)	114	117	221	168.10	24.211	-.145	.226	-.592	.449
Izdržaj u zgibu (0,1s)	114	10	904	291.98	207.890	.658	.226	-.361	.449
Podizanje trupa (frek)	114	14	55	39.68	8.134	-.678	.226	.684	.449

N – broj ispitanika; Range – raspon; Min. – minimalna vrednost; Max. – malsimalna vrednost; Std. dev. – standardna devijacija, Skewness – koeficijent asimetričnosti, Kurtosis – koeficijent homogenosti

Povećane vrednosti skjunisa ukazuju da je raspodela negativno asimetrična, što znači da kriva raspodele rezultata naginje ka većim vrednostima, odnosno da ima više većih vrednosti u odnosu na normalnu raspodelu, kod: trčanje na 60 m (.45), trčanje na

20 m (.28), poligon natraške (1.24), slalom tri lopte (.39), izdržaj u zgibu. Smanjene vrednosti skjunisa ukazuju da je raspodela pozitivno asimetrična, to znači da kriva raspodele rezultata naginje ka manjim vrednostima, odnosno da ima više manjih vrednosti u odnosu na normalnu raspodelu kod: tapinga rukom (-.19), pretklona u sedu raznožno (-.03), skoka u dalj iz mesta (-.14), podizanje trupa (-.68).

Veće vrednosti kurtosisa ukazuju da je kriva izdužena kod: trčanja na 60 m (.41), poligona natraške (1.93), tapinga rukom (.44), podizanja trupa (. 68). Negativne vrednosti kurtosisa ukazuju da je kriva spljoštena kod: trčanja na 20 m (-.45), slalom sa tri lopte (-.47), prepklona u sedu raznožno (-.62), skoka u dalj (-.59), izdžaja u zgibu (-.36).

Na osnovu Kolmogorov – Smirnov testa za procenu normalnosti motoričkih sposobnosti mladih fudbalera i učenika osnovnih škola, uočava se da statističke značajnosti prelaze granicu od 0.05 tako da se može zaključiti da nema varijabli koje odstupaju od normalnosti: Trčanje na 60 m (0.853), Trčanje na 20 m (0,0.425), Poligon natraške (0,062), Slalom sa tri lopte (0.746), Taping rukom (0.529), Pretklon u sedu raznožno (0.716), Skok udalj iz mesta (0,716), Izdržaj u zgibu (0.054), Podizanje trupa (0.219).

Na osnovu vrednosti p = 0,00 (Tabela 3.) može se konstatovati da postoji razlika i jasno definisana granica između grupa. Testiranjem razlika izmedju mladih fudbalera i učenika osnovnih škola u proceni motoričkih sposobnosti može konstatovati da postoji statistički značajna razlika.

Tabela 3. *Značajnost razlike između grupa ispitanika u odnosu na procenu motoričkih sposobnosti*

Analiza	F	p
MANOVA	31.775	**0,00**

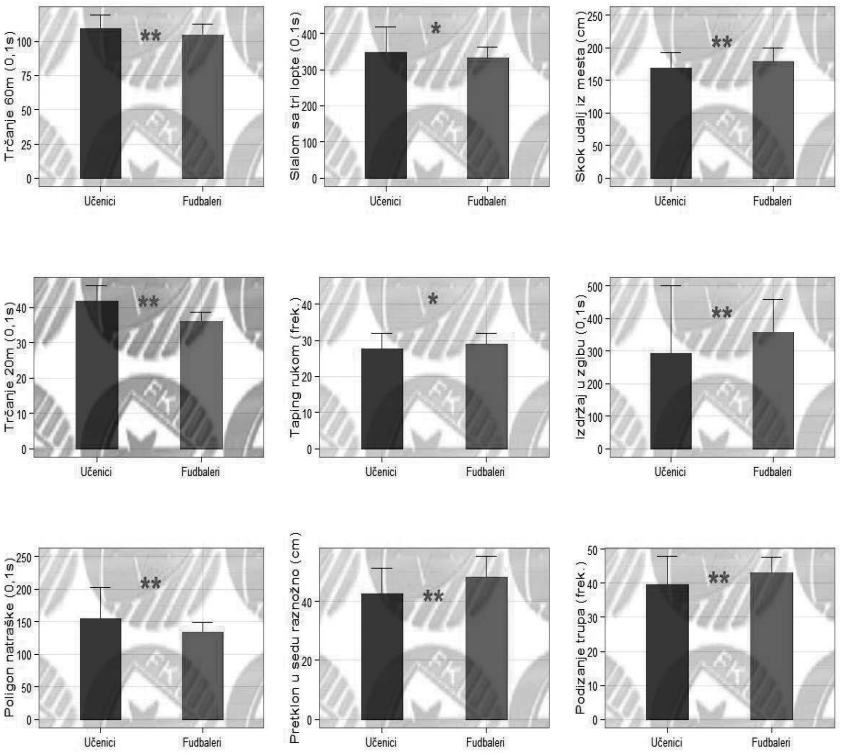
Na osnovu analize dobijenih podataka (Tabela 4.) može se konstatovati da postoji statistički značajna razlika u svim varijabla za procenu motoričkih sposobnosti mladih fudbalera i učenika osnovnih škola, odnosno utvrđeno je da se varijable za procenu motoričkih sposobnosti razlikuju između testiranih grupa. Sve vrednosti su ispod granice od 0.05 statističke značajnosti: Telesna visina (0.000); Trčanje na 20 m (0.000); Poligon natrške (0.000); Slalom sa tri lopte (0.004); Taping rukom (0.004); Pretklon u sedu raznošno (0.000); Skok u dalj iz mesta (0.002); Izdržaj u zgibu (0,008); Podizanje trupa (0,001).

Tabela 4. *Značajnost razlike između grupa ispitanika u odnosu na procenu motoričkih sposobnosti*

ANOVA	F	df	p
Trčanje 60 m (s)	12.907	195	**0.000**
Trčanje 20 m (s)	24.905	195	**0.000**
Poligon natrške (s)	14.669	195	**0.000**
Slalom sa tri lopte (s)	4.125	195	**0.044**

Taping rukom (frek)	4.516	195	**0.035**
Pretklon u sedu raznožno (cm)	13.116	195	**0.000**
Skok udalj iz mesta (mm)	9.455	195	**0.002**
Izdržaj u zgibu (0,1s)	7.217	195	**0.008**
Podizanje trupa (frek)	11.318	195	**0.001**

Dobijene razlike između mladih fudbalera i učenika osnovnih škola u proceni motoričkih sposobosti su radi jasnijeg shvatanja i grafički prikazane (Grafikon 1.)



Grafikon 1. *Razlika između mladih fudbalera i učenika osnovnih škola u proceni motoričkih sposobosti*

DISKUSIJA

Analizom motoričkih sposobnosti između mladih fudbalera i učenika osnovnih škola utvrđene su statistički značajne razlike u svim varijablama ispod granice 0.05. Vrednosti za svaku varijablu posebno su: Trčanje na 60 m (0,000), Trčanje na 20 m (0,000), Poligon natraške (0,000), Slalom sa tri lopte (0.044), Taping rukom (0.000), Pretklon u sedu raznožno (0.000), Skok udalj iz mesta (0,002), Izdržaj u zgibu (0.008), Podizanje trupa (0.001).

Za očekivati je bilo da fudbaleri „Crvene Zvezde“ budu uspešniji od učenika, ali cilj autora je bio da utvrdi pored nekih testova koji su bliski i imaju veliku linearnu povezanost sa fudbalskom igrom, da se provere korelacije u nekim netipičnim fudbalskim merenjem. Pre svega se misli na slalom sa tri lopte, poligon natraške i taping rukom, u kojima su fudbaleri pokazali značajne razlike, dok su u ostalim varijablama apsolutno dominirali. U ovim testovima uključeno je više bazičnih motoričkih sposobnosti, pre svega koordinacija, agilnost, repetativna snaga ali i druge što sve treba treba uobličiti u jedan svestran konceptualni model ljudske izvedbe. Za slalom lopte je od velike važnosti agilnost i koordinacija. Taping rukom, pored brzine frenkventrnih pokreta za bolje izvođenje, brzina latentnog pokreta mora biti na višem nivou.

U istraživanjima je dokazano da su brzina, izdržljivost, koordinacija i snaga mišića potkolenice dominantno odgovorni za uspešnosti pogađanja cilja nogom na manjoj udaljenosti, što je sastavni deo trenažnog procesa (Smajić i Molnar, 2007). Takođe je dokazano da postoji statistički značajna povezanost eksplozivne i repetitivne snage kao prediktora sa rezultatskom uspešnošću izvođenja skoka u vis kod mladih fudbalera (Stanković, 2011**)**. Rekreativni fudbal, gledajući sa stanovišta fizioloških zahteva i centralnih zdravstvenih varijabli, ima pozitivne efekte u smanjenju životnih rizika, tako da decu treba usmeravati na upražnjavanje barem takvog vida aktivnosti (Krustup i saradnici, 2010).

Eksplozivnu snagu treba posebno razvijati u procesu sportskog treninga fudbalera mlađeg uzrasta jer je dokazano da postiji značajna korelacija između motoričkih testova i kriterijuma uspeha u igr (Ferizović, 1978**)**.

Pojedini autori su ustanovili da dugotrajno i organizovano vođenje treninga pozitivno utiče na fizički kapacitet, motoričke sposobnosti i generalno očuvaju zdravlja (Flauda i sar., 2010), što je slično rezultatima ovog istrašivanja.

Pored činjenice da su potređeni selektirani fudbaleri, koji imaju sve predispozicije za ovakve dobijene rezultate, ideja je bila da se pokaže na indirektan način značaj i uticaj programiranog, stručnog i planskog rada sa sportistima, u ovom slučaju fudbalerima. Da se pokaže komparacija u motoričkim sposobnostima između učenika osnovnih škola i mladih fudbalera koji su uključeni u trenažni proces, kao bitnog faktora kako u uspešnosti u fudbalu, tako i u drugim segmentima života, kao i opštem zdravlju deteta.

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COMPARISON OF MOTOR ABILITIES OF YOUTH FOOTBALL PLAYERS AND PRIMARY SCHOOL PUPILS

Introduction: Football as a complete sport that is rich in a wide variety of possible movements classified in polistructural, sports complex. To be a football player was able to perform tasks football has, among other things, and have the necessary level of motor abilities that can be achieved only through systematic implementation of training physical training. The aim of this research was to determine the differences in some of the motor abilities between the two researched groups. Methods: In a sample

of 196 subjects average age of 12.45 ± 0.03 years, made a comparison of motor abilities. The first group consisted of 82 players - Pioneers FC "Red Star" from Belgrade and the other 114 primary school pupils from Novi Sad. A sample of 9 tests of motor abilities were: long jump from the place, running 20 m, 60 m running, bend straddle the gray, endurance in pull-ups, polygon backwards, slalom with three balls, hand tapping and lifting troops. Comparison of motor abilities of young players and pupils of primary schools was carried out by using multivariate analysis of variance (MANOVA). Results: An analysis of motor abilities between young players and primary school pupils were found statistically significant differences in all tested variables. Discussion: The research has shown that speed, endurance, coordination and muscle strength of the lower leg predominantly responsible for the success of matching the target foot at a distance, which is an integral part of the training process (Smajic and Molnar, 2007). It is also proven that there is a statistically significant correlation between the explosive and repetitive strength as a predictor of outcome-success rate for jumping in the air at youth players (Stankovic, 2011). References: Kuleš, B., Jerkovic, S. Maric, J. (1991). Influence of running different intentiteta to success in football. Kinesiology, 23 (1-2), 60-65. Malacko, J. (2000). Fundamentals of sports training - a quarter-supplemented and revised edition, Belgrade: Sports Academy. Miljkovic, Z., Jerkovic, S. and Šimenc, Z (2002). Evaluation of a model tracking the player of the attacking team and in terms of football matches. Kinesiology, 34 (1), 73-85. Smajić, M. and Molnar, S. (2007). Influence of morphological characteristics and basic motor skills-factor precision of target foot at a lesser distance. In XLVI Congress of Anthropological Society of Yugoslavia with international participation (26-31). Apatin: Anthropological Society of Yugoslavia. Stankovic, D. (2011). Strength as a predictor of success rezultataske high jump. In Proceedings of the FIS komnikacije in sport, physical education and recreation, 232-238, Niš: Faculty of Sport and Physical Education. Vucetic, V., Ivanjko, A. Šentija, D. and Sedar, M. (2003). Speed endurance players, conditioning training of athletes. International Scientific Conference Proceedings. Zagreb: Faculty of Physical Education, University of Zagreb.

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ANALIZA PROMENA TELESNOG SASTAVA ŽENA POD UTICAJEM STAROSNE DOBI

UVOD

U savremenoj civilizaciji došlo je do izrazitog smanjenja fizičke aktivnosti ljudi. Trend sedenternog načina života uslovljen je pojavom i napretkom tehnološkog razvoja. Potreba za fizičkim radom tokom obavljanja različitih delatnosti veoma brzo isčezava, a čovekov rad biva zamenjen raznim mašinama i novim tehnološkim dostignućima tako da se energetski utrošak čoveka tokom radnog dana sveo na minimum. Takav neaktivni stil života doprineo je razvoju niza međusobno uslovljenih obolenja koja se mahom odnose na hronična obolenja lokomotornog aparata, slabljenje opšte otpornosti organizma, naročito kardio-respiratornog sistema. Poznato je da primena dozirane i redovne fizičke aktivnosti deluje preventivno u sprečavanju rizika nastajanja bolesti savremene civilizacije (Medved, 1980; Mišigoj-Duraković i sar., 1999; Oman i Oman, 2003). Svest o značaju vežbanja i pozitivnom uticaju na zdravlje se povećava. Povećavanjem prekovremenog broja radnih sati u toku nedelje povećavaju se i potrebe za što boljim fiziološkim odgovorom na napore koje sobom nosi radni dan.

Telesna kompozicija je jedan od komponenti fizičkog statusa i odnosi se na komponente tkiva koja čine telo i obično se koristi da označi relativni procenat masti i bezmasnog tkiva. U okruženjima zdravlja i fitnesa glavni interes je saznanje o relativnoj količini telesne masti u odnosu na nemasno telesno tkivo i distribuciju masti u organizmu, sa dodatnim interesom za promene u tim komponentama. Fizička neaktivnost je jedan od glavnih uzroka povećanja telesnih masti. Kod starih osoba povećanje telesnih masti je uslovljeno sporijom brzinom hodanja i funkcionalnim limitacijama.

METODE

Uzorak su činile žene, uzrasta od 20 do 49 godina, iz grada Novog Sada. Bilo je 99 učesnice u ukupnom istraživanju (Tabela 1). Nejednak broj ispitanica nije bio statistički značajan, što je provereno Hi-kvadrat testom. Podaci su prikupljeni za naučno-istraživački projekat "Antropološkog statusa i fizičke aktivnosti stanovništva Vojvodine ", koji je realizovan od strane Fakulteta za sport i fizičko vaspitanje u Novom Sad, finansiran od strane Pokrajinskog sekretarijata za nauku i tehnološki razvoj.

Tabela 1. *Struktura učesnika na osnovu pola i starosne grupe.*

Pol	**Starosne grupe**							
	20-29		**30-39**		**40-49**		**Ukupno**	
Žene	N	%	N	%	N	%	N	%
	22	22,2	37	37,4	40	40,4	99	100

N - broj učesnika; % - procenat učesnika.

Za procenivanje telesne kompozicije korištena je bioelektrična impedansa Maltron 920. Uzorak se sastojao od sledećih testova:

1) TV (cm) – telesna visina
2) TM (kg) - telesna masa,
3) FM (kg) - predstavlja udeo masne mase u telesnoj kompoziciji,
4) MM (kg) - predstavlja udeo mišićne mase u telesnoj kompoziciji,
5) BMI – Indeks telesne mase, predstavlja veličinu koja se upotrebaljava za procenu normalnosti telesne mase u odnosu na visinu merene osobe. On se dobija kao količnik telesne mase (kg) i kvadrata telesne visine (m^2).

Procenivanje telesnog sastava obavilo se u prostorijama Fakulteta sporta i fizičkog vaspitanja u Novom Sadu. Prilikom testiranja bila su poštovana sva pravila i preduslovi za sprovođenje protokola u skladu sa Internacionalnim biološkim programom. Izvršeno transverzalno merenje.

Primenom univarijatne i multivarijatne analize varijanse prikazane su razlike na kvantitativnom nivou. Za dodatno utvrđivanje razlika u pojedinačnom sistemu varijabli između svih parova grupa urađen je t-test za nezavisne uzorke. Za sve statističke analize nivo statističke značajnosti bio je 0,05. Obrada podataka izvršena je statističkim paketom „SPSS 20.0“.

REZULTATI

Analiza razlika u telesnoj kompoziciji žena različite starosne dobi su prikazane u tabelama 2 i 3. Multivarijatnom analizom varijanse ustanovljene (Tabela 2) su statistički značajne razlike u ukupnom prostoru varijabli na čega ukazuju vrednosti f-testa (F=2,18) njegove značajnosti značajnosti (P=0,02). Do sličnih rezultata došli su i Čokorilo i saradnici 2012. Analiza kvantitativnih razlika univarijatnom analizom varijanse za pojedine indikatore tekesnog sastava potvrdila je nalaze t-testa (Tabela 3). Statistički značajne kvantitativne razlike na nivou značajnosti $p<0,05$, konstatovane su za varijable: Telesna masa (f=4,78; p=0,01), Mišićna masa (f=5,40; p=0,00), Masna masa (f=8,32; p=0,00), BMI (f=7,04; p=0,00). Radi detaljnijeg utvrđivanja u kojim se to varijablama ispitanice razlikuju u tabeli 3. statističkom metodom t-test analizirane su razlike telesnog sastava između parova svih grupa u pojedinačnom sisitemu varijabli. Takođe, vrednost procene snage efekta faktora (η^2) ukazuje da u skoro u podjednakom procentu varijable telesna masa (9%), BMI (12%), masna masa (14%) i mišićna masa (10%) utičnu na razlike između tri navedene grupe.

Primenom t-testa za nezavisne uzorke (Tabela 3), ustanovljene su statistički značajne razlike između analiziranih grupa. Kod većine pokazatelja telesnog sastava prisutne su visoke i statistički značajne razlike. Do sličnih rezultata došao je Škrkar S. (2012).

Tabela 2. *Multivarijatna i univarijatna analiza varijanse za razlike u telesnoj kompoziciji*

VARIJABLA	GRUPE	N	AS	SD	f	p	η^2
Telesna visina (cm)	20-29	22	166,04	4,66	1,50	0,22	0,03
	30-39	37	165,06	5,85			
	40-49	40	163,67	5,28			
Telesna masa (kg)	20-29	22	59,12	7,70	4,78	**0,01**	0,09
	30-39	37	64,37	9,96			
	40-49	40	67,10	10,43			
BMI (kg/ m²)	20-29	22	14,54	5,73	7,04	**0,00**	0,12
	30-39	37	18,04	7,12			
	40-49	40	22,27	9,62			
Masna masa (kg)	20-29	22	23,92	6,40	8,32	**0,00**	0,14
	30-39	37	28,59	7,33			
	40-49	40	32,02	8,17			
Mišićna masa (kg)	20-29	22	21,41	2,38	5,40	**0,00**	0,10
	30-39	37	23,33	4,08			
	40-49	40	24,80	4,36			

F=2,18 P=0,02 η^2=10,6

Legenda: AS – aritmetička sredina, SD- standardna devijacija, f – vrednost f-testa univarijatne analize varijanse, p – nivo značajnosti univarijantne analize, F- vrednost f-testa multivarijatne analize varijanse, P- nivo značajnosti multivarijatne analize varijanse, η^2- vrednost procene snage efekta faktora.

Tabela 3. *T-test između parova svih starosnih grupa u kompoziciji tela.*

Varijabla	Parovi	t	p
Telesna visina (cm)	20-29 – 30-39	0,66	0,50
	20-29 – 40-49	1,76	0,08
	30-39 – 40-49	1,09	0,27
Telesna masa (kg)	20-29 – 30-39	-2,11	**0,03**
	20-29 – 40-49	-3,14	**0,00**
	30-39 – 40-49	-1,17	0,24
BMI (kg/m²)	20-29 – 30-39	-2,00	**0,04**
	20-29 – 40-49	-3,95	**0,00**
	30-39 – 40-49	-1,52	0,13
Masna masa (kg)	20-29 – 30-39	-2,47	**0,01**
	20-29 – 40-49	-4,01	**0,00**
	30-39 – 40-49	-1,93	**0,05**
Mišićna masa (kg)	20-29 – 30-39	-1,95	**0,05**
	20-29 – 40-49	-3,96	**0,00**
	30-39 – 40-49	-2,18	**0,03**

Legenda: t – vrednost t-testa, p – nivo značajnosti t-testa.

DISKUSIJA

Pod telesnom kompozicijom podrazumevamo sastav ljudskog organizma, predstavljen veličinom i grupisanjem postojećih merljivih segmenata iz kojih se sastoji (Ugarković, 2001). Telesni sastav, prema *Američkoj asocijaciji za zdravlje, fizičko vaspitanje, rekreaciju i ples*, predstavlja odnos masnog, mišićnog i koštanog tkiva u celokupnoj telesnoj masi. Prema nekim autorima nemasnu masu tela čine mišići, skelet i unutrašnji organi, a masnu masu tela čini tzv. „bitna" i „nebitna" mast (Mišigoj-Duraković, 2006). Obzirom na količinu pojedinih komponenata kompozicije tela, izražen je polni dimorfizam, žene imaju znatno veći udeo masti u ukupnom sastavu tela u odnosu na muškarce. Odnos masnog i nemasnog dela tela menja se tokom života i moguće ga je modifikovati spoljašnjim činiocima, pravilnom i prilagođenom ishranom sa fizičkom i sportskom aktivnošću. Period kasne adolescencije kod osoba ženskog pola karakterističan je po usaglašavanju motoričkih sposobnosti i telesne kompozicije. Kod devojaka počinje u 16. godini i završava se u 21. godini (Korovljev, Mikalački, Čokorilo 2010).

Multivarijatnom analizom varijanse ustanovljena je statistički značajna razlika, u ukupnom prostoru varijabli za procenu telesnog sastava. Univarijatnom analizom varijanse ustanovljene su statistički značajne razlike između grupa na kvantitativnom nivou. Statistički značajne razlike konstatovane su za varijable Telesna masa, Mišićna masa, Masna masa, BMI. Značajnost razlika među grupama ispitanica različite starosne dobi testirana je primenom t-testa za nezavisne uzorke. Rezultati t-testa potvrđuju nalaze univarijatne i multivarijatne analize varijanse iz razloga što se većina testiranih parova grupa pokazuje značajnost razlika u varijablama Telesna masa, Mišićna masa, Masna masa, BMI. Razlike se javljaju skoro kod svih parova grupa navedenih varijabli, a veće vrednosti navedenih indikatora telesne kompozicije bile su u korist starijih ispitanica. Najveće razlike u dobijenim vrijednostima analiziranih indikatora telesne kompozicije bile su između najmlađe (20-29 god.) i najstarije grupe ispitanica (40-49 gog.)

Dosadašnja istraživanja govore o tome da se poslije dvadesete godine života očekuje normalno povećanje telesne masti za 1% na svakih deset godina, sve do šezdesete godine, što do tada iznosi ukupno povećanje od 4%. Količina potkožnog masnog tkiva obično se smanjuje nakon šezdesete godine. Normalne vrijednosti u zrelom dobu iznose 25% tjelesne masti za muškarce i do 30% za žene u odnosu na ukupni telesni sastav. Veće vrednosti od navedenih ukazuju da se radi o gojaznim osobama. Minimalne granice telesne masti su kompatibilne sa pojmom zdravlja su između 5 i 10% za muškarce i između 15 i 18% za žene (Vilmore i sar., 1986, prema: Mišigoj-Duraković, 2006). Tokom adolescentskog perioda, ženske osobe imaju dvostruko više procentualnog prirasta masne mase nego muškarci, dok muškarci imaju dvostruko više prirasta nemasne mase tela (Malina i Buhard, 1991, prema: Mišigoj-Duraković, 2006).

Promene u telesnoj kompoziciji koje nastaju s godinama kod žena, posmatrano sa aspekta bioloških teorija starenja, a naročito neuroendokrine teorije, odnose se, pored ostalog i na pojavu sarkopenije - postepenog propadanja mišićnog tkiva (Leksel i sar., 1988, Kort i sar., 1992).

Kod fizički aktivnih žena to opadnje je manje, odnosno veći je stepen održavanja mišićne mase na istom nivou (Sternfild, 2004; Kile i sar. 2006). U ovom

istraživačkom radu, među ispitanicama različite starosne dobi došlo do statistički značajne razlike u udelu mišićne mase u telesnoj kompoziciji.

Što se tiče mišićnog tkiva, nema mnogo podataka o prosečnim, odnosno poželjnim vrednostima za opštu populaciju. Povećan procenat udela mišićnog tkiva u ukupnom sastavu tela, pošto je ono pokretač lokomotornog aparata i ne može biti smetnja u praksi nasuprot povećanju masnog tkiva.

Pohlman i saradnici (1995) polaze od pretpostavke da je jedan deo promena u tjelesnoj kompoziciji žena, koji se pripisuje starenju, zapravo posljedica menopauze, odnosno posljedica smanjenog lučenja ženskih polnih hormona, u prvom redu estrogena. Sa ulaskom u menopauzu dešavaju se značajne promene u telesnoj kompoziciji. Poredeći žene u menopauzi sa ženama u predmenopauzi ovi autori nalaze da žene u menopauzi gube više nemasne mase u poređenju sa ženama koje su ostale u premenopauzi, kada dobijaju više masne mase (Bjorkelund i sar., 1996).

U ispitivanom uzorku ispitanica različite starosne dobi postoje značajne razlike. Do sličnih rezultata za uzrasnu kategoriju žena od 40-49 godina došli su i Nasis i Geldas (2003). Poredeći podatke dobijene godišnjim mjerenjima u toku sedam godina Soversova (Sovers sar., 2007), zaključuju da je povećanje telesne mase kod žena tokom srednjih godina povezano sa povećanjem masne mase (10%) i smanjenjem koštano-mišićne mase (1%) u ukupnoj telesnoj kompoziciji.

Iz svega navedenog može se reći da postoje značajne razlike u tjelesnoj kompoziciji žena različite starosne dobi na kvantitativnom nivou. Dio dobijenih rezultata može se, verovatno, pripisati i različitim stilovima života pet starosnih kategorija žena u smislu količine kretanja, redovne ishrane, bračnog satusa, genetskih i drugih faktora koji utiču na telesnu kompozicju kao što su utvrdili pojedini istraživači (Sarkej i Gaskil, 2008).

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ANALYSIS OF CHANGES OF BODY COMPOSITION WOMAN UNDER THE INFLUENCE OF AGE

Introduction: In modern civilization, there was a marked decrease in physical activity of people. It is well known that the use of dosed and regular physical activity act preventively to prevent the risk of diseases of modern civilization (Medved, 1980; Mišigoj Durakovic et al., 1999, Oman and Oman, 2003). The aim of the research is to analyze the changes of body composition of women affected by age. Methods: In a sample of 99 women, aged 20 to 49 years, the city of Novi Sad, undertook an assessment of body composition. The patients were divided into three subsamples with respect to age, for each decade separately. Distribution of respondents by age categories was made on the basis of some previous studies (NASIS and Geldas 2003, Flagg et al., 2005; Hayward, 2006). Univariate (ANOVA) and multivariate (MANOVA) analysis of variance fortified that there are statistically significant differences between all age groups, both in the common system variables and in most individual . For further determine the difference in the individual system variables was made t - test which confirms the findings of univariate analysis of variance. Results: Were found statistically significant differences between the analyzed groups. For most indicators of body composition are present in high and statistically significant differences. Discussion: Under the body composition we understand composition of the human body, represented by the size and grouping of existing measurable segments that constitute (Ugarković, 2001). According to some authors lean body mass is muscle, skeleton and internal organs, and body fat mass seems so. "important" and "unimportant" fat (Mišigoj Durakovic, 2006). References

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RAZLIKE U TELESNOJ KOMPOZICIJI IZMEĐU VEŽBAČA KOMBINOVANIH FITNES PROGRAMA I VEŽBAČA PILATESA

UVOD

Bolesti uzrokovane hipokinezijom predstavljaju najveći problem savremene medicine. U svetu je oko 80% populacije fizički neaktivno, što predstavlja plodno tlo za sve vrste bolesti (Čokorilo, 2006). Kada se govori o bolestima na prvom mestu se nalaze srčana oboljenja, tj. bolest koronarnih arterija, pri čemu dolazi do suženja arterija (ateroskleroza). Aktivnim životnim stilom može se usporiti, zaustaviti, čak i preokrenuti proces ateroskleroze. Obzirom na to, poznato je da neaktivnost povećava za 35 % rizik od razvoja hipertenzije i da ispitanici koji su u lošoj fizičkoj kondiciji imaju za 52% veći rizik od te bolesti nego osobe koje su u dobroj formi (Sharkey & Gaskill, 2008). S obzirom da je u radu govori o fizičkoj aktivnosti žena, treba spomenuti da istraživanja pokazuju da žene koje su bile aktivne u mladosti imaju manju učestalost karcinoma dojke reproduktivnih organa nego neaktivne žene. Isto tako, pušenje, neuhranjenost nastala kao posledica neodgovarajuće ishrane i smanjena fizička aktivnost ubrzavaju osteoporozu. Osteoporoza predstavlja progresivan gubitak koštane mase koja se brže odvija kod žena, posebno tokom menopauze (Sharkey & Gaskill, 2008). Kada se spominje neaktivnost, neizbežno je spomenuti gojaznost i telesnu kompoziciju čoveka na osnovu koje se može steći utisak o sopstvenom načinu života.

Nekada je bilo popularno vežbati dva ili tri puta nedeljno, a danas se pristupa programiranom rekreativnom vežbanju čak četiri ili pet puta nadeljno i to tako da se kombinuju različiti programi u toku nedelje i to uglavnom predstavljaju grupno – vođeni programi.

Grupni fitnes programi pripadaju polistrukturalnim cikličnim aktinostima i pozitivno deluje na antropološke karakteristike i sposobnosti (Kenedy i Yoke, 2005).

Jedan od grupnih programa je pilates. Pilates metod je sistem fizičkih vežbi prevashodno usmerenih ka povećanju gipkosti i snage tela. Pilates utiče na pravilno držanje tela i ujedinjuje um i telo (Latey, 2001; Krejg, 2005). Nastao je dvadesetih godina prošlog veka. Njegov tvorac je Jozef Pilates, rođen 1880. godine nadomak Diseldorfa u Nemačkoj. Pilates je nazvao svoj metod "Kontrologija". Sam naziv upućuje na način na koji ovaj metod ohrabruje ljude da koriste svoj um kako bi svesno "kontrolisali" pokret prilikom izovđenja vežbi. Pilates metod podučava polaznike o pravilnom načinu disanja tokom vežbanja, što je od velikog značaja za ublažavanje i predupređivanje (preventivu) bolova u leđima (Latey, 2001).

Organizovani grupni programi postoje preko 50 godina. Specifične kretne strukture, koje su zamenile elemente sportske i ritmičke gimnastike, pre svega deluju na razvoj aerobne izdržljivosti, snage, mišićne izdržljivosti, koordinacije i fleksibilnosti vežbača. Postoji veliki broj različitig grupnih fitness programa koji su svojim specifičnostima omogućili da vežbanje više ne bude privilegija za mlade i zdrave već da svi, bez obzira na uzrast, pol, antropometrijske karakteristike, motorička znanja i sposobnosti, mogu pronaći program koji im odgovara. Uključivanjem velikog broja ljudi u razne sportsko rekreativne programe, otvara se sve veći broj fitnes centara i popularnost grupnih fitness programa raste.

Vežbanje u grupno vođenim programima se realizuje najmanje dva puta nedeljno tokom cele godine, i češće ih posećuju osobe ženskog pola.

Pilates metoda oblikovanja tela jesnstveni je sistem vežbi istezanja i snage koji je pre devedeset godina razvio Joseph H. Pilates. Taj sistem jača i oblikuje mišiće, ispravlja držanje tela, daje nam gipkost i ravnotežu, ujedinjuje telo i um te usavršava oblik tela (Siler, 2003).

Pilates je metod dobro osmišljenih i kontrolisanih vežbi koje aktiviraju mišiće, podižu kvalitet disanja i rada srca te vraća telu pravilno držanje i posturu. To je metod koji uključuje rad na mišićnom tonusu, aktivira pokrete kičme, gipkost i omogućuje opuštanje (Malnar i saradnici, 2007). Pilates metod je sistem fizičkih vežbi prevashodno usmerenih ka povećanju gipkosti i snage tela (Latey, 2001; Krejg, 2005).

Jedinstvenost je pilates metode u povezanosti uma i duha, odnosno um pri vežbanju mora biti svestan položaja određenog dela tela u prostoru i njegova kretanja. Pilatesom se telo izlaže većoj ravnoteži i koordinaciji nego pri drugim načinima vežbanja te se postiže lakoća pokreta, ispravlja držanje i oblikuju mišići koji postaju tonizirani i snažni. Pilates je kombinacija najboljih istočnih izapadnih metoda vježbanja. S istoka je preuzeta filozofija opuštanja, a sa zapada naglašavanje mišićnog tonusa, snage i izdržljivosti.Pilates je nazvao svoj metod "Kontrologija". Sam naziv upućuje na način na koji ovaj metod ohrabruje ljude da koriste svoj um kako bi svesno "kontrolisali" pokret prilikom izovđenja vežbi.

Opšta tehnika Pilatesa se deli u dve kategorije:

- vežbanje na strunjači, a te se vežbe zovu “Mat-classes”
- na spravama.

Vežbe na sturnjači se izvode na prostirci u malim grupama. Vežbajući na podu koristi se vlastito telo kao otpor, pri čemu se pomažu i rekvitziti kao što su Magic circle (elastični obruč), male ili velike lopte, elastične trake i štapovi, te mali ručni tegovi.

METODE

Uzorak ispitanika su činile osobe ženskog pola, starosti od 30 do 50 godina. Ukupan uzorak u istraživanju je činilo 130 ispitanica sa teritorije Novog Sada. Grupu fizički aktivnih su činile 84 ispitanice, koje su podeljene u dve grupe. U prvoj grupi se nalaze 34 žene koje sudva puta nedeljno vežbale Pilates u trajanju od sat vremena, u periodu od godinu dana, u sklopu projekta „Uticaj fizičke aktivnosti na riziko faktore radnoaktivnog stanovništva“ finansiranog od strane Pokrajinskog sekretarijata za

nauku i tehnološki razvoj. Drugu grupu je činilo 50 ispitanica koje su aktivno vežbale u fitnes klubu »World Class«, najmanje godinu dana, kombinujući različite grupne programe,bar tri puta nedeljno. Raspon trajanja treninga je bio od 30 do 60 minuta. Treću grupu je činio uzorak od 46 ispitanica koje se nisu bavile nikakvom fizičkom aktivnošću.

U cilju utvrđivanja telesne kompozicije dobijeni su podaci u sledećim pokazateljima:

1) BMI – *Body mass index* (veličina koja se upotrebljava za procenu normalnosti telesne mase u odnosu na visinu merene osobe) – predstavlja količnik telesne mase (kg) i kvadrata telesne visine (m²).
2) MM (kg) – predstavlja udeo masne mase u telesnoj kompoziciji,
3) MM (%) – predstavlja procenat masne mase u ukupnoj telesnoj masi,
4) WHR – *Waist – hip ratio,* kojim se procenjuje distribucija masti u telu, predstavlja odnos cirkularnih mera struka i kukova.

U cilju utvrđivanja razlike u kompoziciji tela između grupa ispitanica, primenjena je multivarijatna analiza varijanse (MANOVA). Obrada podataka izvršena je u statističkom paketu SPSS Statistics 19.0.

REZULTATI

Multivarijatnom analizom varijanse (Tabela 1) ustanovljena je statistički značajna razlika ukupnog prostora varijabli između grupa ispitanica, pri čemu je vrednost F=4.65 na nivou značajnosti P=0.00. Analizom kvantitativnih razlika, koja je urađena primenom univarijatne analize varijanse, može se primetiti da postoji statistički značajna razlika između grupa ispitanica u varijablama BMI i Procentu masne masa, na nivou značajnosti p=0,05. U varijablamaMasna masa u kilogramima i WHR vrednost rezultata nije pokazala statistički značajnu razliku.

Tabela 1. *Rezultati multivarijatne analize varijanse za indikatore telesne kompozicije*

V A R I J A B L A	GRUPA	AS	S	f	p
	1	24.27	2.80		
Body mass index (kg/m²)	2	22.12	2.92	4.87	**0,00**
	3	24.21	4.30		
	1	19.87	7.11		
Masna masa (kg)	2	16.50	6.50	2.84	0,06
	3	19.93	8.23		
	1	29.45	8.55		
Masna masa (%)	2	25.55	6.74	3.86	**0,02**
	3	29.58	6.99		
	1	0.75	0.05		
Waist – hip ratio (cm)	2	0.78	0.07	2.81	0,06
	3	0.76	0.05		
		F= 4.65	**P=0.00**		

Primenom t testa za nezavisne uzorke (Tabela 2), ustanovljene su statistički značajne razlike između parova grupa, i to: u varijabli Body mass index postoji statistički značajna razlika između prve i druge grupe, odnosno grupe koja je vežbala Pilates i grupe koja je kombinovala različite vrste treninga, i druge i treće (fizički neaktivne) grupe, na nivou značajnosti p≤0,01. Između prve i treće grupe ne postoji statistička značajnost u ovoj varijabli.

U varijablama Masna masa i Procentu masne mase je ustanovljena statitstički značajna razlika između prve i druge grupe, i druge i treće grupe (p≤0.05).

WHR, tj. odnos obima struka i kukova pokazuje statističku značajnost samo između para prve i druge grupe, na nivou značajnosti p<0.05.

Tabela 2. *Testiranje značajnosti razlika između parova grupa po varijablama*

VARIJABLA	AS	Parovi	t	p
	24.27	1 – 2	2.14	**0,01**
Body mass index (kg/m²)	22.12	1 – 3	0.06	0,93
	24.21	2 – 3	-2.08	**0,00**
	19.87	1 – 2	3.36	**0.05**
Masna masa (kg)	16.50	1 – 3	-0.06	0.96
	19.93	2 – 3	-3.43	**0.03**
	29.45	1 – 2	3.90	**0,02**
Masna masa (%)	25.55	1 – 3	-0.12	0,94
	29.58	2 – 3	-4.03	**0,01**
	0.75	1 – 2	-0.03	**0,02**
Waist – hip ratio (cm)	0.78	1 – 3	-0.01	0,34
	0.76	2 – 3	0.02	0,12

Legenda: AS - aritmetička sredina, t - vrednost t testa, p - nivo značajnosti t testa

DISKUSIJA

Multivarijatnom analizim varijanse je ustanovljena statistički značajna razlika u ukupnom prostoru varijabli za procenu telesne kompozicije. Univarijatnom analizom varijanse su ustanovljene statistički značajne razlike između grupa na kvantitativnom nivou. Pokazale su se statistički značajne razlike u varijablama Body mass index i Procanat masne mase u ukupnom telesnom sastavu. Značajnost razlika između grupa ispitanica koje su se bavile grupnim fitnes programima i ispitanica koje se nisu bavile nikakvom rekraetivnom aktivnošću je testirana primenom t testa za nezavisne uzorke. Rezultati t testa su pokazali da postoji statistički značajna razlika između grupe koja je vežbala kombinovanjem različitim grupnih programa, u odnosu na grupu koja je vežbala samo Pilates metodom, i grupu koja je bila fizički neaktivna.

Dosadašnja istraživanja nam govore da postoji razlika u morfološkim karakteristikama i zdravstvenom statusu žena koje se rekreiraju i žena koje se ne rekreiraju. Ono što je od posebne važnosti za ženski pol jeste prevencija protiv osteoporoze, čemu doprinosi telesno vežbanje.

Stojiljković i saradnici (2005) su utvrđivali efekte aerobika na morfološke karakteristike i funkcionalne sposobnosti vežbačica, gde su utvrđene značajne statističke razlike u indeksu telesne mase i količini masnog tkiva u korist osoba koje se bave aerobikom, koji predstavlja sve češći oblik rekreativnog vežbanja.

Što se tiče uticaja vežbi Pilatesa na telesnu kompoziciju, rezultati su podeljeni. U istraživanju Cakmakci (2011), gde su gojazne žene vežbale ovom metodom osam nedelja, ćetiri puta nedeljno, došlo je do smanjenja masnog tkiva u telu. Međutim, u istraživanju Segal, Hein, Basford (2004) gde su pratili ispitanike koji su vežbali duži vremenski period, nije primećena zančajna razlika u telesnoj kompoziciji, premda je motorička sposobnost gipkost značajno poboljšana.

U uzorku koji je učestvovao u ovom istraživanju, nije utvrđena statistički značajna razlika u pokazateljima telesne kompozicije između grupe koja je vežbala Pilates i grupe koja se nije bavila fizičkom nikakvom rekreativnom aktivnošću, ali iako srednje vrednosti pokazuju nešto bolje rezultate u grupi koja vežba.

Grupa koja se vežbala tako što je kombinovala različite vrste grupnih programa pokazuje značajnu razliku u telesnoj kompoziciji u odnosu na obe grupe ispitanica, što se pripisuje većem upražnjavanju aerobnog vežbanja, koji podrazumeva veću potrošnju kiseonika, koji je neophodan za redukciju potkožnog masnog tkiva.

Sa obzirom da grupe nisu bile podvrgnute kontrolisanju provođenja vremena ispitanica, deo rezultata se, verovatno, može pripisati i različitim stilovima života žena, u smislu količine kretanja, redovne ishrane, bračnog statusa, genetskih i drugih faktora koji utiču na telesnu kompoziciju.

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DIFFERENCES IN BODY COMPOSITION BETWEEN PRACTITIONAR COMBINED FITNESS AND PRACTITIONER PILATES

Introduction: When talking about the disease in the first place are heart disease-coronary artery disease, wherein there is a narrowing of the arteries (atherosclerosis). Active lifestyle can slow, stop and even reverse the process of atherosclerosis. In this regard, it is known that increasing the inactivity of a 35 % risk of developing hypertension, and subjects who are in poor physical condition are 52% greater risk of the disease than those who are in good shape (Sharkey & Gaskill, 2008). The aim of this study was to determine whether there is a statistically significant difference in body composition of women dealing with the combined group fitness programs compared to women who engaged in practicing the Pilates method. Methods: The sample consisted of females aged 30 to 50 years. The total sample in the study consisted of 130 subjects from the territory of Novi Sad. Physically active group consisted of 84 respondents, who were divided into two groups . The first group includes 34 women who exercised twice weekly Pilates for a period of one hour , for a period of one year. The second group consisted of 50 subjects who actively exercised at a fitness club "World Class," at least a year, combining a variety of group programs, at least three times a week. The range of training duration was from 30 to 60 minutes. The third group consisted of a sample of 46 subjects who did not engage in any physical activity. Results: The results it was concluded that the subjects who were involved in the combined training group have lower values of body mass index, fat mass and percentage fat mass in total body composition of women who exercised only one group program, or Pilates, and women who not engage in any recreational activity. Discussion: In current practice were determined effects of aerobics on morphological characteristics and functional abilities of trainees have, where they are statistically significant differences in body mass index and fat mass in favor of a person dealing with aerobics, which is the more common form of recreational exercise (Stojiljkovic et al, 2005). Regarding the influence of Pilates exercise on body composition, the results are divided. In a study where overweight women practiced this method for eight weeks, four times a week, there was a reduction of fat in the body (Cakmakci, 2011). References: Cakmakci, O. (2011). The Effect of 8 Week Plates Exercise on Body Composition in Obese Women. Collegium Antropologicum, 35(4), 1045-1050. Coggan, A. R., Spina, R. J., King, D. S., Rogers, M. A., Brown, M., Nemeth, P. M., Holloszy, J. O. (1992). Skeletal muscle adaptations to endurance training in 60- to 70-yr-old men and women. Journal of Applied Physiology, 72 (5), 1780-1786. Kenedy, C., Yoke, M., (2005). Methods of group exercise intruction. Illinois: Human Kinetics. Latey, P. (2001). The Pilates method, history and philosophy. Journal of Bodywork and Movement Therapies, 5 (4), 275-282. Malnar, D., Šterbik, K., Fužinac-Smojever, A., Jerkovic, R., Bobinac, D. (2007). Pilates exercise technique. Medicine, 43, 241-245. Segal, N.A., Hein, J., Basford, J.R. (2004). The effects of Pilates training on flexibility and body composition: an observational study. Arch Phys Med Rehabil, 85(12), 1977-1981.

„Dnevne novine”, 31. januar 2014.



Prva nedjelja aprila donosi izlaganje naučnih radova: Duško Bjelica, predsjednik prireĎivačkog odbora Kongresa

KONGRES I KONFERENCIJA

CSA: Prihvaćena 102 naučna rada

Prva nedjelja aprila u glavnom gradu Crne Gore biće rezervisana za naučne radove u oblasti sporta - na programu je jubilarni 10. kongres Crnogorske sportske akademije (CSA), te 11. međunarodna konferencija.

Tema će biti transformacioni procesi u sportu “Sportska dostignuća”...

“Recenzenti su od velikog broja pristiglih radova prihvatili i odabrali 102 adekvatno pripremljena rada čiji su se autori strogo držali precizno formulisanih propozicija za njihovu pripremu”, rekao je predsjednik prireĎivačkog odbora Kongresa **Duško Bjelica**...

“Pored 102 registrovana učesnika koji će prezentovati svoje radove, prijavljeno je još 13 učesnika koji će pratiti konferenciju bez prijavljenog rada.”

Nacionalna struktura učesnika koji će izlagati svoje radove je izuzetno šarolika - autori dolaze sa svih strana svijeta...

“To su naučnici iz Albanije (5 autora), Brazila (1), Bugarske (3), Kanade (1), Hrvatske (1), zatim Češke (4), Finske (2), Francuske (1), Indije (1), Irana (17), Iraka (4), Japana (1), Kosova (11), Makedonije (3), Malezije (1), Portugala (1), Rumunije (1), Srbije (6), Slovenije (1), Španije (1), Tajvana (1), Tajlanda (2), Turske (17), Velike Britanije (1) i Crne Gore (15)”, riječi su Bjelice.

Naučna konferencija će imati svoje sekcije, a to su: sportska ishrana, adaptivna fizička aktivnost, sportski menadžment, sociologija i pedagogija sporta, statistika u sportu, biohemija, biomehanika i molekularna biologija u sportu, koučing, zdravlje i fitnes, motorno učenje, fizičko vaspitanje, psihlogija sporta, rehabilitacija u sportu i testiranje u sportu.

“Autori prijavljenih radova se obavještavaju do 1. februara 2014. godine, a vrlo brzo će biti pripremljen program rada, gdje će biti detaljno razrađen raspored izlaganja koji će se odvijati paralelno na dva jezika, crnogorskom i engleskom”, rekao je Bjelica.

Predsjednik Kongresa je napomenuo da će svi prihvaćeni radovi biti štampani...

“Adekvatno izloženi radovi steći će pravo da se nađu u renomiranom crnogorskom časopisu Sport Mont koji izlazi na crnogorskom jeziku uz sažetak na engleskom jeziku, a isti je indeksiran u EBSCO citatnoj bazi”, jasan je Bjelica. **B.T.**

„Blic”, 31. januar 2014.



UNAPREĐENJE SPORTA Detalj sa zasijedanja Crnogorske sportske akademije

Pred konferenciju “Transformacioni procesi u sportu”

Prihvaćena 102 naučna rada

PODGORICA ≫ Recezenti su za učešće na 11. međunarodnoj konferenciji i desetom Kongresu Crnogorske sportske akademije (CSA) odabrali 102 naučna rada.

– Recezenti su, od velikog broja pristiglih radova, prihvatili i odabrali 102 adekvatno pripremljena rada čiji autori su se strogo držali precizno formulisanih propozicija za njihovu pripremu. Pored 102 registrovana učesnika koji će prezentovati svoje radove, prijavljeno je još 13 učesnika koji će pratiti konferenciju bez prijavljenog rada – kazao je predsjednik priređivačkog odbora Kongresa Duško Bjelica.

Prema njegovim riječima, nacionalna struktura autora ovogodišnje konferencije je “veoma šarolika”, odnosno da oni dolaze sa svih strana svijeta.

– To su naučnici iz Albanije (5 autora), Brazila (1), Bugarske (3), Kanade (1), Hrvatske (1), zatim Češke republike (4), Finske (2), Francuske (1), Indije (1), Irana (17), Iraka (4), Japana (1), Kosova (11), Makedonije (3), Malezije (1), Portugala (1), Rumunije (1), Srbije (6), Slovenije (1), Španije (1), Tajvana (1), Tajlanda (2), Turske (17), Velike Britanije (1) i Crne Gore (15) – jasan je Bjelica.

Bjelica je istakao da će se na predstojećoj naučnoj konferenciji rad odvijati u sljedećim sekcijama: sportska ishrana, adaptivna fizička aktivnost, sportski menadžment, sociologija i pedagogija sporta, statistika u sportu, biohemija, biomehanika i molekularna biologija u sportu, koucing, zdravlje i fitnes, motorno učenje, fizičko vaspitanje, psihologija sporta, rehabilitacija u sportu i testiranje u sportu.

– Tradicionalno, konferencija i kongres održavaju se u prvoj sedmici aprila, a autori prijavljenih radova se obavještavaju do 1. februara 2014. godine. Vrlo brzo će biti pripremljen program rada, gdje će biti detaljno razraden raspored izlaganja koji će se odvijati paralelno na dva jezika, crnogorskom i engleskom – rekao je Bjelica. *G. Badalovska* ■

ZBORNIK RADOVA

Svi prihvaćeni radovi biće štampani u zborniku sažetaka sa adekvatnim ISNB brojem. Adekvatno izloženi radovi steći će pravo da se nađu u renomiranom crnogorskom časopisu Sport Mont koji izlazi na crnogorskom jeziku uz sažetak na engleskom jeziku, a isti je indeksiran u EBSCO citatnoj bazi.

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