Epidemiološke značilnosti poškodb v slovenskem rokometu

Anja Barič, dipl. fiziot., viš. pred. mag. **Sonja Hlebš**, viš. fiziot., univ. dipl. org.

Zdravstvena fakulteta, Univerza v Ljubljani, Ljubljana, Slovenija

Korespondenca/Correspondence: Sonja Hlebš; e-pošta: sonja.hlebs@zf.uni-lj.si

Uvod: Rokometna igra je povezana s številnimi nepričakovanimi situacijami, z zunanjimi motnjami gibanja in s skrajnimi položaji telesnih segmentov, zato je pojavnost poškodb pri rokometaših velika (1, 2). Namen prispevka je prikazati izsledke analize poškodb rokometašev in rokometašic iz slovenskih članskih lig v sezoni 2010/2011. **Metode:** Izvedena je bila retrospektivna epidemiološka raziskava. Podatki so bili zbrani z anketami, ki so bile poslane dvajsetim slovenskim rokometnim klubom. Iz vsake lige so bili naključno izbrani 4 klubi, iz posameznega kluba je ankete reševalo 15 igralcev. Za analizo rezultatov so bili uporabljeni opisna statistika, povprečje, srednja vrednost in delež. Zbiranje podatkov je potekalo od februarja do maja 2012. **Rezultati:** Od 300 poslanih je bilo analiziranih 159 vrnjenih in pravilno rešenih anket, ki jih je izpolnilo 81 (50,9 %) rokometašev in 78 (49,1 %) rokometašic. Povprečna starost rokometašev (24,6 leta) je bila višja od rokometašic (20,5 leta), z rokometom so se igralci v povprečju ukvarjali 15 let in igralke 10,5 leta. V sezoni 2010/2011 se je poškodovalo 45 % igralcev in igralk. Incidenca poškodb pri ženskah je bila višja kot pri moških (ženske 26,7 poškodbe/1000 ur igranja tekme in 0,97 poškodbe/1000 ur treninga; moški 10 poškodb/1000 ur igranja tekme in 0,5 poškodbe/1000 ur treninga). Incidenca poškodb na tekmah pri rokometašicah je bila skoraj trikrat in na treningih dvakrat večja kot pri rokometaših. Največji odstotek poškodovanih igralcev in igralk je bil v 1. B moški (46 %) in ženski ligi (62 %). Preventivno vadbo je imelo vključeno v treninge 67 (42 %) od vseh rokometašev in rokometašic, 92 (58 %) igralcev in igralk preventivne vadbe ni imelo. Od tistih, ki so izvajali preventivno vadbo, se jih je 51 % poškodovalo. Med tistimi, ki preventivne vadbe niso imeli vključene v treninge, se je poškodovalo 41 %. V sezoni 2010/2011 se je vsaj enkrat poškodovalo 72 (45 %) igralcev in igralk, 87 (55 %) se jih ni poškodovalo. Pripetilo se je 0,58 poškodbe na igralca oziroma igralko. Rokometašice so imele 57 poškodb (62 %), rokometaši pa 35 (38 %). Od vseh poškodb (92) pri obeh spolih se jih je največ zgodilo v jesenskem tekmovalnem obdobju (49 %) in najmanj (8 %) v spomladanskem pripravljalnem delu sezone. Prevladovale so poškodbe spodnjih udov (62 % vseh poškodb), najpogosteje je bil pri obeh spolih poškodovan skočni sklep (30 poškodb). Največ poškodb (27) je bilo hudih (odsotni od treningov za več kot 4 tedne), najpogosteje so bili poškodovani levi in desni zunanji igralci oziroma igralke (38 poškodb). **Zaključki:** Incidenca, vrsta poškodb in vzroki za nastanek poškodb med slovenskimi rokometaši ter rokometašicami so primerljivi z izsledki v literaturi (3, 4). Zbrani podatki so lahko v pomoč vsem, ki se ukvarjajo s to športno panogo, za izboljšanje preventivnih ukrepov, boljšega predvidevanja in ukrepanja ob nastanku poškodb.

Ključne besede: rokomet, športne poškodbe, pogostost.

Epidemiology of injuries in Slovene handball

Background: Handball is associated with a number of unexpected situations, with external disturbances of movement and the extreme positions of body segments, hence the frequency of injuries among handball players is high (1, 2). The purpose of this study was to identify and analyse injuries amongst handball players from different Prime Slovene leagues in the season 2010/2011. **Methods:** A retrospective epidemiological study of injuries in handball was conducted. A questionnaire was send to twenty Slovene handball teams. From each league, four teams were randomly selected and from individual team 15 players fulfilled the questionnaire. Descriptive statistics, average and percentage values were used for analysis. Data were collected between February and May 2012. **Results:** Three hundred questionnaires were sent and 159 questionnaires that were sent back were used for analysis. Eighty-one (50.9%) male players (average age 24.6 years) and 78 (49.1%) female players (average age 20.5 years) fulfilled the questionnaire. On average male players had longer duration of playing handball in comparison to female players (male: average 15 years; female average 10.5 years). During the season 2010/2011 forty-five percent of all players were injured. The incidence of injury in females (27.7 injuries/1000 hours competition and 0.97 injuries/1000 hours training) was higher than in men (10 injuries/1000 hours competition and 0.5 injuries/1000 hours training). The incidence of injury on competition and on training was higher in female players in comparison to male three to two times, respectively. The largest percent of injured players was in 1.B male (46%) and in female league (62%). From all players, 67 (42%) had been involved in prevention training programme and 92 (58%) not. Fifty-one percent of the players involved in prevention training injured and 41% players who were not involved in the prevention programe. In the 2010/2011 season from all players, 72 (45%) injured themselves at least once, 87 (55%) did not experienced the injury. There was 0.58 injury per player, 57 (62%), injuries in female and 35 (38%) in male players. From all injuries (92) in both genders, the highest percentage of all injuries occured in the first half of the competition season (49%) and the least (8 %) in the preparatory season. From all injuries, the lower limb was injured most frequently; the most common was ankle injury (30 injuries). The majority of the injuries (27) were severe (absence from training for 4 weeks) and the backcourt players (38) were most frequently injured. **Conclusion:** The incidence, type and cause of injuries among Slovenian handball players are comparable to reports in the literature (3, 4). The collected data may be helpful to improve the prevention, prediction and treatment of injuries to all who are involved in this sport discipline.

Keywords: handball, sport injuries, incidence.

Literatura/References

1. Seil R, Rupp S, Tempelhof S, Kohn D (1998). Sports injuries in team handball: A one year prospective study of sixteen men's senior teams of a superior nonprofessional level. Am J Sports Med 26(5), 681–87.
2. Junge A, Cheung K, Edwards T, Dvorak J (2006). Injuries in team sport turnaments during the 2004 Olimpic games. Am J Sports Med 34(4): 565–576.
3. Langevoort G, Myklebust G, Dvorak J, Junge A (2007). Handball injuries during major international tournaments. Scand J Med Sci Sports 17(4): 400–407.
4. Petersen W, Braun C, Wiebke C B et al (2005). A controlled prospective case control study of a prevention training program in female team handball players: the German experience. Arch Orthop Trauma Surg (2005) 125 (9), 614–21.

Razlike v somatotipu med atleti veterani tekmovalci in netekmovalci

Tea Piškur, dipl. fiziot.[1], viš. pred. mag. **Miroljub Jakovljević**, viš. fiziot., univ. dipl. org.[2]

[1]Univerzitetni rehabilitacijski inštitut Soča, Slovenija; [2]Univerza v Ljubljani, Zdravstvena fakulteta, Slovenija

Korespondenca/Correspondence: Tea Piškur; e-pošta: tea.piskur@ir-rs.si

Uvod: Z naraščajočo starostjo nastopijo značilne spremembe v zgradbi in sestavi človeškega telesa. Dejavniki, ki vplivajo na spremembe, so številni (1). Eden pomembnejših je telesna dejavnost, ki ugodno vpliva na maščobno, mišično in kostno tkivo (5). Namen raziskave je bil ugotoviti, kako se s starostjo spreminja somatotip pri moških in pri ženskah ter kako na somatotip vpliva redna telesna dejavnost oziroma nedejavnost. **Metode:** V raziskavi je sodelovalo 336 oseb, od tega 193 moških in 143 žensk oziroma 280 tekmovalcev ter 56 netekmovalcev. Udeleženci so bili naključno izbrani na evropskem atletskem veteranskem prvenstvu leta 2008. Za pridobitev potrebnih podatkov smo naredili 10 antropometričnih meritev. Preiskovanci so bili deljeni glede na spol ter starost v skupine od 35 do 44 let, od 45 do 54 let, od 55 do 64 let ter 65 let in več. **Rezultati:** Analizirali smo 336 oseb, od tega 280 (83 %) tekmovalcev in 56 (17 %) netekmovalcev. Povprečna starost (standardni odklon) preiskovancev je bila 55,0 (12,1) let. Povprečna starost vseh moških je bila 55,0 (12,2) let, žensk pa 54,9 (12,1) leta. Somatotip pri moških je bil zelo homogen, saj je 193 (100 %) moških imelo somatotip endomorfni mezomorf. Pri ženskah so bili zastopani štirje različni somatotipi. Kar 85 (59,4 %) žensk je imelo somatotip mezomorf – endomorf, 47 (32,8 %) žensk pa somatotip mezomorfni endomorf. Pri moških je prevladovala mezomorfna komponenta, pri ženskah pa endomorfna komponenta, ne glede na telesno dejavnost. **Zaključki:** Rezultati so pokazali, da ima telesna dejavnost pozitiven vpliv na biologijo staranja in spremembe, ki nastopajo vse do pozne starosti. Prav tako so rezultati pokazali, da se je somatotip moških razlikoval od somatotipa žensk, in sicer v skupini tekmovalcev in netekmovalcev. S starostjo so nastopile spremembe, ki so bile skupne obema spoloma.

Ključne besede: antropometrija, somatotip, sestava telesa, staranje, telesna aktivnost.

Differences in somatotype between veteran athletic competitioners and non-competitioners

Background: A lot of typical changes in body composition and body built are affected by ageing process. Factors which have influence on human body are several (1). One of the most important is physical activity. It has positive affect on fat, muscle and bone tissues (5). The purpose of this work was to find out how somatotype changes with growing age in group of men and women and how physical activity or non-activity affects somatotype. **Methods:** In our research we tested 336 persons, of whom 193 were men and 143 were women. We tested 280 active and 56 non-active people. All participants were chosen by chance on European Veteran Athletic Championship in 2008. For our research we needed 10 anthropometric measurements. Participants were divided by gender and age into age groups 35-44 years, 45-54 years, 55-64 years and 65 years and more. **Results:** We analysed 336 participants, 280 (83%) of all were active and 56 (17%) were non active participants. Mean age (standard deviation) for all participants was 55.0 (12.1) years. Mean age of all male participants was 55.0 (12.2) years, and of female participants 54.9 (12.1) years. Somatotypes in the male sample were similar, because all the 193 (100%) men had somatotype endomorphic mesomorph. In the female sample we found four different somatotypes. 85 (59.4%) women had somatotype mesomorph – endomorph, 47 (32.8%) women had somatotype mesomorphic endomorph. In male sample the dominant component of somatotype was mesomorphic component but in female sample the dominant component of somatotype was endomorphic component, for active and non-active participants. **Conclusions:** The results showed that physical activity has a positive effect on biology of ageing and on changes correlated with ageing process. The results also showed that the somatotype of the men is different from the somatotype of the women in the group of active and non-active participants. Ageing brings changes in the body structure and composition which are equal for both genders.

Keywords: anthropometry, somatotype, body composition, ageing, physical activity.

Literatura/References

1. Carter JEL, Heath BH (1990). Somatotyping development and applications, 1st ed. Cambridge University: 1-23; 73–121; 178–96; 286–90; 292–3310; 398.
2. Carter JEL (2002). Anthropometric somatotype instruction manual. Department of Exercise and Nutritional Sciences: 2–8.
3. Dupler TR, Tolson H (2000). Body composition predictions equations for elderly men. J Gerontol 55 (3): 180–5.
4. Reis VM, Machado JV, Fortes MS, et al. (2007). Evidence for higher heritability of somatotype compared to body mass index in female twins. J Physiol Anthropol 26: 9–14.
5. Villareal DT, Banks M, Siener C, Sinacore DR, Klein S (2004). Physical frailty and body composition in obese elderly men and women. Obes Res 12(6): 913–20.

Zanesljivost Constantove ocenjevalne lestvice funkcije rame

Asist. dr. **Polona Palma**, dipl. fiziot., prof. šp. vzg., **Elzabela Martini**, dipl. fiziot., viš. pred. mag. **Sonja Hlebš**, viš. fiziot., univ. dipl. org.

Univerza v Ljubljani, Zdravstvena fakulteta, Ljubljana, Slovenija

Korespondenca/Correspondence: Polona Palma; e-pošta: polona.palma@zf.uni-lj.si

Uvod: Ocenjevalne lestvice za ramenski obroč se delijo v splošne (American Shoulder and Elbow Surgeons, Disabilities of the Arm, Shoulder and Hand), specifične glede na okvaro oziroma bolezen (Rotator cuff Quality of Life, Western Ontario Rotator Cuff Index) in specifične glede na stanje (Oxford Shoulder Instability Questionnaire) (1). V rehabilitacijski obravnavi bolnikov z boleznimi in poškodbami ramenskega sklepa je večina ocenjevalnih sistemov zasnovana na ravni okvare, vendar narašča potreba po meritvah omejitve dejavnosti. Constant in Murley (2) sta ena prvih opisala sistem točkovanja, ki je usmerjen izključno v številčen opis kakovosti funkcije rame. Constantova ocenjevalna lestvica funkcije rame (COLFR) je pogosto uporabljen točkovalni sistem, specifičen za oceno rame. Z raziskavo smo želeli ugotoviti zanesljivost COLFR pri pacientih s poškodbami ramenskega sklepa. **Metode:** V raziskavo je bilo vključenih 30 polnoletnih prostovoljcev, starih povprečno 47,7 ± 15,9 leta, z unilateralno poškodbo ramenskega sklepa. Sodelovali so naključno izbrani pacienti z različnimi okvarami ramen, ne glede na vrsto poškodbe in način zdravljenja, ki so bili po poškodbi ramenskega sklepa vključeni v rehabilitacijo v Zdravilišču Laško. Pogoj je bil, da so imeli poškodovano ramo pred manj kot tremi leti. Kontrolna rama je morala biti nepoškodovana oziroma naj bi od poškodbe ali operacije minilo več kot 5 let. Za ocenjevanje funkcije rame smo uporabili v slovenščino prevedeno lestvico COLFR (3). Uporabljena je bila metoda testa in ponovnega testa, saj so bile meritve opravljene dvakrat v razmiku treh dni. Raziskavo je odobrila komisija Republike Slovenije za medicinsko etiko. **Rezultati:** Povprečna vrednost COLFR za levi zgornji ud pri prvem testiranju je bila za 0,8 večja kot povprečna vrednost pri drugem testiranju. Povprečni vrednosti COLFR za desni zgornji ud sta bili pri prvem in naslednjem testiranju enaki. Razlika v obeh primerih ni bila statistično pomembna ($p < 0,05$). Do statistično pomembnih razlik ($p = 0,018$) med prvimi in drugimi meritvami je prišlo v kategoriji bolečina pri testiranju na levem zgornjem udu. Povprečna vrednost prve meritve je znašala 2,5 točke, povprečna vrednost druge meritve pa 2,8 točke. Celotna ocenjevalna lestvica, kot tudi osem izmed desetih kategorij na levem zgornjem udu, je imelo intraklasni koeficient korelacije (ICC) večji od 0,9. Na desnem zgornjem udu je imela celotna ocenjevalna lestvica, kot tudi vse posamezne kategorije, ICC večji od 0,9. **Zaključki:** Rezultati so pokazali, da je COLFR zanesljiv merilni pripomoček za oceno funkcije ramenskega sklepa po različnih poškodbah ali operacijah. Čeprav je izvedba COLFR zelo preprosta, cenovno dostopna in zahteva minimalen čas za oceno pacienta, se v terapiji bolj malo uporablja. Z njo bi lahko objektivneje spremljali rezultate fizioterapevtskih obravnav.

Ključne besede: Constantova ocenjevalna lestvica funkcije rame, zanesljivost, poškodbe ramenskega sklepa.

Reliability of the Constant shoulder function assessment scale

Background: Shoulder joint evaluation scales are divided into general scale (American Shoulder and Elbow Surgeons, Disabilities of the Arm, Shoulder and Hand), specific in relation to the injury or disease (Rotator cuff Quality of Life, Western Ontario Rotator Cuff Index) and specific in relation to the condition (Oxford Shoulder Instability Questionnaire) (1). Most of the shoulder rehabilitation evaluation systems are based on the level of impairment, but there is an increased need for measurement of activity limitations. Constant and Murley (2) were among the first ones to describe grading system, using numerical description of shoulder function. Their Constant shoulder function assessment scale (COLFR) is commonly used shoulder scoring system. The aim of this study was to determine the reliability of COLFR in patients with shoulder injuries. **Methods:** The study included 30 adult volunteers, average age 47.7 ± 15.9 years, with unilateral shoulder injury which occurred last than three years ago. Control shoulder should be free from injury or surgery more than five years. Participants were randomly selected, regardless of the type of injury and treatment. Their rehabilitation took place in Spa centre Laško. For the assessment of shoulder function, the COLFR scale, translated into Slovene, was used (3). Test-retest reliability was determined with measurements performed twice in the interval of three days. Research was approved by the Slovenian Republic medical ethics committee. **Results:** The average value of COLFR for the left shoulder in the first testing was 0.8 higher than the average value for the left shoulder in the second testing. Average values of COLFR for the right shoulder were the same for the first and subsequent testing. The difference was not statistically significant ($p < 0.05$) for either left or right shoulder. Statistically significant difference ($p = 0.018$) was found only between the first and the second measurement in the category of pain in the left shoulder. First measurement average value was 2.5 points, second measurement average value was 2.8 points. The whole evaluation scale, as well as the eight out of ten categories on the left shoulder had interclass correlation coefficient (ICC) higher than 0.9. On the right shoulder the whole evaluation scale as well as all single categories had ICC higher than 0.9. **Conclusions:** The results showed that the COLFR is reliable measuring device for the assessment of shoulder condition after injuries and various operations. Although the performance of COLFR is very simple, cost effective and easy to use, it is not frequently used in therapy. Using COLFR assessment scale could help to evaluate the results of physiotherapeutic treatments more objectively.

Keywords: Constant shoulder function assessment scale, reliability, shoulder injuries.

Literatura/References

1. Wright R, Baumgarten K (2010). Shoulder outcomes measures. J Am Acad Orthop Surg 18: 436–44.
2. Constant C, Murley A (1987). A clinical method of functional assessment of the shoulder. Clin Orthop 214: 160–4.
3. Lonzarič D (2003). Ocenjevanje izida rehabilitacijske obravnave bolnikov z okvarami rame. V: Ocenjevanje izida v medicinski rehabilitaciji, 14. dnevi rehabilitacijske medicine, april 4.–5., 2003. Ljubljana: IRSR, 247–59.

Učinki elastičnega lepilnega traku na aktivnost mišice vastus medialis oblikus po vstavitvi kolenske endoproteze po resekciji tumorja

Aleksander Zupanc, dipl. fiziot.

Univerzitetni rehabilitacijski inštitut Republike Slovenije – Soča, Ljubljana, Slovenija

Korespondenca/Correspondence: Aleksander Zupanc; e-pošta: aleksander.zupanc@ir-rs.si

Uvod: Elastični lepilni trak se uporablja kot podporna metoda v fizioterapiji (1). Ena izmed funkcij elastičnega lepilnega traku je tudi podpora oslabeli mišici pri krčenju (2, 3). Pacienti imajo po vstavitvi kolenske endoproteze po resekciji tumorja v distalnem delu stegnenice poleg zmanjšane pasivne gibljivosti zmanjšano tudi moč štiriglave stegenske mišice (4). Namen raziskave je bil ugotoviti, ali uporaba elastičnega lepilnega traku vpliva na aktivnost mišice vastus medialis oblikus pri pacientih po vstaviti kolenske endoproteze po resekciji tumorja v distalnem delu stegnenice. **Metode:** Namestitev elastičnega lepilnega traku na mišico vastus medialis oblikus in merjenje površinske električne napetosti s površinskimi EMG-elektrodami (v μV) pri dveh pacientih. Prvi pacient, star 20 let, je sodeloval v raziskavi 5 tednov po resekciji tumorja v distalnem delu leve stegnenice, druga pacientka, stara 38 let, pa je sodelovala 6 mesecev po resekciji sarkoma distalnega dela desne stegnenice. Prva meritev je bila izvedena brez elastičnega lepilnega traku, druga takoj po namestitvi elastičnega lepilnega traku, tretja čez 1 uro in četrta po 24 urah namestitve elastičnega lepilnega traku na mišico vastus medialis oblikus. Med raziskavo sta bila oba vključena v standardno rehabilitacijo in nista izvajala zahtevnejših gibalnih dejavnosti. **Rezultati:** Meritve so pokazale, da nameščanje elastičnega lepilnega traku vpliva na aktivacijo mišice vastus medialis oblikus. Površinska električna napetost mišice je bila pri obeh pacientih večja po namestitvi elastičnih lepilnih trakov (pacient za 89 % in pacientka za 31 %). Še večje izboljšanje površinske električne napetosti glede na prvo meritev je bilo ugotovljeno eno uro po namestitvi trakov (pacient za 120 % in pacientka za 33 %). Meritev po 24 urah je pri obeh preiskovancih pokazala še večje izboljšanje mišične aktivnosti glede na prvo meritev (pacient za 163 % in pacientka za 46 %). **Zaključki:** Rezultati kažejo, da z nameščanjem elastičnih lepilnih trakov lahko vplivamo na izboljšanje aktivacije mišice vastus medialis oblikus in da se ta v času 24 ur od namestitve izboljšuje. Izboljšanje aktivacije mišice vastus medialis oblikus po uporabi elastičnih lepilnih trakov so ugotavljali že v predhodnih raziskavah (2, 4). Uporaba elastičnih lepilnih trakov v kombinaciji z EMG-biološko povratno zvezo je kot dopolnilna metoda lahko uspešna v klinični praksi za hitrejšo aktivacijo oslabljene mišice. Ugotovitve, dobljene pri dveh pacientih po resekciji tumorja v distalnem delu stegnenice, so lahko podlaga za nadaljevanje ugotavljanja učinkov elastičnih lepilnih trakov na večjem številu pacientov.

Ključne besede: elastični lepilni trak, kolenska endoproteza, mišica vastus medialis oblikus, površinski EMG.

Effects of kinesio taping on vastus medialis obliquus muscle activity after knee endoprosthesis after resection of tumor

Background: Kinesio taping is a common approach in the field of physical therapy (1). One of the roles of kinesio taping is also to support the increase of muscle contraction (2, 3). Patients after knee endoprosthesis have increased passive ROM and also an increased strength of a quadriceps muscle (4). The aim of the study was to determine effects of kinesio taping on the vastus medialis obliquus muscle by patients after knee endoprosthesis after resection of tumor of a distal part of femur. **Methods**: Application of kinesio taping on the vastus medialis obliquus muscle and measurement electrical activity with surface electromyography (EMG) (with μV) by two patients. The first patient (male, 20 years old) participated 5 weeks after resection of tumor in the distal part of the left femur. The second patient (female, 38 years old) participated 6 months after resection of sarcoma in the distal part of the right femur. The measurements involved an average maximal contraction of vastus medialis obliquus muscle, the second measurement was after the application of kinesio taping, the third measurement was after one hour and the fourth measurement was after 24 hours of application of kinesio taping on vastus medialis obliquus muscle. Both patients have standard physiotherapy without high intensity of activity. **Results**: Measurements show effects of kinesio taping on vastus medialis obliquus muscle. Electrical activation of muscle was in both cases better after application of kinesio taping (male patient 89 % increasing; female patient 31 % increasing). After one hour of kinesio taping, the increase was even better with regard to the first measurement (male 120 % and female 33 %). After 24 hours the activation increased for 163 % by the male patient and for 46 % by the female patient. **Conclusion**: Clinical effects of kinesio taping on vastus medialis obliquus muscle by patients after knee endoprosthesis included an increase in the electrical activity of the muscle. Researches (2, 4) have determined increasing of activation of vastus medialis obliquus muscle after kinesio taping. Kinesio taping with combination of EMG biofeedback could be a supporting method of a therapy in the clinical practice for faster activation of the weakened muscle. Further researches of application of kinesio taping on activation of muscles should be done.

Keywords: kinesio taping, knee endoprosthesis, vastus medialis obliquus muscle, surface electromyography.

Literatura/References:

6. Wallis J (2006). Integration of the kinesio taping technique and various manual therapy techniques. Advance Healing. http://www.fencing.co.il/var/1517/64152-kt-manual_therapy. <10. 1. 2013>
7. Slupik A, Dwornik M, Bialoszewski D, Zych E (2007). Effect of Kinesio Taping on bioelectrical activity of vastus medialis muscle. Ortop Traumatol Rehabil 9 (6): 644–51.
8. Soylu AR, Irmak R, Baltaci G (2011). Acute effects of kinesiotaping on muscular endurance and fatigue by using surface electromyography signals of masseter muscle. Med Sport 15 (1): 13–6.
9. Mac Gregor K, Gerlach S, Mellor S, Hodges PW (2005). Cutaneus stimulation from patella tape causes a differential increase in vasti muscle activity in people with patellofemoral pain. J Orthop Res 23 (2): 351–8.

Program stopnjevane vadbe v vodi pri poskusni multidisciplinarni obravnavi sindroma fibromialgije – poročilo o primeru

Nuša Klar, dipl. fiziot.[1]; pred. **Mojca Divjak**, viš. fiziot, univ. dipl. org.[2]

[1]Univerzitetni rehabilitacijski institut Republike Slovenije – Soča, Ljubljana, Slovenija; [2]Zdravstvena fakulteta, Univerza v Ljubljani, Slovenija

Korespondenca/Correspondence: Nuša Klar; e-pošta: klar.nusa@gmail.com

Uvod: Sindrom fibromialgije je opredeljen kot kronično razširjen bolečinski sindrom, ki prizadene mehkotkivne strukture. Zdravljenje je dolgotrajno in večplastno. Najboljši rezultati se dosežejo z multidisciplinarnim pristopom, ki povezuje delo različnih zdravstvenih delavcev: zdravnika, fizioterapevta, delovnega terapevta, psihologa in socialnega delavca (1). Za zmanjšanje simptomov so pomembni redna vsakodnevna telesna vadba, edukacija bolnika, vedenjsko-kognitivna terapija in, če je treba, še medikamentozna terapija (1). Vadba v vodi ima blagodejne učinke na telo (2), ki trajajo dalj časa (3), zmanjšujejo se simptomi bolečine, depresije, prestrašenosti in dnevne utrujenosti, izboljšajo pa se splošna telesna pripravljenost, čas hoje (4), moč, ravnotežje in gibljivost (5). Namen dela je bil predstaviti program stopnjevane vodene vadbe v vodi v poskusni multidisciplinarni obravnavi bolnika s sindromom fibromialgije. **Metode:** Sodeloval je 54-letni bolnik s sindromom fibromialgije. Fizioterapevtska ocena pred obdobjem obravnave in po njem je vsebovala inspekcijo, 6-minutna testa hoje v telovadnici in v bazenu ter oceno bolečine z numerično vidno lestvico pred izvedbo 6-minutnega testa hoje in hoje v bazenu ter po njej. Program hidrogimnastike je trajal 4 tedne, 4-krat na teden po 1 uro**. Rezultati:** Preiskovancu se je stanje ob koncu programa v primerjavi z začetkom izboljšalo na področju ocene bolečine, merjene pred izvedbo 6-minutnega testa hoje (z 10 na 3; 75 %) in hoje v bazenu (z 9 na 4; 56,6 %) in po njej. Primerjava ocene bolečine ob koncu programa v telovadnici in bazenu pokaže razliko za 8,4 % v korist bazena. Vzdržljivost pri hoji se je povečala enako kot pri hoji v bazenu (38,6 %). **Zaključki:** Prvič uporabljeni multidisciplinarni pristop v obravnavi sindroma fibromialgije se je izkazal kot zelo uspešen, saj se je pri predstavljenem bolniku pomembno izboljšala splošna telesna pripravljenost ter zmanjšala ocena doživljanja bolečine. To kaže na pravilen izbor fizioterapevtskih postopkov v telovadnici in bazenu, ki so bili usklajeni z delom drugih članov tima. Prvič je bil tudi uporabljen prilagojen 6-minutni test hoje v bazenu, ki se je izkazal kot dober pokazatelj splošne telesne pripravljenosti in bi ga po ustrezni standardizaciji lahko uporabljali za spremljanje bolnikovega napredka. Smiselno bi bilo dodati še spremljanje bolnikovega počutja med vadbo, na primer s preverjanjem srčnega utripa. Hidroterapija je področje z manj kakovostnimi raziskavami, zato predlagamo še dodatne za dvig kakovosti dela.

Ključne besede: kronično razširjen bolečinski sindrom, hidroterapija, vodena vadba, multidisciplinaren pristop, 6-minutni test hoje v bazenu.

Progressive programme of hidrotherapy in first trial multidisciplinary approach of fibromyalgia syndrome – a case report

Background: The fibromyalgia syndrome is defined as a chronic widespread pain syndrome which affects soft-tissue structures. The treatment is long lasting and often very comprehensive. The best results are achieved with multidisciplinary approach which combines various health professionals; a physician, a physiotherapist, an occupational therapist, a psychologist and a social worker (1). Factors for reducing fibromyalgia syndrome are: regular exercise (on daily basis), education of the patient, behavioural-cognitive therapy and often pharmacological therapy if needed (1). Exercising in water has a lot of pleasant effects on the body (2) and it seems to have more advantages in long-term pain management (3). Improvement was found in pain, depression, anxiety, number of days feeling good, cardiovascular capacity and walking time (4). It also effects on strength, balance and joint mobility (5). The purpose of the report was to present the stepwise programme of hydrotherapy in the first trial multidisciplinary approach of fibromyalgia syndrome treatment**. Methods:** A 54-year-old patient with fibromyalgia syndrome participated in the study. The methods included physiotherapeutic assessment composed by inspection, endurance assessment in gym and pool and also assessment of pain before and after having a 6-minute walk test in gym and in pool, too. The hydrotherapy programme duration was 4 weeks, 4 days per week for 1 hour**. Results:** The patient's condition was assessed at the beginning and at the end of the treatment. Comparison showed that pain evaluated by visual numeral scale decreased from 9 to 4 (56.6%) measured in a pool and from 10 to 3 (75.0%) measured in a gym. Comparison of pain at the end of the programme showed the difference between gym and pool for 8.4% better for pool. The patient's endurance assessed by a 6-minute walk test increased for 38.6% in both – a swimming pool and in gym**. Conclusions:** A case report of a 54-year-old patient showed the significant improvement in his endurance and decreasing his pain. The multidisciplinary approach of fibromyalgia syndrome was used for the first time. The outcomes show efficient selection of physiotherapy methods and techniques in gym and pool which were also coordinated with other members of the team. For the very first time, the adapted 6-minute walk test in a pool was used. It becomes evident that it should be used in working with patients with fibromyalgia syndrome to evidence and attend the patient's progress. Attending of patient's feeling during exercising appears to be bad therefore pulse rate should be monitored. Hydrotherapy is an area with less qualitative researches, so we recommend further should be done to improve the quality of work.

Keywords: chronic widespread pain syndrome, hydrotherapy, guide exercises, multidisciplinary approach, 6-minute walk test in pool.

Literatura/References:

1. Logar D (2007). Novosti v razumevanju patogeneze in zdravljenja sindroma fibromialgije V: Rehabilitacija poškodovancev z nihajno poškodbo vratne hrbtenice: učna delavnica. Strokovno srečanje fizioterapevtov mariborske regije, Maribor, 19. April 2007. Maribor: Splošna bolnišnica, Oddelek za fizikalno in rehabilitacijsko medicino, 77–88.
2. McVeigh JG, McGaughey H, Hall M, Kane P (2008). The effectiveness of hydrotherapy in the management of fibromyalgia syndrome: a systematic review. Rheumatol Int 29 (2): 119–30.
3. Evcik D, Yigit I, Pusak H, Kavuncu V (2008). Effectiveness of aquatic therapy in the treatment of fibromyalfgia syndrome: a randomized controlled open study. Rheumatol Int 28 (9): 885–90.
4. Stanos SP, McLean J, Rader L (2007). Physical medicine rehabilitation approach to pain. Anesthesiol Clin 25 (4): 721–59.
5. Geytenbeek J (2002). Evidence for effective hydrotherapy. Physiotherapy 88 (9): 514–29.