

55. KONGRES ANTROPOLOŠKOG DRUŠTVA SRBIJE

AKREDITOVAN MEĐUNARODNI KONGRES

Zlatibor, 23–26. maj 2018.

55th CONGRESS OF ANTHROPOLOGICAL SOCIETY OF SERBIA

ACCREDITED INTERNATIONAL CONGRESS

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IZVODI SAOPŠTENJA ABSTRACTS



ЗЛАТИБОРАЦ

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ABSTRACTS

Izdavač / Publisher

ANTROPOLOŠKO DRUŠTVO SRBIJE / ANTHROPOLOGICAL SOCIETY OF SERBIA

Niš

Za izdavača / For the Publisher

Mirjana Janošević

Tehnička priprema / Prepress

Mile Ž. Ranđelović

Lektor za srpski jezik / Technical Design

Jelena Četković

Lektor za engleski jezik / English Proofreader

Jovana Đurašković

Štampa / Printed by

"UNIGRAF-X-COPY" Niš

Tiraž / Circulation

150

ISBN 978-86-911461-4-6

CIP - Katalogizacija u publikaciji

Narodna biblioteka Srbije, Beograd

572(048.3)

АНТРОПОЛОШКО друштво Србије (Ниш). Конгрес (55 ; 2018 ; Златибор)

Izvodi saopštenja / 55. Kongres Antropološkog društva Srbije, akreditovan međunarodni kongres, Zlatibor, 23-26. maj 2018. = Abstracts / 55th Congress of Anthropological Society of Serbia, Accredited International Congress, Zlatibor, May 23rd-26th 2018. - Niš : Antropološko društvo Srbije = Anthropological Society of Serbia, 2018 (Niš : Unigraf-X-Copy). - 168 str. ; 24 cm

Uparedo srp. tekst i engl. prevod. - Tiraž 150. - Registar.

ISBN 978-86-911461-4-6

a) Антропологија - Апстракти

COBISS.SR-ID 263949324

Organizator
ANTROPOLOŠKO DRUŠTVO SRBIJE, Niš

Organizer
ANTHROPOLOGICAL SOCIETY OF SERBIA, Niš

Organizaciju kongresa pomogli / The organisation of this Congress was helped by

Skupština opštine Čajetina
Medicinski fakultet u Nišu
Fakultet sporta i fizičkog vaspitanja, Niš
Fakultet sporta i fizičkog vaspitanja, Beograd
Visoka sportska i zdravstvena škola, Beograd
Dom zdravlja Niš
Gradska opština Medijana, Niš
Turistička organizacija Zlatibor
"Zlatiborac"

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**Realizaciju 55. Kongresa
Antropološkog društva Srbije
pomoglo i finansijski podržalo
Ministarstvo prosvete, nauke i tehnološkog razvoja
Republike Srbije**

**The realization of 55th Congress
of Anthropological Society of Serbia
was helped and financially supported by
the Ministry of Education, Science and Technological
Development of the Republic of Serbia**

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IZVODI SAOPŠTENJA / ABSTRACTS

Humana biologija

Human Biology

HOMO-HETEROZIGOTNE RAVNOTEŽE KAO OSNOV ANTROPOGENETSKIH SLIČNOSTI I RAZLIKA

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Život je zasnovan na održivim odnosima biološki odabranih struktura. Ti odnosi, a ne bilo koje strukture, predmet su nasleđivanja i varijabilnosti, kao i osnovni target prirodne selekcije. Homo-heterozigotne, kao i epigenetske ravnoteže, kontrolišu najširi opseg životnih procesa, kao i antropogenetske sličnosti i razlike, koliko god one bile složene i raznovrsne. U radu se iznose dokazi za iznete stavove, uz činjenicu da je Čovek jedan od najpovoljnijih objekata za objedinjavanje i sintezu postojećih znanja iz oblasti populacione i evolucione genetike živih bića.

HOMO-HETEROZYGOTE BALANCE AS A BASIS OF ANTHROPOGENETIC SIMILARITIES AND DIFFERENCES

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Life is based on sustainable relations of biologically chosen structures. Those relations, and not structures, are subjected to inheritance and variability, as well as natural selection. Homo-heterozygote as well as epigenetic balance control the widest range of life processes, and anthropogenetic similarities and differences, regardless their complexity and diversity. In this paper there is evidence for the given statements, considering the fact that a man is one of the most convenient subjects for the synthesis of the existing information and knowledge in the field of population and evolutionary genetics of humans.

MOLEKULARNO-GENETIČKA ISTRAŽIVANJA U POPULACIJI TUZLANSKOG KANTONA (BOSNA I HERCEGOVINA) I NJIHOVA APLIKACIJA U BIOMEDICINI

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Istraživanjem incidence I/D polimorfizma gena za angiotenin konvertirajući enzim (ACE) kao potencijalnog rizičnog faktora koronarnih bolesti i detekcije rizičnog genotipa DD/ACE u populaciji Tuzlanskog kantona, utvrđena je pozitivna korelacija. Istraživanje je sprovedeno u saradnji sa Institutom za medicinsku genetiku, Kliničkog centra u Ljubljani. Također je provedena molekularno genetska analiza DAZ gena u slovenačkoj i bosanskohercegovačkoj populaciji, pri čemu je utvrđeno da DAZ geni Y hromosoma nisu skloni samo delecijama nego i duplikacijama. Rezultati su ukazali na potrebu dodatnih istraživanja i procjenu učestalosti ovih mutacija na većem ispitivanom uzorku.

U saradnji sa Institutom za medicinsku genetiku, Kliničkog centra Ljubljana i Klinikom za neurologiju UKC Tuzla, detektovane su mutacije gena za distrofin tipa delecije kod pacijenata sa Duchenneovom distrofijom i jedna mutacija gena kod pacijenta sa Beckerovom mišićnom distrofijom. Međutim, kod nekih pacijenata sa kliničkim znacima Duchenneove i Beckerove mišićne distrofije, nisu detektovane mutacije egzona u genu za distrofin, što ukazuje na potrebu dodatnih histoloških i molekularno-genetskih analiza (detekcija point ili tačkastih mutacija u genu za distrofin). U sklopu ovog projekta izvršena je i analiza heredograma klinički afektiranih pacijenata, a istraživanja se kontinuirano nastavljaju.

Molekularno genetičkom studijom Huntingtonove bolesti utvrđena je ekspanzija nukleotidnih ponavljanja CAG sekvenci. Naglašena je važnost DNK testa kod osoba sa "genetičkim rizikom". Molekularno-genetička analiza gena za hemohromatozu u populaciji Tuzlanskog kantona, ukazala je na značajnu prevalencu C282Y i H63D mutacija u istraživanoj populaciji.

Rezultati ovih istraživanja predstavljaju značajan doprinos u prevenciji, dijagnostici i liječenju nasljednih bolesti, a takođe i omogućavaju stavljanje populacije Tuzlanskog kantona i cjelokupne bosanskohercegovačke populacije na genetsku mapu Evrope.

MOLECULAR-GENETIC INVESTIGATIONS IN THE POPULATION OF TUZLA CANTON (BOSNIA AND HERZEGOVINA) AND THEIR APPLICATIONS IN BIOMEDICINE

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Investigation of the incidence of I / D polymorphisms for the angiotensin converting enzyme (ACE) gene as a potential risk factor for coronary diseases and the detection of the risky DD / ACE genotype in the Tuzla Canton population showed positive correlation. The research was conducted in cooperation with the Institute of Medical Genetics of the Clinical Center in Ljubljana. A molecular genetic analysis of DAZ genes was also performed in the Slovenian and Bosnian-Herzegovinian populations, which established that DAZ genes Y chromosomes are not only prone to deletions but also duplications. The results indicated the need for additional research and estimation of the frequency of these mutations on a larger sample.

In collaboration with the Institute of Medical Genetics, the Clinical Center of Ljubljana and the UKC Tuzla Neurology Clinic, deletion type mutations in the gene for dystrophin in patients with Duchenne's dystrophy and one gene mutation in a patient with Becker's muscular dystrophy were detected. However, in some patients with clinical signs of Duchenne and Becker's muscular dystrophy, no mutations in the dystrophin gene were detected, indicating the need for additional histological and molecular genetic analyzes (point detection or point mutation in the dystrophin gene). As a part of this project, the analysis of a family tree of clinically affected patients has been performed, and the research has continued.

Molecular genetic study of Huntington's disease revealed expansion of nucleotide repeat CAG sequences. The importance of DNA testing in persons with "genetic risk" has been highlighted. Molecular genetic analysis of the hemochromatosis gene in the Tuzla Canton population showed significant prevalence of C282Y and H63D mutations in the investigated population.

The results of these researches represent a significant contribution to the prevention, diagnosis and treatment of hereditary diseases and enable the population of the Tuzla Canton and the entire population of Bosnia and Herzegovina to be included in the genetic map of Europe.

NELEGALNA UPOTREBA DROGE– ANTROPOLOŠKI FENOMEN

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Cilj ovog rada je da predstavi nekoliko uzroka koji utiču na povećanu zloupotrebu nelegalnih droga u Rumuniji i Evropi, kao i da utvrdi neke aspekte načina na koji mladi ljudi percipiraju medicinske i psihosocijalne efekte ove upotrebe. Takođe, studija će predstaviti niz argumenata vezanih za to koja vrsta nezakonite droge je povezana sa antropološkim fenomenom.

Materijal i metode. Uzorkom je obuhvaćeno 30 studenata Medicinskog fakulteta, u periodu između aprila i juna 2017. godine. Studenti su bili ženskog i muškog pola, Rumuni i pripadnici drugih nacionalnosti. Uzorak je nasumično odabran, zasnovan na dobrovoljnoj bazi, pritom je ispoštovana etika istraživanja. Ispitanici su mogli da odustanu u bilo kojem trenutku u toku istraživanja. Korišćena je metoda strukturiranog intervjua.

Rezultati i diskusija. Povećana zloupotreba droge može biti prouzrokovana buntovničkom prirodom i radoznalošću adolescenata, ali i eksponencijalnim porastom stresa, kao i potragom za zadovoljstvom i eksazom koju droga pruža. Većina studenata rekla je da bi prilično teško prepoznala nezakonitu drogu, da su bili u iskušenju i u prilici da je probaju, ali da su ili odbili ili probali nekoliko puta. Većina je rekla da bi zloupotreba droge drastično promenila lične i profesionalne živote i da bi porodici zadala patnju. Mesta na kojima se droga koristi obično su mali lokali, klubovi, pabovi, parkovi (noću), železničke stanice ili plaža. Nezakonita upotreba droge smatra se antropološkim fenomenom jer je mladi posmatraju nečim modernim što im može pružiti više nezavisnosti.

Zaključak. Nezakonita droga, kao antropološki fenomen koji je pod uticajem kulturnog razvoja i socio-ekoneomskih uslova, nema dobrobit za zdravlje, porodicu i društvo. Studenti koji su učestvovali u ovom istraživanju bili su dobro informisani o nezakonitim drogama, međutim, uočena je potreba za daljim informisanjem mladih, jer je zapaženo da trenutno ne postoji dovoljno podataka koji bi im pomogli da prepoznaju određenu vrstu droge.

Ključne reči: studenti, nelegalna droga, antropologija.

ILLEGAL USE OF DRUGS- ANTHROPOLOGICAL PHENOMENON

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The aim of this research is to present several causes that contribute to the increased level of illegal drug abuse in Romania and Europe, as well as to establish some aspects of the ways in which young people perceive medical and psycho-social effects of the use of drugs. Furthermore, the study will present some arguments related to those types of illegal drugs connected to anthropological phenomenon. .

Materials and methods. The sample comprised 30 students of Medical Faculty, in the period between April and June 2017. The students were both male and female, Romanian and of other nationalities as well. The sample was random, done on voluntary basis, while the research ethic was ensured. The students could end their participation in this research at any moment during the research. The structured interview was used.

Results and discussion. The increased drug abuse can be caused by rebellious nature and curiosity of adolescents, by exponential stress accumulation, as well as the search for pleasure and ecstasy provided by drugs. Most of the students said that it would be quite hard for them to recognize an illegal drug, that they had an opportunity and were tempted to use it, and that they either rejected it or tried it several times. Most of them said that the use of drugs would have a great impact on their personal and professional lives and that it would cause a lot of pain to their families. Places where drug is used are usually small clubs, pubs, and parks at night, railway stations and beaches. Illegal drug abuse is considered to be an anthropological phenomenon because young people perceive it as something that gives more independence

Conclusion. Illegal drug abuse, as an anthropological phenomenon influenced by cultural development and socio-economic conditions, is not beneficial to health, family or society. The students who participated in this research were well informed about illegal drugs. However, it was observed that there is the need for providing young people with more information on drug abuse, since there is not enough available information that would help them recognize certain type of drugs.

Key words: students, illegal drugs, anthropology.

SEKULARNI TRENDVI DIMENZIJA TELA I GLAVE DECE, ADOLESCENATA I OMLADINE IZ MINSKA, BELORUSIJA (1920-2000. GODINE)

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Sekularni trend kod dece Belorusije sličan je onom u mnogim zemljama Evrope. Poslednjih 80 godina (1920–2000. godine) fizički razvoj dece, adolescenata i omladine (uzrast 4–18 godina) u gradu Minsku podlegao je značajnim promenama: tokom dvadesetog veka ubrzani razvojni procesi bili su prilično aktivni što je dovelo do povećane dužine tela za više od 10 cm kod oba pola: visina se povećala kod dečaka i devojčica uzrasta od 18 godina u proseku za 1,61/1,37 cm/dekada. Vrednosti antropoloških parametara su se takođe promenile: mladi danas do kraja perioda rasta imaju telesnu masu 11,88 kg veću nego 1920-tih godina, devojčice su danas samo 0,26 kg teže nego 1920-tih godina; obim grudi im je veći za 5,57 i 3,51 cm dosledno. Na prekretnici između 20. i 21. veka uočena je stabilizacija procesa rasta kao i izvesna gracilizacija stasa devojčaka. Danas su procesi rasta i kod dečaka i kod devojčica intenzivniji u poređenju sa prethodnim generacijama. Trendovi varijabilnosti opšte veličine glave i oblika glave (indeks glave) kod dece u Minsku u proteklih 80 godina takođe su analizirani. U periodu 1920–2000. godine zapažen je smanjen indeks glave (odnos transversalnog i longitudinalnog dijametra) kod dece. Ako su se u periodu 1920–1980. godine ovi procesi odvijali zajedno sa povećanjem veličine glave i tela, onda su se 1980–2000. godine transversalni i longitudinalni obimi smanjili (smanjenje poprečnog dijametra je značajnije), veličina tela ukazuje na promene u više pravaca. Promene procesa rasta desile su se u jeku velikih promena u društvenom, ekonomskom i političkom životu—došlo je do pada Sovjetskog Saveza, konsolidacije nezavisnosti Belorusije, Drugog svetskog rata, procesa urbanizacije.

SECULAR TRENDS IN BODY AND HEAD DIMENSIONS OF CHILDREN, ADOLESCENTS AND YOUNG PEOPLE FROM MINSK, BELARUS (FROM 1920S TO 2000S)

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The secular trend in children of Belarus is similar to that of many countries in the Europe. For the last 80 years (1920–2000) physical development of children, adolescents and young people (4–18 years old) in the city of Minsk has undergone substantial changes: during the XX century the developmental acceleration processes were quite active which resulted in the increase of body length by more than 10 cm in both sexes: height increased in 18-year-old boys/girls on average by 1.61/1.37 cm/decade. The values of other anthropological parameters also changed: young adults nowadays have greater body weight by 11,88 kg than in 1920s, by the end of the growth period, girls nowadays are only 0,26 kg heavier than in 1920s; their chest circumference values have increased by 5.57 and 3.51 cm accordingly. At the turn of the XXI century the stabilization of growth processes was noticed, as well as significant gracilization of the stature of girls. Growth processes of young boys and girls nowadays are more intensive compared to those of previous generations. The trends in variability of general head sizes and the shape of head (head index) in children of Minsk over the latest 80 years was also analyzed. In 1920–2000 there was observed the process of dolichocephalization, which is the reduction of the head index (the ratio of the transverse diameter to the longitudinal one) in children. If in 1920–1980 this process took place together with the increase of head and body sizes, then in 1980–2000 both longitudinal and transverse diameters reduced (the reduction of the transverse diameter is more significant), body sized showed the multidirectional changes. The changes in growth processes took place in the circumstances of major changes in social, economic and political life – the fall of the Soviet Union, the consolidation of independence of Belarus, World War II and the urbanization processes.

USMENE PREZENTACIJE / ORAL PRESENTATIONS

ETNOFARMAKOLOŠKE TERAPIJE U LEČENJU DIJABETA U SRBIJI**Višnja Madić¹, Andrea Žabar Popović¹, Marija Vukelić- Nikolić²,****Ljubiša Đorđević¹, Perica Vasiljević¹**¹Univerzitet u Nišu, Prirodno.matematički fakultet, Departman za biologiju i ekologiju, Niš, Srbija²Univerzitet u Nišu, Medicinski fakultet, Institut za biologiju i humanu genetiku, Niš, Srbija

Korišćenje etnofarmakoloških terapija deo je ljudske tradicije. Vekovima se koriste kako u lečenju dijabetesa, tako i u terapiji drugih bolesti. Svrha ovog rada bila je ispitivanje učestalosti primene tradicionalne medicine u Srbiji.

Ispitivanje je vršeno anketiranjem preko interneta, februara 2018. Ispitano je 130 ljudi, od kojih je 55,38% ispitanika bilo sa dijagnostifikovanim dijabetesom.

Najčešće korišćeni herbalni supstituenti bili su *M. piperita* L. (21 %), tradicionalne biljne mešavine namenjene regulaciji primarnih i sekundarnih posledica dijabetesa (15 %), *M. chamomilla* L.(13 %) i farmaceutski suplementi zasnovani na tradicionalnim recepturama (10 %). Savremene farmakoterapije pridržava se 100 % ljudi sa dijabetesom, dok 25,86 % ispitanika bez dijabetesa ne koristi farmakoterapiju, već isključivo tradicionalnu medicinu. Nema bitne razlike među dijabetičnom populacijom koja koristi (51,34%) i koja ne koristi etnofarmakološke tretmane (48,61%), dok je u nedijabetičnoj populaciji razlika značajna ($p < 0,05$), pa tako 87,93 % njih redovno primenjuje upotrebu lekovitih biljaka. Mnogo je više žena nego muškaraca sklonih etnofarmakološkim pristupima lečenja ($p < 0,05$). Starost ispitanika i njihovo obrazovanje takođe imaju uticaja na odabir terapije, pa su tako etnofarmakološki pristupi najzastupljeniji kod fakultetski obrazovanih ljudi starosti od 30 do 50 godina. Pokazalo se da ljudi obraćaju pažnju i na ispravnost suplemenata koje koriste, tj. 57,96 % ljudi kupuje u apoteci, 29,55% kod sertifikovanih prodavaca, a samo 12,49% na pijaci.

Ključne reči: dijabetes, etnofarmakologija, farmakoterapija.

ETHNOPHARMACOLOGICAL THERAPIES IN THE TREATMENT OF DIABETES IN SERBIA

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The use of ethnopharmacological therapies is a part of human tradition. For centuries, they have been used in the treatment of diabetes, as well as other illnesses. The aim of this study was to examine the extent to which traditional medicine is used in Serbia.

The study was conducted as an online survey in February 2018. 130 people were surveyed, 55.38 % of whom were diagnosed with diabetes.

The most commonly used herbal substituents were *M. piperita* L. (21 %), traditional herbal mixtures designed to regulate the primary and secondary diabetes complications (15%), *M. chamomilla* L. (13%) and pharmaceutical supplements based on traditional recipes (10 %). 100 % of people with diabetes adhere to contemporary pharmacotherapy, while 25.86 % of people without diabetes do not use pharmacotherapy, but exclusively traditional medicine. There is no significant difference between diabetic population that uses traditional medicine (51.34 %) and the one that does not (48.61 %), whereas in non-diabetic population the difference is significant ($p < 0.05$), so that 87.93 % of it regularly uses medicinal herbs. More women than men use ethnopharmacological treatments ($p < 0.05$). The age of respondents and their education also have an impact on the choice of therapy, so ethnopharmacological approaches are most commonly used by people with university degree 30 to 50 years of age. Moreover, people pay attention to the quality of supplements they use, i.e. 57.96 % of people buy them in pharmacies, 29.55 % with certified sellers, and only 12.49 % at the local market.

Key words: diabetes; ethnopharmacology; pharmacotherapy.

UTICAJ UZRASTA I POLA NA RAZVOJ RAZLIČITIH SEGMENTA TELA ŠKOLSKE DECE STAROSTI 9-15 GODINA IZ SOFIJE (BUGARSKA)

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Tokom intenzivnog morfološkog razvoja u pubertetu, uzrast i pol (i kao glavni uticaji i kao međusobni uticaji) igraju važnu ulogu u razvoju fenotipskih osobina. U ovom izveštaju bavimo se analizom podataka vezanih za uticaj uzrasta i pola na dimenzije 15 glavnih antropometrijskih karakteristika kod školske dece uzrasta 9-15 godina iz Sofije (Bugarska). Uticaj oba faktora na morfološki razvoj procenjen je multivarijantnom analizom varijanse (MANOVA). Rezultati ukazuju na to da su sve morfološke karakteristike pod uticajem uzrasta i pola, što je statistički značajno. Otkrili smo da je uzajamno dejstvo ovih faktora statistički značajno za 10 merenih karakteristika. Možemo zaključiti da su dečaci u razvoju u proseku viši, imaju duže noge, veću širinu i obim grudi, šira ramena i karlicu, kao i veći obim podlaktice u poređenju sa devojkama u razvoju.

Ključne reči: adolescenti, uzrast, pol, interakcija, razvoj, antropometrijske karakteristike.

THE INFLUENCE OF AGE AND GENDER ON THE GROWTH OF DIFFERENT BODY-SEGMENTS IN 9-15-YEAR-OLD SCHOOLCHILDREN FROM SOFIA (BULGARIA)

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During the intensive morphological growth in puberty, the age and gender (both as main effects and interactions) play an important role in the phenotypic trait development. In the present report we analyze data on the influence of age and gender on the dimensionality of 15 main height-length, width, and circumferential anthropometric features in 9-15-year-old schoolchildren from Sofia (Bulgaria). The influence of both factors on the morphological growth was estimated by MANOVA. The results indicate that almost all of the morphological features are statistically significantly influenced by age and gender. The interaction of these factors has been found to be statistically significant for 10 of the measured characters. So the growing boys are on average higher, have longer body parts, as well as larger chest circumference and breadth, wider shoulder and pelvic girdle, and a larger forearm circumference compared to the growing girls.

Key words: adolescents, age, gender, interactions, growth, anthropometric features.

PROCENA TELESNE KOMPOZICIJE BIOIMPEDANSOM KOD MLADIH BUGARA I BUGARKI

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Ovom studijom prikazali smo rezultate analize bioelektrične impedanse (BIA) kojom smo merili telesnu kompoziciju 385 osoba (81 muškaraca i 304 žena) starosti od 18 do 30 godina. Ovo je transversalna studija sprovedena u period između 2015. i 2017. U istraživanju smo koristili različite antropometrijske, statističke analize kao i analizu bioelektrične impedanse. Visina, težina, obim struka i kuka mereni su standardnim antropometrijskim metodama. Pored toga, meren je indeks telesne mase (BMI) i odnos struka i kukova (WHR). Procena telesne kompozicije vršena je pomoću analize bioelektrične impedanse ABC-01 „Medass“ (Naučno, tehnički centar Medas, Moskva, Rusija). Merene su pojedinačne vrednosti otpora (R_z), reaktanse (X_c), impedanse (Z) i faznog ugla (φ) na frekvenciji od 50 kHz, ove vrednosti predstavljaju osnovu za procenu telesne kompozicije. Ona je određena apsolutnim i relativnim vrednostima svojih komponenata kao što su masna masa (FM), % masa tela (%BF), masa bez masnoća (FFM), mišićna masa (SMM), količina živih ćelija u organizmu (BCM), ukupna količina vode u organizmu (TBW), ekstracelularna voda (ECW), mineralna masa (MM) i bazični metabolizam (BMR). Nedovoljna telesna težina, prekomerna telesna težina i gojaznost mereni su na osnovu % BF, procenjeni su na osnovu analize bioelektrične impedanse i antropometrijski pomoću indeksa telesne mase (BMI). Korelacija je izvršena između osnovnih antropometrijskih indeksa za nutritivni status tela i glavnih metrijskih indikatora bioimpedanse. Podaci su obrađeni pomoću softverskog paketa STATISTICA 10.0. Rezultati pokazuju da dati indeksi imaju više vrednosti kod muškaraca, izuzev rezistencije i masne mase koje su više kod žena. Kod oba pola prisutna je pozitivna korelacija između indeksa antropometrijske gojaznosti kao što su težina, dimenzije struka, indeksa mase tela i masne mase dobijenih analizom bioelektrične impedanse. Ovo ukazuje na veliku preciznost i pouzdanost metode bioimpedanse.

Ključne reči: analiza bioelektrične impedanse, telesna kompozicija, indeks gojaznosti, mladi Bugari i Bugarke

BIOIMPEDANCE EVALUATION OF BODY COMPOSITION OF YOUNG BULGARIAN MEN AND WOMEN

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This study presents results of a bioimpedance analysis (BIA) the body composition of 385 people (81 men and 304 women) between 18 and 30 years of age. It is a transversal study conducted in the period between 2015 and 2017. The survey used different methods such as anthropometric, bioelectrical impedance (BIA) and statistical. All the people examined were taken their height, weight, waist and hip circumferences by means of standard anthropometry. Also the body mass index (BMI) and waist to hip ratio (WHR) were calculated. The evaluation of body composition was carried out by means of the bioelectrical impedance analyzer of body composition ABC-01 'Medass' (STC Medass, Moskow, Russia). Of each person the individual values of resistance (Rz), reactance (Xc), impedance (Z) and phase angle (Pa) at a signal frequency of 50 kHz were measured, which are the basis for evaluation of body composition. It was characterized by the absolute and relative values of its components such as fat mass (FM), % body fat mass (%BF), fat-free mass (FFM), skeletal-muscle mass (SMM), body cell mass (BCM), % body cell mass (%BCM), total body water (TBW), extra cellular water (ECW), mineral mass (MM) and basal metabolic rate (BMR). The underweight, overweight and obesity was evaluated on the base on % BF, assessed by BIA and antropometrically through BMI. The correlation was examined between the basic anthropometric indices for body nutritional status and the main bioimpedance metric indicators. The data was processed through software package STATISTICA 10.0. Results show that all indices examined have higher plausible values in men except for the active resistance and fat mass, which are higher in women. Both sexes display strong positive correlations between the anthropometric obesity indices such as weight, waist measurement, BMI and fat mass, obtained through BIA. All this is indicative of the high preciseness and reliability of the bioimpedance method.

Key words: Bioelectrical impedance analysis; body composition; obesity indices; young Bulgarian men and women.

POLNI DIMORFIZAM NA OSNOVU PAPILARNIH ŠARA NA JAGODICAMA PRSTIJU KOD OSOBA IZ JUŽNE BUGARSKE

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Cilj ove studije bio je izvršiti analizu morfoloških karakteristika kao i proceniti kvalitativne i kvantitativne karakteristike šare otisaka prstiju i polni dimorfizam osoba iz južne Bugarske. Uzorkom je obuhvaćeno 289 klinički zdravih ispitanika (138 muškaraca, 160 žena), koji nisu u krvnom srodstvu, uzrasta od 18 do 30 godina iz južne Bugarske. Analizirani su na osnovu šara na jagodicama prstiju. Otisci prstiju dobijeni su pomoću mastila. Papilarne šare klasifikovane su u četiri glavne grupe. Podaci su analizirani pomoću statističkog softvera. Uočili smo izražene kvalitativne i kvantitativne polne razlike u šarama otisaka prstiju. Kod muškaraca su zabeležene veće vrednosti u broju papilarnih linija kao i prema indeksu po Furuhati i Kaminsu dok su kod žena zabeležene više vrednosti Polovog I Dankmeijerovog indeksa. Nestalna asimetrija vezana za pol ukazuje na tendenciju izraženije asimetrije kod muškaraca, što predstavlja karakteristiku vezanu za pol u embrionskom periodu.

Ključne reči: dermatoglifika, polni dimorfizam, Bugari

SEXUAL DIMORPHISM IN FINGER PAPILLARY DERMATOGlyphic PATTERNS IN INDIVIDUALS FROM SOUTH BULGARIA

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The aim of this study is to analyze morphological characteristics and to assess the quantitative and qualitative patterns of finger images and sexual dimorphism among individuals from South Bulgaria. The sample comprised 298 subjects (138 males, 160 females), clinically healthy, who are not related to one another, 18 to 30 years of age from South Bulgaria. They were analyzed in terms of dermatoglyphic patterns. The fingerprints were obtained by the ink method. Papillary patterns were classified into four main types. The data were analyzed with statistical software. We found pronounced gender differences in the quantitative and qualitative fingerprint patterns. There were higher values of finger ridge count and also of Furuhata and Cummins's indices in males, while there were higher values of Poll and Dankmeijer's indices in females. The existence of gender-dependent fluctuating asymmetry shows a tendency for more pronounced asymmetry in males, gender related peculiarities in the course of the embryonic period.

Key words: dermatoglyphics, sexual dimorphism, Bulgarians

ISPITIVANJE SPOSOBNOSTI UVRTANJA JEZIKA KOD RODITELJA I NJIHOVE DECE

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Sturtevant je prvi opisao sposobnost neke osobe da spoji spoljašnje ivice jezike, tj. da napravi uvrtnje jezika (rolling tongue). On je zaključio da je za postojanje ove sposobnosti odgovoran gen, koji može da ima dominantan alel (R) koji je odgovoran za postojanje ove sposobnosti, i recesivan alel (r) koji je odgovoran za nesposobnost osobe da izvede ovo kretanje. Cilj ovog rada je da utvrdi rasprostranjenost ove sposobnosti tj. zastupljenost rolera i nerolera u grupi roditelja i njihove dece.

**EXAMINATION OF THE ABILITY OF TONGUE ROLLING IN PARENTS
AND THEIR CHILDREN**

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Sturtevant first described the movement in which the lateral edges of the tongue are rolled together. He concluded that the ability was due to a pair of alleles. The gene which is responsible for the ability of tongue rolling is dominant (R), while the gene which is responsible for the inability of tongue rolling is recessive. The aim of this study is to present the prevalence of rollers and non-rollers in group of parents and children.

ASPEKTI UPOTREBE ALKOHOLA KOD MLADIH LJUDI U BUKUREŠTU

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Uvod: Cilj ovog rada bio je da se utvrde aspekti upotrebe alkohola među mladim ljudima u Bukureštu.

Materijal i metod: Transferzalno istraživanje je urađeno 2014. godine i obuhvatilo je 337 ispitanika iz Bukurešta, prosečne starosti 17.69 ± 2.27 godina: 137 mladića i 200 devojaka. Ispitanici su birani metodom slučajnog uzorka na dobrovoljnoj bazi. Rezultati su statistički obrađeni u programu SPSS verzija 21.

Rezultati i diskusija: Ukupno 85.1% ispitanika probalo je alkohol bar jednom u životu, dok 14.9% nikada nije konzumiralo alkohol. Uočena je statistički značajna polna razlika; devojke u značajno manjem procentu koriste alkohol i značajno je više onih koje uopšte nisu probale alkohol, u odnosu na mladiće. U uzrastu od 14 godina 23.5% ispitanika je probalo alkohol prvi put, a u uzrastu od 15 godina procenat iznosi 15.5%. Ukupno 10.4% ispitanika uzrasta od 12 i 13 godina konzumira alkohol. Većina ispitanika, naročito devojke, koriste alkohol na zabavama (45.9%) i kod kuće (44.0%). Ispitanici većinom nisu agresivni posle upotrebe alkohola (47.0%), dok manji procenat (9.6%) izjavljuje da je bio agresivan u fizičkom ili verbalnom smislu.

Zaključak: Rezultati istraživanja ukazuju na veću potrebu informacionih kampanja o štetnom dejstvu alkohola na mlade ljude, koje treba da ukažu na potrebu odlaganja konzumiranja alkohola kod adolescenata i mladih ljudi, kao i promociju odgovornog ponašanja.

Ključne reči: alkohol, mladi ljudi, rizično ponašanje.

ASPECTS OF ALCOHOL CONSUMPTION IN YOUNG PEOPLE IN BUCHAREST

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The objectives of this paper are to present aspects of alcohol consumption among adolescents and young people in Bucharest.

Material and methods. This quantitative transversal study was carried out in 2014. The sample comprised 337 participants from Bucharest (mean age, 17.69 ± 2.27 years): 137 male and 200 female subjects. The sampling was random, on a voluntary basis. The results were statistically processed using SPSS version 21.

Results and discussions. 85.1% of the participants have drunk alcoholic beverages at least once in their life, and 14.9% have never drunk alcohol, the difference between the two genders being statistically significant, meaning that the percentage of girls who have consumed alcohol is lower and those who have never consumed alcohol is higher than that of boys. At the age of 14, 23.5% of studied participants consumed alcohol for the first time, and at 15 years a percentage of 15.5%. 10.4% of the subjects consumed alcohol at the age of 13 years and 10.4% at the age of 12. Most of the subjects, especially girls, consumed alcohol at parties (45.9%) and home (44.0%). Most participants (47.0%) were not aggressive after drinking, but 9.6% of subjects became aggressive physically and verbally.

Conclusions. According to this study, there is the need for more intensive campaigns on the harmful effects of alcohol on young people, for the purpose of delaying the onset of alcohol consumption by adolescents and young people and promoting responsible drinking.

Keywords: alcohol, young people, risk behaviours.

POSTER PREZENTACIJE / POSTER PRESENTATIONS

KOMPARACIJA FIZIČKOG RAZVOJA I NUTRITIVNOG STATUSA STUDENATA IZ SRBIJE I BELORUSIJE**Tatjana Pavlica¹, Elena Chaplinskaya², Tatjana L. Hurbo³, Nina Mezen², Inessa Sakhno²**¹Departman za biologiju i ekologiju, Prirodno-matematički fakultet, Univerzitet u Novom Sadu, Srbija²Departman za biologiju, Beloruski državni medicinski univerzitet, Minsk, Belorusija³Departman za antropologiju, Institut za istoriju Nacionalne akademije nauka Belorusije, Minsk, Belorusija

Tokom 2017/18. izvršeno je antropološko ispitivanje studenata medicine i biologije na fakultetima u Srbiji i Belorusiji. Ispitano je ukupno 180 studenata u Novom Sadu i 157 u Minsku. Najveće razlike u fizičkom razvoju uočene su kod mladića. Studenti iz Srbije su veće visine i mase tela (181.64cm; 81.90kg) u odnosu na mladiće iz Belorusije (178.67cm; 69.90kg). Indeks telesne mase (BMI) kod mladića iz Srbije veći je za 2.98 kg/m² (24.84; 21.86 kg/m², p <0.001). Normalna uhranjenost zastupljena je kod 60.42% ispitanih mladića u Srbiji i 79.31% u Belorusiji. Prekomerna uhranjenost/gojaznost više je zastupljena kod mladića iz Srbije (37.50% vs. 12.07%). Devojke se odlikuju sličnom fizičkom građom. Studentkinje iz Srbije imaju nešto veću visinu i masu tela (167.29cm; 60.06kg) u odnosu na studentkinje iz Belorusije (166.55 cm; 58.55 kg). Normalna uhranjenost zastupljena je kod 78.03% studentkinja u Srbiji i 80.81% u Belorusiji. Studentkinje su češće pothranjene (12.88% Srbija; 12.12%Belorusija), nego prekomerno uhranjene i gojazne (9.09%; 7.07%). Studenti iz Srbije su imali veće vrednosti visine i mase tela, a kod mladića su te razlike signifikantne. Veći procenat mladića u Srbiji prekomerno je uhranjen i gojazan. Devojke iz oba uzorka imaju najčešće normalnu uhranjenost i pothranjenost.

Ključne reči: fizički razvoj; BMI; studenti; Novi Sad; Minsk.

COMPARISON OF PHYSICAL DEVELOPMENT AND NUTRITIONAL STATUS OF SERBIAN AND BELARUSIAN STUDENTS**Tatjana Pavlica¹, Elena Chaplinskaya², Tatjana L. Hurbo³, Nina Mezen², Inessa Sakhno²**¹Department of Biology and Ecology, Faculty of Sciences, University of Novi Sad, Serbia²Department of Biology of the Belarussian State Medical University, Minsk, Belarus, ³Department of Anthropology of the Institute of History of the National Academy of Sciences of Belarus, Minsk, Belarus

In 2017-18 the physical development of students from the faculties of medicine and biology was studied in Serbia and Belarus (180 students in Novi Sad and 157 in Minsk). The greatest differences were found in the physical development of young men. Serbian students were taller and heavier (181.64cm; 81.90kg) than Belarussian students (178.67cm; 69.90kg). BMI of Serbian students was 2.98 kg/m² higher than that of Belarussians (24.84 against 21.86 kg/m², p <0.001). Only 60.42% of Serbs had normal body weight (79.31% of Belarussians). Among Serbian youths, excess weight (overweight/obesity) was more frequent than among the young men in Belarus (37.50% vs. 12.07%). Belarussian and Serbian girls were characterized by similar physique (78.03% of normal body weight among Serbian students and 80.81% among Belarussian). Both Serbian and Belarussian girls showed greater percentage of low body weight (12.88 and 12.12%, respectively) than excess body weight (9.09 and 7.07%). Serbian female students were slightly taller than Belarussian students (167.29 and 166.55 cm, respectively) and somewhat heavier (60.06 and 58.55 kg). Height and weight were greater in Serbian students (both girls and boys) and in the group of young men the differences were statistically significant. Girls from both samples had normal body weight or were underweight. The Serbian youths show greater tendency towards overweight and obesity than their Belarussian peers.

Key words: physical development; BMI; students; Novi Sad; Minsk.

TELESNI I NUTRICIONI STATUS KOD DECE OD 7 DO 15 GODINA U SEVERNOBAČKOM OKRUGU

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Cilj rada je bio da se utvrde telesne karakteristike i nutritivni status dece u Severnobačkom regionu. Transferzalno antropološko ispitivanje urađeno je 2017. i početkom 2018. godine u 13 osnovnih škola na teritoriji Severnobačkog okruga. Istraživanje je obuhvatilo 1021 dete (520 dečaka i 501 devojčica), uzrasta od 6.50 do 15.49 decimalnih godina. Upotrebom standardnog antropološkog instrumentarija, ispitana je visina i masa tela i izračunat indeks uhranjenosti (BMI kg/m^2). Ocena nutritivnog statusa urađena je korišćenjem IOTF kriterijuma (Međunarodna radna grupa za borbu protiv gojaznosti). Visina tela dečaka kretala se u dijapazonu od 125.3cm (7 godina) do 169.1cm (15 godina), a kod devojčica od 123.8cm (7 godina) do 163.7cm (15 godina). Prosečan indeks polnog dimorfizma visine tela (DI) u ispitivanom uzrastu je mali i iznosi 0.53%. Masa tela dečaka varira u dijapazonu od 27.89kg (7 godina) do 58.21kg (15 godina), a kod devojčica od 25.75kg (7 godina) do 62.84kg (15 godina). Dečaci su u svim uzastima, osim u 15-oj godini, veće mase tela od devojčica, a polni dimorfizam u proseku iznosi 3.29%. Normalno uhranjenih je kod oba pola 66%, a pothranjenih je nešto više kod devojčica (7.38%), nego dečaka (3.66%). Prekomerna uhranjenost i gojaznost zastupljena je u visokom procentu kod oba pola (dečaci 29.47%; devojčice 25.54%). Zaključak: Rezultati istraživanja ukazuju na to da znatan procenat dece ima neodgovarajući nutritivni status i upućuju na potrebu daljeg ispitivanja, kako bi se dobili pouzdanimi podaci o broju dece sa određenim nutritivnim poremećajem.

Cljučne reči: BMI; deca; visina; masa; severnobački region.

PHYSICAL AND NUTRITIONAL STATUS OF CHILDREN BETWEEN 7 TO 15 YEARS OF AGE IN NORTH BACKA REGION

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This paper aimed to determine the physical characteristics and nutritional status of children in North Backa region. Cross sectional anthropological examination was done in 2017 and at the beginning of 2018, in 13 primary schools on the territory of North Backa region. The sample comprised 1021 children (520 boys, 501 girls) of 6.50 to 15.49 decimal years. Height and weight were measured and body mass index was calculated using the standard anthropological instruments (BMI kg/m^2). The nutritive status assessment was done using the IOTF criteria (International Obesity Task Force). Results: The height of the boys ranged from 125.3cm (7 years) to 169.1cm (15 years), and that of girls from 123.8cm (7 years) to 163.7cm (15 years). The average body height dimorphism index (DI) in the examined age was small and amounted to 0.53%. The body weight of boys varied from 27.89kg (7 years) to 58.21kg (15 years), and in girls from 25.75kg (7 years) to 62.84kg (15 years). In all age groups, except the group of 15-year-olds, boys had greater body mass, and sexual dimorphism on average amounted to 3.29%. Most of the children were normally nourished (66%), and girls (7.38%) were slightly more underweight than boys (3.66%). The percentage of excessive weight was high in both sexes (boys 29.47%, girls 25.54%). Conclusion: The results of the study indicate that a significant percentage of children have an inadequate nutritional status and point to the need for further investigation to obtain more reliable data on the number of children with a particular nutritional disorder.

Key words: BMI; children; height; weight; North Backa region

KORELACIJA U ANTROPOGENETIČKOJ HOMOZIGOTNOSTI I FAKTORIMA RIZIKA U ISPOLJAVANJU AKUTNOG INFARKTA MIOKARDA

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Koristeći test za utvrđivanje homozigotno recesivnih osobina kod ljudi (HRO-test), u ovoj populaciono-genetičkoj studiji analizirano je prisustvo i distribucija 19 homozigotno-recesivnih osobina u grupi pacijenata sa akutnim infarktom miokarda (AMI, N=86) i u kontrolnom uzorku ispitanika (K, N=134). Takođe, ispitivali smo morfogenetičku homozigotnost u grupama pacijenata koji su bili izloženi različitim faktorima rizika (RF: hipertenzija, dijabetes melitus, hiperlipidemija i pušenje). Rezultati naše studije pokazuju prisustvo zanačajnih razlika kako u prosečnim vrednostima genetičke homozigotnosti (AMI- 4.1+0.3 ; K- 2.9+0.3), tako i u distribuciji i varijabilnosti u prisustvu specifičnih kombinacija testiranih osobina. Ovi rezultati upućuju na kompleksnu poligensku razliku među testiranim grupama ispitanika. Interesantni su rezultati koji pokazuju da je najveća genetička homozigotnost prisutna u grupi pacijenata izloženoj jednom riziko faktoru, dok je najmanji stepen genetičke homozigotnosti prisutan u grupi pacijenata izloženoj uticaju četiri faktora rizika (grupa AMI pacijenata izložena 1 RF- =4.5+0.5 ; 2 RF- =4.3+0.1 ; 3 RF- =4.4+0.3 ; 4 RF- =3.3+0.2). Uvećanje stepena genetičke homozigotnosti verovatno korelira sa uvećanjem genetičkih opterećenja, što je uz uticaj malog broja faktora rizika, mogući vid predispozicije za lakšu ekspresiju bolesti.

Ključne reči: genetička homozigotnost, genetička varijabilnost, akutni infarkt miokarda

CORRELATION BETWEEN ANTHROPOGENETIC HOMOZYGOSITY AND RISK FACTORS IN EXPRESSION OF ACUTE MYOCARDIAL INFARCTION

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Our study of anthropogenetic homozygosity and variability includes an analysis of the presence and distribution of 19 selected genetically controlled morpho-physiological traits in the sample of patients with acute myocardial infarction (AMI, N=86) and in the control group consisting of healthy individuals (C, N=134). Furthermore, we evaluate morphogenetic homozygosity in AMI patients regarding the presence of analyzed risk factors (RF: hypertension, diabetes mellitus, hyperlipidemia, and smoking). We established not only significant difference of the mean values of genetic homozygosity (AMI- 4.1+0.3; control- 2.9+0.3), but the differences in the type of distribution in the presence of tested traits too, using a test for the determination of homozygously recessive characteristics in humans (HRC-test). These results suggest a complex polygenic difference between two observed systems. What we find interesting is the fact that our results show that higher degree of genetic homozygosity may influence easier expression of AMI in the groups of patients affected with one RF while AMI expression in the groups of patients with lower level of genetic homozygosity requires the action of several RF factors (group of AMI patients with influence of 1 RF- =4.5+0.5; 2 RF- =4.3+0.1; 3 RF- =4.4+0.3; 4 RF- =3.3+0.2). The enlargement of genetic homozygosity probably correlates with genetic loads increase which may enable, with influence of smaller number of RF factors, easier illness manifestation.

Key words: genetic homozygosity, genetic variability, acute myocardial infarction

**POSTOJI PREDIKTIVNA VRIJEDNOST KVANTITATIVNIH PALMARNIH
PARAMETARA U PROCJENI RIZIKA ZA RAZVOJ KARCINOMA DOJKE
ZA MALI UZORAK BOSANSKO-HERECEGOVAČKE POPULACIJE**

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Uvod: Maligni tumor dojke predstavlja najčešći malignitet kod žena između 40 i 55 godina starosti. Dermatoglifi predstavljaju kožne grebene koje stvara epidermis na prstima ruku ili nogu, dlanovima i tabanima. Palmarni dermatoglifi su primjenjivani u procjeni nasljedne osnove mnogih bolesti. Dermatoglifi su poligenetski determinisana svojstva, čiji izgled i brojnost određuju specifični geni.

Cilj: Cilj rada je utvrditi da li postoji statistički značajna razlika između posmatranih kvantitativnih parametara dlanova obje ruke ispitivane i kontrolne skupine.

Materijal i metode: Istraživanje kvantitativnih svojstava palmarnog kompleksa provedeno je na ukupno 100 osoba ženskog spola. Prvu grupu činilo je 50 osoba ženskog spola sa karcinomom dojke. Kao komparativni, poslužili su podaci analize palmarnih dermatoglifa 50 fenotipski zdravih osoba ženskog spola. Otisci palmarnog kompleksa uzimani su pomoću printake traka, analizirani, a podaci su zatim statistički obrađeni i prikazani grafikonima. Izvršena i broj dermalnih grebena (RC - ridge count) između triradijusa a-b, b-c i c-d, određivanje položaja aksijalnog triradijusa, kao i mjerenje atd-ugla.

Rezultati: Analiza broja grebena između triradijusa A-B, B-C, C-D nije pokazala statistički značajne rezultate između ispitivanih grupa kako za lijevu tako i za desnu ruku. Kvantitativna analiza ATD-ugla pokazala je statistički značajnu razliku za lijevi i desni dlan između navedenih ispitivanih grupa.

Zaključak: Ovi rezultati ukazuju na to da kvantitativni parametar dlana, ATD-ugao, može imati ulogu u identifikaciji žena sa povećanim rizikom od nastanka karcinoma dojke.

Ključne riječi: palmarni dermatoglifi, triradijusi, atd-ugao

THERE IS PREDICTIVE VALUE OF QUANTITATIVE PALM PARAMETERS IN ASSESSMENT OF RISK FOR CARCINOMIC DEVELOPMENT DEVELOPEMENT FOR SMALL SAMPLE OF BOSNIA-HERECEGOVIC POPULATION

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Introduction: Breast cancer is the most common malignancy affecting women 45-55 years of age. Dermatoglyphs are the epidermal ridge configurations on the fingers or toes, palms and soles. Dermatoglyphs are polygenic traits determined by specific genes. Palmar dermatoglyphic patterns were used in establishing hereditary basis for various diseases.

Aim: To analyze the relationship of quantitative palmar dermatoglyphic patterns between breast cancer patients and control group.

Material and Methods: A study of quantitative traits of palmar complex was conducted. The sample comprised 100 females, 50 Breast cancer patients and 50 healthy women (free from Breast cancer and no cancer in family history). Palm prints were taken by the "ink method", and analyzed quantitatively using Penrose method. Data were then statistically processed and displayed in graphs.

The analysis of ridge count between the triradii a-b, b-c,c-d was performed, then the determination of the position of the axial triradii, as well as the measurement of the ATD-angle.

Results: Quantitative analysis of the number of ridges between the triradii a-b, b-c, c-d did not show statistically significant results for both left and right hands between the tested groups. Analysis of ATD-angle showed a statistically significant difference for the left and right palm of the above-mentioned groups.

Conclusion: These results indicate that the quantitative palmar pattern, ATD-angle, can be used in a mass screening program to identify women with an increased risk of breast cancer.

Keywords: breast cancer, palmar dermatoglyphics, atd-angle, number of ridges

**NE POSTOJI PREDIKTIVNA VRIJEDNOST KVANTITATIVNIH PARAMETARA
DERMATOGLIFA PRSTIJU U PROCJENI RIZIKA NASTANKA KARCINOMA DOJKE
ZA MALI UZORAK BOSANSKO-HERCEGOVAČKE POPULACIJE**

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Uvod: Prema informacijama od strane WHO, karcinom dojke (KD) jedan je od najčešćih malignih tumor kod žena, za koji se zna da ima i nasljednu osnovu. Odavno se zna da otisci dlanova i prstiju nose kvantitativne i kvalitativne podatke koji se mogu koristiti kao prediktivni markeri razvića određenih bolesti. Sve je veći broj istraživanja koja idu u pravcu povezivanja određenih obrazaca otiska prsta i KD.

Cilj: Determinirati razlike u kvantitativnim osobinama digitalnih dermatoglifa između pacijentica sa KD i zdravih žena, koje će imati prediktivnu upotrebnu vrijednost.

Metod: Obrađeni su dermatoglifi ukupno 100 ispitanica. KD-50 i 50 zdravih žena kontrolna skupina. Žene kontrolne skupine nisu imale familijarnu historiju sa KD. Otisci prstiju obje ruke uzeti su metodom bojenja pomoću Printake traka, te analizirani pomoću specijalne lupe sa 3 dioptrije. Komparacija srednjih vrijednosti između ispitivanih skupina izvršena je Studentovim t-testom i Mann-Whitney U testom.

Rezultati: Kvantitativna svojstva digitalnih dermatoglifa, odnosno gustoća crteža, ukupni broj grebena kao i broj grebena na pojedinim prstima, nisu se statistički značajno razlikovala kod osoba sa potvrđenom dijagnozom KD i fenotipski zdravih žena.

Zaključak: Potvrđeno je postojanje genetske predispozicije za razvoj KD kod ispitanica sa karcinomom dojke, čime se naglašava relevantnost nasljednih faktora u etiopatogenezi ove bolesti. Kvantitativne osobine digitalnih dermatoglifa ne predstavljaju pouzdan predikcioni alat u otkrivanju mogućeg rizika za obolijevanje od karcinoma dojke u malim uzorcima. Potrebno je povećati ispitivani uzorak kao i uzorak i kontrolne skupine čime se mogu očekivati drugačiji rezultati.

Ključne riječi: dermatoglifi, karcinom dojke, genetički markeri, bosansko-hercegovačka populacija

THERE IS NO PREDICTIVE VALUE OF QUANTITATIVE PARAMETERS OF DERMATOGLYPHS IN ASSESSMENT OF RISKS OF BREAST CANCER ON A SMALL SAMPLE OF BOSNIAN AND HERZEGOVIAN

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Introduction- Breast cancer (BC) is one of the most common malignant tumors in women known to have a hereditary base. It has long been known that fingerprints carry quantitative and qualitative data that can be used as predictive markers for the development of certain diseases. There is an increasing number of research suggesting that there is a link between certain fingerprints and BC.

Aim- was to determine differences in quantitative traits of digital dermatoglyphs (DG) between BC patients and healthy female which will have a predictive usable value.

Method- The sample comprised 100 subjects, 50 with BC in the experimental group and 50 without BC in the control group (CG). Fingerprints of both hands were taken using a color printing method called Printake and were analyzed by using a special 3-diopteric lope. Statistical analysis was performed by using Student's t-test and Mann-Whitney U test.

Results-The quantitative properties of DG, such as the density of prints, the total number of ridges as well as the number of ridges on each finger between the experimental and control group were not statistically significant.

Conclusion-The existence of genetic predisposition for the development of BC in breast cancer group has been confirmed, emphasizing the relevance of hereditary factors to the etiopathogenesis of this disease. The quantitative properties of DG are not a reliable predictive tool for detecting a potential risk for BC on small samples. To get different results it is necessary to increase the tested sample size as well as the sample of CG.

Key words: dermatoglyphs, breast cancer, genetic markers, Bosnian-Herzegovinian populations

POPULACIONO-GENETIČKA ANALIZA KONGENITALNIH ANOMALIJA KOD NOVOROĐENČADI TUZLANSKOG KANTONA (BOSNA I HERCEGOVINA)

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Populacijska genetika kongenitalnih anomalija ima ogroman fundamentalni značaj u procjeni genetičkog opterećenja populacije. Cilj ovog rada bio je utvrditi frekvenciju kongenitalnih anomalija u uzorku novorođenčadi Tuzlanskog kantona, kao i njihovu distribuciju prema starosnoj dobi majke. Istraživanje je sprovedeno retrospektivnom analizom na Klinici za ginekologiju i akušerstvo, Univerzitetsko kliničkog centra u Tuzli. Analizom medicinske dokumentacije 17223 novorođenčadi, utvrđena je učestalost kongenitalnih anomalija od 5,24%. Najveća frekvencija kongenitalnih anomalija zabilježena je kod novorođenčadi čije su majke starosne dobi preko 35 godina. Istraživanjem je utvrđeno da su metode prenatalnog skrininga dovele do smanjenja učestalosti kongenitalnih anomalija u posmatranoj populaciji.

Cljučne riječi: kongenitalne anomalije, novorođenče, Tuzlanski kanton

POPULATION-GENETIC ANALYSIS OF CONGENITAL ANOMALIES IN NEWBORNS OF TUZLA CANTON (BOSNIA AND HERZEGOVINA)

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Population genetics of congenital anomalies has enormous significance in assessing the genetic load of the population. The aim of this paper was to determine the frequency of congenital anomalies in the sample of newborns of Tuzla Canton and their distribution according to the age of the mother. The research was conducted by retrospective analysis at the Clinic for Gynecology and Obstetrics, University Clinical Center in Tuzla. By analyzing medical records of 17223 newborns, the incidence of congenital anomalies of 5.24% was found. The highest frequency of congenital anomalies was observed in newborns whose mothers were over the age of 35. The study found that the methods of prenatal screening led to a reduction in the incidence of congenital anomalies in the observed population.

Keywords: congenital anomalies, newborns, Tuzla canton

PREVALENCIA OPŠTE I ABDOMINALNE GOJAZNOSTI KOD ADOLESCENATA

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Indeks telesne mase nepouzdan je pokazatelj gojaznosti u detinjstvu te je veoma važno odrediti abdominalnu gojaznost. Cilj rada je bio da se utvrdi prevalenca opšte i abdominalne gojaznosti kod adolescenata 11-15 godina. Transferzalno antropometrijsko ispitivanje obuhvatilo je 310 dece (158 dečaka i 152 devojčice) uzrasta 11-15 godina u Osečini (zapadna Srbija). Izmerena je visina tela, masa tela, obim struka i obim kukova. Iz visine i mase tela izračunat je indeks telesne mase (ITM), pokazatelj opšte gojaznosti koja je utvrđena prema kriterijumima preporučenim od strane Međunarodne radne grupe za borbu protiv gojaznosti (IOTF). Abdominalna gojaznost je procenjena na osnovu vrednosti obima struka i odnosa obima struka i kukova (WHR). Obim struka i $WHR \geq 90$. percentila za uzrast i pol, korišćeni su kao granične vrednosti za ocenu abdominalne gojaznosti. Veći je procenat dece sa prekomernom masom tela i gojaznih (16,5%) ocenjenih pomoću ITM, nego ocenjenih pomoću WHR (10,3%) i obima struka (9,0%). Polna razlika u prevalenci opšte i abdominalne gojaznosti nije postojala. Kod dečaka je postojala značajna korelacija između ITM i pokazatelja abdominalne gojaznosti, dok je kod devojčica uočeno odsustvo veze između ITM i WHR ($r=0,09$; $p=0,916$). Veći je procenat gojazne dece ocenjene prema ITM, nego abdominalne gojaznosti.

Ključne reči: adolescenti, ITM, obim struka, WHR

PREVALENCE OF GENERAL AND ABDOMINAL OBESITY IN ADOLESCENTS

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Body mass index is an unreliable indicator of childhood obesity, therefore it is necessary to assess abdominal obesity as well. The aim of this transversal anthropometric study is to assess the prevalence of both general and abdominal obesity in adolescents 11-15 years of age. The sample comprised 310 children (158 boys and 152 girls) 11 to 15 years of age in the small town of Osečina (Western Serbia). The survey focused on the height, weight, waist circumference and hip circumference. General obesity was assessed on the basis of the body mass index (BMI) values following the criteria set by International Obesity Task Force (IOTF), while abdominal obesity was assessed on the basis of the waist circumference and waist-to-hip ratio (WHR). The waist circumference and $WHR \geq 90$ percentile were used as the cutoff values for abdominal obesity. The greater number of overweight and obese adolescents was obtained when using the BMI (16.5%) than in the case when WHR (10.3%) and waist circumference (9%) values were applied. There were no differences between boys and girls regarding the prevalence of general and abdominal obesity. There was a significant correlation between the BMI and the indicators of abdominal obesity in boys, while in girls no such correlation was observed ($r=0.09$; $p=0.916$). The prevalence of the overweight and obese is higher when BMI is calculated than when abdominal obesity is assessed.

Key words: adolescents, BMI, waist circumference, WHR

DETEKCIJA TRISOMIJE 21 (SY DOWN) ANALIZOM FETALNIH HROMOZOMA NA PODRUČJU TUZLANSKOG KANTONA

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S obzirom na konstantno djelovanje okolinskih mutagena, opravdan je razlog istraživanja hromozomskih abnormalnosti u uzorcima plodove vode, naročito kod rizične skupine trudnica. Cilj ovog rada bio je ustanoviti učestalost aberantnog kariotipa Downovog sindroma, odnosno trisomije 21, kariotipizacijom fetalnih stanica u periodu od 2008 do 2012. godine na području Tuzlanskog kantona u BiH. Prema podacima iz literature incidenca, pojavljivanja ove aberacije kod živorođene djece iznosi 1:650 i raste sa povećanjem godina majke, a primjenom amniocenteze zabilježena je njena manja učestalost, 1:400 kod majki sa 35 godina života i to nešto češće u dječaka negoli u djevojčica. Kultivacija uzorka amnijske tečnosti za hromozomsku analizu vršena je metodom dugotrajnih kultura stanica. Svi uzorci amnijske tečnosti obrađeni su i analizirani prema standardiziranom protokolu. Od 1000 analiziranih uzoraka, trizomija 21. hromosoma uočena je u amnijskoj tečnosti kod 10 ispitanica, i to 4 aberantna ženska i 6 aberantnih muških kariotipova što je u skladu sa literaturnim podacima. Svih deset detektovanih trizomija 21 pripadaju grupi regularne ili slobodne trizomije (47,XX,+21 i 47,XY,+21), što je takođe u skladu sa literaturnim podacima. Ovim istraživanjem otvara se poligon za dalja istraživanja ove problematike i razvoj genetičkog savjetništva na području Tuzlanskog kantona i šire regije.

Ključne reči: trisomija 21, učestalost i Tuzlanski kanton.

DETECTION OF TRISOMY 21 (DOWN'S SYNDROME) BY ANALYSIS OF FETAL CHROMOSOMES IN THE TUZLA CANTON AREA

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Due to the constant action of environmental mutagens, the reason for chromosomal abnormalities in samples of amniotic fluid is justified, especially in a high-risk group of pregnant women. The aim of this study was to determine the prevalence of aberrant karyotype of the Down syndrome, or trisomy 21, using karyotype analysis of fetal cells in the period 2008-2012 on the territory of Tuzla Canton in Bosnia and Herzegovina. According to the data found in literature, the incidence of the aberration occurrence in live-born children is 1:650 and rises with the increase of mother's age, and with the use of amniocentesis the incidence was reported to be lower, 1: 400 in 35-year-old mothers, and more often in boys than in girls. Cultivation of the amniotic fluid sample for the purpose of chromosomal analysis was done by the method of long-term cell cultures. All amniotic fluid samples were processed and analyzed according to a standardized protocol. Out of 1000 analysed samples, trisomy of chromosome 21 was observed in amniotic fluid of 10 subjects, or 4 aberrant females and 6 aberrant male karyotypes, which is in agreement with the data found in literature. All ten of the detected trisomy 21 cases belong to a group of regular or free trisomies (47, XX, + 21 and 47, XY, + 21), which is also in agreement with the data found in literature. This study breaks new ground for further investigation on this issue and the development of the genetic counseling in the Tuzla Canton and beyond.

Key words: trisomy 21, frequency, Tuzla Canton.

INOVATIVNI PRISTUP REALIZACIJI SADRŽAJA IZ ANTROPOLOGIJE U NASTAVI BIOLOGIJE U OSNOVNOJ ŠKOLI

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Prema važećem Nastavnom programu biologije za osnovnu školu u Republici Srbiji, u sedmom razredu se uče sadržaji iz antropologije. U ovom razredu su zastupljene nastavne teme: Poreklo i razvoj ljudske vrste, Građa čovečjeg tela i Reproductivno zdravlje. Zbog važnosti ovih sadržaja za očuvanje zdravlja učenika, neophodno je primeniti efikasnije modele njihove realizacije u odnosu na tradicionalnu nastavu koja je najzastupljenija u nastavnoj praksi u našim školama, iako je neefikasna. Jedan od tih modela je programirano učenje/nastava. Programirana nastava predstavlja model nastavnog rada koji učenicima obezbeđuje: kontrolisano učenje sadržaja deo po deo, aktivno učešće u savladavanju gradiva, dvosmernu komunikaciju (izvor znanja-učenik i učenik-nastavnik), individualni tempo rada i neposrednu verifikaciju rada, što pozitivno potkrepljuje i motiviše učenike za dalji rad. Rezultati brojnih istraživanja o efektima programiranog učenja pokazali su da sa pojavom računara i pojedinih računarskih programa, ovaj pristup nastavi biologije doprinosi kvalitetnijem učenju i trajnijem znanju učenika. S ciljem popularizacije i veće primene programirane nastave biologije u osnovnoj školi u Republici Srbiji, u ovom radu su najpre date teorijske osnove programiranog učenja, a zatim je prikazan programirani materijal za realizaciju jedne nastavne jedinice u kojoj se obrađuju sadržaji iz antropologije. Zbog njihove logične struktuiranosti i mogućnosti rastavljanja nastavnih sadržaja na manje sekvence, programirano prezentovanje antropoloških sadržaja bi učenicima osnovne škole omogućilo efikasnije usvajanje gradiva iz antropologije i njegovo lakše i bolje razumevanje.

Key words: programirano učenje, nastava biologije, antropološki sadržaji, osnovna škola

INNOVATIVE APPROACH TO THE IMPLEMENTATION OF ANTHROPOLOGY CONTENTS IN BIOLOGY TEACHING IN PRIMARY SCHOOLS

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According to the current curriculum of Biology for primary schools in Serbia, the anthropology contents are taught in the seventh grade. The following teaching topics are represented: Origin and Development of Human Species, Structure of Human Body, and Reproductive Health. Due to the importance of these contents for the preservation of students' health, it is necessary to apply more efficient models of their implementation in relation to the traditional teaching. One of these models is programmed learning/teaching. Programmed teaching represents a model of teaching, which provides the following: controlled content learning part-by-part, active participation in mastering the teaching contents, two-way communication (a source of knowledge-student and student-teacher), an individual pace of work, and direct verification of work, which positively corroborates and motivates students for further work. The results of numerous studies have shown that, along with the appearance of computers and particular computer programs, this approach contributes to better and high-quality learning, as well as to more continuous knowledge of students. In order to popularize and increase the application of the programmed teaching of Biology in the primary school in Serbia, this paper presents theoretical foundations of the programmed learning, as well as the programmed material for the implementation of a teaching unit which process the anthropology contents. Due to their logical structuring and a possibility of splitting the teaching contents into smaller sequences, the programmed presentation of anthropological contents would enable students to more efficiently acquire the teaching materials in anthropology, its easier and better understanding.

Key words: programmed learning, biology teaching, anthropology contents, primary schools.

Biomedicinska antropologija

Biomedical Anthropology

ANTROPOMETRIJSKI NUTRITIVNI STATUS, KARDIOMETABOLIČKI RIZIK I ŽIVOTNI STIL MLADIH ŽENA I MUŠKARACA U BUGARSKOJ

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Cilj ovog istraživanja je ispitivanja nekih antropometrijskih, kardiometaboličkih i bihevijoralnih faktora rizika koji preovladavaju kod mladih u Bugarskoj. Uzorkom je obuhvaćeno 300 studenata univerziteta u Plovdivu, uzrasta 18-30 godina, iz južne Bugarske. Podaci su prikupljeni transverzalnim antropometrijskim metodama i putem socioloških ispitivanja 2015-2017. godine.

Studija je obuhatila procenu zastupljenosti različitih vrsta antropometrijskog nutritivnog statusa, procenu zastupljenosti prehipertenzije i hipertenzije kao i studiju uticaja životnog stila, uključujući i dijetu, pušenje i druge faktore koji utiču na zdravlje mladih Bugara.

Rezultati studije pokazuju neke nove trendove vezane za smanjenu i prekomernu težinu. Pored toga, zapažena je relativno visoka frekvencija distribucije centralne gojaznosti, prehipertenzije i hipertenzije kod ispitanika, koje je praćeno lošim navikama u ishrani i drugim faktorima vezanim za ponašanje. Dobjijene rezultate treba analizirati sa stanovišta modernih svetskih trendova.

Ključne reči: BMI, % BF, krvni pritisak, dijeta, Bugarski studenti.

ANTHROPOMETRIC AND NUTRITIONAL STATUS, CARDIOMETABOLIC RISK AND LIFESTYLE OF YOUNG MEN AND WOMEN IN BULGARIA

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The aim of this research is to present the results of a complex study of certain anthropometric, cardiometabolic risk factors that prevail in young Bulgarians. The sample comprised 300 students from the University of Plovdiv, aged 18-30 years, from southern Bulgaria. The data were gathered with the aid of transversal anthropometric methods and sociological research 2015-2017.

The evaluation of the prevalence of different types of anthropometric nutritional status, prehypertension and hypertension as well as the influence of one's lifestyle, including a diet, smoking and other factors which have an impact on the health of young Bulgarians were included in the study.

The results of the study have shown some new trends related to underweight and overweight. In addition, a relatively high frequency of central obesity distribution, prehypertension and hypertension followed by bad eating habits and other behavioral factors were observed. The obtained data should be analyzed from the point of view of the modern world trends.

Key words: BMI, % BF, blood pressure, Bulgarian students

PROCENJIVANJE DIMENZIJE DENTALNIH LUKOVA KOD PACIJENATA SA MALOKLUZIJOM II/1 KLASA

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Postizanje stabilnih, funkcionalno prihvatljivih i estetsko dobro formiranih dentalnih lukova, predstavlja cilj svakog ortodonta pri planiranju ortodontskog tretmana.

Cilj ovog ispitivanja je da se proceni oblik i veličina dentalnih lukova kod ispitanika sa malokluzijom II/1 klase, da se odredi diskrepanca dentalnih lukova, i izraženost horizontalne i vertikalne okluzalne stepenice kod pacijenata sa malokluzijom II/1 klasa.

Materijal i metod: U ovoj studiji analizirano je 60 pacijenata, od koji je 30 bilo sa malokluzijom II/1 klase, a 30 ispitanika sa I klasom – normookluzija. Pacijenti si bili na uzrastu od 10 do 15 godina.

Izvršena je gnatometrijska analiza na studijskim modelima prema Harperovoj metodi. Određivana je širina dentalnih lukova, mereno je interkanino i intermolarno odstojanje, dužina i visina dentalnih lukova.

Rezultati: Premeravanja koja su napravljena na studijskim modelima prikazala su da kod ispitanika sa malokluzijom II/1 klase postoji uzak maksilaran dentalan luk sa konstrikcijom luka u interkaninoj i intermolarnoj regiji. Vrednost za interkanino odstojanje je 31,54 mm kod ispitanika sa malokluzijom klase II/1, dok je kod kontrolne grupe ova vrednost 34,7 mm. Širina dentalnih lukova u intermolarnoj regiji iznosi 44,8 mm kod ispitivane grupe, dok je u kontrolnoj grupi ova vrednos 49,8 mm. Isto tako, visoku statističku signifikantnost dobili smo i za dužinu maksilarnih dentalni lukova, kod pacijenata sa malokluzijom klase II/1, dužina maksilarnih dentalni lukova je 48,1mm, a kod kontrolne grupe ova vrednost je 44,3 mm.

Oblik i veličina dentalnih lukova pre svega zavisi od rasta i razvoja orofacijalnog sistema, od erupcija zuba u dentalne lukove, od dejstva intraoralne funkcionalne sile i dejstva cirkumoralnog mišića.

Ključne reči: analiza dentalnih lukova, malokluzija klasa II/1, forma i veličina dentalnih lukova

EVALUATION OF DENTAL ARCH DIMENSION IN PATIENTS WITH MALOCCLUSION CLASS II DIVISION 1

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The achievement of stable, functional, and aesthetic arch form has long been one of the prime objectives of orthodontics.

The aim of this study was to determine arch form and shape in the subjects with Class II division 1, arch-size discrepancies, tooth width, alignment of teeth, and determine interocclusal relationship, overjet and overbite.

Material and Method: The sample comprised 60 patients, 30 were with malocclusion Class II division 1, and 30 patients were with neutroocclusion with class I, aged 10 to 15 years. Examinees from both groups were analyzed by anamnesis and clinical examination, as well as studio casts gnathometric analysis by Harper's method. Using this method, dental arch width (intercanine and intermolar region), arch length and height were determined.

Results: The gnathometric analysis on dental casts shows that patients with Class II/1, have narrow maxillary dental arch in inter-canine, inter-molar widths and maxillary and mandibular arch length discrepancies, arch length in the maxillary dental arch showed large value. There was a statistical significant difference in inter-canine (31.54 mm -34.7 mm) and inter-molar (44.8 mm 49.8 mm) width between patients with class II malocclusion to another. Arch length in the maxilla showed higher mean values 48.1 mm. and 44.3 mm in the patients with class I – normoocclusion.

Dental arch changes result from growth and development, following eruption of the teeth, intraoral functional forces and circumoral musculature. Treatment is important to the orthodontist, and understanding of these changes is useful in treatment and retention planning by the clinician.

Key words: dental arch analysis, malocclusion Class II division 1, arch form and shape.

TREĆI MOLARI- MUDROST U ODLUCI BITI ILI NE BITI

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Rutinska ekstrakcija trećih molara pre ortodontskog tretmana je deo prošlosti. Značaj prisustva "umnjaka" prihvaćen je u novom milenijumu.

Cilj ovog rada je da predstavi mogućnosti rane dijagnoze impakcije trećih molara.

U tu svrhu smo izvršili analizu položaja i dimenzija umnjaka koristeći ortopantomografske snimke na kojima su mereni ugao i linearni parametri: retromolarni prostor, mezo-distalna dimenzija trećeg molara, rastojanje od vertikalne ravni pterioda do distalne površine gornjeg prvog molara, rastojanje od projektirane Xi točke do najdalje tačke donjeg drugog molara i alfa ugao.

Rezultati su pokazali da ako je odnos retromolarnog prostora / zapremina trećeg molara veći ili jednak 1. povećava verovatnoću erupcije trećeg molara. Analizom izmerene dimenzije trećeg molara, alfa ugla i rastojanja do vertikalne ravni pterioda ukazuju na to da su ova merenja relevantni indikatori za predviđanje moguće impakcije i smernice za ortodontski tretman.

Ključ dugotrajne stabilnosti zuba je dobra okluzija sa maksimalnim brojem zuba u posteriornom segmentu.

THIRD MOLARS - WISDOM IN THE DECISION TO BE OR NOT

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A routine extraction of third molars before orthodontic treatment is a part of the past. The significance of the presence of the "Wisdom teeth" is accepted in the new millennium.

The purpose of this study is to present the possibilities for early diagnosis of the impaction of the third molars.

We carried out an analysis of the position and dimension of the wisdom teeth using orthopantomographic images on which angular and linear parameters were measured: the retromolar space, the mesiodistal dimension of the third molar, the distance from the pterygoid vertical plane to the distal surface of the upper first molar, the distance from the projected Xi point to the most distant point of the lower second molar and the alpha angle.

If the ratio of the retromolar space / volume of the third molar is greater than or equal to 1, the probability of eruption of the third molar increases. The results showed that the measured dimensions of the third molars, the alpha angle and the distance to the pterygoid vertical plane are relevant indicators for predicting possible impaction and guidelines for orthodontic treatment.

The key to long-term stability of dentition is a good occlusion with a maximum number of teeth in the posterior region.

HARMONIJA I ESTETIKA PROFILA LICA

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Profil lica od davnina predstavlja specifično obeležje svake ljudske jedinke. Na njemu se intenzivno oslikavaju rasne i nasledne karakteristike, neusaglašenosti razvoja skeleta lica, ali i emocije i starost. Kao takav specifikum, profil je i danas izazov, kako za naučna istraživanja iz domena medicinskih nauka i antropologije, tako i kao trajna inspiracija najrazličitijih vrsta vizuelnih umetnosti. Predmet predavanja je pokušaj da se profil lica svrsta u matematičke norme i proporcije, da se okarakterise iz perspektive harmonije, ali i estetike, uz kratak istorijski osvrt na analizu profila, kao i na uticaje koji daju prepoznatljiva obeležja ljudskom licu.

Ključne reči: profil lica, harmonija, uticaji

FACIAL PROFILE – HARMONY AND AESTHETICS

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From the ancient times a face profile has represented a specific mark of every human being. We can clearly see racial and hereditary characteristics, development discrepancies of the facial skeleton but also emotions and age on it. Such is its specificity that to this day a profile represents a challenge for scientific research from the domain of medical science and anthropology but also as permanent inspiration of the most diverse types of visual arts. The purpose of this lecture is an attempt to classify facial profile in mathematical norms and proportions and also to have it characterized from the harmony and esthetic perspective with a brief historical turn to the profile analysis as well as to the influence that gives recognizable marks to a human face.

Key words: Facial profile, Harmony analysis, Influences

DENTALNA ANTROPOLOGIJA U FORENZICI

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Forenzička stomatologija je primena, pregled i procena stomatoloških dokaza koji mogu, u interesu pravde, poslužiti za određivanje uzrasta kod dece i identifikaciju osobe kojoj pripadaju zubi.

Pored DNK analize i analize otisaka prstiju, koje su široko primenjene tehnike u forenzici, u određivanju pola osobe mogu se koristiti odontometrijska analiza i analiza nepčane šare, a za procenu hronološke starosti stadijum razvoja trećeg molara. Zubi predstavljaju najtvrdje mineralizovano tkivo u ljudskom telu što ih čini otpornim na mehaničke, hemijske i toplotne reagense. Velika otpornost na postmortalne destrukcije u poređenju sa drugim delovima tela daje prednost ispitivanjima zuba u cilju identifikacije pola žrtve u slučajevima masovnih katastrofa. Veličina zuba je genetski uslovljena i zavisi od pola osobe i etničke pripadnosti. Rezultati ispitivanja na našoj populaciji pokazuju da osobe muškog pola imaju veće zube, a najizraženiji polni dimorfizam je kod stalnih očnjaka.

Procena hronološke starosti dece i mladih, moguća je na više načina: radiografski nalaz šake, zrelost epifize radijusa i ulne, pubična simfiza, spoj kranijalnih sutura kao i određivanjem stadijuma razvoja trećeg molara na rendgen snimku. Ispitivanja naše populacije pokazuju da se mineralizacija trećih molara odvija brže kod osoba muškog pola. Na nivou velike statističke verovatnoće može se tvrditi da je osoba sa formiranim trećim molarom (stadijum H) starija od 18 godina, što može biti upotrebjeno u forenzičke svrhe.

Ruge palatine su topografske strukture, dobro zaštićene unutar usne duplje od traume, dejstva visokih temperatura i hemijskih agenasa. Jedinstvene su za svaku osobu poput otisaka prstiju, permanentne tokom života i samim tim pouzdane za identifikaciju osobe. Uzimajući u obzir raznolikost oblika koji mogu nastati i poznavajući specifičnosti obrasca nepčane šare u određenoj populaciji, stopa tačnosti identifikacije individue ovom metodom dostiže 100%.

Nepčanu šaru naše populacije karakteriše dominantno prisustvo primarnih plika talasastog i zakrivljenog oblika, koje se pružaju u mezijalnom i horizontalnom pravcu.

Poređenjem rezultata za sve ispitivane parametre sa podacima iz savremene literature, jasno je da su polni dimorfizam veličine zuba, razvoj trećeg molara i uzorak nepčane šare različiti kod različitih etničkih grupa, što ukazuje na potrebu uspostavljanja forenzičkih baza podataka specifičnih za našu populaciju.

DENTAL ANTHROPOLOGY IN FORENSIC

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Forensic dentistry is the application, review and assessment of dental evidence that can, in the interests of justice, serve to determine age in children and to identify the identity of a person whom the teeth belong to. In addition to DNA analysis and fingerprint analysis, which are widely used techniques in forensics, in the determination of gender odontometric analysis and analysis of the palatal rugae pattern can be used, and for the assessment of the chronological age stage the development of the third molar. Teeth represent the strongest mineralized tissue in the human body, making them resistant to mechanical, chemical and thermal reagents. High resistance to post-mortem destruction compared to other parts of the body gives preference to teeth tests to identify gender of the victim in cases of mass disasters. The size of the tooth is genetically conditioned and depends on the gender and ethnicity of a person. The results of the study on our population show that males have larger teeth, and the most pronounced sex dimorphism is in permanent canines.

The evaluation of chronological age of children and young people is possible in several ways: radiographic finding of the fist, maturity of the epidermis of the radius and the ulna, pubic symphysis, a combination of cranial sutures as well as determining the stage of development of the third molar in the X-ray. Our population tests show that the mineralization of third molars takes place faster in men. At the level of high statistical probability it can be argued that a person with a third molar (a stage H) older than 18 years old can be used for forensic purposes.

Rugged palatines are topographic structures, well protected within the lips of a hollow of trauma, the effects of high temperatures and chemical agents. They are unique for every person like fingerprints, permanent lifespan and thus reliable for person identification. Taking into account the variety of shapes that can arise and knowing the specificities of the pattern of feminine pattern in a particular population, the accuracy rate of an individual's identification with this method reaches 100%.

The palatal rugae pattern of the investigated Serbs was characterized by the presence of primary rugae in most individuals, that mainly assumed wavy and curved shapes that extend in the mesial and horizontal direction.

By comparing the results for all the tested parameters with the data from contemporary literature, it is clear that the full dimorphism of the teeth size, the development of the third molar, and the pattern of sparse patterns differ in different ethnic groups, which points to the need to establish forensic databases specific to our population.

PRIMENA BIOMATERIJALA NA BAZI HIDROKSIAPATITA U REGENERACIJI KOŠTANOG TKIVA

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Biomaterijali na bazi hidroksiapatita nalaze široku primenu u ortopedskoj i maksilofacijalnoj hirurgiji.

Ciljevi ovog predavanja su: upoznavanje sa značajem biomaterijala u regenerativnoj medicini, zatim pojam i vrste biomaterijala; specifične karakteristike biomaterijala na bazi hidroksiapatita; pojam biokompatibilnosti i metode ispitivanja biomaterijala (*in vitro* i *in vivo*); upoznavanje sa osnovnim mehanizmima interakcija između ćelija i tkiva sa implantiranim biomaterijalom; izbor adekvatnih biomaterijala u reparaciji koštanog tkiva.

Rad nastavo u okviru projekta 3III41017

THE USE OF HYDROXYAPATITE BASED BIOMATERIALS IN BONE TISSUE REGENERATION

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Hydroxyapatite based biomaterials find a wide usage in orthopedic and maxillofacial surgery. The aims of this lecture are: getting acquainted with the importance of biomaterials in regenerative medicine, the term itself and types of biomaterials. Specific characteristics of biomaterials based on hydroxyapatite. The term of biocompatibility and methods for biomaterial testing (*in vivo in vitro*). Getting acquainted with the basic mechanisms of interaction between cells and tissues with implanted biomaterials. The use of adequate biomaterials in bone tissue repairation.

ZNAČAJ IZRADE I UGRADNJE PERSONALIZOVANIH ORTOPEDSKIH IMPLANTATA NA PACIJENTE

Miloš Ristić

Visoka tehnička škola strukovnih studija – Niš

Pojam personalizacije podrazumeva prilagođavanje određenog proizvoda potrebama i težnjama jedinke, dajući na taj način samom proizvodu jedinstvenost i izvesnu osobenost. Implantat, kao medicinsko sredstvo ili materijal, projektuje se i izrađuje sa ciljem da se iskoristi za: popravku ili zamenu nedostajuće biološke strukture; za podršku oštećenoj biološkoj strukturi; fiksiranje postojeće biološke strukture. Konvencionalni implantati ne mogu adekvatno da odgovore na specifične potrebe pacijenata čime je i postoperativni oporavak otežan. Danas je sve veća primena implantata prilagođenih specifičnim potrebama pacijenta, tzv. personalizovanih implantata.

Industrija ortopedskih uređaja, opreme i pomagala, stalno se razvija, a razlog tome leži u demografskim tendencijama ljudske populacije, kao i težnji ka kvalitetnijem životu. Sa jedne strane primetno je da se životni vek ljudi povećava, što direktno uzrokuje potražnju ortopedskih implantata. Porast broja fraktura i muskularno skeletnih dijagnoza, koje su vezane za osteoporozu, dovode do povećanog broja ortopedskih procedura, naročito kod osoba starijih od 65 godina.

Sa druge strane, sve veći broj pojedinaca vodi aktivan život praćen povećanom fizičkom aktivnošću, što povećava potrebu za ugradnjom implantata i kod mlađe populacije. Nasuprot njima, povećan je broj i gojaznih osoba, koji pored ostalog, sopstvenom težinom opterećuju lokomotorni sistem. Takođe, širenje sistema zdravstvene zaštite obezbeđuje korisnicima osiguranja nove lekove i medicinsku opremu, što podspešuje proizvođače.

Ovakav trend, ukazuje na važnost kolaborativnog poslovanja između svih strana u industriji ortopedskih uređaja i pomagala. U takvoj sredini Internet i informacioni sistemi biće neophodni za rad i kolaboraciju različitih kompanija. Vreme izrade i cena personalizovanog implantata imaće još veću važnost pri izboru potencijalnog proizvođača ili distributera određenih implantata.

Kako bi pružili adekvatnu podršku procesima odlučivanja, razvijen je ekspertni sistem sa ciljem da predloži moguća rešenja ili prikaže savete, kako bi potrebno znanje i informacije učinili dostupnim donosiocima odluka. Znanje eksperta uneto je u formi pravila, a korisnik komunicira sa sistemom putem veb aplikacije.

THE IMPORTANCE OF MANUFACTURING AND IMPLANTATION OF ORTHOPEDIC IMPLANTS FOR PATIENTS

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The term personalization implies the adjustment of a certain product to fit the needs and aspirations of an individual, this is what makes the product unique in return. An implant, as a medical device or material, is made with the aim of being used for: the correction of a certain biological structure, for the support of the biological structure or positioning of a given structure. Conventional implants cannot adequately respond to specific needs of patients which makes the postoperative recovery period more difficult. Today, the use of implants adapted to the special needs of patients is increasing, these are so called personalized implants.

The industry of orthopedic devices and equipment is constantly developing, the reason for it lies in the demographic tendency of population, as well as the tendency towards better life. On the one hand, it is evident that the life expectancy is increasing, which directly leads to a greater demand for orthopedic devices. Furthermore, the number of fractures and musculoskeletal diagnosis is increasing which consequently leads to the increased number of orthopedic interventions, especially in people older than 65.

On the other hand, more and more people are leading active lives and indulging in physical activity which leads to greater need for implants in younger population. The number of obese people is growing, this among other things puts locomotor system under great strain. In addition, improved health care system provides people with new medicines and medical equipment which further improves the product of those medicines and equipment.

This trend demonstrates the importance of collaboration among all parties in the industry of orthopedic devices. In such environment, Internet and other information technologies will be necessary for the collaboration between different companies. Manufacturing time as well as manufacturing cost of personalized implants will play a crucial role in choosing the manufacturer and distributor of given implants.

In order to make the process of decision making easier, an effective expert system was developed with the aim of providing possible solutions or give advice and thus make the information available to decision makers. The knowledge of an expert was added in the form of a rule, and a user communicates with the expert system through the application.

FORENZIČKA DNK ANALIZA SKELETNIH OSTATAKA TOKOM OBRADE SLUČAJA HUMANIH IDENTIFIKACIJA

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Kritični faktor u uspešnosti forenzičke primene najnovijih DNK tehnologija za razrešenje slučajeva nestalih osoba, je dobijanja profila jedarne i/ili mitohondrijalne DNK iz različitih skeletnih ostataka. Postoje brojni izazovi u vezi sa ekstrakcijom DNK iz kosti; struktura i hemijski sastav kostiju čine ekstrakciju i povraćaj DNK teškom, a uslovi sredine u kojoj su kosti nađene mogu dramatično promeniti stanje očuvanog koštnog materijala, samim tim i integritet i dostupnost DNK. Veliki broj uzoraka sa neuspešnim profilisanjem praćen je opisom koji kaže da su izlagani osporavajućim uticajima okoline, posebno spaljivanju. Izlaganje visokoj temperaturi u toku dužeg vremena dovodi do fragmentacije kostiju i do neuspeha u dobijanju profila iz njih. Nasuprot tome, u većem broju slučajeva sa ostacima izvučenim iz vode, dobijeni su puni profili i retko kad se dogodi da uzorci izvučeni iz vode ne daju nikakve podatke. Radi procene uspešnosti naše laboratorije u radu sa skeletnim ostacima i obezbeđivanja mesta u forenzičkoj zajednici, koja je uključena u identifikaciju ovih ostataka, retrospektivno smo ispitali našu sposobnost dobijanja DNK profila koji su analizirani u našoj laboratoriji u poslednjih 7 godina. Između januara 2009. i decembra 2016, izvedeno je 70 ekstrakcija iz skeletnih ostataka u vidu rutinske obrade slučajeva. Analizirani skeletni ostaci najčešće su uzorci koji spadaju u domen kriminalistike pri identifikaciji tela i to 92%, dok samo 8% čine uzorci koji spadaju u domen rodbinskih ili istorijskih ispitivanja. Uopšteno, mogućnost dobijanja potpunog ili delimičnog profila prvenstveno odslikava razliku u prosečnoj starosti ostataka, kao i stanja tih dveju vrsta uzoraka, pa stoga i razliku u količini i kvalitetu DNK. Ovde smo opisali približnu starost kao i vrstu ostataka do kojih smo došli, bez obzira na to da li je od njih dobijen celokupni, delimični ili nikakav profil, zatim stanje uzoraka (izlagani osporavajućim uticajima okoline, spaljena tela, ostaci izvučeni iz vode). Iz našeg iskustva sa slučajevima DNK iz uzoraka kostiju ograničenih veličina, mogu se izvesti neka prepoznatljiva pravila. Starost i stanje uzorka je uopšteno u korelaciji sa uspešnošću dobijanja profila DNK, ali povremena iznenađenja (dobro očuvana kost sa malo, ili loše očuvana kost bogata u degradiranom DNK) znače da praktičari ne treba da uopštavaju očekivanja o uspešnosti analize (i iz kojih uzoraka se može očekivati uspešna analiza) na osnovu izgleda uzorka.

FORENSIC DNA ANALYSIS OF CASEWORK SKELETAL SAMPLES DURING HUMAN IDENTIFICATION PROCESS

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A critical factor in the success of the forensic application of current DNA technology and kinship analyses to solve missing persons cases will be the ability to obtain nuclear STR profiles and/or mitochondrial DNA (mtDNA) profiles from diverse skeletal remains. Numerous challenges exist with extracting DNA from a bone; the structure and chemical composition of bones make extracting and amplifying DNA difficult and the environmental conditions from which the bone is recovered can dramatically alter the preservation state of the bone material and consequently, the integrity and availability of the DNA. Many failed samples were accompanied by descriptions of challenging environmental exposures, especially burning. Exposure to high heat for long periods of time resulting in bone fragmentation virtually makes these samples fail. In contrast, several cases of remains recovered from water resulted in full profiles, and it was rare for a water collected sample to fail to provide any data. To assess our laboratory's success with skeletal remains and provide a benchmark for the forensic community involved in identification of these remains, we retrospectively examined our ability to develop DNA profiles from the remains analyzed in our laboratory in the last 7 years. Between January 2009 and December 2016, 70 DNA extractions were completed on skeletal remains from routine casework. 92% of analyzed skeletal remains were samples submitted for body identifications by law enforcement and only 8% were samples submitted to answer family identity or historical questions. Overall, the ability to obtain a full or partial profile primarily reflects the difference in the average age and the condition of the samples in these two categories and thus, difference in the quantity and quality of the DNA. Femurs and teeth were the most common samples, due to an overall high rate of obtaining profiles. We describe here the approximate age and type of remains we have received, whether a full, partial, or no profile was obtained, as well as the condition of the samples (the environmental conditions from which the bone is recovered, burned remains or remains recovered from water). Some recognizable patterns have emerged from our experience with a limited sample size of DNA skeletal cases. The age and condition of the sample are generally correlated with success in developing a DNA profile, but the occasional surprise (a well preserved bone with little DNA or a poorly preserved bone with abundant degraded DNA) means that practitioners should not generalize as to which samples are deserving of analysis based on their appearance.

**NOVI PODACI O KOMPOZICIJI TELA I TIPU NUTRITIVNOG STATUSA
KOD ADOLESCENATA UZRASTA 10-15 GODINA IZ SOFIJE
PREMA ANTROPOMETRIJSKIM METODAMA I METODI BIOIMPEDANSE**

Zorka Mitova

IEMPAM, Bugarska anakedmija nauka

Ovo predavanje zasnovano je na transversalnoj studiji fizičkog razvoja i nutritivnog statusa dece i adolescenata, sprovedenoj u periodu od 2014. do 2017. godine u Sofiji, Bugarska. Uzorkom je obuhvaćeno 1232 dece školskog uzrasta (580 dečaka i 652 devojčice, starosti od 7 do 15 godina). Za merenje ispitanika korišćene su standardne antropometrijske metode. Podatke vezane za visinu, težinu tela, obim struka i kukova, prikupili smo kao bazu za dalju analizu bioelektrične impedanse kompozicije tela pomoću medicinskog aparata marke ABC-01 MEDAS. Dobijene su i individualne vrednosti aktivne (R) i reaktivne rezistencije (Xc) kao i fazni ugao (φ , $\arctg \varphi = Xc/R$ na 50 kHz i 800 μ A). Ove vrednosti uzete su kao osnova za procenu kompozicije tela i prezentovene su ovde. Kompoziciju tela karakterišu i apsolutne i relativne vrednosti njenih delova: masa tela (kg) normalizovana visinom, nemasna masa (kg), ukupna količina vode, intracelularna i ekstracelularna voda (kg), skeletna mišićna masa (kg), aktivna ćelijska masa (kg), bazični nivo metabolizma (BMR kcal/na dan) i specifična BMR (kcal/m² na dan).

**NEW DATA ON BODY COMPOSITION AND TYPES OF NUTRITIONAL STATUS
IN ADOLESCENTS AGED 10-15 YEARS FROM SOFIA ACCORDING
TO ANTHROPOMETRIC METHODS AND METHOD OF BIOIMPEDANCE**

Zorka Mitova

IEMPAM of Bulgarian Academy of Sciences

This lecture is based on transversal study of physical development and nutritional status of children and adolescents carried out in the period between 2014 and 2017 in Sofia, Bulgaria. The sample comprised 1232 school aged children (580 boys and 652 girls, aged 7-15 years). Standard anthropometric methods were used for measuring examinees. We used data regarding height, body weight, waist and hip circumference as a basis for further bioelectrical impedance analysis of body composition with the aid of medical device ABC-01 MEDAS. Individual values of active (R) and reactive resistance (Xc) as well as phase angle (φ , $\arctg \varphi = Xc/R$ at 50 kHz and 800 μ A) were calculated. These values were used as a basis for the evaluation of body composition and were presented here. Body composition is characterized by absolute and relative values of its parts: body mass (kg) normalized for height, lean mass(kg), total amount of water, intercellular and extracellular water (kg), skeletal muscle mass (kg), active cell mass (kg), basal metabolic rate (BMR kcal/per day), specific BMR(kcal/m² per day).

TERAPIJA SKELETNIH MALOKLUZIJA III KLASE KOD ODRASLIH

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Značajan procenat pacijenata koji dolaze na ortodontsko lečenje ima različite tipove skeletnih malokluzija. Na sreću, samo mali broj od njih ima skeletne malokluzije III klase, koje pripadaju grupi teških i veoma komplikovanih skeletnih malokluzija. U zavisnosti od uzrasta osobe sa ovom vrstom malokluzija ortodontuma u terapiji stoje na raspolaganju tri mogućnosti – modifikacija rasta, ortodonska terapija kamuflažom ili ortodontsko – hirurška terapija.

Terapija odraslih pacijenata sa ovom vrstom malokluzije postavlja ortodonta pred dilemu – kako i na osnovu kojih relevantnih parametara a u cilju postizanja najboljih terapijskih rezultata doneti odluku o izboru ortodonske ili ortodontsko – hirurške terapije.

U radu će biti prikazani slučajevi odraslih pacijenata starosti od 18 do 50 godina sa skeletnom malokluzijom III klase. Prikazaće se i diskutovati način dijagnostike i diferencijalne dijagnoze prisutne malokluzije pri odluci i izboru ortodonske ili ortodontsko – hirurške terapije. Takođe će biti prikazani i diskutovani dobijeni terapijski rezultati.

Ključne reči: Treća klasa, dijagnoza i plan terapije, odrasli

TREATMENT OF SKELETAL CLASS III IN ADULT PATIENTS

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A great percentage of patients who arrive at orthodontic centers have a skeletal malocclusion.

Fortunately only a small number of them belong to skeletal Class III. Like any other skeletal malocclusion we have three possibilities for the treatment: Growth modification, orthodontic compensation and surgical orthodontic treatment.

In this presentation we will present and discuss treatment possibilities in Adult patients with skeletal class III.

Key words: Class III, Diagnosis and Treatment planning, Adult

PROCENA ESTETIKE OSMEHA I RAZLIČITIH TIPOVA PROFILA LICA

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Uvod: Nesavršen osmeh i profil su nešto zbog čega se pacijenti najčešće obraćaju ortodontima. Cilj sprovedenog istraživanja je utvrditi da li postoji razlika u proceni estetike osmeha i profila od strane različitih ispitivanih grupa.

Subjekti i metod: U okviru sprovedenog istraživanja 15 ortodonata, 15 studenata završne godine stomatologije i 15 osoba van stomatološke struke ocenjivalo je osmeh 21 osobe (8 muskog i 13 ženskog pola) starosti od 18 do 35 godina. Ortodonti i osobe van stomatološke struke takođe su ocenjivali profile osobe muskog i ženskog pola. Profili su obrađeni u foto šopu tako da smo dobili pravilan, bimaksilarno retrognat i bimaksilarno prognat profil. Od ispitanika je zahtevano da ponuđene osmehe ocene brojevima od 1 do 9 i da za svaki osmeh zaokruže jedan od ponuđenih razloga koji u najvećoj meri narušava estetiku osmeha. Ispitanici su ponuđene profile ocenjivali ocenama od 1 do 3 pri čemu je sa 3 označavan najljepši profil.

Rezultati sprovedene studije ukazuju na to da su, iako ne postoji statistički značajna razlika u prosečnoj oceni estetike osmeha od strane svih ispitivanih grupa, osobe van stomatološke struke su dale najnižu prosečnu ocenu. Sve ispitivane grupe su pored nepravilnosti pojedinih zuba navele različite faktore koji narušavaju estetiku osmeha. Ortodonti i osobe van stomatološke struke kao najlošiji navode bimaksilarno prognat profil.

Zaključak: Zbog razlika u proceni estetike od strane ortodonata i pacijenata, potrebno je napraviti estetski protokol za dijagnozu i plan terapije pri čemu treba uzeti u obzir i studije koje se bave procenom estetike osmeha i lica i od strane pacijenata.

Ključne reči: osmeh, profil, estetika, procena.

PERCEPTION OF SMILE AND DIFFERENT PROFILE TYPE ESTHETIC

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Introduction: Bad smile and profile are the main reasons why patients seek orthodontic treatment. The aim of this paper was to investigate if there was a difference in perception of smile and profile esthetic between examined groups.

Subjects and method: In conducted research smiles of 21 persons (8 male and 13 female) 18 to 35 years of age were evaluated by 15 orthodontists, 15 students of dentistry and 15 laypeople. They had to rate every smile from 1 to 9 and chose just one main reason that undermines esthetic. Orthodontists and laypeople were also supposed to rate male and female normal, bimaxillary prognathic and bimaxillary retrognathic profiles from 1 to 3. The most beautiful profile was marked with number 3.

Results: Although there is no statistically significant difference among group rates of smile esthetic, laypeople gave smallest average rate. All investigated groups besides the irregularity of some teeth emphasized different factors that undermine smile esthetic. Orthodontists and laypeople marked bimaxillary prognathic male and female profile as less beautiful than the others.

Conclusion: Because of the difference in perception of smile aesthetics between orthodontists and laypeople it is necessary to create new diagnostic and plan of treatment protocols that includes studies that investigate laypeople perception of smile and facial esthetic.

Key words: smile, profile, esthetics, perception

KORENSKI SISTEM PRVOG I DRUGOG MANDIBULARNOG MOLARA KOD DECE NIŠA

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Na uzorku 2236 dece iz Niša, analizom ortopan snimaka pratili smo karakteristike korenskog sistema mandibularnih M1 i M2: broj korenova, njihovu dužinu, tip korenskog sistema i oblik mezijalnog korena (po uputstvu A. Zubova). M1 u svim slučajevima ima 2 korena, u 84% oni su iste dužine. U pogledu tipa korenskog sistema najčešći je 5. tip (distalni nagib mezijalnog korena), u 35,43%, 3. tip (paralelni korenovi) u 21% i 2. tip (korenovi konvergiraju u apikalnoj trećini) u 20%. Oblik mezijalnog korena uglavnom je uzan i šiljast, u 71%. M2 pored dva korena, u 8,3% ima jedan koren i paralelne korenove u 28%, zatim distalno nagnut mezijalni koren u 20% i konvergentni korenovi u apikalnoj trećini u 21%. Dužina korenova je jednaka u 88,54%, dok je mezijalni koren šiljast i širi u 55,42%.

Ključne reči: mandibularni M1 i M2, korenski sistem

ROOT SYSTEM OF THE MANDIBULAR FIRST AND SECOND MOLARS IN CHILDREN FROM NIŠ

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We analyzed the orthopantomograms in 2236 children from Niš in order to study the characteristics of the root system of the mandibular M1 and M2 teeth: the number of roots, their length, the root system type and the shape of the mesial root (according to the technique of A. A. Zubov). In all the cases M1 has 2 roots, while in 84% of cases they are of the same length. Regarding the root system type, the most common is type 5 (distal inclination of the mesial root), found in 35.43% of the cases, type 3 (parallel roots) appears in 21% and type 2 (roots converge at the apical third) in 20%. The mesial root shape is generally narrow and pointed, in 71%. M2 has two roots in 8.3%, one root and parallel roots in 28%, then distally inclined mesial root in 20% and convergent roots in the apical third in 21% of the cases. The length of roots is equal in 88.54%, while the mesial root is pointed and wider in 55.42% of the cases.

Key words: mandibular M1 and M2, root system

ODONTOLOŠKE KARAKTERISTIKE MAKSILARNIH SEKUTIĆA

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Predeo maksilarnih sekutića je najistureniji i najupečatljiviji deo vilica, a istovremeno najzaslužniji za pravilno, skladno i ljupko lice.

Cilj ispitivanja je da se utvrdi frekvencija odontoloških karakteristika maksilarnih sekutića.

Materijal i metod: Ispitivanje je obavljeno na 2790 studijskih modela ortodontskih pacijenata Klinike za stomatologiju u Nišu. Primenjena je metodologija po uputstvu Zubova. Ispitivanjem smo obuhvatili oblik centralnih sekutića, stepen redukcije veličine krunica lateralnih sekutića, morfologiju palatinalnih površina lateralnih sekutića.

Najčešće je zastupljen pravougaoni oblik krunica centralnih sekutića (kreće se u rasponu od 52% do 73%), trouglasti u manjem procentu (34% do 59%) i ovoidni u (od 0 % do 13,6%) ispitanika. Lateralni maksilarni sekutić imao je pravilan oblik bez redukcije u rasponu od 98 do 83%, a redukcija je bila zastupljena u rasponu od 2 do 17% .

Na palatinalnoj površini centralnih i lateralnih sekutića u najvećem procentu (74%) evidentirana je palatinalna kvržica u obliku okruglog uzvišenja u predelu cervikalne trećine (I stepen). Kod najvećeg broja ispitanika (61%) prisutna su dva zupca (forma 2) na palatinalnoj površini I1, dok kod I2 dominira mali zubac u cervikalnoj trećini (68%). Dva zupca su češći nalaz (38,60%) na palatinalnoj površini maksilarnih centralnih sekutića.

Poznavanje morfologije i položaja maksilarnih sekutića od velikog je kliničkog značaja.

Ključne reči: maksilarni sekutići, odontološke karakteristike

ODONTOLOGICAL CHARACTERISTICS OF MAXILLARY INCISORS

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Maxillary incisors represent the most prominent part of the jaw, and at the same time they are responsible for proportioned, symmetrical and lovely face.

The aim of this research is to determine the frequency of odontological characteristics of maxillary incisors.

Material and methods. The sample comprised 2790 study models, orthodontic patients at the Dental Clinic in Nis. Methodology according to Zubov was used. We investigated the shape of maxillary incisors, the degree of reduction in size of the crowns of lateral incisors, morphology of palatal surfaces of lateral incisors.

Rectangular crown shape is the most dominant in central maxillary incisors (it varies from 52% to 73%), triangular shape is less dominant (34% to 59%) and ovoid (0 % to 13. 6%)- of examinees. Lateral maxillary incisor had a regular shape ranging from 98 to 83%, and a reduction was detected ranging from 2 to 17%.

Palatal cusp in the shape of a round elevation in the area of cervical third is present in great percentage (74%) on the palatal surface of the central and lateral maxillary incisors (I degree). Two cogs (form 2) are present on the palatal surface I1, while a small cog dominates in cervical third of I2 in the majority of examinees (61%). Two cogs are more common (38. 60%) on palatal surface of central maxillary incisors. The knowledge of morphology and location of maxillary incisors is of great clinical importance.

Key words: maxillary incisors, odontological characteristics

MORFOLOŠKE VARIJACIJE KRUNICA GORNJIH I DONJIH PREMOLARA

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Cilj ispitivanja je bio da se ustanove varijacije u morfologiji krunica gornjih i donjih premolara. Ispitivanje je obavljeno na 1064 studijskih modela za gornje premolare i 1099 studijskih modela za donje premolare, ortodontskih pacijenata Klinike za stomatologiju iz Niša. Korišćena je metodologija po Zubovu. Morfologija krunica gornjih premolara određivana je na osnovu stepena razvijenosti bukalne i palatinalne kvrčice. Takođe smo analizirali oblik okluzalne površine (trouglasti, ovalni i bubrežasti). Morfologija krunica donjih premolara određivana je metodologijom po Jangu, na osnovu koje je definisano sedam tipova.

Zastupljenost različitih tipova oblika krunica gornjih P1 je sledeća: dominira tip II (palatinalna kvrčica neznatno niža od bukalne) i kreće se u rasponu od 71,73% kod muškog, do 76,05% kod ženskog pola, 73,84% ukupno. Slična situacija je kod P2: najzastupljeniji je tip II kod oba pola 73,13 kod muškog i 55,5% kod ženskog pola. Tip III bio je zastupljen u jako niskom procentu kod P1 i P2. Trouglasti oblik gornjih P1 je najzastupljeniji kod oba pola, dok je oblik P2 najčešće trouglast i ovalan.

Zastupljenost različitih tipova krunica donjih P1 je sledeća: kod osoba oba pola najzastupljeniji je tip 1 i kreće se u rasponu od 76,60% do 83,66%. Kod P2 najzastupljeniji je tip V (molarizacija premolara) 34,70%. Kod osoba muškog pola najzastupljeniji su tip 4 i 5 (28,21, 28,92%), a kod osoba ženskog pola dominira tip 4 (33,12%).

Poznavanje morfologije premolara od velikog je kliničkog značaja.

Ključne reči: gornji i donji premolari, morfologija

MORPHOLOGICAL VARIATIONS OF CROWNS IN UPPER AND LOWER PREMOLARS

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The aim of this research was to establish morphological variations of the upper and lower crowns of premolars. The sample comprised 1064 study models of the upper premolars and 1099 study models of the lower premolars of orthodontic patients at the Dental Clinic of Nis. Methodology according to Zubov was used. Crown morphology of the upper premolars was determined on the basis of the degree of development of buccal and palatal cusp. We also analysed occlusal surface (triangular, oval or kidney shaped) Crown morphology of the lower premolars was determined according to the methodology of Jang, based on which seven types were defined.

The prevalence of different crown shape types of the upper P1 is the following: type II is dominant (palatal cusp is slightly lower than the buccal) it varies from 71.73% in men, to 76.05% in women, 73.84% in total. There is a similar situation when type P2 is concerned: the most dominant type is type II in both sexes, 73.13 in males and 55.5% in females. Type III was present in low percentage in P1 and P2. A triangular shape of the upper P1 is the most dominant in both sexes, while the shape P2 is most often triangular or oval.

The prevalence of different crown types of the lower P1 is the following: the most dominant type in both sexes is type 1 and it varies from 76.60% to 83.66%. In P2 V is the most dominant (molarization of premolars) 34.70%. Types 4 and 5 are the most dominant in males (28.21, 28.92%), whereas in females the most dominant type is type 4 (33.12%).

The information on premolar morphology is of great clinical significance.

Key words: upper and lower premolars, morphology

PRIMENA DIGITALNE VOLUMETRIJSKE ANALIZE RESORPCIJE KORENA ZUBA U TOKU NICANJA IMPAKTIRANIH MAKSILARNIH OČNJAKA

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Cilj rada: Na CBCT snimcima ispitati poziciju maksilarnih impaktranih očnjaka koji imaju patološki put nicanja i njihov uticaj na resorpciju korena susednih zuba.

Materijal i metode rada: Analizirano je 50 CBCT snimaka pacijenata, oba pola i različite životne starosti, sa impaktiranim maksilarnim očnjacima. Step en resorpcije je rađen po skali Ericsona i Kurola: 1. bez resorpcije; 2. slaba resorpcija do polovine debljine dentina do pulpe; 3. umerena resorpcija više od polovine debljine dentina do pulpe; 4. resorpcija sa izloženom pulpom. Beležene su pozicije očnjaka i mesta kontakta impaktiranog zuba sa patološkom resorpcijom korena.

Rezultati: U odnosu na sve ispitivane pacijente, kod 12 (24%) pacijenata utvrđena je teška impakcija očnjaka sa ukupno 16 impaktiranih očnjaka. Utvrđena je češća resorpcija kod pacijenata ženskog pola 7 (58,3%) u odnosu na pacijente muškog pola 5 (41,7%). Kod 3 (25%) pacijenata utvrđena je bilateralna impakcija očnjaka. Kod 62,5% impaktiranih očnjaka zabeležen je 2. stepen resorpcije korena lateralnog sekutića. Kod 37,5% resorpcija, zahvaćene su distalne površine na polovini korena lateralnog sekutića zbog kontakta sa palatinalnim površinama krunica impaktiranih očnjaka.

Zaključak: Utvrđeno je da je 24% ispitivanih pacijenata imalo teške impakcije sa resorpcijom korena susednog zuba. Resorpcija korena 2. stepena bila je u 62,5% impaktiranih očnjaka na distalnoj polovini lateralnog sekutića. Rana dijagnoza resorpcije korena zuba sa CBCT analizom je neophodna da bi se izbegle teže komplikacije i sprečio gubitak oštećenih zuba.

THE USE OF DIGITAL VOLUMETRIC ANALYSIS OF ROOT RESORPTION DURING ERUPTION OF MAXILLARY IMPACTED CANINE

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Aim: To examine digital volumetric analysis i.e. CBCT records of the position of maxillary impacted canine teeth that have a pathological pathway of eruption and their effect on root resorption of adjacent teeth.

Material and methods: 50 CBCT images of the patients, both sexes and different age range, with impacted maxillary canines were analyzed. The level of root resorption was established according to the scale of Ericson and Kuroi: 1. no resorption 2. weak resorption up to the half of the thickness of dentine to pulp 3. Moderate resorption more than half of the thickness of dentine to pulp 4. resorption with the exposed pulp. The positions of the impacted canines were recorded and contact points of the impacted canines with pathological root resorption of adjacent teeth.

Results: Out of all patients, 12 (24%) patients had severe maxillary canine impaction with a total of 16 impacted canines. In a group with severe impaction, more frequent resorption was found in female patients 7 (58.3%) compared to male patients 5 (41.7%). In 3 (25%) patients, a bilateral impaction of the maxillary canine was found. In 62.5% of impacted canines, 2nd stage resorption of the lateral incisor root was observed. In 37.5% of resorption, the distal surfaces at the half of the root of the lateral incisor were affected due to contact with the palatal surfaces of the crowns of the impacted maxillary canines.

Conclusion: Severe canine impaction with root resorption was found that in 24% of the patients. 2nd degree root resorption was found in 62.5% of the impacted canines on the distal half of the lateral incisor. Early diagnosis of tooth root resorption with CBCT analysis is necessary in order to avoid more severe complications and to prevent the loss of damaged teeth.

MUSKULOSKELETNI POREMEĆAJI U POPULACIJI STUDENATA STOMATOLOGIJE

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Muskuloskeletni poremećaji (MSP) karakterišu se pojavom nelagodnosti, povremenog ili trajnog bola u zglobovima, mišićima, tetivama i drugim mekim tkivima izazvanih ponavljanjem određenih telesnih pokreta ili neugodnim i forsiranim telesnim držanjem. Stomatologija se smatra profesijom visokog rizika za razvoj ovih poremećaja. Cilj istraživanja bio je da se ispita pojava MSP u populaciji studenata stomatologije Medicinskog fakulteta u Nišu. U istraživanju je učestvovalo 170 studenata stomatologije. U cilju ispitivanja pojave i distribucije MSP studenti su popunjavali modifikovani Nordijski upitnik. Rezultati su pokazali da 70,6% studenata pati od MSP. MSP su bili gotovo jednako zastupljeni u oba pola (69,7% kod muškaraca i 71,1% kod žena). Najčešća lokalizacija bola bila je u predelu gornjeg dela leđa u 32,3% slučajeva. Ukupno 54,1% studenata izjasnilo se da je intenzitet bola bio umeren i da u 41,2% slučajeva traje koliko i rad sa pacijentom. U 49,4% slučajeva bol ne utiče na praktični rad, a kao meru olakšanja tegoba u 53,3% slučajeva studenti upražnjavaju odmor. MSP se javljaju već na prvim godinama studija i imaju tendenciju intenziviranja sa dužinom studija. S obzirom na to da se muskuloskeletni bol javlja već u ranom periodu studentske prakse, neophodno je baviti se proučavanjem ergonomskih faktora koji su od velikog značaja za pojavu i intenziviranje ovih poremećaja.

Ključne reči: muskuloskeletni poremećaji, stomatologija, studenti, ergonomija.

MUSCULOSKELETAL DISORDERS IN A DENTAL STUDENT POPULATION

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Musculoskeletal disorders (MSD) are characterized by the presence of discomfort, disability and persistent pain in the joints, muscle, tendon and other soft parts caused by repeated movements and prolonged awkward and forced body postures. Dentistry is considered to be a high risk profession for the development of these disorders. The purpose of this study was to examine the presence of MSD in a dental student population from Medical Faculty, University of Niš. The sample comprised 170 dentistry students. In order to examine presence and distribution of MSD, students completed modified Nordic questionnaire. The results showed that 70,6% of students suffered from MSD. MSD were almost equally represented in both sexes (69,7% in males and 71,1% in females). The most common localization of pain was the region of upper back in 32,3% of the cases. Moderate pain was observed in 54,1% of the students, and the pain during work with patients was reported in 41,2% of the cases. The pain had no influence on practical work in 49,4% of the cases, and 53,3% of the students use rest as a measure against pain. MSD appears early in dental careers and have tendency to become more severe with number of years in dental school. According to that it is necessary to examine ergonomic factors that may be contributory for the development of these disorders.

Key words: Musculoskeletal disorders, dentistry, ergonomics.

STOMATOLOGIJA U OČIMA STOMATOLOGA – LJUBAV ILI POSAO? **Marija Nikolić¹, Milica Tomić², Jelena Popović¹, Jovanka Gašić¹, Aleksandar Mitić¹, Radomir Barac¹**

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Odluka o izboru profesije najčešće se donosi u ranoj mladosti. Faktori koji utiču na tu odluku su raznovrsni i često su rezultat zanosa, idola ili životnih uslova poput materijalnog stanja ili porodične tradicije. Životno i profesionalno iskustvo, sa sobom neminovno nose manje ili veće promene stavova o izabranoj profesiji. Cilj rada bio je da se ispita stav stomatologa prema stomatologiji u zavisnosti od godina radnog staža. U istraživanju je učestvovalo 110 stomatologa radnog staža od 1 do 45 godina, koji su popunjavali anonimnu modifikovanu anketu o zadovoljstvu poslom (Job Satisfaction Questionnaire). Da se ne bave svojom profesijom, većina stomatologa bi se, bez obzira na godine radnog staža, bavila medicinom, dok je razlog za odabir profesije najčešće bila porodična tradicija ili ljubav prema stomatologiji. Najveće profesionalno zadovoljstvo, iskusnijim stomatolozima, predstavljaju zadovoljni pacijenti, dok kod mlađih, najveće zadovoljstvo predstavlja rešavanje komplikovanih stomatoloških slučajeva. Većina stomatologa, bez obzira na godine staža, smatra svoj posao teškim, rizičnim i odgovornim.

Ključne reči: stomatologija, profesija, zadovoljstvo

DENTISTRY IN THE EYES OF DENTISTS – LOVE OR BUSINESS? **Marija Nikolić¹, Milica Tomić², Jelena Popović¹, Jovanka Gašić¹, Aleksandar Mitić¹, Radomir Barac¹**

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Decision about the choice of profession is often made at an early age. Factors influencing this decision are varied and are often the result of enthusiasm, idols or the living conditions such as material status or family tradition. Life and professional experience, inevitably make smaller or greater change in attitudes about the chosen profession. The aim of the study was to examine the dentists' attitude toward dentistry depending on the years of service. The sample comprised 110 dentists with 1 to 45 years of service, who filled out an anonymous questionnaire (Job Satisfaction Questionnaire). If they had chosen some other profession, most dentists, regardless of the years of service, would have practiced medicine while the reason for choosing the profession was most often a family tradition and love for dentistry. The biggest professional satisfaction for experienced dentists are satisfied patients while in younger, the greatest satisfaction is solving complex dental cases. Most dentists, regardless of the years of service, considered their job to be difficult, risky and responsible.

Keywords: dentistry, profession, satisfaction

ISPITIVANJE RAZLIKA U BOJI ZUBA U ODNOSU NA STAROST I POL
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U toku fiziološkog procesa starenja dolazi do promena na svim tkivima i organima ljudskog organizma. Promena boje zuba sa starošću nastaje kao posledica redukcije pulpne komore i stvaranja sekundarnog dentina koji postaje deblji i manje transparentan. Cilj istraživanja bio je da se utvrdi stepen promene boje zuba sa starošću pacijenata i u odnosu na pol. Istraživanjem je obuhvaćeno 166 pacijenata (83 muškaraca i 83 žene) starosti od 18 do 77 godina. Svi pacijenti bili su podeljeni u četiri starosne grupe. Studija je sprovedena na zdravim gornjim centralnim sekutićima. Određivanje boje zuba izvršeno je vizuelnom metodom, korišćenjem ključa za boju *Phillips zoom shade guide* u srednjoj trećini krunice zuba. Rezultati su pokazali da je u starosnoj grupi od 18 do 30 godina dominirala svetla boja zuba sa 21,7%, u grupi od 31 do 45 godina srednja nijansa sa 12,9% i u starosnim grupama od 46 do 60 i starijih od 61 godine ustanovljena je tamna boja zuba sa 9,1% odnosno 21%. Najčešća svetla boja zuba bila je A₂, najzastupljenija među srednjim nijansama bila je A₃, dok je najčešća tamna boja zuba bila A_{3,5}. Žene su imale znatno svetliju boju zuba u poređenju sa muškarcima. Istraživanje je pokazalo da su pacijenti mlađeg uzrasta imali svetlije zube i da boja zuba sa godinama starosti postaje tamnija.

Ključne reči: boja zuba, starenje, pol, i gornji centralni sekutić.

EXAMINATION OF TOOTH SHADE IN RELATION TO AGE AND GENDER
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Physiological aging process leads to changes in all tissues and organs of the human organism. Changes in tooth color with age occur as a result of the pulp chamber reduction and deposition of secondary dentine, when dentine becomes thicker and less transparent. The aim of this study was to determine the degree of a tooth color change in relation to the age and gender of patients. The sample comprised 166 patients, 18 to 77 years of age. All patients were divided into four age groups. Determination of the tooth color was performed by visual method using the Phillips zoom shade guide chart in the middle third of the healthy upper central incisors. The results showed that 21,7% of the patients between 18 to 30 years of age had dominant lighter teeth color, 12,9% of the patients 31-45 years of age had the medium color, and patients 46-60 and older than 61 years in most of the cases had dark color of the teeth (9.1% and 21% respectively). The dominant light tooth color was A₂, medium color A₃, while the most common dark color was A_{3.5}. Women had significantly lighter teeth compared to men. The study showed that younger patients had lighter teeth and that the color of teeth become darker with age.

Key words: tooth color; age; gender; upper central incisor.

GUBITAK ZUBA ZBOG PARODONTALNOG OBOLJENJA

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Uvod: Glavni etiološki faktor gubitka zuba jesu zubni karijes i parodontalno oboljenje. Mnoga istraživanja pokazala su da je zubni karijes najčešći uzrok gubitka zuba, međutim, sa starenjem, kao glavni uzrok gubitka zuba javlja se parodontalno oboljenje, nezavisno od rase i pola. **Cilj istraživanja** bio je ispitivanje razloga ekstrakcije stalnih zuba, kao što je parodontopatija, i njihov odnos prema faktorima kao što su starost, pol i razlog zbog kojeg je zub ekstrahiran.

Materijal i metode: U istraživanju je učestvovalo 100 pacijenata starosti od 20 do 75 godina. Razlozi za ekstrakciju zuba uključivali su starost, pol i vrstu ekstrahiranog zuba zbog parodontalnih i neparodontalnih razloga. Podaci su obrađivani u programskom paketu SPSS 17.0, a statistička obrada rađena je korišćenjem ANOVA analize i Hi-kvadrat testa.

Rezultati: Ukupno je ekstrahirano 709 stalnih zuba. Većina (63%) je izvađena iz parodontalnih razloga, 37% zbog karijesa, zatim slede traume korena, vertikalne frakture korena/krone, ortodontski razlozi, itd. Razlika između ekstrahiranih zuba zbog parodontalnih i neparodontalnih razloga, statistički je bila značajna ($p < 0,01$). Maksilarni i mandibularni molari češće su ekstrahirani iz parodontalnih razloga nego ostali bočni zubi. Zbog parodontalnih razloga češće su ekstrahirani i prednji zubi obe vilice. Pored toga, prosečan broj ekstrahiranih zuba iz parodontalnih razloga je veći zbog starosne dobi pacijenata.

Zaključak: Iako je cilj Svetske zdravstvene organizacije postignut kad je reč o smanjivanju pojave zubnog karijesa, oboljenja parodonta i dalje su glavni razlog za ekstrakciju zuba, tako da njihov procenat raste sa godinama starosti pacijenata.

Ključne reči: parodontalno oboljenje, gubitakzuba, ekstrakcija zuba, starost pacijenata

TOOTH LOSS DUE TO PERIODONTAL DISEASE

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Introduction: The main etiological factor of tooth loss is dental caries and periodontal disease. Many studies have shown that dental caries are the most common cause of tooth loss, but with age, the leading cause of tooth loss is the periodontal disease, regardless of race and gender. **The aim** of the study was to investigate the reasons for the extraction of permanent teeth such as periodontitis and their relationship with factors such as age, sex and the reason why the tooth is extracted.

Materials and methods: The sample comprised 100 patients 20 to 75 years of age. The reasons for tooth extraction included age, sex and type of extracted teeth due to periodontal and non-periodontal causes. The data were processed in the SPSS 17.0 software package, and statistical analysis was done using ANOVA analysis and Hi-square test.

Results: In total, 709 permanent teeth were extracted. Most (63%) were taken for periodontal reasons, 37% for caries, followed by root trauma, vertical fracture of the root / crown, orthodontic reasons, etc. The difference between extracted teeth due to periodontal and non-periodontal causes was statistically significant ($p < 0.01$). Maxillary and mandibular molars are more often extracted for periodontal reasons than other lateral teeth. Due to periodontal causes, the forequarters of both jaws are also extracted. In addition, the average number of extracted teeth for periodontal reasons is higher due to the age of patients.

Conclusion: Although the aim of the World Health Organization is to reduce the occurrence of dental caries, periodontal disease remains the main reason for teeth extraction, therefore their percentage increases with the age of patients.

Key words: periodontal disease, tooth loss, teeth extraction, age of patients

INDEKSI PARODONTALNOG OBOLJENJA KOD PACIJENATA SA AKUTNIM KORONARNIM OBOLJENJEM

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Uvod i cilj: Mnoge epidemiološke i kliničke studije, iznele su vezu „parodontalna – sistemska“ oboljenja, uključujući pored ostalih i kardiovaskularna oboljenja. Loše oralno zdravlje može uticati na opšte zdravlje i može biti povezano sa akutnim infarktomiokarda. U literaturi, nalazi o vezi parodontopatije i KVO znatno variraju, počev od onih koji su suprotni i negiraju vezu ova dva oboljenja, do onih koji ukazuju na jaku uzročnu vezu.

Cilj ovog istraživanja bio je da se ispita parodontalni status i veza različitih parodontalnih parametara kod bolesnika sa koronarnom bolešću srca.

Materijal i metode: U ovom istraživanju učestvovalo je 50 pacijenata sa akutnim koronarnim sindromom koji su imali parodontopatiju. Drugu grupu činilo je 50 pacijenata koji su imali samo parodontopatiju. Treća, kontrolna grupa, sastojala se od 50 zdravih pojedinaca. Od parodontalnih parametara, mereni su dubina parodontalnog džepa, gubitak epitelnog pripoja i stepen inflamacije gingive, a upoređivani su na osnovu demografskih karakteristika i između grupa.

Rezultati: Analiza parodontalnih parametara pokazala je da su srednje vrednosti bile veće kod pacijenata prve i druge grupe u odnosu na kontrolnu grupu, ali značajno više u grupi pacijenata sa akutnim koronarnim sindromom.

Zaključak: Ovo ispitivanje podržava vezu između parodontopatije i koronarne bolesti srca. Veće vrednosti parodontalnih parametara kod pacijenata sa akutnim koronarnim sindromom, ukazuje na to da je oralno zdravlje ovih pacijenata ugroženo jer imaju teži oblik parodontalnog oboljenja koji može da utiče na razvoj akutnog koronarnog sindroma.

Ključne reči: parodontalni parametri, parodontopatija, akutno koronarno oboljenje.

PERIODONTAL DISEASE INDICES IN THE PATIENTS WITH ACUTE CORONARY DISEASE

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Background and objectives: Many epidemiological and clinical studies have dealt with the "periodontal-systemic" disease, including, among others, cardiovascular disease. Poor oral health may affect general health and may be associated with acute myocardial infarction. In literature, the findings of periodontal disease and CVO vary greatly, starting with those who deny the connection between these two diseases to those who indicate a strong causal relationship.

Methods: This sample comprised 50 patients with acute coronary disease who had periodontal disease. The second group consisted of 50 patients who had only periodontitis. The third, control group consisted of 50 healthy individuals. From periodontal parameters, the depth of the periodontal pocket, the loss of epithelial attachment, and the degree of gingival inflammation were measured, and were compared on the basis of demographic characteristics and between the groups.

Results: An analysis of periodontal parameters showed that mean values were higher in patients of the first and second group compared to the control group, but significantly higher in the group of patients with acute coronary syndrome.

Conclusion: This study supports the relationship between periodontal disease and coronary heart disease. Higher values of periodontal parameters in patients with acute coronary syndrome indicate that the oral health of these patients is compromised because they have a more severe form of periodontal disease that can affect the development of acute coronary syndrome.

Key words: periodontal parameters, periodontal disease, acute coronary disease

ZNAČAJ PDI U PROCENI PARODONTALNOG ZDRAVLJA

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Uvod: Savremena epidemiološka istraživanja ističu parodontopatiju kao jedno od najrasprostranjenijih oboljenja ljudskog roda, posebno izraženo kod osoba sa lošom kontrolom glikemije. Njena raširenost i jačina su varijable neprecizne za procenu stanja parodonta pa su u savremenu stomatološku praksu i nauku uvedeni indeksi koji numeričkim vrednostima izražavaju promene u toku parodontopatije. Indeks parodontalnog oboljenja (PDI) spada u grupu kombinovanih indeksa za procenu celog parodonta jer u isto vreme procenjuje stanje gingive i destrukciju parodontalnih tkiva.

Cilj: Odrediti vrednosti PDI kod sistemski zdravih ispitanika i ispitanika sa lošom glikemijskom kontrolom i ispitati značaj PDI u proceni parodontalnog zdravlja.

Pacijenti i metode: U ispitivanju je učestvovalo 100 pacijenata Klinike za stomatologiju Niš podeljenih u dve grupe: grupa 1 (50) - sistemski zdravi pacijenti sa parodontopatijom i grupa 2 (50) - dijabetični pacijenti sa lošom kontrolom glikemije u toku dijabetesa tip 2. Nakon uvida u medicinsku dokumentaciju, kod svih pacijenata urađen je klinički pregled i određen PDI.

Rezultati: U drugoj grupi ispitanika srednja vrednost HbA1C iznosila je 8.70, a dužina trajanja dijabetesne bolesti 12.68 godina. Vrednost PDI u prvoj grupi bila je 4.14, a u drugoj 4.80. Uočeno je da je vrednost PDI u prvoj grupi statistički značajno manja u odnosu na drugu grupu sa stepenom značajnosti od <0,001.

Zaključak: PDI ima veće vrednosti kod osoba sa lošom kontrolom glikemije i ukazuje na teži oblik parodontalne destrukcije. PDI je pokazao značaj u proceni zdravlja celokupnog parodonta i preporučuje se za objektivno ocenjivanje stanja parodonta, praćenje i poređenje postignutih terapijskih rezultata.

Ključne reči: indeks parodontalnog oboljenja, parodontopatija i dijabetes

THE VALUE OF PDI IN PERIODONTAL HEALTH ASSESSMENT

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Introduction: Current epidemiological studies point out a periodontal disease as one of the most prevalent human diseases especially in people with poor glycemic control. Its spread and intensity are imprecise for estimating the condition of the disease, so in the modern dental practice and science indices have been introduced with numerical values expressing changes during periodontal disease. The Periodontal Disease Index (PDI) belongs to the group of combined indexes for the assessment of the whole periodontium, because at the same time it assesses the state of gingival tissue and the destruction of periodontal tissues.

The Aim of the study was to determine PDI values in systemically healthy subjects and subjects with poor glycemic control and to investigate the importance of PDI in the assessment of periodontal health.

Patients and Methods: 100 patients of the Dental Clinic in Niš were divided into two groups: group 1 (50) – systemically healthy patients with periodontal disease and group 2 (50) - diabetics with poor glycemic control during diabetes type 2. After medical documentation reviewing, all patients underwent clinical examination and PDI determination.

Results: In the second group of patients, the mean HbA1C was 8.70 and the duration of the diabetic disease was 12.68 years. The PDI value in the first group was 4.14, and in the second 4.80. It was observed that the PDI in the first group was statistically significantly lower than in the second group with a degree of significance of <0.001.

Conclusion: PDI has higher values in people with poor glycemic control and indicates a more severe form of periodontal destruction. PDI has shown its importance in assessing the health of the entire periodontium and it is recommended for an objective evaluation of the periodontal condition, monitoring and comparison of the achieved therapeutic results.

Key words: periodontal disease index, periodontitis, diabetes

ZASTUPLJENOST PARODONTALNIH KOŠTANIH DEFEKATA**Radmila Obradović¹, Ana Pejčić¹, Marija Igić², Mirjana Bošković³, Dragana Stanišić⁴,
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Uvod: Parodontalni koštani defekti su česta pojava u toku parodontopatije. Njihovo otkrivanje i utvrđivanje morfologije značajno je radi postavljanja adekvatne dijagnoze, prognoze i donošenja preciznog plana terapije. Pre parodontalne hirurške intervencije neophodan je detaljan klinički pregled i kvalitetno rendgenološko snimanje. Radi sveobuhvatnog pregleda pacijenta, najčešće je u upotrebi u parodontologiji ortopantomografsko snimanje vilica.

CILJ rada je utvrditi prisustvo koštanih defekata kod pacijenata sa parodontopatijom.

Materijal i metode: Ispitivanje je urađeno na Klinici za stomatologiju Medicinskog fakulteta u Nišu analizom 60 ortopantomografskih snimaka pacijenata starosti od 30 do 70 godina, koji su došli na parodontološki pregled pre pristupanja parodontalnoj terapiji. Nakon detaljne anamneze i kliničkog pregleda, urađeno je ortopantomografsko snimanje vilica. Svako rastojanje od očuvane ivice aproksimalne kosti do glednocementne granice veće od 2 mm, evidentirano je kao koštani defekt na rendgen snimku.

Rezultati. Resorpcija kosti nije bila istog inteziteta u svim delovima vilica, a izraženija je kod starijih ispitanika nezavisno od pola ispitanika. Parodontalni koštani defekti su češći na mezijalnim stranama zuba i izraženiji u predelu premolara i molara. Najčešće zahvaćeni zubi su maksilarni prvi premolar, prvi i drugi molar obe vilice. Resorpcija kosti je uočena kod drugog molara svakog ispitanika starijeg od 50 godina.

Zaključak: Parodontalni koštani defekti su veoma zastupljeni kod osoba sa parodontopatijom. Njihovo otkrivanje je veoma bitno radi donošenja plana i određivanja modaliteta terapije sa ciljem postizanja što boljih i trajnijih terapeutskih rezultata.

Ključne reči: parodontopatija, koštani defekt i rendgen snimak

REPRESENTATION OF PERIODONTAL BONE DEFECTS

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Introduction: Periodontal bone defects are a frequent sequel of periodontal diseases. Diagnosing their presence and establishing their morphology is important to set up an adequate diagnosis, prognosis and a precise treatment plan. Before periodontal surgery, a detailed clinical examination and a quality x-ray scanning is required. For the purpose of a comprehensive examination of the patient, the most commonly used is orthopantomographic imaging of the jaw.

The aim of the study is to determine the presence of bone jaw defects in patients with periodontal disease.

Material and Methods: The study was conducted at Dental Clinic, Medical Faculty of Niš by analyzing 60 orthopantomographic images of patients aged 30 – 70 years, who came to a periodontal examination before the beginning of the periodontal therapy. After a detailed anamnesis and clinical examination, the orthopantomographic imaging of the jaws was made. Any distance from the preserved approximal bone line to the enamel-cement line greater than 2 mm is defined as a bone defect on X-ray.

Results. Bone resorption was not of the same intensity in all parts of the jaw, and was more pronounced in older subjects independent of the sex of the respondents. Periodontal bone defects are more frequent on the mesial sides of the teeth and more pronounced in the premolars and molars. The most commonly affected teeth are the maxillary first premolar, the first and the second molar of the both jaws. Bone resorption was observed at the second molar of each respondent older than 50 years.

Conclusion: Periodontal bone defects are very common in people with periodontal disease. Their detection is very important for the purpose of making a plan and determining the modality of therapy in order to achieve the best and lasting therapeutic results.

Key words: periodontitis; bone defect; X-rays

ORALNO HIGIJENSKJE NAVIKE KOD DECE MLAĐEG ŠKOLSKOG UZRASTA**Marija Igić¹, Radmila Obradović², Branislava Stojković¹, Gordana Filipović³,****Milena Milovanović⁴, Kosta Todorović⁵**¹Univerzitet u Nišu, Medicinski fakultet, Preventivna i dečja stomatologija²Univerzitet u Nišu, Medicinski fakultet, Oralna medicina i parodontologija³Univerzitet u Nišu, Medicinski fakultet, Ortopedija vilica⁴Stomatološka ordinacija -Branko dental-tehno, Niš⁵Univerzitet u Nišu, Medicinski fakultet, Oralna hirurgija

Uvod: Mere oralne higijene predstavljaju individualne aktivnosti koje imaju za cilj pravilnu primenu dostupnih hemijskih i mehaničkih metoda protiv dentalnog biofilma radi postizanja primarne prevencije oboljenja usta i zuba. Ove mere su osnovni deo lične brige o zdravlju.

Cilj: Utvrditi navike održavanja oralne higijene kod dece mlađeg školskog uzrasta u Nišu bio je glavni cilj ovog istraživanja. Takođe je ispitivana i učestalost i razlozi odlaska kod stomatologa.

Metodologija: Ispitivanjem je obuhvaćeno 150 dece mlađeg školskog uzrasta. Kao instrument istraživanja korišćena je anketa koja je sadžala određeni broj relevantnih pitanja vezanih za održavanje oralne higijene i učestalost i razloge odlaska kod stomatologa.

Rezultati: U ispitivanoj populaciji nema izgrađenih osnovnih oralno higijenskih zdravstvenih navika i stavova koji bi bili obrazac za sigurnost oralnog zdravlja, te je rizik za nastanak oralnih oboljenja očekivan.

Zaključak: Na osnovu dobijenih rezultata može se zaključiti da oralno higijenske navike dece mlađeg školskog uzrasta nisu na zavidnom nivou. Zbog toga je potrebno intenzivirati zdravstveno vaspitni rad koji bi ukazao na pravovremenu primenu preventivnih mera, a sve u cilju očuvanja oralnog zdravlja.

Ključne reči: oralna higijena, navike, deca.

ORAL HYGIENE HABITS IN YOUNGER SCHOOLCHILDREN**Marija Igić¹, Radmila Obradović², Branislava Stojković¹, Gordana Filipović³,****Milena Milovanović⁴, Kosta Todorović⁵**¹University of Niš, Medical faculty, Preventive and Children Dentistry²University of Niš, Medical faculty, Oral Medicine and Parodontology³University of Niš, Medical faculty, Orthodontics, ⁴Dental practice- Branko dental-tehno, Niš⁵University of Nis, Medical faculty, Oral Surgery

Introduction: Oral hygiene measures represent individual activities aimed at appropriate application of available chemical and mechanical methods against dental biofilm in order to achieve primary prevention of oral and dental diseases. These measures are an essential part of personal health care.

Aim: The main aim of the study was to determine the oral hygiene habits of younger schoolchildren in Niš. The frequency and reasons for dental appointments were also investigated.

Methodology: The sample comprised 150 schoolchildren of younger age. The questionnaire consisting of questions relating to maintenance of oral hygiene and frequency and reasons for dental visit was used as the study instrument.

Results: There are no established oral hygiene health habits and attitudes that would be a pattern for safe oral health in the examined population, so the risk of development of oral diseases is expected.

Conclusion: On the basis of the obtained results it can be concluded that oral hygiene habits of younger schoolchildren are not at a satisfactory level. Therefore, it is necessary to intensify health education activities that would indicate a timely application of preventive measures, all with the aim to preserve oral health.

Key words: oral hygiene, habits, children.

TELESTOMATOLOGIJA

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Kao što je i očekivano, poslednjih godina je došlo do ogromne ekspanzije tehnoloških inovacija u stomatologiji. Najveći napredak je ostvaren u primeni kompjutera, telekomunikacione tehnologije i digitalnih dijagnostičkih uređaja. U ovakvim uslovima moguće je ostvariti brzu udaljenu konsultaciju u kritičnim situacijama. Ovo izlaganje ima za cilj da informiše slušaoce o najnovijim dostignućima u telestomatologiji. Navodimo realizovane primere telestomatoloških konsultacija u različitim oblastima stomatologije, i to počev od verifikovanja metode telestomatologije kod postavljanja dijagnoze karijesa, pa sve do primene u urgentnim situacijama kod rešavanja dentogenih infekcija u oralnoj hirurgiji. Navode se i primeri primene interspecijalističkih konsultacija. Na osnovu do sada dobijenih rezultata, daje se preporuka budućih studija.

Cljučne reči: telestomatologija, telemedicina, stomatologija

TELEDENTISTRY

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As expected, in recent years a huge expansion of technological innovation in the field of dentistry has occurred. The biggest advances have been made in the application of computers, telecommunication technology and digital diagnostic devices. Rapid consultations across large distances in emergency situations have thus been made possible. This review aims at informing the audience about most recent achievements in teledentistry. We here present some examples of the real teledentistry consultations in different fields of dentistry, from the validation of teledentistry approach in the diagnosis of caries, all the way to its use in emergency situations in the management of odontogenic infections in oral surgery. The examples of inter-specialist consultations are presented as well. Based on the results achieved so far, the recommendations for future studies are presented.

Key words: teledentistry, telemedicine, dentistry

SKENING ELEKTRONSKA MIKROGRAFIJA DENTINA NAKON PREKRIVANJA PULPE BIOMATERIJALOM – STUDIJA NA EKSPERIMENTALNIM ŽIVOTINJAMA

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Uvod: Terapijska procedura direktno prekrivanje ima za cilj pokretanje reverzibilnih procesa u pulpi radi očuvanja vitaliteta i funkcije pulpo-dentinskog kompleksa. Izbor sredstva za prekrivanje pulpe još uvek je tema za razmišljanje. Podaci o primeni hidroksiapatitima u terapiji vitalne pulpe su veoma oskudni i često kontradiktorni. Sintetski hidroksiapatit poli (laktid-co-glikolid) može uspešno da zameni koštano tkivo i olakša stvaranje nove kosti.

Cilj ove eksperimentalne studije bio je da se ispita dentinogenetska efikasnost biomaterijala kalcijum hidridroksiapatita / poli (lactid-co-glikolida) HAp/PLGA kod direktnog prekrivanja pulpe u stvaranju dentinskog mosta na zubima eksperimentalnog modela.

Metode: Istraživanje je obavljeno na 5 zečeva vrste činčila. Nakon trepanacije pulpnog prostora sterilnim čeličnim svrdlom, pulpa je prekrivena kalcijum hidridroksiapatitom / poli (lactid-co-glikolidom) HAp/PLGA (eksperimentalna grupa zuba, n=50), kontrolna grupa zuba (n=20) intaktni zubi. Eksperiment je obavljen u opštoj anesteziji. Nakon aplikacije biomaterijala, kaviteti su zatvarani glasjonomer cementom i amalgamom. Životinje su održavane u životu 3 i 6 meseci. Ekstrahirani zubi su pripremljeni za posmatranje skening elektronskom mikroskopijom (SEM).

Rezultati: SEM-om dokazano je da je broj zuba sa prisustvom novoformiranog tvrdog tkiva u vidu dentinskog mosta veći posle 6 meseci negoli 3 meseca nakon tretmana.

Zaključak: Direktnim prekrivanjem pulpe dolazi do zatvaranja artefijelno otvorene pulpe i stvaranja dentinskog mosta-reparatornog dentina tubulame strukture u toku perioda posmatranja od tri meseca.

Ključne reči: Skening elektronska mikrografija, dentinski most, poli (laktid-co-glikolid)

SCANNING ELECTRON MICROSCOPY OF DENTIN AFTER PULP CAPPING WITH A BIOMATERIAL – A STUDY ON EXPERIMENTAL ANIMALS

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Introduction: Direct pulp capping, as a therapeutic procedure, aims to initiate reversible processes in the pulp in order to preserve pulp vitality and function of the dentin-pulp complex. The choice of materials to be used in pulp capping is still a matter of debate. The information about hydroxyapatite use in the therapy of vital pulp is scarce and often controversial. Synthetic hydroxyapatite/poly (lactic-co-glycolic acid) can successfully replace bone tissue and facilitate new bone tissue creation.

Aim: This experimental study aims to assess dentinogenic efficacy of the biomaterial calcium hydroxyapatite/poly (lactic-co-glycolic acid) (HAp/PLGA) in direct pulp capping and dentin bridge creation in teeth of the used experimental model.

Methods: The study involved 5 chinchilla rabbits. After pulp space trepanation with a steel bur, the pulp was covered (capped) with calcium hydroxyapatite/poly (lactic-co-glycolic acid) (HAp/PLGA) (experimental group of teeth, n=50), while control teeth (n=20) remained intact. The experiment was performed in general anesthesia. After the application of the biomaterial, the cavities were closed with glass-ionomer cement and amalgam. The animals were kept alive for 3 and 6 months. The extracted teeth were prepared for visualization using scanning electron microscopy (SEM).

Results: Using SEM, we demonstrated that the number of teeth with newly formed hard tissue in the form of dentin bridges was higher after 6 months, compared to the period of 3 months after treatment.

Conclusion: Direct pulp capping closes the artificial pulp exposure and supports the creation of dentin bridges – reparatory tubular-structure dentin – in the period of observation of 3 months.

Key words: Scanning electron microscopy, dentin bridge, poly (lactic-co-glycolic acid)

DENTALNA ANKSIOZNOST U ZAVISNOSTI OD GODINA – MUDRIJI ILI SAMO STARIJI?

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Dentalna anksioznost predstavlja uznemirenost i iščekivanje neprijatnosti pre, za vreme i nakon stomatološke intervencije. Ovu neprijatnost može izazvati bol prilikom intervencije, ponašanje stomatologa, ambijent u ordinaciji, ali i mnogi lični stavovi i razmišljanja pacijenata. Životno iskustvo utiče na percepciju svega što se oko nas dešava pa tako i ne čudi što postoji veći jaz između mladih i manje iskusnih i starijih, iskusnijih generacija. Cilj rada bio je da se ispita da li postoje razlike u doživljaju neprijatnosti prilikom stomatoloških intervencija u zavisnosti od godina života. Istraživanjem je obuhvaćeno 100 ispitanika koji su bili pacijenti Klinike za stomatologiju u Nišu. Polovina ispitanika pripadala je starosnoj grupi od 18 do 25 godina, a polovina starosnoj grupi preko 65 godina. Istraživanje je sprovedeno putem anketiranja modifikovanim upitnikom dentalne anksioznosti (DAS). Čak 20% starijih ispitanika reklo je da ne oseća nikakvu neprijatnost pre odlaska na zakazanu stomatološku intervenciju, dok je isti odgovor dalo duplo manje mladih ispitanika. Gotovo polovina mladih ispitanika misli da je njihov strah preteran, a samo 15% starijih ima takvo mišljenje. Razlika u doživljaju neprijatnosti prilikom stomatoloških intervencija, između starijih i mladih ispitanika postoji, a ono što je ohrabrujuće je činjenica da sa godinama ta neprijatnost postaje slabija.

Ključne reči: neprijatnost, stomatologija i životno iskustvo.

AGE- DEPENDENT DENTAL ANXIETY - WISER OR JUST OLDER?

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Dental anxiety is anticipation of discomfort before, during and after dental intervention. This discomfort can be a result of pain during the intervention, dentist's behavior, atmosphere in the practice, as well as many personal attitudes and thoughts of patients. Life experience influences the perception of everything that is happening around us, so it is not surprising that there are conflicting of opinions between young and less experienced and elderly and more experienced generations. The aim of this paper was to examine whether there is a difference in the inconvenience experienced during dental interventions depending on age. The research involved 100 patients of the Clinic of Dentistry in Nis. Half of the respondents belonged to the age group of 18 to 25 years, and half belonged to the age group over 65 years. The survey was conducted with a modified dental anxiety questionnaire. Twenty percent of the elderly respondents said that they did not feel any discomfort before going to the scheduled dental intervention, while only 9.7% of the younger respondents gave the same answer. Almost half of the younger respondents think that their fear is excessive and only 15% of the elderly have such opinion. There is a difference in the experience of discomfort in dental interventions, between older and younger respondents, and what is encouraging is that with age this discomfort is getting weaker.

Key words: anxiety; dentistry; life experience.

RETKE FENOTIPSE KARAKTERISTIKE TRIHORINOFALANGEALNOG SINDROMA**Andrija Ćosić¹, Marija Vukelić Nikolić², Milica Tomić³, Biljana Anđelković⁴**¹Univerzitet u Nišu, Medicinski fakultet, Klinika za stomatologiju²Univerzitet u Nišu, Medicinski fakultet, Institut za biologiju sa humanom genetikom³Univerzitet u Nišu, Medicinski fakultet, student DAS-a, ⁴Opšta Bolnica Kruševac, Služba radiologije

Trihorinofalangealni sindrom (TRF) izuzetno retko je, multisistemsko oboljenje koje se nasleđuje automnomno dominantno. Ime trihorinofalangealni sindrom upućuje na trijas najizraženijih promena koje se javljaju prvenstveno na kosi, nosu i prstima. Ovaj sindrom uzrokuje mutacija na "TRPS1" genu, ili mikrodelecija u regionu 8q24. Do sada je u svetu zabeleženo oko 100 pacijenata sa ovim sindromom, pri čemu je kod 11 evidentirano postojanje prekobrojnih zuba. Broj ovih zuba je kod samo 3 pacijenta bio 8 ili više. Postojanje većeg broja impaktiranih zuba nije do sada zabeleženo u literaturi. U ovom su radu prikazani klinička slika, radiološki nalazi i intraoralni status dva člana jedne porodice sa trihorinofalangealnim sindromom. Podatak o postojanju 14 impaktiranih i 8 prekobrojnih zuba kod pacijentkinje, a kod pacijenta 13 impaktiranih i 5 prekobrojnih zuba, deluje značajno i ukazuje na to da bi trebalo posvetiti više pažnje intraoralnom statusu pacijenata. S obzirom na to da kod najvećeg broja pacijenata opisanih u literaturi nije sprovedeno panoramsko snimanje vilica, ne zna se da li prekobrojni zubi čine čest sastavni deo kliničke slike ovog sindroma ili izuzetak. Rutinskim intraoralnim pregledom nije uvek moguće utvrditi prisustvo prekobrojnih i impaktiranih zuba, pa se kod sumnje na ovaj sindrom, sugeriše panoramsko snimanje vilica. Primena ove dijagnostičke procedure omogućila bi blagovremeno otkrivanje prekobrojnih i impaktiranih zuba, a samim tim i prevenciju mogućih komplikacija.

Cljučne reči: trihorinofalangealni sindrom (TRF), prekobrojni zubi, fenotipske karakteristike i mutacije gena.

RARE PHENOTYPIC TRAITS ASSOCIATED WITH TRICHORHINOPHALANGEAL SYNDROME**Andrija Ćosić¹, Marija Vukelić Nikolić², Milica Tomić³, Biljana Anđelković⁴**¹Clinic of dentistry Niš, Medical faculty, University of Niš²Institute of Biology and Human Genetics, Faculty of Medicine, University of Niš³PhD student Medical faculty, University of Niš, ⁴General hospital Kruševac, Radiology department

Trichorhinophalangeal syndrome (TRPS) is a condition that causes bone and joint malformations; distinctive facial features; and abnormalities of the skin, hair, teeth and nails. TRPS is inherited in an autosomal dominant manner. TRPS is caused by mutations in the TRPS1 gene. An estimated 100 patients have been diagnosed with TRPS so far and 11 have been reported with supernumerary teeth. Only 3 patients had 8 or more supernumerary teeth. In this paper, clinical, radiographic and intraoral findings of two members of a family are presented. Fourteen impacted and 8 supernumerary teeth were observed in a female patient, all in molar areas of mandible and maxilla. A male patient had 13 impacted and 5 supernumerary teeth also in molar areas. The presence of 14 impacted and 8 supernumerary teeth in the female patient and 13 impacted and 5 supernumerary teeth in the male patient seems significant. We are convinced that TRPS deserves more attention in order to provide treatment of manifestations for patients with this syndrome.

Key words: trichorhinophalangeal syndrome (TRPS); supernumerary teeth; phenotypic traits; gene mutations.

UČESTALOST DOMINACIJE NOGE, OKA, UHA I ZASTUPLJENOST UKRŠTENE LATERALIZOVANOSTI KOD MLADIH OSOBA

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Uvod: Fenomen dominantne lateralizacije je blisko povezan sa strukturom i funkcijom tela. Funkcionalna lateralizacija čoveka javlja se kod parnih organa u telu. Dominantnost ruke, noge, uva i oka definiše se kao deo tela koji se radije koristi za motorne ili čulne aktivnosti u toku obavljanja zadatka. Ovo istraživanje ima za cilj da utvrdi odnos i učestalost između dominantne noge, uva i oka kod zdravih mladih osoba.

Materijal i metode: U istraživanju je učestvovalo 416 ispitanika starosti 19-20 godina. Putem upitnika utvrđena je dominantnost noge, oka i uva.

Rezultati: Na osnovu upitnika, dobili smo desnu, levu i ukrštenu grupu lateralizacije kod mladih osoba. Najzastupljenije su žene (71,3%) i muškarci (56,3%) koji imaju desnu lateralizovanost. Bilo je 8,3% žena i 4% muškaraca sa levom lateralizacijom. Čak 40,4% mladića i 20,7% devojaka imalo je ukrštenu lateralizaciju.

Zaključak: Utvrđeno je da nema polnih razlika između dominantne noge, oka i uva. Ove funkcionalne lateralizacije su međusobno povezane.

Ključne riječi: dominantnost noge, dominantnost oka i dominantnost uva.

THE FREQUENCY OF FOOT, EYE, EAR DOMINANCE AND INCIDENCE OF CROSS LATERALIZATION IN YOUNG ADULTS

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Introduction: The phenomenon of lateral dominance has a close relationship with the structure and function of the body. Functional lateralization occurs in the paired organs of the body. Handedness, footedness, eyedness and earedness are defined as the preferred hand, feet, eye and ear used for a motor or sensory activity during task performance. The present study aims to determine the relations and frequencies between handedness and, footedness, eyedness and earedness of healthy young adults.

Material and methods: The sample comprised 416 subjects 19-20 years of age. The questionnaire method was used to determine foot, eye and ear preference.

Results: With the aid of a questionnaire, we have right, left and cross lateralization group in young adults. The most frequent were women (71.3%) and men (56.3%) who had right-handedness. Women with left lateralization were 8.3% and men 4%. Even 40.4% vs. 20.7% young men and women had a cross-lateralization.

Conclusion: No sex-related differences exist in footedness, eyedness and earedness. These functional lateralities are interrelated.

Key words: Foot dominance; Eye dominance; Ear dominance.

TRUNK/TOTAL INDEX ODREĐEN DUAL-ENERGY X-RAY APSORPCIOMETRIJOM KOD ŽENA SA KUŠINGOM I BEZ KUŠINGA

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Uvod: Žene sa Kušingovim sindromom (CS) karakteriše ekstremna abdominalna gojaznost koja može biti otkrivena metodom dvostruke apsorpcijometrije X-zraka (DXA) i količnikom centralnih i perifernih delova tela.

Materijali i metode: Regionalna DXA tkivna masa trupa (TrTM) i masna masa (TrFM), kao i ukupna TM (ToTM) i ToFM i njihovi odnosi bili su određeni. Senzitivnost (S), specifičnost (SP), pozitivna i negativna prediktivna vrednost (PPV i NPV) i dijagnostička tačnost (DG), vrednosti preseka (CPV) njihovog odnosa koji najbolje diferenciraju 12 CS, kontrolne gojazne (CO) i kontrolne zdrave (C) žene, takođe su bili određeni.

Rezultati: ToTM i ToFM u CS nisu bili različiti u poređenju sa CO, ali su bili znatno viši u odnosu na C ($p < 0,002$). Tr/To TM ($0,55 \pm 0,02$) i Tr/To FM ($0,59 \pm 0,05$) u CS su znatno viši u odnosu na CO ($0,49 \pm 0,03$) i ($0,51 \pm 0,04$), kao i na C ($0,47 \pm 0,02$) i ($0,46 \pm 0,04$) ($p < 0,001$). Razlika između CO i C je takođe značajna ($p < 0,02$). Tr/To TM odnos CPV 0.51 razlikuje najbolje CS i C sa S, SP, PPV, NPV i DG od 100%. Trunk/total TM odnos CPV od 0,52 diferencirao je najbolje CS i CO sa DG od 91,67%. Normalne vrednosti trupa/ukupne vrednosti TM bile su $< 0,51$, ali njihove vrednosti $> 0,52$ potvrđuju ekstremnu centralnu, abdominalnu gojaznost.

Zaključak: DXA indeks trunk/total TM odnos, je najbolje otkrio ekstremnu telesnu distribuciju masti kod žena sa CS, značajno ih je razlikovao od C i CO i može se koristiti kao dijagnostički DXA kriterijum ekstremne centralne abdominalne gojaznosti u CS i non CS.

Ključne reči: Kušingov sindrom, centralna gojaznost, DXA indeks, vrednosti preseka

TRUNK/TOTAL INDEX DETERMINED WITH DUAL-ENERGY X-RAY ABSORPTIOMETRY IN OBESE WOMEN WITH AND WITHOUT CUSHING SYNDROME

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Introduction: Women with Cushing syndrome (CS) are characterized with extreme abdominal obesity that could be discovered with dual-energy x-ray absorptiometry (DXA) ratios of the central to peripheral parts of the body.

Materials and methods: Regional DXA trunk tissue mass (TrTM) and fat mass (TrFM) as well as total TM (ToTM) and (ToFM) and their ratios were determined. Sensitivity (S), specificity (SP), positive and negative predictive value (PPV and NPV) and the diagnostic accuracy (DG) of the cut-off point values (CPV) of their ratios that best differentiated 12 CS, control obese (CO) and healthy control (C) women were also determined.

Results: ToTM and ToFM in CS were not different compared to CO, but they were significantly higher compared to C ($p < 0.002$). Tr/To TM (0.55 ± 0.02) and Tr/To FM (0.59 ± 0.05) in CS were significantly higher compared to CO (0.49 ± 0.03) and (0.51 ± 0.04) as well as to C (0.47 ± 0.02) and (0.46 ± 0.04) ($p < 0.001$). The difference between CO and C was also significant ($p < 0.02$). Tr/To TM ratio CPV 0.51 differentiated the best CS and C with S, SP, PPV, NPV and DG of 100%. Trunk/total TM ratio CPV of 0.52 differentiated the best CS and CO with DG of 91.67%. Normal trunk/total TM values were < 0.51 but their values > 0.52 confirmed extreme central, abdominal obesity.

Conclusion: DXA index trunk/total TM ratio discovered the best extreme central body fat distribution in CS women, differentiated them significantly and precisely from C and CO, and it could be used as diagnostic DXA criteria of extreme central, abdominal obesity in women with and without CS.

Key words: Cushing's syndrome, central obesity, DXAindex, cut-off point values

STANJE UHRANJENOSTI UČENIKA OSNOVNIH ŠKOLA U NOVOM SADU

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Prekomerna telesna masa i gojaznost predstavljaju rastući javno zdravstveni problem u svim uzrastnim kategorijama stanovništva.

Cilj istraživanja bio je da se utvrdi stanje ishranjenosti učenika u novosadskim osnovnim školama.

Merenja telesne visine i telesne mase učenika sprovedena su tokom 2016. godine, na uzorku od 162 učenika. Stanje uhranjenosti je utvrđeno na osnovu indeksa telesne mase koji je izračunat na osnovu izmerenih navedenih antropometrijskih parametara, po propisanoj metodologiji. Merenja su sprovedena kod učenika koji su dobili pismenu saglasnost roditelja za merenje.

Fiziološka uhranjenost je utvrđena kod manje od polovine izmerenih đaka, a prisutnija je kod dečaka negoli kod devojčice. Prekomerna telesna masa i gojaznost učestalije su u odnosu na pothranjenost, i to više u uzorku devojčica nego kod dečake. U uzorku dečaka gojaznost je utvrđena u većem procentu nego prekomerna telesna masa.

Analizom dobijenih podataka o stanju uhranjenosti učenika, uočava se velik procenat pothranjenih i gojaznih dečaka i devojčica. Ovakvi rezultati navode potrebu kontinuiranog monitoringa nutritivnog statusa dece i adolescenata, u cilju prevencije masovnih nezaraznih bolesti uzrokovanih neadekvatnom uhranjenosti.

Ključne reči: stanje uhranjenosti, antropometrijske karakteristike, indeks telesne mase, učenici

NUTRITIONAL STATUS OF PRIMARU SCHOOL PUPILS FROM NOVI SAD

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Overweight and obesity are a growing public health problem in all age groups.

Measurements of body height and body weight of pupils were carried out in 2016, on a sample of 162 students. The nutritional status was determined based on the Body mass index, calculated on the basis of the mentioned anthropometric parameters, according to the prescribed methodology. Measurements were carried out on students who had a written consent of their parents for the measurement.

Normal weight was found in less than half of the measured pupils, and was more present in boys than in girls. Overweight and obesity are more frequent in relation to malnutrition, and prevail among girls, in comparison with boys. In the boy's sample, there is a higher percentage of obesity than overweight.

Analyzing the obtained data on the nutritional status of pupils, a large percentage of malnourished and obese boys and girls is observed. These results indicate the need for continuous monitoring of nutritional status of children and adolescents in order to prevent mass non-communicable diseases caused by inadequate nutritional status.

Key words: nutrition status, anthropometric characteristics, body mass index, pupils

PARAMETRI LONGITUDINALNE I TRANSVERZALNE DIMENZIONALNOSTI TELA KOD ŽENA OBOLELIH OD KARCINOMA DOJKE

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Dosadašnja istraživanja pokazala su da je viši telesni rast kod žena faktor rizika za razvoj nekih malignih bolesti među kojima je i karcinom dojke. Priroda ove povezanosti, međutim, još uvek nije poznata. Cilj ovog istraživanja, bila je analiza parametara longitudinalne i transverzalne dimenzionalnosti tela kod žena obolelih od karcinoma dojke. Ispitivanu grupu činilo je 68 žena obolelih od karcinoma dojke prosečne starosti 51,1015,73 godine, dok je kontrolnu grupu činilo 100 zdravih žena prosečne starosti 58,9711,74 godine. Kod svih ispitanica mereni su telesna visina, sedeća telesna visina, dužina nogu, raspon ruku, širina ramena, širina kukova, kao i biepickondilarni dijometri humerusa i femura. Svi parametri su analizirani u odnosu na menopauzalni status. U poređenju sa zdravim ženama, žene obolele od karcinoma dojke bile su značajno višeg telesnog rasta (163,056,97 vs. 160,776,52 cm, $p=0,032$) i sa većim biepickondilarnim dijametrom humerusa (6,880,63 vs. 6,420,46 cm, $p=0,000$). Premenopauzalne žene sa karcinomom dojke imale su niže vrednosti kormičkog indeksa (odnos sedeće i stojeće visine tela: 53,371,53 vs. 54,041,06%, $p=0,05$) i uže kukove (29,774,23 vs. 32,241,78 cm, $p=0,002$) u odnosu na zdrave premenopauzalne žene. Dobijeni rezultati pokazuju da žene obolele od karcinoma dojke pokazuju sklonost ka androidnom obliku tela.

Ključne reči: karcinom dojke, antropometrija, telesna visina i transverzalne dimenzije tela

PARAMETERS OF LONGITUDINAL AND TRANSVERSAL BODY DIMENSIONS IN WOMEN WITH BREAST CANCER

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Previous studies showed that taller women are at increased risk of developing some malignant diseases, including breast cancer. The nature of their relationship is not known at present. The aim of this study was to analyze parameters of longitudinal and transversal dimensions in women diagnosed with breast cancer. Study group consisted of 68 breast cancer patients 51.1015.73 years of age, while control group consisted of 100 healthy women 58.9711.74 years of age. The following anthropometric measurements were obtained: body height, sitting body height, leg length, arm span, shoulder width, hip width, and biepickondylar diameters of humerus and femur. All parameters were analyzed with respect to menopausal status. In comparison with healthy women, breast cancer patients were significantly taller (163.056.97 vs. 160.776.52 cm, $p=0.032$) and had larger biepickondylar diameter of humerus (6.880.63 vs. 6.420.46 cm, $p=0.000$). Premenopausal breast cancer women had lower Cormic index (ratio between sitting and standing height: 53.371.53 vs. 54.041.06%, $p=0.05$) and narrower hips (29.774.23 vs. 32.241.78 cm, $p=0.002$) comparing to premenopausal healthy women. These results point to more android body constitution of women with breast cancer.

Key words: Breast cancer; Anthropometry; Body height; Transversal body dimensions

SEKSUALNI DELIKTI NA TERITORIJI JUGOSITOČNE SRBIJE

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Uvod: Svaki pojedinac ima pravo da slobodno odlučuje o svom seksualnom životu. Prisilno narušavanje ovog prava krivično je delo protiv dostojanstva ličnosti i morala.

Cilj rada: Pružanje globalnog uvida u učestalost i specifičnost krivičnih dela protiv dostojanstva ličnosti i morala, kao i procena incidence seksualnih delikvencija u periodu od 2010. do 2016. godine u odnosu na period od 1999. do 2010. godine.

Materijal i metode: Rad predstavlja retrospektivnu analizu materijala Zavoda za sudsku medicinu u Nišu u periodu od 1999. do 2016. godine.

Rezultati: U posmatranom periodu, krivično delo seksualna delikvencija izvršeno je nad 70 osoba, od čega je 28 označeno kao silovanje, 7 kao obljava nad nemoćnim licem, 26 kao obljava nad detetom i 9 kao nedozvoljena polna radnja. Vreme proteklo od događaja do pregleda je, u najvećem broju slučajeva, jedan dan (37,14%) ili pet i više dana (31,43%). Najveći broj pregledanih je starosne dobi od 10 do 14 godina (27,14%), po zanimanju su učenice (40%), iz gradske sredine (61,43%). Obljebu uglavnom vrši poznati izvršilac (77,14%), najčešće u kući ili stanu (72,86%), primenom sile u 48,57%. Lake telesne povrede bile su prisutne u 61,43% slučajeva, povreda nije bilo u 38,57% pregledanih. Mikroskopskim pregledom spermatozoidi nisu nađeni u 68,57%, dok su očuvani i njihovi delovi nađeni u 11,43% slučajeva.

Zaključak: U odnosu na prethodni period učestalost seksualne delikvencije je relativno ista, pa s pravom možemo reći da se moralna kriza u našem održava na konstantnom nivou.

Ključne reči: seksualna delikvencija, sudsko-medicinska ekspertiza, obljava

SEXUAL OFFENSES IN SOUTHEASTERN SERBIA

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Introduction: Every individual has the right to decide freely about his or her sex life. Forced violation of this right is punishable by law and is a criminal offense against human dignity and morality.

The Aim: To provide a global insight into the frequency and specificity of criminal offenses against personal dignity and morality, as well as the evaluation of the incidence of sexual delinquency in the period from 1999 to 2016.

Materials and Methods: The paper presents a retrospective analysis of the material of the Institute for Forensic Medicine in Nis in the period from 1999 to 2016.

Results: In the observed period the criminal act of sexual delinquency was conducted on 70 persons: 28 rapes, 7 sexual assaults on disabled persons, 26 sexual abuses of children and 9 sexual assaults. The examination usually took place one (37.14%) or five or more days (31.43%) after the sexual act. The greatest number of persons were 10 to 14 years of age (27.14%), attending school (40%) coming from urban areas (61.43%). Sexual assault was usually performed by a known person (77.14%), in the house or a flat (72.86%). Violent acts were performed in 48.57%. Light body injuries were present in 61.43% of the cases. Microscopic examination showed that spermatozoids were not found in 68.57% of cases. Conclusion: Compared to the previous period the frequency of sexual delinquency is relatively the same, so it can be concluded that moral crisis in our society has been constant.

Keywords: sexual delinquency, forensic expertise, sexual assaults

SUDSKOMEDICINSKI ASPEKT POVREDA GRUDNOG KOŠA I TRBUHA

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Uvod: Značaj sudske medicine se ogleda u tome što izučava strukturu mehaničkih povreda i samim tim omogućava određivanje uzroka smrti, tipa povreda, karakteristika povrednog oruđa i njihovog mehanizma dejstva.

Cilj rada: Cilj rada je analiza slučajeva smrti usled povreda grudnog koša i trbuha, u različitim okolnostima povređivanja.

Materijal i metode: Rad predstavlja retrospektivnu analizu materijala Zavoda za sudsku medicinu u Nišu tokom 2014. i 2015. godine.

Rezultati: Od ukupno 1797 obdukovanih, bilo je 342 traumatizovanih (19%), od toga 292 (85%) sa mehaničkim povredama grudnog koša i/ili trbuha i kombinovanim povredama. Izolovane povrede grudnog koša bile su zastupljene u 19% slučajeva, izolovane povrede trbuha u 5,5%, dok su dominirale kombinovane višestruke povrede sa povredom organa grudnog koša ili trbuha (29%), koje su bile uzrok smrti u 60% slučajeva. Najčešće su povrede nastale u saobraćajnim nesrećama (55%), povrede vatrenim oružjem (12%) i povrede padom sa visine (11%).

Zaključak: Ustanovljena je visoka smrtnost usled povreda ove regije. Povrede najčešće nastaju kao posledica saobraćajnog traumatizma.

Ključne reči: sudskomedicinski aspekt, povrede trbuha, povrede grudnog koša

FORENSIC ASPECTS OF CHEST AND ABDOMEN INJURIES

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Introduction: The significance of forensic medicine lies in the study of the structure of mechanical injuries which allows determination of the cause of death, type of injury, the characteristics of an instrument and its mechanism of action.

The aim of this paper is to analyze cases of death due to chest and abdomen injuries in different circumstances.

Materials and Methods: The research is a retrospective analysis of autopsy reports from Institute of Forensic Medicine Niš for the year 2014 and 2015.

Results: Of the total number of autopsies (1797), trauma was present in 342 (19%). Of the total number of traumatized, 292 (85%) were mechanical injuries of the chest and/or abdomen and combined injuries. Isolated chest injuries were present in 19% of cases, isolated abdominal injuries in 5.5% and combined injuries in 29%. Combined injuries were the cause of death in 60% of cases. The most common causes of injury were traffic accidents (55%), gunshot injuries (12%) and fall from a height (11%).

Conclusion: Mortality due to injuries of this region is high. The most common cause of injury is a traffic accident.

Keywords: forensic aspect, chest injuries, abdomen injuries

MORFOMETRIJSKA ANALIZA POLOŽAJA PODORBITALNOG OTVORA

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Uvod: Precizno definisanje položaja podorbitalnog otvora (*foramen infraorbitale*) na prednjoj strani tela gornje vilice, značajno je prilikom planiranja sprovođenja lokalne anestezije *n. infraorbitalis* i maksilofacijalnih procedura ove regije.

Cilj: Morfometrijski ispitati položaj podorbitalnog otvora u odnosu na okolne anatomske strukture na prednjoj strani lobanje.

Materijal i metode: U istraživanje su bile uključene 42 lobanje (22 lobanje ženskog i 20 lobanja muškog pola). Obrada fotografija lobanja i izračunavanje odgovarajućih parametara izvršeni su u programu *ImageJ*. Udaljenost podorbitalnog otvora je izračunavana u odnosu na donju ivicu ulaznog otvora orbite, srednju liniju lica-*nasion* i prednju nosnu bodlju.

Rezultati: Izmerena prosečna udaljenost podorbitalnog otvora od donje ivice ulaznog otvora orbite je 8,11 mm na levoj i 8,08 mm na desnoj strani lobanje. U odnosu na srednju liniju lica ove vrednosti su 26,39 mm i 26,19 mm. Udaljenost ispitivanog otvora od *nasion*-a iznosila je, na levoj strani 43,8 mm, a na desnoj 44,21 mm. Od prednje nosne bodlje podorbitalni otvor udaljen je 33,24 mm i 32,43 mm na obe strane lobanje. Poređenjem ispitivanih parametara u odnosu na pol, statistički značajna razlika postoji u udaljenosti podorbitalnog otvora od *nasion*-a na desnoj strani ($p=0,007$), srednje linije lica na obe strane ($p=0,002$; $p=0,024$) i od prednje nosne bodlje na levoj strani ($p=0,049$).

Zaključak: Statističku značajnost pokazali su parametri udaljenosti podorbitalnog otvora od srednje linije lica-*nasion*-a i prednje nosne bodlje, u odnosu na pol. Razlike između izmerenih parametara na levoj i desnoj strani lobanje unutar celokupnog uzorka, nisu statistički značajne.

Ključne reči: morfometrija, analiza i podorbitalni otvor.

MORPHOMETRIC ANALYSIS OF THE POSITION OF THE INFRAORBITAL FORAMEN**Dragana Radošević, Nikola Knezi, Dušica Marić, Milena Trandafilović**

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Introduction: The precise definition of the position of the infraorbital foramen on the anterior surface of the upper jaw is important for planning the administration of local anesthesia of infraorbital nerve and maxillofacial procedures in this region.

Aim: The aim of this study was morphometric examination of the position of the infraorbital foramen in relation to the surrounding structures on the anterior surface of the skull.

Material and methods: The sample comprised 42 skulls (22 female and 20 male skulls). Skull photos processing and calculations of parameters were done in *ImageJ* software. The distance of the infraorbital foramen was assessed in relation to the lower edge of the orbital opening, the facial midline, the nasion, and the anterior nasal spine.

Results: The measured average distance of the infraorbital foramen from the lower edge of the orbital opening is 8.11 mm on the left and 8.08 mm on the right side of the skull. In relation to the facial midline, these values are 26.39 mm and 26.19 mm. The distance of the examined foramen from the nasion was 43.8 mm on the left and 44.21 mm on the right side. The infraorbital foramen was 33.24 mm and 32.43 mm away from the anterior nasal spine on both sides of the skull. Comparing the parameters with respect to sex, statistically significant difference exists at the distance of the infraorbital foramen from the nasion on the right ($p=0.007$), from the facial midline on both sides ($p=0.002$; $p=0.024$) and from the anterior nasal spine on the left ($p=0.049$).

Conclusion: Statistical significance was found among the parameters of the distance from the infraorbital foramen to the facial midline, nasion and anterior nasal spine, in relation to the sex. The differences between the measured parameters on the left and right sides of the skull in the entire sample were not statistically significant.

Key words: Morphometry; Analysis, Infraorbital foramen.

NUTRITIVNI STATUS KOD MAKEDONSKIH ADOLESCENATA

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Cilj ovog rada je da se utvrde antropometrijski parametri rasta i nutritivni status kod Makedonskih adolescentata. Ispitanici su bili na uzrastu od 14 do 17 godina oba pola, ukupno 1078 adolescentata (573 muška i 505 ženskih ispitanika), iz različitih urbanih regiona u R. Makedoniji. Mereni su standardnom opremom i tehnikama merenja po Internacionalnom Biološkom Programu. Mereni su sledeći antropometrijski indeksi: telesna visina za uzrast, telesna masa za uzrast i indeks telesne mase za uzrast (ITM). Telesna visina i telesna masa imaju tendenciju za porast kod muških ispitanika, dok se kod ženskih ispitanica rast stabilizuje na uzrastu od 14 godina. Kod svih uzrasnih grupa, telesna visina i masa su veći kod muških ispitanika. Uzrasno-specifične razlike su significante za telesna visina i masa u korist muških ispitanika za svaku uzrast ($p < 0.05$). Preporučuje se da vrednosti ove studije nađu primenu u evaluaciji devijacije rasta i ishranjenosti kod Makedonskih adolescentata na uzrastu od 14 do 17 godina.

Cljučne reči: adolescent, nutritivna antropometrija, gojaznost

NUTRITIONAL STATUS IN MACEDONIAN ADOLESCENTS

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The aim of this study was to assess the anthropometric parameters of growth and nutritional status in Macedonian adolescents 14 to 17 years of age. The sample comprised 1078 adolescents from different regions of the Republic of Macedonia, 14 to 17 years of age, 573 males and 505 females. Participants were measured with standard equipment and measurement techniques according to the International Biological Program. The following anthropometric indexes were calculated: height-for-age (BH), weight-for-age (BW) and BMI-for-age (kg/m^2). Body height and weight of male adolescents had the tendency to grow while in females it remains stabile. The majority of anthropometric parameters were with higher mean values in males. We found a significant sex-specific difference in body height and body weight in all age groups in favor of males. These values are recommended to be applied for the evaluation of deviations in growth and nutrition in 14-years-old to 17-year-old Macedonian adolescents.

Key words: adolescents, nutritional anthropology, obesity

DERMATOGLIFSKE KARAKTERISTIKE BUGARSKOG STANOVNIŠTVA RAZNIH REGIONA BUGARSKE

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Ovim radom obuhvaćeno je 1600 individua oba pola (800 muškaraca i 800 žena) iz regiona Centralne i Zapadne Bugarske. Istraživani su palčevi i dlanovi uzoraka. Obrada i analiza dermatoloških podataka je urađena je po metodi Midlo-a i Cummins-a (1961). Na bazi matematičko-statističke obrade dermatoloških podataka kod obuhvaćenog stanovništva, utvrđena je izrazita homogenost populacije u Bugarskoj.

Cljučne reči: dermatoglifske karakteristike, polni dimorfizam, bimanualna asimetrija

ANTHROPOLOGICAL CHARACTERISTICS OF DERMATOGLYPHIC DATA OF CONTEMPORARY BULGARIAN POPULATION IN COMPARATIVE ASPECT

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The sample comprised 1600 individuals of both sexes (800 men and 800 women) from Central Western Bulgaria who were studied anthropologically on dermatoglyphic traits. The obtained fingerprints and palm images were compared with previous studies from other regions of Bulgaria.

For the analysis of dermatoglyphic material the method of Kammins and Midlo (1961) was used. The applied mathematical and statistical processing of the obtained results shows homogeneity in the Bulgarian population. This confirms the identical ethnogenesis in different regions of Bulgaria. Furthermore, the defined gender differences confirm the identical ethnogenesis of the contemporary Bulgarian population in historical terms.

Key words: dermatoglyphic traits, bimanual and sexual dimorphism

ANTROPOMETRIJA TERMINSKOG NOVOROĐENČETA

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Antropometrija označava merenje delova ljudskog tela. Za neonatologa, najmanje četiri antropometrijska parametra su od velikog značaja: porođajna težina (PT), dužina (PD), obim glave (OG) i obim grudnog koša (OGr). U cilju ovog rada, pretraživali smo njih kao marker prethodnog zdravstvenog stanja majke i fetusa. Odstupanja mogu sugerisati razvojne kongenitalne anomalije ili fizičke smetnje. Ograničili smo naš primerak na novorođenčad zdravih majki koje su se porodile na Univerzitetnoj klinici za ginekologiju i akušerstvo u Skoplju, Makedonija, sa verovatnim terminom porođaja između 37-41. pune gestacijske nedelje, pretpostavljajući da nedonosena novorođenčad mogu biti izložena *in utero* nepovoljnim uticajima na rast i razvoj, i time oni nisu reprezent standarda normalnog rasta. Merenje parametara obavljeno je veoma precizno, putem validiranih metoda, i izvršeno tokom 48 sati nakon porođaja.

Rezultati: srednja vrednost (SD) porođajne težine iznosi 3456.5 (411.1) g, a ženska deca su beznačajno lakša; srednja vrednost porođajne dužine (teme-peta) iznosi 50.3 (1.7) cm. Srednja vrednost obima glave (OG) bila je 33.8 (1.1) cm, dok disagregirano po polovima, devojčice su imale manje vrednosti sa statističkom značajnošću ($p < 0,05$). Srednja vrednost obima grudnog koša iznosila je 32.3 (1.2) cm, i važno je napomenuti da je razlika između dve zadnje vrednosti iznosila prosečno 1.5(0.2) cm.

Ovi nalazi su samo mali deo jedne velike studije koja se još sprovodi u porodilištu i koja sadrži veliki broj indikatora, koji su ukrštavani sa drugim uticajnim faktorima. Nalazi u ovoj studiji su u okviru standardne krive rasta za SZO. Homogenost našeg uzorka u kombinovanju sa tačnim merenjem, poboljšava preciznost nalaza. Nismo evaluirali maternalnu starost kao uticajni faktor, jer još nije sa sigurnošću prepoznat kao važan prediktor morfometričkih parametara.

Ključne reči: novorođenče, antropometrija, indikatorrasta

THE ANTHROPOMETRY OF THE TERM NEWBORN INFANT

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Anthropometry represents the measurement of human body. For neonatologists, at least four parameters are of great value: birth weight (BW), birth length (BL), head circumference (HC) and chest circumference (CC). For the **purpose of this study**, we have explored them in terms of previous health conditions of women/fetus. Deviations may indicate congenital developmental disturbances or physical disorders.

We restricted our sample to newborns of healthy mothers within the UC for Obs&Gyn in Skopje, Macedonia during 2017. Newborns of mothers with the expected date of birth within 37-41 completed gestational weeks, were eligible for the study, assuming that preterm babies might have been exposed *in utero* to conditions that affect growth and therefore might not represent a “normal” growth standard. The Measurement of growth parameters was efficiently performed by reliable methods and completed within 48 hours after birth.

Results: The mean value (SD) for the birthweight was 3456.5(411.1) g, female newborns were insignificantly lighter, the mean length, (crown-heel), was 50.3(1.7) cm. The mean HC (SD) was 33.8(1.1) cm and disaggregated related to sex, the females had lower values, statistically significant ($p < 0.05$). The mean CC was 32.3(1.2) cm, and of importance, the difference between the HC and CC was mean 1.5(0.2).

These findings are a part of a broad study conducted recently and containing multiple indicators, cross matched with other confounding influential factors. The measures are within the distribution of the standard WHO curves. The homogeneity of our sample combined with accurate measurement has improved precision. We did not evaluate maternal age as a key factor, since it is not acknowledged as an important predictor of morphometric parameters.

Key words: newborn, anthropometry, growth indicator

ANATOMSKE VARIJACIJE MENTALNOG FORMENA KOD ODRASLIH LJUDSKIH MANDIBULA

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Cilj: Odrediti morfološke karakteristike mentalnih otvora u populaciji, da bi se obezbedile smernice za rad forenzičara i stomatologa.

Metode: Kod 50 odraslih muških i ženskih ljudskih mandibula, određena je veličina, učestalost, oblik, lokacija i broj mentalnih foramina. Takođe je primećena incidenca pomoćne mentalne foramine. Udaljenost od anatomskih orijentira i veličina je zabeležena korišćenjem vernierovog kalipera.

Rezultati: Oblik mentalnog otvora bio je ovalan kod 6% od mandibule i kružan u 94% na desnoj strani, i levoj je bio ovalan kod 13% od mandibule i kružan kod 87%. Prosečna veličina mentalnog otvora je 2,79 mm na desnoj strani i 2,7 mm na levoj strani. Mentalni otvor je najčešće nađen ispod vrha drugog premolarnog zuba tj. u 70% od mandibule. Srednje razdaljine mentalnog foramina od gornjeg ruba bile su 1,3 cm i 1,2 cm, a od donjeg ruba 1,4 cm i 1,5 cm sa desne i leve strane, respektivno. Prosečna rastojanja od simfisis mentibili su 2,9 cm i 3 cm i 7,2 cm i 7,3 cm od zadnjeg ruba grane donje vilice sa leve i desne strane, respektivno.

Zaključak: Sveobuhvatno poznavanje mentalnih foramena i njegovih varijacija u različitim populacijama, od suštinskog je značaja za stomatološke hirurge, anesteziologe, anatome i forenzičare.

Ključne reči: mental foramen, vernierovog kalipera, donje vilice.

ANATOMICAL VARIATIONS OF MENTAL FORAMEN IN ADULT HUMAN MANDIBULES

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Aim: To determine the morphological features of mental foramen in population and provide guidelines for forensic scientists and dentists.

Methods: 50 adult male and female human mandibles were obtained. Size, incidence, shape, location and number of mental foramina were recorded. Incidence of accessory mental foramina was also noticed. Distance from anatomical landmarks and size was recorded using Vernier caliper.

Results: The shape of mental foramen was oval in 6% of mandibles and rounded in 94% on the right side and on left it was oval in 13% of mandibles and rounded in 87%. The average size of mental foramen was 2.79 mm on the right side and 2.7 mm on the left side. Mental foramen was most commonly found below the apex of second premolar tooth i.e. in 70% of the mandibles. The mean distances of mental foramina from the upper border were 1.3 cm and 1.2 cm and from the lower border 1.4cm and 1.5 cm on the right and left sides respectively. The average distances from symphysis menti were 2.9cm and 3 cm and 7.2cm and 7.3cm from posterior margin of ramus of mandible on the right and left sides respectively.

Conclusion: Comprehensive knowledge of the mental foramen and its variations in different population is essential for dental surgeons, anesthetists, anatomists and forensic scientists.

Keywords: Mental Foramen, Vernier Caliper, mandibular

INDEKS TELESNE MASE, FIZIČKA AKTIVNOST PRED ODLAZAK U PENZIJU I TOKOM PENZIONISANJA

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Uvod: Ova studija je imala za cilj da u uzorku rumunskog stanovništva utvrdi varijabilnost fizičke aktivnosti i indeksa telesne mase u odnosu na starost, pol i mesto boravka.

Materijal i metod: Tokom 2016. i 2017. godine, pomoću multiplog upitnika, izvršeno je ispitivanje 601 odrasle osobe, starosti od 55-93 godine. Izmerene su visina i telesna masa. Korišćen je program SPSS i izračunat je χ^2 test.

Rezultati: Klasifikacijom indeksa uhranjenosti, utvrđeno je da 40.1% osoba ima prekomernu uhranjenost, 37.6% je gojazno, normalno uhranjenih je 21.6%, a pothranjenih 0.7%. Više od polovine prekomerno uhranjenih smatra da ima normalnu uhranjenost, a više od polovine gojaznih smatra za sebe da ima prekomernu težinu. Većina ispitanih se izjasnila da svoje slobodno vreme "često" provodi pred TV-om, gledajući iznajmljene filmove, slušajući trake i CD (68.1%), zatim šeta i odlazi na izlete (50.4%), a nekolicina je uključena u neki vid sportske aktivnosti (8.3%). Ispitanici od 55 do 74 godine su češće prekomerno uhranjeni i gojazni ($p<0.01$), češće šetaju i provode vreme u prirodi ($p<0.05$) u odnosu na ispitanike starije od 74 godine. Nisu utvrđene razlike u polovima i prema mestu prebivališta.

Zaključak: Visok procenat prekomerno uhranjenih i gojaznih zahteva hitnu akciju. Sedentarni način života predodređuje starije Rumune ka hroničnim bolestima. Starost je najvažnija varijabla u promovisanju javnog zdravlja.

Cljučne reči: Fizička aktivnost, Indeks telesne mase, sedentarizam, stariji

BODY MASS INDEX, PHYSICAL ACTIVITY BEFORE GOING INTO AND DURING RETIREMENT

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Objectives: The aim of this study is to determine the variability of physical activity, classified according to Body mass index (BMI) in relation to age, gender and place of residence of Romanian population.

Material and methods: Between 2016 and 2017, multiple questionnaires were administered to 601 patients 55-93 years of age. The subjects' weight and height were measured. SPSS statistical package and chi-square test were employed.

Results: BMI classification indicates 40.1% overweight, 37.6% obese, 21.6% normal weight and 0.7% underweight subjects. More than half of the overweight subjects considered themselves to be of normal weight and more than half of those who were obese considered themselves to be overweight. The majority of people spend leisure time "often" watching TV, watching rented movies, listening to tapes, CDs (68.1%), second preference was taking walks and going on outdoor excursions (50.4%) just a few practice some kind of sport (8.3%). Respondents 55-74 years of age were more likely than those over 74 years to be overweight and obese ($p<0.01$) and also to engage in walks and outdoor excursions ($p<0.05$). There were no statistically significant differences or worthy of attention by gender and place of residence.

Conclusions: The high percentage of overweight and obese, of those who incorrectly perceive their BMI and the low percentages of physical activity require urgent actions. Sedentary lifestyle of older Romanians predisposes them to chronic diseases. The most important variable in promoting public health programs is age.

Keywords: physical activity, Body mass index, sedentariness, older.

MORFOMETRIJSKA ANALIZA NOSNIH KOSTIJU I KRUŠKASTOG OTVORA

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Uvod: Dimenzije nosnih kostiju i kruškastog otvora od esencijalne je važnosti za precizno izvođenje hirurških intervencija u predelu lica, prednje lobanjske jame i hipofize. Cilj rada je bio da se izvrši morfometrijska analiza nosnih kostiju i kruškastog otvora na lobanji odraslog čoveka i da se ispita postojanje razlika u odnosu na pol.

Materijal i metode: Ispitivana je 31 lobanja (16 muških i 15 ženskih). Mereni su visina i širina nosnih kostiju, kao i visina, gornja i donja širina kruškastog otvora i to softverskim programom Image J 1.48 v.

Rezultati: Izmerena srednja vrednost visine nosnih kostiju na lobanjama muškog pola iznosila je 20,17 mm, a na ženskim 19,35 mm. Širina nosnih kostiju na lobanjama muškog pola iznosila je 14,11 mm, a na ženskim 13,46 mm. Visina kruškastog otvora na lobanjama muškog pola iznosila je 36,41 mm, dok je na ženskim iznosila 33,24 mm. Gornja širina kruškastog otvora na muškim lobanjama iznosila je 19,46 mm, dok je ista širina na ženskim lobanjama iznosila 18,66 mm. Donja širina kruškastog otvora na lobanjama muškog pola je 24,85 mm, a na ženskim 25,85 mm.

Zaključak: Postoje razlike izmerenih parametara lobanja muškaraca u odnosu na lobanje žena, međutim, one nisu statistički značajne.

Ključne reči: morfometrija, nosne kosti i kruškasti otvor.

MORPHOMETRIC ANALYSIS OF NASAL BONES AND PIRIFORM APERTURE

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Introduction: The dimensions of nasal bones and piriform aperture are of crucial importance for precise surgical interventions of the face, anterior cranial fossa and pituitary gland. The aim of the study was to perform the morphometric analysis of nasal bones and piriform aperture on the adult skulls and determine differences in relation to the gender.

Material and methods: The sample comprised 31 skulls (16 male and 15 female). We measured the height and width of the nasal bones, the height and width of the piriform aperture using a computer program the Image J 1.48 v.

Results: The height of the nasal bones on male skulls was 20.17 mm, and female 19.35 mm. The width of the nasal bones on male skulls was 14.11 mm, and female 13.46 mm. The height of the piriform aperture on the male skulls was 36.41 mm, and female 33.24 mm. The upper width of the piriform aperture on male skulls was 19.46 mm, and female 18.66 mm. The lower width of the piriform aperture on male skulls was 24.85 mm, and females 25.85 mm.

Conclusion: There are differences in the measured parameters of male skulls in relation to female skulls, but they are not statistically significant.

Key words: Morphometry; nasal bones; piriform aperture.

UČESTALOST BUKALNIH I PALATINALNIH IMPAKCIJA MAKSILARNIH OČNJAKA

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Uvod: Maksilarni očnjaci su najčešće impaktirani zubi tj. drugi posle umnjaka. Učestalost impakcija maksilarnih očnjaka varira od 1 do 2% populacije (u 85% slučajeva palatinalno, a u 15% slučajeva labijalno).

Cilj: Cilj ovog istraživanja je da se odredi učestalost bukalnih i palatinalnih impakcija maksilarnih očnjaka u odnosu na pol i položaja impaktiranog zuba.

Materijal i metod rada. Istraživanje je izvršeno analizom trodimenzionalnih kompjuterizovano tomografskih snimaka maksile 64 ispitanika, starosti od 12 do 33 godine, kod kojih je u okviru dijagnostičke procedure ustanovljena impakcija 80 maksilarnih očnjaka.

Rezultati. Od ispitanika uključenih u istraživanje ženskog pola bilo je 41 osoba (64,1%), što je statistički značajno više od zastupljenosti ispitanika muškog pola kojih je bilo 23 (35,9%) ($r < 0,001$). Prosečna starost svih ispitanika u istraživanju iznosi $16,3 \pm 4,3$ godine. Učestalost unilateralnih impakcija maksilarnih očnjaka, trostruko je veća, 48 (75%), u poređenju sa bilateralnim impakcijama 16 (25%). Od ukupno 80 impaktiranih maksilarnih očnjaka, 19 (23,75%) bilo je bukalno impaktirano, 3 (2,75%) sredinom alveole i 58 (72,5%) palatinalno. Najčešće je bila zastupljena parcijalno vertikalna impakcija (70,0%); kompletno horizontalna impakcija (10%) bila je zastupljena isključivo kod palatinalnih impakcija.

Zaključak. Analiza CBCT snimaka maksile pokazuje statistički značajnu učestalost parcijalno vertikalnih, unilateralnih i palatinalno lokalizovanih impaktiranih maksilarnih očnjaka.

Cljučne reči: impakcije, maksilarni očnjaci, CBCT snimci

THE FREQUENCY OF BUCAL AND PALATAL IMPACTION OF MAXILLARY CANINES

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Introduction: Maxillary canines are usually impacted teeth or in other words the second after third molar. Frequency of impacted maxillary canines is about 1 to 2% of population (in 85% of the cases palatally, and in 15% of the cases buccally).

AIM: The aim of this research was to find the frequency of buccal and palatal impacted maxillary canines in relation to sex and position of impacted tooth.

Material and method: We analyzed three-dimensional computed tomography images (CBCT) of 64 examinees (aged 12 to 33 years) with 80 unerupted maxillary canines to plan the orthodontic therapy.

Results: Among 64 examinees with impactions, 80 impacted maxillary canines are diagnosed. The average age of all respondents in the survey is 16.3 ± 4.3 . Of 64 examinees in research 41 (64.1%) were female which is significantly more important than the representation of male examinees whose number was 23 (35.9%).

Frequency of unilateral impactions of maxillary canines is three times higher 48 (75%) in comparison to bilateral impactions 16 (25%). Of total 80 impacted maxillary canines 19 (23.75%) were buccal impacted, 3 (2.75%) in the middle of alveolus and 58 (72.5%) palatally. With the buccal and palatal impaction usually was represented partially vertical impaction (70%); completely horizontal impaction (10%) was represented only in the palatal impaction.

Conclusion. The analysis of CBCT images of maxilla shows a statistically significant frequency of partially vertical, unilateral and palatally localized impacted maxillary canines.

Key words: impaction, maxillary canines, CBCT images

MORFOMETRIJA SPINA NA PETNIM KOSTIMA ODRASLIH LJUDI I ANALIZA UČESTALOSTI NJIHOVE POJAVE

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Uvod: Trnasti nastavak (spina) petne kosti jeste patološka promena koja najčešće nastaje na donjoj strani petne kosti polazeći od unutrašnjeg nastavka petne kvrge. Iako se nastanak spine dovodi u vezu sa promenama na koštanim, mišićnim i fascijalnim strukturama područja pete, stvarna etiologija i dalje je nepoznata.

Cilj: Cilj ovog rada je da se na rendgen snimcima stopala ispitanika odrede dimenzije spina, da se opiše njihov oblik i da se utvrdi učestalost njihove pojave.

Materijal i metode: Retrospektivno su analizirana 272 rendgen snimka stopala odraslih osoba. Snimci pripadaju Klinici za ortopedsku hirurgiju i traumatologiju Kliničkog centra Vojvodine. Spinom se smatrao svaki nastavak koji je polazio sa donje strane petne kosti, a koji je duži od 0,25 cm. Merenje dužine spina vršeno je u javno dostupnom programu *Xrayline Workstation 32bit*. Opisnom analizom, spine su klasifikovane na osnovu oblika i pravca pružanja.

Rezultati: Na 36 snimaka stopala (13,2%) uočeno je prisustvo spina na petnim kostima – 14 (38,9%) kod ispitanika muškog, a 22 (61,1%) kod ispitanika ženskog pola. Ne postoji statistički značajna razlika u dužini spina između ispitanika i ispitanica, kao ni između desnog i levog stopala ispitanika oba pola. U odnosu na oblik spina zastupljenije su nepravilne (61,9%), a sve uočene spine položene su horizontalno.

Zaključak: Ova studija nije pokazala da postoji statistički značajna razlika u morfolometrijskoj analizi i analizi učestalosti pojave petnih spina kod muškaraca i žena. Buduće istraživanje bi trebalo upotpuniti podacima o godinama starosti, telesnoj masi i komorbiditetima ispitanika.

Ključne reči: petna kost, spina, stopalo, morfometrija i bolna peta.

CALCANEAL SPURS MORPHOMETRY IN ADULTS AND ANALYSIS OF THEIR INCIDENCE

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Introduction: Calcaneal spur is bony outgrowth most often located on the inferior surface of the calcaneus, arising from the medial process of the calcaneal tuber. Even though the plantar spur occurrence is often associated with the variation in skeletal, muscular and fascial structures of the heel region, its real etiology is still unknown.

Aim: The aim of this study is to determine the size and shape of the heel spur, as well as its incidence in the population based on the given sample by studying x-ray images.

Material and methods: 272 x-rays of the adult foot were retrospectively analyzed. X-rays were taken at the Clinic for Orthopedic Surgery and Traumatology, Clinical Center of Vojvodina. Every process longer than 0.25 cm was considered a plantar calcaneal spur. Measurements were made in publicly available software *Xrayline Workstation 32bit*. Calcaneal spurs were classified according to their shape and direction.

Results: Plantar calcaneal spurs were found in 36 x-rays of adult feet (13.2%) – 14 (38.9%) in male and 22 (61.1%) in female respondents. There is no statistically significant difference in the size of calcaneal spurs between the sexes, as well as between the right and left foot of both males and females. According to their shape, irregular calcaneal spurs are more frequent (61.9%) and all spurs are directed horizontally.

Conclusion: This research did not show a significant difference in the morphometric analysis, as well as in the analysis of the calcaneal spurs incidence in men and women. Our future studies should include data regarding age, weight and comorbidity of respondents.

Keywords: calcaneus; spur; foot; morphometry; painful heel syndrom.

MORFOMETRIJSKA ANALIZA I KLINIČKI ZNAČAJ KOŠTANIH MOSTOVA PRVOG VRATNOG PRŠLJENA ČOVEKA

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Uvod: Žleb kojim prolaze potpotiljačni živac i kičmena arterija na svom putu ka lobanjskoj duplji, nalazi se na gornjoj strani zadnjeg luka prvog vratnog pršljenja. Prisustvom koštane varijacije žleb može biti pretvoren u potpuni ili nepotpuni kanal, što može dovesti do kompresije struktura koje njime prolaze, a sledstveno i pojavi simptoma vertebrobazilarne insuficijencije.

Cilj: Cilj rada je da se odredi učestalost i dimenzije koštanih mostova na prvim vratnim pršljenovima, i da se, uz pregled podataka iz dostupne literature, opiše njihov klinički značaj.

Materijal i metode: Istraživanje je sprovedeno na 22 prva vratna pršljenja, nepoznatog pola, starosti i rase, koja su neoštećena, temeljno očišćena, macerirana i iskuvana, i koja pripadaju Osteološkoj zbirci Zavoda za anatomiju Medicinskog fakulteta Univerziteta u Novom Sadu. Prema Mičelovoj klasifikaciji atlasi su grupisani u tri klase, a zatim su merene maksimalne vrednosti širine/visine žleba/otvora kroz koji prolazi kičmena arterija. Merenje je vršeno u javno dostupnom programu za analizu i obradu slika *Image J*.

Rezultati: Najzastupljeniji su pršljenovi klase 1, na čijem je zadnjem luku prisutan žleb kičmene arterije (obostrano prisustvo 72,73%), dok su najmanje zastupljeni pršljenovi klase 3, sa žlebom koji je pretvoren u potpuni koštani kanal (obostrano prisustvo 4,54%). Ne postoji statistički značajna razlika između merenih parametara sa desne i leve strane posmatranih atlasa.

Zaključak: Morfometrijskom analizom gornje strane zadnjeg luka atlasa, uočeno je da postoje varijacije izgleda žleba kičmene arterije. Mali uzorak i nedostatak podataka o polu i starosti ispitivanih pršljenova glavna su ograničenja ove studije.

Ključne reči: atlas, žleb kičmene arterije, kanal kičmene arterije, klasifikacija i morfometrija.

MORPHOMETRIC ANALYSIS AND CLINICAL IMPORTANCE OF THE HUMAN FIRST CERVICAL VERTEBRA BONE BRIDGES

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Introduction. Groove for the vertebral artery, in which it is followed by the suboccipital nerve, is located on the superior surface of the posterior arch of the first cervical vertebra. The presence of bony variation can transform the groove into complete or incomplete canal and can cause the compression on the structures which pass through the canal. As a consequence, clinical symptoms of vertebrobasilar insufficiency might appear.

Aim. The aim of the present study was to determine the frequency of atlas bone bridges occurrence and to measure their dimensions, as well as to find clinical correlations using available literature.

Material and methods. The observation was made on 22 complete, thoroughly cleaned, macerated and boiled atlas vertebrae, of unknown sex, race and age which are a part of the Osteological collection at the Department of Anatomy at the Faculty of Medicine in Novi Sad. According to Mitchell's classification, atlases were grouped into three classes. The maximum width and height values of the grooves/foramina were measured. All measurements were made using a publicly available image analysis and image processing software Image J.

Results. The results of the study show that the most common class in our sample of atlases is the first class, with the groove for the vertebral artery (both sides presence 72.73%). The third class, with the groove which is transformed into the complete canal, is the least represented variation (both sides presence 4.54%). There are no statistically significant differences for the left and right sides of the observed atlases.

Conclusion. Morphometric analysis of the superior surface of the posterior arch of the atlas vertebrae has shown the existence of variations, the importance of which has been discussed. A small sample and a lack of information about the sex and age are the main limitation of this study.

Keywords: atlas; groove for vertebral artery; vertebral canal; classification; morphometry.

SMANJENJE TELESNE TEŽINE I REZISTENTNOST INSULINA
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Uvod: Gojaznost karakterišu rezistencija insulina i pozitivan uticaj smanjenja telesne težine na osetljivost na insulin. Cilj ove studije bio je da se otkrije uticaj ne-značajnog smanjenja telesne težine na osetljivost na insulin.

Materijali i metodi: Ispitivanu grupu činilo je 28 žena prosečne starosti od $26,14 \pm 7,29$ god. Srednje vrednosti sledećih parametara su određene: telesna težina (TT), BMI, obim struka (W), nivo glikoze u krvi (G), nivoi insulina (I) i Homa index= $G \cdot I / 22.5$ (H), i godinu dana nakon kontinuiranog dijetalnog režima.

Rezultati: Srednja vrednost TT bila je $103,29 \pm 18,64$, a sniženena $93,07 \pm 18,33$ kg. Razlika od $10,21 \pm 6,24$ kg pokazala je srednju vrednost $9,91 \pm 6,07\%$ TT. Srednja vrednost BMI bila je $38,57 \pm 6,9$ kg/m², i smanjenena $35,09 \pm 6,8$ kg/m². Razlika je iznosila $3,47 \pm 2,17$ kg/m² i pokazala je $9,05 \pm 5,74\%$ smanjenja BMI. (W) smanjen je sa $112,86 \pm 14,23$ cm na $104,21 \pm 14,13$ cm. Razlika je bila $8,64 \pm 4,4$ sm i pokazala je smanjenje od $7,66 \pm 4\%$, TT, BMI, W promene nisu bile značajne ($p > 0,05$). G nivoi smanjeni su sa $5,96 \pm 1,05$ mmol/l do $5,06 \pm 0,7$ mmol/l sa srednjom redukcijom $1,01 \pm 0,09$ mmol/ ($13,79 \pm 15,1\%$) od početne vrednosti ($p < 0,013$). Vrednosti $31,44 \pm 12,18$ μU/ml smanjene su na $16,68 \pm 6,5$ μU/ml, sa razlikom $14,76 \pm 16,32$ μU/ml ($44,03 \pm 20,85\%$) od početne vrednosti, a vrednost H $8,34 \pm 3,33$ smanjenana je $77 \pm 1,55$, sa razlikom od $4,57 \pm 3,08$, $51,84 \pm 20,32\%$ sa vrednosti pre tretmana ($p < 0,0001$).

Zaključak: Ova studija zaključila je da je ne-značajno smanjenje telesne težine poboljšalo metabolizam glikoze, smanjilo nivo insulina, a povećalo osetljivost na insulin. Veoma je važno da značajno smanjenje težine smanjuje rezistentnost insulin i time rizik od dijabetesa i kardiovaskularnih komplikacija.

Ključne reči: Gojaznost, rezistencija insulina, smanjena telesna težina

BODY WEIGHT REDUCTION RELATIONSHIP TO INSULIN RESISTANCE
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Introduction: Obesity is characterized by insulin resistance and positive influence of the body weight reduction on the insulin sensitivity. The aim of this study was to discover the influence of insignificant body weight reduction on insulin sensitivity.

Materials and methods: The sample comprised 28 women with mean age 26.14 ± 7.29 yrs. The mean values of the following parameters were determined: body weight (BW), BMI, waist circumference (W), blood glucose (G), insulin levels (I) and HOMA index = $G \cdot I / 22.5$ (H), before and 1 year after the continuous diet regimen.

Results: Mean BW values were 103.29 ± 18.64 kg, and reduced to 93.07 ± 18.33 kg. The difference of 10.21 ± 6.24 kg showed mean $9.91 \pm 6.07\%$ reduction of the BW. Mean BMI values were 38.57 ± 6.9 kg/m² and reduced to 35.09 ± 6.8 kg/m². The difference was 3.47 ± 2.17 kg/m² and indicated $9.05 \pm 5.74\%$ BMI reduction. W reduced from 112.86 ± 14.23 cm to 104.21 ± 14.13 cm. The difference was 8.64 ± 4.4 cm and indicated $7.66 \pm 4\%$ W reduction. BW, BMI and W changes were not significant ($p > 0.05$). G levels reduced from 5.96 ± 1.05 mmol/l to 5.06 ± 0.7 mmol/l, with mean reduction of 1.01 ± 0.09 mmol/l ($13.79 \pm 15.1\%$) of the start value ($p < 0.013$). I values 31.44 ± 12.18 μ U/ml were reduced to 16.68 ± 6.5 μ U/ml, with difference of 14.76 ± 16.32 μ U/ml ($44.03 \pm 20.85\%$) of the start value and H value 8.34 ± 3.33 reduced to 3.77 ± 1.55 , for the difference of 4.57 ± 3.08 , $51.84 \pm 20.32\%$ of the pretreatment value ($p < 0.0001$).

Conclusion: This study concluded that insignificant body weight reduction improved glucose metabolism, reduced insulin levels and especially increased significantly insulin sensitivity. It is very important that insignificant body weight reduction reduced insulin resistance and consecutive risk of diabetes and cardiovascular complications.

Key words: obesity, insulin resistance, body weight reduction

SOMATOTIP NORMALNO UHRANJENIH I GOJAZNIH ŽENA

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Uvod: Gojaznost je poznata kao faktor rizika za razvoj kardiometaboličkih poremećaja. Međutim, neke gojazne osobe su zdrave, dok neke normalno uhranjene osobe mogu da imaju kardiometabolički profil poput gojaznih osoba. Pretpostavlja se da postoji razlika u telesnim karakteristikama između ovih osoba. Somatotip je jedna od metoda koja daje uvid u oblik i kompoziciju ljudskog tela. Somatotip predstavlja kvantitativni izraz oblika i kompozicije ljudskog tela.

Cilj rada: Analiza somatotipa kod normalno uhranjenih i gojaznih žena.

Materijal i metode: Ispitivanu grupu činile su 143 ispitanice, prosečne starosti $45,4 \pm 13,10$ godina. Ispitanice su podvrgnute sledećim antropometrijskim merenjima: telesna visina, masa, obimi, debljine kožnih nabora i koštani dijometri. Stepenu uhranjenosti određen je pomoću indeksa telesne mase, a somatotip je određen metodom Heath&Carter. Za procenu kardiometaboličkog profila korišćene su vrednosti krvnog pritiska, parametara lipidnog statusa, glikoregulacije i inflamacije.

Rezultati: U poređenju sa normalno uhranjenim ispitanicama, gojazne su imale više vrednosti endomorfne i mezomorfne, a niže vrednosti ektomorfne komponente. Normalno uhranjene kardiometabolički zdrave ispitanice, imale su više vrednosti mezomorfne, a niže vrednosti endo- i ektomorfne komponente u poređenju sa normalno uhranjenim kardiometabolički gojaznim ispitanicama (5,08-3,56-2,34 vs. 5,48-3,28-2,65). Gojazne kardiometabolički zdrave ispitanice imale su niže vrednosti endo- i mezomorfne, a više vrednosti ektomorfne komponente u poređenju sa gojaznim ispitanicama sa kardiometaboličkim rizikom (6,39-4,94-0,67 vs. 6,61-5,82-0,57).

Zaključak: U determinisanju metaboličkog profila, pored masne mase, važnu ulogu mogle bi da imaju i strukture bezmasne mase koje su sadržane u mezomorfnoj i ektomorfnoj komponenti somatotipa.

Ključne reči: somatotip, gojaznost, kardiometabolički rizik i žene

SOMATOTYPE IN NORMAL WEIGHT AND OBESE WOMEN

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Introduction: Obesity is a well-known risk factor for the development of cardiometabolic abnormalities. However, some obese persons are healthy and on the other hand some normal weight persons have a metabolic profile as obese persons. It is assumed that there is a difference in physical characteristics among these persons. Somatotype is a method for quantification of the shape and composition of human body. Somatotype is a form of quantitative expression of shape and composition of the human body.

Aim: The analysis of somatotype among normal weight and obese women.

Material and methods: The sample comprised 143 women, mean age 45.46 ± 13.10 yrs. We performed the following anthropometric measurements: body height, mass, circumferences, skinfold thicknesses and diameters. Nutritional status was defined using body mass index and a somatotype was assessed by Heath&Carter method.

Results: In comparison with normal weight women, obese women had higher values of endomorphy and ectomorphy and lower values of mesomorphy. Cardiometabolically healthy normal weight women had higher values of mesomorphy but lower values of endo- and ectomorphy comparing to cardiometabolically obese normal weight women (5.08-3.56-2.34 vs. 5.48-3.28-2.65). Cardiometabolically healthy obese women had lower values of endo- and mesomorphy but higher values of ectomorphy comparing to obese women with cardiometabolic risk (6.39-4.94-0.67 vs. 6.61-5.82-0.57).

Conclusion: Apart from fat mass, in establishing cardiometabolic profile structures of lean body mass which are contained in mesomorphic and ectomorphic components of somatotype could play an important role.

Key words: Somatotype; Obesity; Cardiometabolic risk; Women

PREVALENCIJA I STEPEN NEOPHODNOG TRETMANA KARIJESA KOD DECE PREDŠKOLSKOG UZRASTA U NIŠU

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Uvod: Karijes je najučestalije progresivno oboljenje tvrdih zubnih tkiva, kompleksne i multikauzalne etiologije.

Cilj rada: Ispitati prevalenciju i stepen neophodnog tretmana karijesa kod dece predškolskog uzrasta u Nišu.

Metodologija: Istraživanjem je obuhvaćeno 135 ispitanika predškolskog uzrasta, starosti do 3 do 5 godina. Stomatološki pregled ispitanika izvršen je upotrebom sonde i stomatološkog ogledalca. Prevalencija karijesa izražena je statističkim koeficijentima (Klo, Klz), indeksom i merom prosečnih vrednosti (Klp) pokazateljem strukture karioznih, ekstrahovanih i plombiranih zuba (struktura kep-a). Na osnovu utvrđenog stanja zdravlja zuba, za svakog ispitanika ponaosob, prema kriterijumima Svetske zdravstvene organizacije utvrđen je stepen neophodnog dentalnog tretmana.

Rezultati: Dobijeni rezultati ukazuju na relativno visoku prevalenciju karijesa kod dece predškolskog uzrasta u Nišu. Utvrđeno je da Kio iznosi 40,74%, Kiz 11,04%, a Kip 2,21. U ispitivanoj grupi dece utvrđena je nepovoljna struktura kep-a. U pogledu stepena neophodnog tretmana, utvrđeno je da je u 60,74% ispitanika neophodno pružiti preventivni tretman, 27,40% ispitanika brzi konzervativni tretman, a u 11,86% ispitanika urgentni tretman zbog otoka i bolova.

Zaključak: Rezultati istraživanja ukazuju na relativno visoku prevalenciju karijesa i mali procenat saniranog karijesa kod dece predškolskog uzrasta u Nišu. U 39,26 % ispitanika, bilo je potrebno sprovesti brzi konzervativni ili urgentni dentalni tretman. Uzimajući u obzir značaj očuvanja zdravlja mlečnih zuba, neophodno je ponovo razmotriti vreme dijagnostičkih pregleda i primene preventivno profilaktičkih mera kod dece predškolskog uzrasta.

Ključne reči: prevalencija, neophodni tretman, karijes i predškolski uzrast.

CARIES PREVALENCE AND THE DEGREE OF NECESSARY CARIES TREATMENT AMONG PRESCHOOL CHILDREN IN NIŠ

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Introduction: Caries is the most common progressive disorder of hard dental tissue, complex and multicausal etiology.

Aim: To estimate the prevalence and the degree of necessary treatment of caries among preschool children in Niš.

Methodology: This research included 135 preschool children, aged 3-5 years. Dental check-up of children was performed by means of a dental probe and mirror. The caries prevalence was expressed in statistical coefficients (PCI, TCI), by an index and measure of average values (ACI) and an indicator of the structure of decay, missed and filled teeth (dmf structure). Based on the established teeth health condition, for each respondent, according to the criteria of the World Health Organization, the degree of necessary dental treatment has been determined.

Results: The results showed a relatively high caries prevalence in preschool children in Niš. It was found that PCI was 40.47%, TCI-11.04%, and ACI-2,21. In the examined group of children an unfavorable dmft structure was registered. Regarding the degree of necessary treatment, it was found that in 60.74% it was necessary to provide preventive dental treatment, in 27.40% rapid conservative treatment, and in 11.86% urgent dental treatment, due to swelling and pain.

Conclusion: The results show that dental caries is highly prevalent in this preschool population, with little of the disease being treated. For 39.26% of subjects it was necessary to perform a rapid conservative or urgent dental treatment. Considering the importance of preserving the health of deciduous teeth, it is necessary to reconsider the time of diagnostic examinations and the use of preventive prophylactic measures in preschool children.

Key words: prevalence; necessary treatment; caries; preschool children.

**POPULACIONO GENETIČKA ANALIZA PRISUSTVA
20 HOMOZIGOTNIH RECESIVNIH OSOBINA KOD LJUDI SA MELANOMOM**
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Cilj ovog rada bilo je utvrđivanje postojanja statistički značajne veze između jedne ili više recesivnih osobina i pojave melanoma. Korišćen je morfo-fiziološki pristup za sakupljanje podataka. Ispitane su 72 osobe, od čega su 32 osobe bolovale od melanoma, a 40 je bilo zdravo. Analizirano je dvadeset homozigotnih recesivnih osobina kod zdravih i bolesnih osoba. Svakom ispitaniku direktnim posmatranjem i intervjuom utvrđeno je prisustvo, ili odsustvo neke od 20 fenotipskih osobina, uzimajući u obzir samo recesivne fenotipove. Analizirana su sledeća recesivna svojstva: 1) ravan skalp, 2) prisustvo dva cveta u kosi, 3) meka kosa, 4) prava kosa, 5) vezani ušni režanj, 6) uho bez Darwinove kvrčice, 7) tanke usne, 8) uvučeni zubi, 9) uvećana brada, 10) odsustvo malja, 11) uzane nozdve, 12) nesposobnost savijanja jezika uzdužno, 13) nesposobnost savijanja jezika unazad, 14) govorna mana "R", 15) desni palac preko levog, 16) pokretljivost distalnog dela palca, 17) sposobnost dodirivanja podlaktice palcem, 18) kažiprst duži ili jednake dužine kao četvrti prst kod muškaraca (kažiprst kraći ili jednake dužine kao četvrti prst, kod žena), 19) odsustvo malja na falangama, 20) tri tetive u korenu šake. Za ispitivana svojstva urađen je χ^2 test, $p=0,05$. Rezultati testa pokazuju da za recesivne osobine vezani ušni režanj, tanke usne, uzane nozdve, nesposobnost uzdužnog savijanja jezika i nesposobnost savijanja jezika unazad, postoji statistički značajna povezanost između recesivne osobine i pojave bolesti (melanoma), pri čemu dobijene vrednosti testa za pomenute osobine iznose 0,020, 0,023, 0,012, 0,001, 0,002 respektivno. Ostala recesivna svojstva nisu pokazala statistički značajnu povezanost sa bolešću.

Ključne reči: recesivne osobine, melanom, χ^2 test

Zahvalnica: Projekat broj III41017.

POPULATION GENETIC ANALYSIS OF PRESENCE OF 20 HOMOZYGOUS RECESSIVE TRAITS IN PEOPLE WITH MELANOMA

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The aim of this study was to investigate whether there is statistically significant interconnection between one or more homozygous recessive traits and melanoma. A morphophysiological approach for data collection was used. 72 volunteers were examined by direct visual and interview method. 32 patients were diagnosed with melanoma and 40 were healthy. Twenty homozygous recessive traits were analyzed. Phenotype characteristics which were examined are: 1) flat scalp, without Widow's peak, 2) two hair whorls, 3) hair quality (soft hair), 4) straight hair, 5) attached earlobe, 6) ear without Darwin's tubercle, 7) thin lips, 8) indrawn teeth, 9) enlarged chin, 10) absence of hair, 11) tight nostrils, 12) inability to bend tongue longitudinally, 13) inability to bend tongue backward, 14) speech defect for "R", 15) right thumb on top, 16) hitchhiker's thumbs, 17) the ability to touch the forearm with a thumb, 18) index finger longer or of the same length as the fourth finger in men (index finger shorter or of the same length as the fourth finger in women), 19) mid digital hair, 20) three tendons at hand's root. Chi-square test was used, p value was 0.05. Results of the chi-square test showed that there was a statistically significant correlation between the onset of disease (melanoma) and following recessive characteristics: attached earlobe, thin lips, tight nostrils, inability to bend tongue longitudinally, inability to bend tongue backward, with chi-squared test values for these traits being 0,020, 0,023, 0,012, 0,001, 0,002, respectively. Other recessive properties did not show statistically significant correlation with the disease.

Key words: Recessive traits, Melanoma, Chi-Square Test

Acknowledgement: Project number III41017

ZNAČAJNOST RAZLIKA I RAZVOJNI TREND SISTOLNOG, DIJASTOLNOG PRITISKA I SRČANE FREKVENCije KOD UČENIKA RANOG ŠKOLSKOG UZRASTA

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Na uzorku od 1712 ispitanika, od čega je 841 dečak i 871 devojčica, uzrasta od 6 do 10 godina, sprovedeno je istraživanje sa ciljem utvrđivanja nekih funkcionalnih karakteristika. Istraživanje je sprovedeno u osnovnim školama opštine Kisela Voda grada Skoplja.

Za utvrđivanje funkcionalnih karakteristika primenjena su tri testa: sistolni pritisak, dijastolni pritisak i srčana frekvencija u miru.

Pored osnovnih deskriptivnih parametara, za utvrđivanje značajnih statističkih razlika, na multivarijantnom i univarijantnom nivou, primenjene su MANOVA i ANOVA analiza.

Na osnovu rezultata ovog istraživanja, možemo konstatovati, da rezultati primenjenih funkcionalnih testova, i kod devojčica i kod dečaka, pokazuju statistički značajne razlike.

Smatramo da je jedan od glavnih razloga takvog stanja, razlika u biološkoj i hronološkoj starosti ispitanika, kao i načinu formiranja nastavnih odeljenja.

Cljučne reči: učenici, funkcionalne karakteristike, MANOVA, ANOVA

THE IMPORTANCE OF DIFFERENCES AND DEVELOPMENT TRENDS OF SYSTOLE AND DIASTOLE PRESSURE AND HEART RATE OF YOUNG SCHOOL AGE STUDENTS

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The sample comprised 1712 subjects (841 – male and 871 – female) 6 to 10 years of age. The aim of this research was to determine some functional features. The research was conducted in elementary schools of Kisela Voda, a city in Skopje.

In order to determine functional characteristic, three tests were used: systole and diastole pressure, resting heart rate.

Apart from the basic descriptive parameters, MANOVA and ANOVA analyses were used for establishing statistically significant differences at multivariate and univariate level.

Based on the results of this research we can state that there are statistically significant differences in most functional measures between males and females.

We consider that one of the main reasons for such a state is the difference in biological and chronological age of students, as well as the way in which classes of students are formed.

Key words: pupils, functional characteristics, MANOVA, ANOVA

SEKSUALNO SAZREVANJE ADOLESCENATA IZ REGIONA ISTOČNIH RODOPA I VEZA SA SOCIJALNIM OKRUŽENJEM – BUGARSKA

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Cilj ovog rada je da se utvrdi uticaj socijalno-ekonomskog okruženja na procese seksualnog sazrevanja i srednji uzrast pojave menarha kod adolescenata iz Istočnih Rodopa. Predmet studije je 1378 dece i adolescenata iz lokalnih škola u Ivailovgradu, Svilengradu i Liubimecu. To je 730 devojčica i 648 dečaka starosti od 8 do 17 godina. U vezi sa proučavanjem uticaja faktora životne sredine na procese seksualnog sazrevanja, obavljani su razgovori sa roditeljima. Istraživanje sadrži 22 pitanja sa podacima roditelja, koji su korišćeni za razjašnjavanje socijalnog, ekonomskog i profesionalnog statusa, životnih uslova porodičnog života itd. Rezultati pokazuju da, iako genetički određeni, na proces seksualnog sazrevanja značajno utiču egzogeni faktori i na poseban način oni odražavaju specifičnu socijalnu i ekonomsku situaciju na određenom geografskom području u slučajno odabranom vremenskom periodu.

Ključne reči: seksualno sazrevanje, socijalno-ekonomski faktori, menstruacija.

SEXUAL MATURATION IN ADOLESCENTS FROM THE REGION OF EASTERN RODOPI IN CONNECTION WITH THEIR SOCIAL ENVIRONMENT - BULGARIA

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The purpose of this paper is to establish the influence of socio-economic environment on the processes of sexual maturation and the age of adolescent's menarche from the Eastern Rhodopi. The sample comprised 1378 children and adolescents from local schools in Ivaylovgrad, Svilengrad and Lyubimets. 730 girls and 648 boys aged 8 to 17 years. In connection with studying the influence of environmental factors on the sexual maturation processes, interviews with parents were conducted. The survey contains 22 questions with parents' data, which were used to clarify the social, economic and professional status, living conditions, etc. The results show that although genetically determined, the processes of sexual maturation are significantly influenced by exogenous factors, and in a peculiar way they reflect the specific social and economic situation in a given geographical area at a randomly selected time period.

Keywords: sexual maturation, socio-economic factors, menarche.

MOGUĆE VARIJACIJE BROJA KVRŽICA MAKSILARNIH I MANDIBULARNIH M1 I M2**Sladana Šljivić¹, Miloš Tijanić²**¹Dom Zdravlja Niš, ²Klinika za stomatologiju

Analizom rezultata više uzoraka, koji su ispitivali varijacije u broju kvržica na maksilarnim i mandibularnim M1 i M2, sagledali smo granice njihovih prisustva. U tu svrhu korišćeni su studijski modeli 2580 ortodontskih pacijenata iz Niša. M1 u maksili, u dominantnom procentu ima 4 kvržice od 89,6% do 100%, i 5 kvržica samo u jednom uzorku u 10,4%. M2 takodje ima 4 kvržice najčešće od 57,08% do 70,5%, ali u značajnom procentu i 3 kvržice od 29,5% do 42,2%. M1 u mandibuli češće je sa 5 kvržica od 66,28% do 73,48%, dok u znatno manjem broju pacijenata ima 4 kvržice od 24,65% do 31,8% i samo u neznatnom broju sa 6 kvržica od 1,73% do 2%. Kod M2, značajno opadaju primeri sa 5 kvržica od 2,6% do 11,16%, da bi sa 4 kvržice vidno porasli sa 88,84% do 97,1%. Ova činjenica, potvrda je stava da se redukcioni proces broja kvržica mnogo više ispoljava na M2 nego na M1.

Ključne reči: varijacije, kvržice, M1 i M2.

POSSIBLE VARIATIONS OF THE NUMBER OF CUSPS ON MAXILLARY AND MANDIBULAR M1 AND M2**Sladana Šljivić¹, Miloš Tijanić²**¹Health Centre Niš. Dental Clinic Niš

By analysing the results of multiple samples, which were supposed to examine the variations in the number of cusps on maxillary and mandibular M1 and M2, we have observed the limitations of their presence. For this purpose, research models of 2580 orthodontic patients from Niš were used. M1 in maxilla has 4 cusps in a high percentage, 89,6% to 100%, and it had 5 cusps in only one sample in 10,4%. M2 also has 4 cusps in most cases from 57,08% to 70,5%, but it also has 3 cusps in a large percentage from 29,5% to 42,2%. M1 in mandible more often has 5 cusps from 66,28% to 73,48%, where it has 4 cusps in a significantly smaller number of patients from 24,65% to 31,8% and it has 6 cusps in only a slight number of the cases from 1,73% to 2%. In M2, the number of cases with 5 cusps are dropping significantly from 2,6% to 11,16%, where the number of cases with 4 cusps are visibly increasing from 88,84% to 97,1%. This fact goes in favor of the stance that the reductionary process of the number of cusps is more visible on M2 than on M1.

Key words: Variations, cusps, M1 and M2.

UČESTALOST KALCIFIKACIJA KOMORE PULPE STANOVNIKA CENTRALNE SRBIJE

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Uvod: Dentikli predstavljaju patološke kalcifikovane tvorevine u tkivu pulpe koje nastaju kao posledica hroničnih iritacija ili starenja. Mineralni depoziti se mogu nalaziti duž korenskih kanala ili unutar kruničnog dela komore pulpe. U zavisnosti od stepena kalcifikacije, klasifikuju se kao pravi i lažni dentikli. Većina literaturnih podataka o učestalosti pojavljivanja kod pacijenata do 20 godina starosti, kreće se oko 66%, dok je kod starije populacije prisustvo kalcifikacija češće. Otkrivaju se kao slučajni nalaz pri kliničkom i rendgenološkom pregledu ili u toku endodontske terapije. U slučaju promene boje zuba može se posumnjati na nekrozu pulpe prouzrokovanu prisustvom kalcifikacija koje ometaju pristup otvorima kanala otežavajući endodontski tretman.

Cilj rada je da se odredi učestalost kalcifikacija u komori pulpe stanovnika šumadijskog okruga, populacije do 25 godina.

Materijal i metod: Ova studija predstavlja retrospektivnu analizu 840 ortopantomografskih snimaka, iz baze rendgen kabineta Fakulteta medicinskih nauka, Univerziteta u Kragujevcu, u okviru šireg projekta koji se sprovodi u periodu od januara do decembra 2017. godine. Uzorci su birani metodom slučajnog izbora. Za proučavanje broja kalkuloza, izdvojeno je 250 ispitanika, od kojih je 100 bilo starosti do 25 godina.

Rezultati: Na osnovu dobijenih rezultata uočavamo češću pojavu kalkuloza u pulpnim komorama prvog i drugog molara. Kod osoba ženskog pola pronašli smo 42,6%, a kod muškog 33,3%.

Zaključak: Morfološke promene u komori pulpe, vezane za kalcifikacije u posmatranoj populaciji, uočene su u visokom procentu, što je približno nalazima u literaturi, vezanim za evropsku i populaciju u okruženju.

Gljučne reči: dentikli, učestalost, morfološke nepravilnosti.

FREQUENCY OF CALCIFICATION OF THE PULP CHAMBER IN POPULATION OF CENTRAL SERBIA

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Introduction: Pulp stones represent pathological calcified tissues in the pulp, which arise as a result of chronic irritation or aging. Mineral deposits can be located along the root canal or inside the coronary part of the pulp. Depending on the level of calcification, they are classified as true and false pulp stones. The most frequent data in literature related to the frequency of occurrence in patients under 20 years of age is 66%, while in the older population the presence of classification is more frequent. Usually they are detected as an unexpected finding in clinical and radiological examination or due the endodontics treatment. In the event of a change in the color of the teeth, it may be suspected that the pulp necrosis caused by the presence of calcification impedes the access to the opening of the duct, making it difficult to endodontic treatment.

The aim of the study is to determine the frequency of pathological calcifications in the pulp chamber of the population up to 25 years of age, from Šumadija district.

Material and Method: This study presents a retrospective analysis of 840 orthopantomography images from the X-ray cabinet of the Faculty of Medical Sciences, the University of Kragujevac, as a part of a wider project that ran from January to December 2017. The samples were randomly selected. For the purpose of studying the number of calculi, 250 were separated, 100 of which were under the age of 25.

Results: On the basis of the obtained results, we can see that denticles are more likely to appear in the pulp chambers of the first and second molars in females (42.6%), and in men 33.3%.

Conclusion The studied population had a high percentage of calcifications which is similar to the data found in literature related to the European population and population in the surrounding area.

Keywords: Pulp stones, frequency, morphological abnormalities.

UČESTALOST IMPAKCIJE GORNJIH OČNJAKA KOD DECE UZRASTA OD 13. DO 18. GODINE

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Uvod: Impakcija maksilarnih očnjaka čest je klinički problem čiji tretman obično zahteva interdisciplinarni pristup. Klinička dijagnoza impaktiranih očnjaka, najčešće se utvrđuje njegovim zakasnelim nicanjem. Terapija obično podrazumeva hirurško oslobađanje zuba, praćeno ortodontskim vođenjem i pravilnim smeštanjem u zubni niz. Resorpcija korenova lateralnih sekutića predstavlja najčešću komplikaciju.

Cilj studije bio je da se proceni učestalost impakcije maksilarnih očnjaka kod dece uzrasta od 13. do 18. godine.

Materijal i metode: U retrospektivnu studiju uključeno je 495 ortopantomograma dece uzrasta od 13 do 18 godina, oba pola, od septembra 2014. do decembra 2017. godine. Snimci su načinjeni u rendgen kabinetу ИАСС, Fakulteta medicinskih nauka, Univerziteta u Kragujevcu uređajem Orthophos XG 3D (Sirona Dental Systems GmbH, Bensheim, Germany). Na analiziranim snimcima registrovano je prisustvo unilateranih i bilateralnih impakcija maksilarnih očnjaka.

Rezultati: Od ukupnog broja pacijenata, 220 je bilo muškog, a 275 ženskog pola. Prosečna starost iznosila je 15 godina. Najveća učestalost impaktiranih gornjih očnjaka je kod dece uzrasta 13,5 godina. Od ukupnog broja dijagnostikovanih impakcija gornjih desnih očnjaka, približno jednak broj impakcija pronađen je kod oba pola, a ukupna učestalost iznosila je 5,85%. Obostrana impakcija bila je zastupljena u 4,04% pacijenata. Nije pronađena statistički značajna razlika prema polu.

Zaključak: Očnjaci su grupa zuba koja ima veliki značaj u funkcionalnom i estetskom smislu i zato je bitna rana dijagnostika impakcije gornjeg očnjaka.

Ključne reči: impaktirani očnjaci, maksila, deca

THE INCIDENCE OF UPPER CANINUS IMPACTION IN CHILDREN AGED 13 TO 18 YEARS

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Introduction: Impaction of maxillary canine is a common clinical problem the treatment of which usually requires an interdisciplinary approach. The clinical diagnosis of impacted canine is most often determined by delayed eruption. Therapy usually involves surgical treatment of tooth, followed by orthodontic guidance and proper dental placement. Resorption of lateral incisors is the most common complication.

The aim of this study was to evaluate the incidence of maxillary canine impaction in children aged 13 to 18 years.

Material and Methods: The sample comprised 495 orthopantomograms of children aged 13-18 years, of both sexes, obtained from September 2014 to December 2017. Recordings were made in X-ray cabinet of IASS, Faculty of Medical Sciences, University of Kragujevac by Orthophos XG 3D (Sirona Dental Systems GmbH, Bensheim, Germany). In the analyzed recordings, the presence of unilateral and bilateral impactions of maxillary canines was noted.

Results: Considering the total number of patients, 220 male and 275 female, the average age was 15 years. The highest incidence of impacted upper canines was found in children aged 13.5 years. Out of the total number of diagnosed impactions, approximately the same number was found in both sexes with total incidence of 5.85%. The bilateral impactions were found in 4.04% of patients. There was no statistically significant difference according to sex.

Conclusion: Canine teeth belong to the group of teeth that has great importance in functional and aesthetic sense and therefore early diagnosis of impaction of the upper canine teeth is important.

Key words: impacted caninus, maxillary, children

BILATERALNA KOMPARACIJA PAPILARNIH LINIJA KOD DESNORUKIH I LEVORUKIH OSOBA

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Cilj ove studije je ispitati razlike u učestalosti glavnih tipova papilarnih šara homolognih prstiju kod desnorukih i levorukih osoba oba pola. Uzorkom je obuhvaćeno 379 klinički zdravih osoba, bugarskog etničkog porekla, starosti 19 – 30 godina. Ženska grupa sastoji se od 219 desnorukih 53 levorukih osoba, dok je u muškoj grupi 66 desnorukih i 41 levorukih osoba. Otisci prstiju uzeti su topografskom metodom rotacije. Papilarne šare klasifikovane su u četiri glavne grupe. Podaci su statistički obrađeni. Rezultati ukazuju na izraženije razlike u učestalosti glavnog tipa papilarnih šara između homolognih prstiju kod muškaraca, u poređenju sa ženama. Utvrđena je statistički značajna bilateralna asimetrija ulnarnih petlji kod trećeg prsta u grupi levorukih osoba ženskog pola kao i u grupi desnorukih osoba ženskog pola.

Ključne reči: papilarne šare, prsti, bilateralno poređenje

BILATERAL COMPARISONS OF FINGER PAPILLARY PATTERNS IN LEFT-HANDED AND RIGHT-HANDED INDIVIDUALS

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The aim of the present study is to investigate the differences in the frequency of main type papillary patterns between homologous fingers in left-handed and right-handed individuals of both genders. The sample comprised 379 people, clinically healthy, of Bulgarian ethnic origin, aged 19 – 30 years. The group of females included 219 right-handers and 53 left-handers, but in the group of males – 66 right-handers and 41 left-handers. Fingerprints were captured by a typographic method of using rotation. Papillary patterns are classified into four main types. The data were processed statistically. The results show more expressed differences in the frequency of main type papillary patterns between homologous fingers in males, in comparison to females. Statistically significant bilateral asymmetry of ulnar loops is established in the third finger in the group of left-handed females as well as in the group of right-handed females.

Key words: papillary patterns, fingers, bilateral comparisons

UNIMANUELNE VEŠTINE KAO PREDIKTORI LATERALIZACIJE RUKE

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Veština pisanja levom ili desnom rukom često se uzima kao prediktor za lateralizaciju ruke. Imajući u vidu da se ova pojava uvežbava, levorukost često postaje "zamaskirana", a time i teško fenotipski merljiva. Cilj ove studije je utvrđivanje prediktabilnosti više unimanuelnih veština u odnosu na lateralizaciju ruke. Uzorak čini 756 učenika osnovnih škola čija je rukost određena EHI testom (Edinburgh Handedness Inventory). Veština pisanja i veština crtanja pokazuju jasnu međusobnu korelaciju (0,86 kod levorukih i 0,50 kod desnorukih). Međutim, jasna korelacija između veštine pisanja i ostalih posmatranih veština, kao što su bacanje, upotreba makaza, upotreba četkice za zube, korišćenje ključa, nije izražena. Pisanje, takođe, pokazuje nizak determinacioni koeficijent u odnosu na lateralizaciju ruke, što nije slučaj sa ostalim posmatranim veštinama, gde se R^2 kreće u rasponu 0,43-0,66. Slično je i kod desnorukih, gde R^2 varira u opsegu 0,28-0,53, za sve veštine, osim za veštinu pisanja i crtanja. Može se zaključiti da pisanje levom ili desnom rukom nije dobar prediktor lateralizacije ruke, već su to pre veštine nad kojima ne postoji kulturološki pritisak.

Ključne reči: lateralizacija ruke, prediktori lateralizacije, levorukost/ desnorukost

UNIMANUAL SKILLS AS HAND LATERALIZATION PREDICTORS

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The skill of writing with the left or right hand is often taken as a hand lateralization predictor. Taking into consideration that such a manifestation is usually practiced, left-handedness often becomes "concealed", making it harder to be phenotypically measured. The aim of this study is to determine the predictability of multiple manual skills in relation to the type of handedness. The sample of 756 primary-school students with the aid of Edinburgh Handedness Inventory showed that writing and drawing skills using a particular hand have a very clear mutual correlation (0.86 with the left-handed, and 0.50 with the right-handed). However, the correlation was not determined with other observed unimanual skills, such as throwing, using scissors, using a tooth brush, using a key and holding a glass. In relation to hand lateralization, writing shows a low determination coefficient with the left-handed, whereas for other skills R^2 varies within the range 0.43-0.66. The numbers are similar to the right-handed, where R^2 varies within the range 0.28-0.53, for all skills, except writing and drawing. A conclusion can be drawn that writing is not a reliable predictor of lateralization to left or right, but that those are skills in relation to which there is no cultural pressure.

Keywords: hand lateralization, lateralization predictors, left-handedness/right-handedness

Sportska antropologija

Sport Anthropology

NOVE TEHNOLOGIJE ISPRAVLJANJA LOŠEG DRŽANJA I KIČMENIH DEFORMITETA

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U pogledu prevencije lošeg držanja tela i deformiteta kičme, kao što su: skolioza, kifoza, lordoza, udubljene grudi, ispupčene grudi, „O” noge, „X” noge, ravni tabani i slično, ili u pogledu njihovog lečenja glavnu ulogu igra dobro isplaniran čas zdravstvenog obrazovanja i kineziologije. Kako bi se postigle pozitivne promene skeletno-mišićnog aparata u pogledu pravilnog držanja tela, nastavnik kineziologije treba da podeli decu prema njihovim funkcionalnim, strukturalnim i motoričkim sposobnostima u manje grupe kako bi svima pružio šansu da zajedno rade. Neophodno je da nastavnik decu kod koje primeti odstupanja u pogledu normalnog razvoja ili neki deformitet, uputi kod specijaliste kineziterapije, fizioterapije ili stručnjaka iz oblasti kineziološke medicine, ili bolje rečeno specijaliste estetske i ortopedske kineziologije. Ova vrsta saradnje veoma je uspešna kod lečenja skeletno-mišićnih deformiteta jer dete dobija individualni tretman u skladu sa svojim funkcionalnim sposobnostima i problemom koji ima. U tom pogledu, društvene strukture treba da se fokusiraju i međusobno saradjuju kako bi novim generacijama prenele slogan „postojimo da bismo se kretali“ kao i činjenicu da su noge i fizički napor preduslov zdravog intelektualnog i fizičkog razvoja. Ovo je zapravo nova tehnologija za rešavanje lošeg držanja tela i deformiteta kičme

Ključne reči: tehnologija, lečenje, držanje tela, skolioza, kifoza, lordoza...

NEW TECHNOLOGY IN THE REMOVAL OF BAD POSTURE AND SPINE DEFORMATIONS

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In terms of prevention of bad body postures and spinal deformities, such as: scoliosis, kyphosis, lordosis, indented chest, protruding breasts, “O” shape in legs, “X” shape in legs, lowered feet, etc. Above all in the removal of these deviations of the skeletal muscular apparatus from the normal anthropological posture in terms of prevention, the main role is played by the well-organized class of kinesiology health education. In order to achieve good changes in the skeletal muscular apparatus in terms of proper body posture, the teacher of kinesiology education needs to select children according to their functional structural and motor skills, in small groups of participants with similar opportunities to assure the ability to practice together. It is necessary for the teacher to select and forward the children who deviate from a normal physical development, and have certain deformities, to a specialist in kinesitherapy, physiotherapy or at a higher level to the experts and subspecialists for kinesiological medicine, that is, to the subspecialists for aesthetics and orthopaedic kinesiology. This method of cooperation is very good in removing skeletal muscle deformations because here the children will be individually treated according to their functional abilities and the problem they have. In that sense the society structures should first of all focus and cooperate to take on new generations, the slogan “we exist to move” is forcing and not forgetting that we have legs and physical effort is a prerequisite for our healthy intellectual and physical shaping and existence. It is actually a new technology for organizing the resolution of poor body holdings and spinal deformations.

Key words: technology, removal, body posture, scoliosis, kyphosis, lordosis...

SPORT I GENETIKA: ZNAČAJ I MOGUĆE ZLOUPOTREBE

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Da li se sportski šampioni rađaju ili stvaraju intenzivnim treningom, pitanje je od prvorazrednog značaja. Dosadašnji rezultati pokazuju da se uspeh ne može pripisati ni isključivo genima, niti faktorima sredine i treningu, već da brojni fiziološki i biohemijski sistemi moraju optimalno funkcionisati da bi se ostvario vrhunski rezultat. Uticaj genoma je svakako važan i istraživanja pokazuju da su sportske performanse poligenске karakteristike. Na identifikaciji genskih lokusa i varijacija gena, koji imaju potencijalnu ulogu u sportu kroz uticaje na izdržljivost, mišićne karakteristike i kvalitet tetivno-ligamentnog aparata, kapacitet kardiopulmonalnog sistema i metaboličke karakteristike, radi se intenzivno. Do sada je identifikovano više od 200 genskih lokusa koji svojim produktima i međudelovanjem mogu uticati na fiziološke, morfološke i psihološke karakteristike pojedinaca, njihovo prilagođavanje na trening, poboljšanje deficitarnih osobina i smanjivanje rizika od sportskih povreda, kao i brži oporavak. Ipak, na osnovu dostupnih genskih analiza još uvek se ne može vršiti odabir talenata i selekcija sportista, jer veliki broj faktora utiče na uspešnost. Genska terapija kao medicinski tretman može u perspektivi imati veliki značaj, iako nosi brojne rizike i mogućnosti komplikacije, dok s druge strane korišćenje genskog dopinga postaje surova realnost vremena u kome živimo i veoma je teško iskontrolisati ga. Jasno je da može imati nesagledive štetne posledice po zdravlje sportista, a sa sobom nosi i brojne etičke dileme i sportska takmičenja sa borilišta uvodi u svet forenzike i sudnica. Istovremeno, upravo se napredak molekularne genetike, biotehnologije i nanotehnologije smatra jednim od najmoćnijih oruđa za brzu i pouzdanu detekciju genskog dopinga.

Ključne reči: geni, sport, lokusi, genski doping, genska terapija

Napomena: ovo plenarno predavanje po pozivu prezentovano je na Drugoj međunarodnoj konferenciji Sport, rekreacija i zdravlje koja je održana 2017. godine u Beogradu i izazvalo je izuzetnu pažnju.

SPORTS AND GENETICS: IMPORTANCE AND POTENTIAL MISUSE

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Whether sports champions are born or generated by intense training is a question of primary importance with possible implications for the identification of talented individuals who can achieve top sport results. Success cannot only be attributed to the genes or environmental factors and training. Many physiological and biochemical systems must function optimally. The influence of the genome is certainly important and the athletic achievements are polygenic characteristics. The identification of genetic loci and variation that play the potential role in sport achievements through the effects on endurance, muscle characteristics and quality of tendon-ligament apparatus, cardiovascular capacity, and metabolic characteristics is subject of intensive work and more than 200 genetic loci have been identified. Their products and interactions may affect physiological, morphological and physiological characteristics, adaptation to training, improve deficient attributes and reduce the risk of sports injuries, as well as contribute to a faster recovery. Based on available genetic analysis it is still impossible to select and choose the athletes, because a large number of factors influences their performance. Gene therapy could be very important, even though it carries a number of risks and possible complications. The use of gene doping becomes harsh reality and very difficult to control. It can have far-reaching adverse effects opening a number of ethical dilemmas related to fair play fighting and entering sports competitions into the world of forensics and courtrooms. But the progress of molecular genetics, biotechnology and nanotechnology is also one of the most powerful tools for quick and reliable detection of gene doping.

Keywords: genes, sport, loci, gene doping, gene therapy

Note: this invited plenary lecture was also presented paying a great attention at the 2nd Scientific International Conference Sport, Recreation and Health that was hold in Belgrade in 2017.

TRI DEZENIJE PRIMENE SLO FIT: TRENDVI FIZIČKOG RAZVOJA I NUTRITIVNOG STATUSA SLOVENAČKE DECE U PERIODU 1988-2017.

Gregor Starc

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Nacionalni sistem za praćenje fizičkog razvoja može igrati značajnu ulogu u nadgledanju i uticaju na razvojne trendove dece pomoću odgovarajućih razvojnih sistema i intervencija. U Sloveniji, nacionalni sistem za praćenje SLO fit uveden je u sve škole 1987. godine nakon šestogodišnjeg perioda testiranja. Od 1990. godine, gotovo cela populacija dece uzrasta od 7 do 18 godina bila je deo ovog sistema i svi prikupljeni podaci o fizičkom razvoju korišćeni su kako bi se pronašla najbolja moguća rešenja za borbu protiv epidemije gojaznosti nakon raspada Jugoslavije. Nakon jedne i po decenije porasta gojaznosti kod dece, uvođenjem određenih pravila i sistema u oblasti fizičke aktivnosti i ishrane u školama 2010. godine, dovelo je do toga da Slovenija bude jedna od retkih zemalja u kojoj je trend gojaznosti u opadanju. Promene u stilu života nastale u potrošačkom društvu negativno su se odrazile na dečake dok je gojaznost devojčica bila na nižem nivou. Otkrića i lekcije naučene od Slovenaca mogu biti veoma važne za preduzimanje odgovarajućih mera u zemljama u razvoju kako bi se izbegao eksponencijalan rast gojaznosti koji dolazi sa ekonomskim razvojem.

THREE DECADES OF THE SLOFIT SYSTEM: TRENDS OF PHYSICAL DEVELOPMENT AND NUTRITIONAL STATUS OF SLOVENIAN CHILDREN 1988-2017

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National surveillance systems of physical development can play a very important role in the monitoring and influencing the developmental trends of children through appropriate policy development and implementation of interventions. In Slovenia, a national surveillance SLOfit system has been introduced to all schools in 1987 after a 6-year testing period. From 1990, almost the entire population of Slovenian children aged 7 to 18 years have been a part of the system and the gathered data on physical development has always been used to find the best possible solutions for fighting the obesity epidemics after the collapse of Yugoslavia. After a decade and a half of growing childhood obesity, the introduction of certain policies in the area of school physical activity and nutrition in 2010, made Slovenia to be one of the rare countries in which the trends of obesity have been in decline. The lifestyle changes after the introduction of consumerism have negatively affected especially the population of boys while the levels of obesity among girls remained at a slightly lower level. The findings and learned lessons from Slovenia can be very important for taking appropriate measures in the developing countries to avoid the exponential growth of childhood obesity that can occur with economic development.

ELEKTRONSKI MEDIJI, SOCIJALNE MREŽE I FIZIČKA AKTIVNOST

Dušan Mitić

Fakultet sporta i fizičkog vaspitanja Univerziteta u Beogradu

Pošto je fizička aktivnost direktno povezana sa sprečavanjem bolesti i prerane smrti, kao i sa održavanjem visokog kvaliteta života, moramo joj posvetiti isto toliko pažnje koliko poklanjamo drugim pitanjima zdravlja. Elektronski mediji omogućavaju bržu, lakšu i kompletniju komunikaciju na globalnom nivou. Bogatstvo ponuda mogućnosti komunikacije, kod mladih predstavlja poseban izazov, pa umesto edukativnih mogućnosti u prvi plan izbija potreba za samopotvrđivanjem i pozicioniranjem u društvu vršnjaka. Virtuelne mogućnosti zabave i komunikacije sa velikim brojem "vršnjaka" po pravilu su dominantne i troše najveći deo slobodnog vremena i energije, tako da ostaje manje energije i spremnosti za funkcionisanje u realnom svetu.

Početno oduševljenje mogućnostima interneta, imejl komunikacije, ustupa mesto blogovima, četovanju, aktivnostima na portalu ili formiranju interesnih grupa na fejsbuk profilu. Internet je preplavljen svim mogućim vrstama informacija i mogućnošću razgledanja, trgovine, kupovine, nabavke, pregledanja, komentarisanja, tako da sve manje postoji realna potreba kretanja, druženja i napuštanja virtuelne realnosti. Početna euforija i interesovanja za nove mogućnosti se pretvorila u virtuelnu realnost, a već su primetne inicijative da se uspostavi mera, napravi red, definišu nivoi pristupa tako da se smanji količina informacija koja nas zasipa.

Potrebno je da se kod mladih usmerava pažnja na edukativne mogućnosti elektronskih medija preko kojih možemo da pristupimo velikom broju elektronskih baza radova o značaju i mogućnostima primene redovne fizičke aktivnosti. Posebno su interesantni specijalizovani sajtovi na kojima može da se dobije direktan savet i preporuka fizičke aktivnosti, podrška da se nastavi sa započetim programom i učlani u klub ljubitelja pojedinih aktivnosti. Kod nas već postoje sajtovi ljubitelja skijanja, biciklizma, trčanja i sl. Takođe postoji bogata ponuda gotovih programa vežbanja. Za potrebe organizacije i realizacije pojedinih manifestacija: Aerobik hepening, Studentski festival tradicionalnih igara, Aerobik konvencija, Fitnes hepeninga koristimo mogućnost da preko fejsbuk profila dođemo do ciljne grupe, a da po obavljenom događaju dobijemo njihova zapažanja, podršku i nove ideje.

ELECTRONIC MEDIA, SOCIAL NETWORKS AND PHYSICAL ACTIVITY

Dušan Mitić

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Since physical activity is directly linked to disease and early death prevention, as well as maintaining high quality of life, we should dedicate our attention to it just as much as we dedicate our attention to other issues regarding health of general public importance.

Electronic media provide faster, easier and better communication at a global level. A wide variety of communication possibilities represent a great challenge for young people, and instead of some educational possibilities, the need for self-affirmation and finding ones place within peer groups become priorities. Virtual fun and communication with peers prevail and young people spend most of their time and energy doing these activities and consequently have less energy and readiness to function in a real world.

The initial excitement by the possibilities of internet communication by e-mails is replaced by blogs, chat box, activities on portals and interest groups on Facebook. The Internet is overflowed with all kinds of information and browsing possibilities, trade, shopping, making comments. As a result of this there is a lesser need for movement, spending time with friends and leaving the virtual reality. The initial euphoria and interest for new possibilities have turned into a virtual reality. There is an initiative to establish a measure, create order, and define the level of access so that the amount of available information that surrounds us is limited.

It is necessary to draw the attention of young people to educational possibilities of electronic media through which they can access a wide range of databases of research on the importance and possibilities of regular physical activity. Specialized sites where one can get a piece of advice or suggestion for physical activity, encouragement to continue with a certain exercise program or join the fan club of certain activities are particularly interesting. There are already fan clubs of skiing, cycling, running etc. There is a wide variety of exercise programs as well. For the organization and realization of certain events such as: Aerobic happening, Student Festival of Traditional Games, Aerobic Conventions, Fitness Happening, we use our Facebook profiles to get to focus groups and get their comments, observations and new ideas.

IDENTIFIKACIJA MLADIH TALENATA U SPORTU

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Identifikacija za sport talentovanih pojedinaca i njihovo pravovremeno uključivanje u proces sportskog treninga, jedan je od najzahtjevnijih postupaka kojim se bavi savremena sportska struka i nauka. Uspješnost u sportu zavisi od mnogih faktora, koji potiču iz samog sportiste ili iz njegove okoline. Selektivnost je jedna od osnovnih karakteristika sporta. Početni izbor - selekcija (ang. talent identification) je univerzalno interdisciplinarno područje genetike, kineziologije, biomehanike, sportske medicine, fiziologije i razvojne psihologije. Talent u sportu definiršu genetske, urođene morfološke karakteristike, psihomotoričke i funkcionalne sposobnosti, kognitivne i socijalne karakteristike i motivacija. Danas postoje različite metode identifikacije i selekcije talentovane dece za sport. Najjednostavnija i najelegantnija je prirodna metoda – spontana selekcija. Selekcija dece po toj metodi bazira se na trenutnim takmičarskim rezultatima pojedinaca. Druge grupe metoda identifikacije i selekcije djece su naučne metode. U međunarodnom prostoru postoji nekoliko metoda. Najpoznatije su:

- Talent Identification and Development Programmes in Sport (TIDPS)
- Talent Intelligence, Personality, Skills – TIPS
- Speed, Understanding, Personality – SUPS
- Differentiated Model of Giftedness and Talent - DMGT
- Talent – SLO

Za sve ove metode moramo takođe konstantovati da nisu visoko pouzdane. Ne postoji metoda na osnovu koje bismo mogli sigurno prognozirati rezultate u zreloom dobu sportista. To samo dokazuje kako je identifikacija, selekcija i prognoza uspjeha u sportu složena i kompleksna problematika. Uspjeh u sportu je zavisao od niza unutrašnjih i vanjskih faktora.

Ključne reči: identifikacija talenta, sport, razvoj

TALENT IDENTIFICATION IN SPORTS

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Identifying talented sport individuals and their timely inclusion in the process of sports training is one of the most demanding practices of contemporary sports profession and science. Success in sports depends on many factors that come from athletes themselves or from their surroundings. Generally speaking, selection processes are one of the basic characteristics of sport. The initial selection - talent identification is a universal interdisciplinary field, which includes different topics of sports: genetics, kinesiology, biomechanics, sports medicine, physiology and developmental psychology. Talent in sport is defined by genetic inherited morphological characteristics, psycho-motoric and functional abilities, cognitive and social characteristics and motivation. Today, there are different methods of identifying and selecting talented children for sport. The simplest and most elementary is the natural method - spontaneous selection. The selection of children by this method is based on the current competitive results of individuals.

The second group of methods of identification and selection of children are scientific methods.

There are several methods in the international space. The most famous are:

- Talent Identification and Development Programs in Sport (TIDPS)
- Talent Intelligence, Personality, Skills – TIPS
- Speed, Understanding, Personality – SUPS
- Differentiated Model of Giftedness and Talent – DMGT
- Talent - SLO

For all these methods we can claim to be highly reliable. But there is no method based on which you can safely forecast the results in the mature age of athletes. It only proves that identification, selection and performance prognosis are complex. Sports success is dependent on a number of internal and external factors.

Key words: talent identification, sports, development

DEMOGRAFSKE PROMENE U ISTOČNOJ SRBIJI. PRIMER OPŠTINA SOKOBANJA**Aleksandar Radivojević**

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Negativne demografske promene u Istočnoj Srbiji obeležile su čitavu drugu polovinu XX i početak XXI veka. Ove promene ogledaju se u opadanju nataliteta, povećanju mortaliteta, a sve to rezultira intenzivnim smanjenjem broja stanovnika. Opština Sokobanja je primer izrazito depopulacijske opštine pomenutog prostora. Na osnovu rezultata svih popisa od 1961. do 2011. godine ovaj prostor intenzivno gubi stanovnike. Cilj ovog rada je da ukaže na najbitnije probleme u dosadašnjem razvoju stanovništva ovog prostora i ukaže na moguće pravce u daljem razvoju.

DEMOGRAPHIC CHANGES IN EASTERN. AN EXAMPLE OF SOKOBANJA**Aleksandar Radivojević**

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Negative demographic changes in Eastern Serbia marked the entire second half of 20th and the beginning of 21st century. These changes are reflected in the reduced birth rate and increased mortality rate, both of which are the result of the population decline. Sokobanja Municipality is an example of great depopulation of the region. Based on the records from 1961 and 2011, this region has lost its population. The aim of this research is to address the most important issues of the development of the population of this region and indicate possible directions of future development.

HIPOKINEZIJA – PROBLEM DANAŠNJICE DA LI DOVOLJNO DOPRINOSIMO REŠAVANJU PROBLEMA

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Savremen način života sa svim svojim prednostima i manama uzima svoj ceh, sa posebnim akcentom na mlađoj populaciji. Fizička neaktivnost je svrstana među vodeće faktore rizika za smrtnost među ljudima sa 6%, a odmah za njom visok krvni pritisak sa 13%, upotreba cigareta 9%, visok nivo šećera 6%, dok je prekomerna telesna težina odgovorna za 5% slučajeva (WHO, 2009). U većini studija nedvosmisleno se može uvideti da regularna fizička aktivnost utiče na opštu smrtnost, a onda i kardiovaskularna oboljenja, prekomerna telesna težina, neke vrste kancera itd. (WHO, 2009; Haskell, WL. 1998, Vuori, I., Surgeon's General Report, 1996, Oja, P., 1995). Prema drugim istraživanjima 14 miliona dece ima problem sa viškom telesne težine, od kojih je 3 miliona ugojeno (World Health Organization, 2006). Podaci raznih studija iz Sjedinjenih Američkih Država govore da je procenat dece sa prekomernom telesnom težinom na uzrastu od 6 do 19 godina, dvojno povećan za razliku od 1980 godine (Centers for Disease Control and Prevention, 2002). Preko 15 % dece u ovoj uzrasnoj grupi ili je debelo ili je sa povećanom telesnom težinom, 61% imaju jedan, ili više KV faktora rizika, dok 27% ima više od dva faktora rizika i predispozicije da u budućnosti stradaju od KV bolesti. Redovna fizička aktivnost može da utiče na prevenciju i smanjenje debljanja, kao i na očuvanje zdrave telesne težine (Epstein LH, Coleman KJ, Myers MD, 1996). Prema statističkim podacima (US Department of Health and Human Services, 2000) ukoliko se ne preduzmu hitne odgovarajuće mere od strane vlada zemalja, problem će postati još veći i verovatno će ova generacija dece živeti kraće nego njihovi roditelji. Svi mi pišemo, pričamo o zdravlju, pozivamo se na različita istraživanja, a problem je sve veći i veći i svi se žalimo kakve su nam to generacije.

HIPOKINETICS – THE PROBLEM OF MODERN AGE DO WE CONTRIBUTE ENOUGH TO SOLVING THIS PROBLEM

Goran Nikovski

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Modern life with all its advantages and disadvantages is taking its toll, especially on younger population. Physical inactivity is one of the main risk factors of mortality, with 13% of the cases being caused by high blood pressure, 9% by cigarettes and 5% by overweight (WHO, 2009). According to a great deal of studies it can be concluded that physical activity has some influence on cardiovascular diseases, overweight and some types of cancer etc. (WHO, 2009; Haskell, WL. 1998, Vuori, I., Surgeon's General Report, 1996, Oja, P., 1995). Some other studies stress the fact that 14 million of children have problems with overweight, 3 million of them are obese (World Health Organization, 2006). Extensive data from numerous studies in the United States show that the percentage of overweight children 6 – 19 years of age, has been increased in comparison with 1980 (Centers for Disease Control and Prevention, 2002). 15 % of children are either obese or overweight, 61% have one or more CV risk factors, while 27% have more than two risk factors of suffering from CV diseases. Regular physical activity can have positive effect on the prevention and reduction of overweight people as well as help them keep healthy body weight. (Epstein LH, Coleman KJ, Myers MD, 1996). According to statistical data, (US Department of Health and Human Services, 2000) if the governments do not take urgent measures to solve this problem it will grow bigger and future generations will face shorter life span than their parents. We all write about it, talk about health, we mention different studies, nevertheless, the problem is getting bigger and bigger and we keep complaining about new generations.

FIZIČKO VEŽBANJE DECE SA OŠTEĆENJEM VIDA

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Oštećenje vida podrazumeva delimično ili potpuno odsustvo raspoznavanja svetlosti, ili značajno oštećenje vida sa oštrinom vida na boljem oku od 0.05 do 0.3. Oštećenje vida smanjuje mogućnost efikasnog i uspešnog kretanja, što nepovoljno utiče na psihofizički razvoj deteta. Dosadašnja istraživanja ukazuju na značajne razlike u motoričkim veštinama i sposobnostima između dece sa i bez oštećenja vida. Slepa i slabovidna deca treba da imaju istu šansu da učestvuju u fizičkim aktivnostima kao i deca bez oštećenja vida. U vezi s tim, cilj ovog rada je objasniti metodiku primene fizičkog vežbanja dece sa oštećenim vidom. Metodika fizičkog vežbanja kod ove populacije podrazumeva prilagođavanje nastavnih metoda, adaptaciju prostora za vežbanje i rekvizita. Od nastavnih metoda primenjuju se fizičko vođenje i taktilno istraživanje. Fizičko vođenje podrazumeva da se određeni pokret izvodi zajedno sa detetom, kako bi ono steklo osećaj za taj pokret. To u praktičnom smislu znači, da instruktor pomera telo, ruke ili noge deteta prilikom izvođenja određenog pokreta. Taktilno istraživanje podrazumeva da dete koristi svoja taktilna čula za učenje, odnosno uz pomoć opipavanja sopstvenim rukama utvrđuje položaj instruktora prilikom izvođenja određenog pokreta. Jedan od sportova koji se uspešno može sprovesti sa ovom decom je golbal. Kao zaključak iz prethodno navedenog može se reći da stereotipske barijere ne smeju isključivati decu sa oštećenjem vida od učestvovanja u fizičkim aktivnostima.

Ključne reči: metodika, motoričke sposobnosti, oštećenje vida

PHYSICAL EXERCISE FOR CHILDREN WITH VISION IMPAIRMENT

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Vision impairment is defined as the partial or complete inability to discern light, or any significant damage to the visual acuity of the better eye from 0.05 to 0.3. Vision impairment decreases the possibility of effective and successful movement, which has an adverse effect on the psycho-physical development of a child. The research carried out so far indicates significant differences in the motor skills and abilities among children with and without vision impairment. Vision impaired children should have the same opportunity to participate in physical activity as sighted children. Thus, the aim of this paper is to outline a methodology of including vision impaired children in physical exercise. The methodology of physical exercise for this population includes the adjustment of teaching methods, adaptation of the exercise space and props. Physical guidance and tactile exploration are used as teaching methods. Physical guidance means that certain movements are performed along with the child, so that they could acquire a sense for that movement. This means that the instructor moves the body, arms or legs of the child when performing a certain movement. Tactile exploration means that the child uses all his tactile senses for learning, that is, while touching with his own hands, he determines the position of the instructor when performing a certain movement. One of the sports which can successfully be incorporated for this group of children is Goalball. As a conclusion, based on the aforementioned, stereotypical barriers must not exclude children with vision impairment from participating in physical activities.

Key words: methodology, motor skills, vision impairment

PROFIL ANIMATORA REKREATIVNIH PROGRAMA

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Animator je pre svega inicijator i pokretač programa. To je osoba koja je informisana o svim aktuelnostima, a posebno ukoliko se događaju velike sportske ili kulturne manifestacije, npr. Svetsko prvenstvo u fudbalu ili košarci, Olimpijske igre, izbor za pesmu Evrovizije i sl. Svakodnevno je nasmejan i vedar, i to pokazuje u svakom trenutku. Savremeni animator, pored činjenice da tečno govori nekoliko jezika, mora da barata svim tehničkim dostignućima. Svaki animator mora da poseduje hrabrost da počne komunikaciju sa klijentima i da organizuje dnevni ili večernji program i stvori lepu i veselu atmosferu. Svakako da mora da proceni svaku potencijalnu opasnost i da izbegava konfliktne situacije. U svakoj situaciji animator mora da prepozna trenutke kada će određenu stvar uraditi na jedinstven način, sa mnogo stila. Od obične dodele diploma ili nagrada napraviti spektakl; od proglašenja mis hotela napraviti progalašenje za mis sveta itd. Neko ko se bavi ovom profesijom, konstantno ulaže u sebe. Dodao bih da animator mora svojim osmehom da pleni, svojim šarmom uspeva da napravi dobru komunikaciju sa gostima, i sve to koristi u svrhu uključivanja publike, ali uvek na dobrovoljnoj bazi.

A PROFILE OF AN ANIMATOR FOR RECREATIONAL PROGRAMS

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An animator is primarily an initiator and a promotor of a program. This is a person who is informed about all current events, especially when big sport events or cultural manifestations are organized, such as World Cup, Basketball World Cup, Olympic Games, and Eurovision etc. An animator is always in a good mood and cheerful, and shows it by his or her attitude. Contemporary animators besides being fluent in several languages have to be acquainted with all the technical achievements. Each animator has to have courage to start communication with the clients and be able to organize daily or evening activities and create a cheerful atmosphere. He has to be aware of the potential danger and avoid conflicts. An animator has to find the right moment to do a certain thing in a unique way, with a lot of style in every situation. He has to make a spectacle out of a simple diploma award, or make Miss World out of a hotel beauty pageant etc. A person who does this type of work has to constantly improve himself. I would like to add that an animator has to dazzle the audience with his or her smile and charm, and be able to successfully communicate with the guests, with the aim of including the audience in a certain event but on voluntary basis.

KINEZIOLŠKA ANTROPOLOGIJA U FUNKCIJI ZDRAVLJA (FIZIČKO I ZDRAVSTVENO OBRAZOVANJE- SPORT, KINEZITERAPIJA, KINEZIOLŠKA MEDICINA) I KIČMENI DEFORMITETI

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Veoma je važna činjenica da se ljudi razlikuju po visini, širini, obimu, masi, telesnoj težini, strukturi manifestnog i latentnog prostora, koji predstavlja strukturu mišićno-skeletnog aparata i strukturu latentnog prostora centralnog nervnog sistema. To znači da u manifestnom prostoru, ili drugim rečima, skeletno-mišićnom aparatu, ne postoji hemijska supstanca ili dijeta koja može imati takav efekat kao osmišljen program vežbi, koji utiče na sistem poznat kao ljudski organizam. Najveći uticaj na ljudski sistem, koji dovodi do promena u manifestnom i latentnom prostoru, su programirane i neprogramirane kinetičke stimulacije, kao operateri unosa i iznosa veličina koji treba da prave razliku između unosa stimulacija, njihove obrade i razlika koje se javljaju pri unosu i ishodu u antropološkom statusu. Prema intenzitetu, mogu delovati na ljudski organizam tako što dovode do slabih, većih ili ozbiljnih promena koje vode u promenu spoljašnjeg izgleda manifestnog prostora kao i skeletno-mišićnog sistema i latentnog prostora centralnog nervnog sistema, i to u pogledu genetskog nasleđa, intelektualnih sposobnosti, funkcionalnih sposobnosti i strukturnih osobina osobe. Promene u telu koje su pod uticajem kinezioloških stimulacija razlikuju se po intenzitetu pa tako imamo slabe, srednje i jake kineziološke stimulacija.

Stoga, sa kineziološko-fizičkim i zdravstvenim obrazovanjem i sportom, treba krenuti što ranije i ne treba sa njima prestajati do kraja života. Kako bismo izučavali genetsko nasleđe u smislu motoričkih sposobnosti, funkcionalne i sportske inteligencije, potrebno je da se deca koja žele da se bave sportom analiziraju u pogledu genetski naslednih funkcionalnih sposobnosti, pre nego što počnu da se bave sportom, da bi se odredio talenat i kojem sportu odgovaraju njihove genetske karakteristike. Zbog osobina motoričkih sposobnosti koje su generalno karakteristične za decu i koje predstavljaju snagu, nervni sistem, skeletno-mišićni aparat, određuje se do kog nivoa telo može biti opterećeno određenim programom kinezioloških aktivnosti koje mogu da aktiviraju skeletno-mišićni aparat i u kojoj meri. Dozirana fizička aktivnost održava zdravo telo tokom čitavog života. Čovek kao deo prirode treba da reaguje neprogramirano i instinktivno, a programirano u naučnom smislu. U okviru beneficija nove civilizacije u borbi za život sve je više opterećen naporima-hipokineza je glavna bolest civilizacije. Dobar trening, zdrava dijeta osnovni su preduslovi za zdravo telo. U modernom društvu, nedovoljna aktivnost dovodi do pandemije poznate kao bolesti civilizacije. Pre svega se javljaju skeletno-mišićni poremećaji, poznati pod različitim imenima, i to kao rezultat lošeg držanja tela, a oni dovode do promena u strukturi kičme pa se tako često susrećemo sa skoliozom, lordozom, kifozom.

Cljučne reči: antropologija, kineziologija, prevencija, bol, zdravlje, hipokineza, kičmeni deformiteti.

KINESIOLOGICAL ANTHROPOLOGY IN THE FUNCTION OF HEALTH (PHYSICAL HEALTH EDUCATION - SPORTS, KINESITHERAPY, KINESIOLOGICAL MEDICINE) AND SPINAL DEFORMATIONS

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It is essential that people differ according to their height, width, volume and mass, weight, structure of manifest and latent space, which refers to the structure of the skeletal muscle apparatus and the structure of the latent space of the central nervous system. This means that in the manifest space, that is, the skeletal muscular apparatus, there is no chemical substance nor a diet that can act as strongly as the programmed exercises that affect the system called human system. The programmed exercises that affect the anthropological status in which way and how much they affect the changes in the structure of the human organism. The strongest influence in the system called human which affects the changes in manifest and latent space are the programmed and non-programmed kinetic stimuli, as input operators and output sizes that should distinguish between the input of those stimuli, their processing and the difference that occurs between the input and the output in anthropological status. According to their intensity, they can act on the human system with weak, strong, large and maximum changes that change the outer appearance in the manifest space, as a skeletal muscular system and the latent space of the central nervous system in terms of genetic inheritance, intellectual abilities, functional abilities, and structural features of a person. Changes in the body that are influenced by kinesiological stimuli can differ in their intensity such as weak, medium and strong kinesiological stimuli.

Therefore, kinesiological - physical health education and sports are best if they start from the earliest age and end with the end of human life. In order to study the genetic inheritance in motoric sense, functional and sports intelligence, it is necessary that children who want to deal with the sport should be subjected to the analysis of the genetic inherited functional abilities before they begin to deal with any sport, for to determine their talent, and for which sport it corresponds according to the genetic characteristics. Because the characteristics of motor skills that are generally a common feature of all children and which represents a common body strength, nervous system, skeletal muscle apparatus at which level the body can be loaded or treated with certain programmed kinesiological medical activities that can perform an elaborate dosage of the skeletal muscle apparatus. Dosed physical exercise keeps the body in good health during its entire existence. A human being as a part of nature needs to act unprogrammed or instinctively, and programmed in a scientific sense, within the new civilization benefits, in the struggle for his life to be more physically burdened and to fight the insufficient physical effort – hypokinesia, which is the basic problem of civilization diseases. It would mean that body training and a healthy diet are needed as a basic precondition for a healthy body. In the new society, insufficient physical effort is causing the pandemics of new generations of so-called civilizational diseases. Above all, skeletal muscular disorders, under various names, spongiform deformations that take up a huge swing in bad body postures and structural changes on the spine known under different names such as scoliosis, lordosis, kyphosis, etc., are predominant in this sense.

Key words: anthropology, kinesiology, prevention, pain, health, hypokinesia, spinal deformations.

ZIMSKI SPORTSKI TURIZAM I KVALITET ŽIVOTA

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Cilj ovog istraživanja bio je da se ispita kako zimske sportske aktivnosti, kao sadržaji sportsko-rekreativnog turizma, utiču na kvalitet života korisnika navedenih turističkih usluga. Istraživanja pokazuju da turisti ostvaruju pozitivne ishode i unapređuju kvalitet svog života na osnovu pozitivne sprege između angažovanja u sportsko-rekreativnim aktivnostima i subjektivnog osećaja zadovoljstva, percipiranog kvaliteta života i sveopšteg blagostanja pojedinca. Istraživanje je sprovedeno na uzorku od 77 ispitanika oba pola (49 M, 28 Ž) koji su proveli sedam dana u skijaškom centru Kopaonik i kao polaznici bili uključeni u rad škole skijanja. Podaci o kvalitetu života prikupljeni su standardizovanim upitnikom Svetske zdravstvene organizacije (WHOQOL BREF). Upitnikom se dobijaju informacije o četiri različita domena kvaliteta života: fizičko zdravlje, psihičko stanje, socijalni odnosi i okruženje. Dobijeni podaci predstavljeni su deskriptivnom statistikom, a razlike između inicijalnog i finalnog merenja i razlike između ispitanika muškog i ženskog pola ispitane t testom. Na osnovu dobijenih rezultata utvrđeno je da ispitanici angažovani u zimskim sportsko-rekreativnim aktivnostima pokazuju visoke skorove u sva četiri domena upitnika, kao i da ne postoje razlike između ispitanika muškog i ženskog pola, niti razlike na inicijalnom i finalnom merenju.

Ključne reči: skijanje, sportski turizam, sportsko-rekreativne aktivnosti, zimski turizam

WINTER SPORT TOURISM AND THE QUALITY OF LIFE

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The aim of this research was to examine how winter sports activities, as well as the content of sports and recreational tourism offer, affect the quality of life of the users of the tourist services. Previous researches show that tourists achieve positive outcomes and improve the quality of their lives on the basis of a positive relationship between engaging in sports and recreational activities and the subjective sense of satisfaction, perceived quality of life and overall wellbeing. The survey was conducted on a sample of 77 participants (49 males, 28 females) who spent seven days at the ski center of Kopaonik and attended the course of skiing at a ski school. The data on the quality of life were collected by a standardized WHOQOL BREF questionnaire. The questionnaire provides information on four different domains of quality of life: physical health, psychological state, social relationships and environment. The obtained data were presented with descriptive statistics, and the differences between the initial and final measurement and the difference between the male and female respondents were tested with the t test. Based on the obtained results, it was found that the respondents who engaged in winter sports and recreational activities show high scores in all four domains of the questionnaire, as well as that there are no differences between male and female respondents, nor differences in initial and final measurement.

Key words: skiing, sports tourism, sports and recreational activities, winter tourism

UTICAJ MORFOLOŠKIH KARAKTERISTIKA NA BRZINU TRČANJA DECE MLAĐEG ŠKOLSKOG UZRASTA

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Stepen razvijenosti motoričkih sposobnosti učenika u značajnoj meri uslovljava njihov pravilan rast i razvoj. Primena postupaka, metoda i sredstava u cilju utvrđivanja zakonitosti razvoja u uslovima prirodnih uticaja složen je proces, posebno u uslovima u kojima se želi intenzivirati promena nivoa sposobnosti, ili uobličiti njena struktura i efikasnost u karakterističnim uslovima ispoljavanja telesne sposobnosti. Istraživanje je sprovedeno sa ciljem ukazivanja na pojedine odnose stanja potkožnog masnog tkiva na referentnim tačkama tela i voluminoznosti sa rezultatima u sprinterskim disciplinama kod učenika mlađeg školskog uzrasta. Obuhvaćeno je ukupno 120 ispitanika (59 dečaka i 61 devojčica), hronološke starosti $10,53 \pm 0,47$ godina, učenika četvrtog razreda OŠ "Svetozar Marković Toza" u Novom Sadu. U morfološkom prostoru koji je obuhvatao voluminoznost tela, masu tela i potkožno masno tkivo, primenom multivarijatne analize varijanse konstatovane su statistički značajne razlike, pri čemu se u pojedinačnoj analizi ta razlika uočava samo u varijabli *obim trbuha* sa znatno manjim vrednostima kod devojčica. Rezultati linearne regresione analize ukazali su na to da je prediktorski sistem varijabli sa sprinterskom brzinom trčanja, *trčanje 30 m* (kriterijumom) opisivao od 28% kod devojčica do 57% kod dečaka zajedničkog varijabiliteta, što je dalo značajnost uticaja prediktorskog sistema na kriterijsku varijablu *trčanje 30m*. Pojedinačnim posmatranjem, negativan doprinos većoj brzini trčanja dala je varijabla *kožni nabor nadlaktice* kod oba analizirana subuzorka.

Cljučne reči: antropološki prostor, sprinterska brzina, dečaci, devojčice, osnovna škola.

THE INFLUENCE OF MORPHOLOGICAL CHARACTERISTICS ON THE RUNNING SPEED OF YOUNGER SCHOOL AGED CHILDREN

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Proper growth and development of children is significantly conditioned by the level of their motor skill development. The application of procedures, methods and means for the determination of the regularity of the development, under the influence of natural effects, is a complex process especially when the desired aim is to intensify the changing of the ability levels or to form the structure and efficiency under the characteristic conditions of demonstrating body abilities. This research was carried out for the reason of pointing out specific relationships between subcutaneous fat tissue on reference points of the body and voluminosity on the one hand and the results of sprint runs of younger school pupils on the other hand. The sample comprised 120 fourth-grade pupils of the primary school "Svetozar Marković Toza" in Novi Sad (59 boys and 61 girls), of the chronological age 10.53 ± 0.47 years. The application of the multivariate analysis has shown that there are statistically significant differences in the morphological space including body voluminosity, body mass and subcutaneous fat tissue; however, the individual analysis has indicated the difference only in the variable *Abdomen circumference* the values of which are considerably lower in girls. The results of the linear regression analysis have shown that the predictor system of variables with sprint running speed, *30 m run* (criterion) has described the common variability from 28% (in girls) to 57% (in boys), which has provided the significance of the effect of predictor system on the criterion variable *30 m run*. According to the individual observation, a negative contribution to a higher running speed was given by the variable *Skin fold of upper arm* in both analyzed subsamples.

Key words: anthropological space, sprint speed, boys, girls, primary school.

TRANSVERZALNA ANALIZA SKOLIOTIČNIH POREMEĆAJA KOD MLAĐIH ADOLESCENTKINJA URBANE I RURALNE ŽIVOTNE SREDINE

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Osnovni cilj ovog istraživanja je utvrđivanje frekvencije, težine, strukture i eventualnih razlika u prisutnosti skoliotičnih poremećaja na kičmenom stubu, kod djevojčica urbane i ruralne životne sredine u Crnoj Gori. Istraživanjem transverzalnog tipa obuhvaćeno je 155 ispitanica, i to 77 iz urbane i 78 iz ruralne životne sredine, prosječne starosti 13,7 godina. Analiza skoliotičnih poremećaja izvršena je primjenom više kombinovanih tehnika i metoda mjerenja: metode somatoskopije, metode mjerenja pomoću viska i lenjira, testa „voljne“ kontrakcije mišića, testa podizanja ruke na konkavnoj strani tijela, Adamsovog testa i testa položaja u visu (Koturović i Jeričević, 1998; Živković, 1998; Radisavljević, 2001; Jovović, 2008). Za sve primijenjene posturalne varijable i njihove varijacije izračunate su distribucije frekvencija prekidnih statističkih serija. Razlike između subuzoraka ispitanica su testirane pomoću hi-kvadrat (χ^2) testa. Rezultati istraživanja su pokazali da je frekvencija skoliotičnih poremećaja u značajnoj mjeri zastupljena kod mlađih adolescentkinja u Crnoj Gori. Između ispitanica urbane i ruralne životne sredine nijesu utvrđene razlike na statistički značajnom nivou. Istraživanje je pokazalo da kod oba subuzorka daleko najveći procenat devijacija čine funkcionalni poremećaji koji se adekvatnim tjelesnim tretmanom mogu vrlo uspješno otkloniti.

Ključne riječi: kičmeni stub, skolioza, djevojčice, životna sredina, razlike.

TRANSVERSAL ANALYSIS OF SCOLIOTIC DISORDERS OF YOUNG ADOLESCENTS FROM URBAN AND RURAL AREAS

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The main aim of the research is to determine the frequency, severity, structure, and possible differences of the spinal disorder among the girls from urban and rural areas of Montenegro. The transversal approach was used in the research. The sample comprised 155 female respondents, of which 77 of which were from urban and 78 from rural areas with the average age of 13.7 years. The analysis of scoliotic disorders was performed using several combined techniques and methods of measurement: somatoscopy method, the method of using plumb line and ruler, test of raising hand on the concave side of the body, Adams test, test of "voluntary" muscle contraction and higher position test (Koturović & Jeričević, 1998; Živković, 1998; Radisavljević, 2001; Jovović, 2008). Frequency distribution of interrupted statistical series was calculated for all postural variables and their variations. The differences between the subsamples of respondents were tested using the chi-square test. The results of the research indicate that the frequency of scoliotic disorders is present in young adolescents of Montenegro to a great extent. There were no statistically significant differences between respondents from urban and rural areas. The research showed that functional disorders make up the largest percentage of deviations, in both subsamples, which can be successfully corrected with an adequate application of physical treatments.

Key words: spine, scoliosis, girls, environment, differences.

RAZLIKE U MOTORIČKIM I FUNKCIONALNIM SPOSOBNOSTIMA IZMEĐU ŽENSKE I MUŠKE JUNIORSKE BADMINTON SELEKCIJE

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Jednačina specifikacije u badmintonu još uvek je u fazi formiranja i to njenog inicijalnog dela. Zasada još nije poznato koje su to najbitnije osobine i sposobnosti od kojih direktno zavisi uspešnost u badmintonu. Danas je sistem badminton igre vrlo elastičan, što se tiče individualnog stila, tako da su individualne sposobnosti maksimalno stavljene u funkciju efikasnosti. Cilj istraživanja je da se utvrde razlike u motoričkim i funkcionalnim sposobnostima između ženske i muške juniorske badminton selekcije. Uzorak je činilo 26 ispitanika (13 igračica i 13 igrača) koji su članovi juniorske badminton selekcije Republike Srbije. Za procenu motoričkih i funkcionalnih sposobnosti primenjeno je ukupno 14 testova. Razlike između ženske i muške juniorske badminton selekcije u motoričkim i funkcionalnim sposobnostima, utvrđene su multivarijantnom analizom varijanse (MANOVA) i univarijantnom analizom varijanse (ANOVA). Na osnovu dobijenih rezultata, može se konstatovati da je muška badminton selekcija postigla bolje rezultate u svim testovima osim testa gipkosti. Na osnovu univarijantne analize razlika između aritmetičkih sredina muške i ženske juniorske badminton selekcije u svakom testu, uočava se da su u osam testova prisutne statistički značajne razlike, dok u šest testova nisu.

Ključne reči: brzina, agilnost, snaga, izdržljivost i gipkost.

DIFFERENCES OF MOTOR AND FUNCTIONAL ABILITIES BETWEEN FEMALE AND MALE JUNIOR BADMINTON SELECTIONS

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The equation of specification in badminton is still in the stage of development, namely its initial part. For the time being, it is not known what are the most important characteristics and abilities which directly affect the performance in badminton. The system of badminton play is currently very flexible in terms of the individual style, owing to which individual abilities perform a function of efficiency. The aim of this research is to determine differences in motor and functional abilities between female and male junior badminton selections. The research sample comprised 26 respondents (13 female and 13 male) who are the members of the junior badminton selection of the Republic of Serbia. Motor and functional abilities were tested by means of 14 tests. The differences of motor and functional abilities between female and male badminton selections were determined using multivariate analysis (MANOVA) and univariate analysis (ANOVA). The findings indicate that the male badminton selection achieved better results in all tests except the test of flexibility. Concerning the differences between arithmetic means of male and female junior badminton selections in each test, the results of univariate analysis indicate that eight tests manifest statistically significant differences whereas the remaining six do not show any statistical significance.

Key words: speed, agility, strength, stamina i flexibility.

UTICAJ SPOLJAŠNJE MOTIVACIJE U MOTORIČKIM TESTOVIMA NA DECU PREDŠKOLSKOG I MLAĐEG ŠKOLSKOG UZRASTA

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Često se u vezi sa treningom i sportom, kaže da trener mora znati "motivisati" sportistu, bilo na duži, bilo na kraći vremenski rok. Ako u tome uspe, sportisti će pokazivati više zanimanja za rad i trening i kasnije će postizati i bolje rezultate. Na uzorku od 58 polaznika školice sporta – 44 dečaka i 14 devojčica uzrasta 6-8 godina, koji redovno pohađaju treninge tri puta nedeljno u trajanju od 60 min, primenjena je baterija od osam motoričkih testova: T-test, Poligon natraške, Skok u dalj iz mesta, Taping rukom, Pretklon u sedu raznožnom, Podizanje trupa iz ležanja na leđima za 30 sekundi, Izdržaj u zgibu i Stajanje na jednoj nozi. Cilj istraživanja bio je utvrđivanje razlika između dva načina izvedbe motoričkih testova, jedan bez motivacije i drugi način sa spoljašnjom motivacijom pre i tokom samog izvođenja zadatka. Primenom t-testa za zavisne uzorke uočena je staristički značajna razlika u svim varijablama u smislu boljih rezultata kod drugog merenja gde je primenjena spoljašnja motivacija ispitanika. Rezultati ovog istraživanja pokazuju značaj i uticaj motivacije na rad i trud dece predškolskog i mlađeg školskog uzrasta. Na osnovu dobijenih rezultata može se reći da je veoma važno motivisati i ohrabrivati decu u svakom segmentu bavljenja fizičkom aktivnošću. Pokazalo se da u tom uzrastu motivacija koju trener pokušava da stvori kod deteta ima veliki uticaj na dečije samopouzdanje i želju da se što bolje pokaže.

Ključne reči: motivacija, motorički testovi, deca, predškolski uzrast, mlađi školski uzrast

THE IMPACT OF MOTIVATION IN MOTOR TESTS ON PRESCHOOL AND YOUNG SCHOOL CHILDREN

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It is often said, in terms of training and sports, that the coach must know how to "motivate" the athlete, either for a longer or for a shorter period of time. If he/she succeeds in that, athletes will show more interest in work and training and achieve better results later on. A battery of eight motor tests was applied on the sample including 58 school students- 44 boys and 14 girls aged 6-8 years, who regularly attended training sessions, three times a week for 60 minutes. The battery included: T-test, backward polygon, standing long jump, hand tapping, sit and reach, lifting the trunk from lying position in 30 seconds, bent-arm hang and one-foot stand. The aim of the research was to determine the differences between the two modes of performing motor tests, one without motivation and another with external motivation before and during the task itself. The application of the t-test for dependent samples showed an age-related significant difference in all variables in terms of better results in the second measurement where the external motivation of the respondents was provided. The results of this research show the importance and influence of motivation on the work and efforts of children of preschool and young school age. By obtaining these results it can be said that it is very important to motivate and encourage children in each segment of physical activity. It turned out that at that age, the motivation the coach is trying to strengthen in children has a great influence on their confidence and the desire to do much more.

Key words: motivation, motor tests, children, preschool age, younger school age

STAVOVI STUDENATA PEDAGOŠKOG FAKULTETA O FIZIČKOM VASPITANJU

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Sa ciljem da se ustanove stavovi studenata Pedagoškog fakulteta iz Užica o fizičkom vaspitanju, kao instrument istraživanja primenjena je anketa STSPF. Ista u sebi sadrži petostepenu skalu Likertovog tipa. Skala za istraživanje je sadržala 10 tvrdnji-stavova, o kojima su se ispitanice izjašnjavale, uz mogućnost intenziteta odgovora od potpunog slaganja do potpunog neslaganja. Ispitivanjem je obuhvaćeno 127 studentkinja, starosti od 19 do 20 godina. Primenom metode procentnog računa, ustanovljene su frekvencije u intenzitetu stavova i izračunati procenti tih frekvencija.

Rezultati istraživanja su pokazali da sve ponuđene tvrdnje nailaze uglavnom na pozitivan stav kod ispitanica, pa se njihovi stavovi u zoni pozitivnog stava-slaganja sa tvrdnjom, kreću u rasponu od 75% do čak 85%, ako smatramo da su odgovori na tvrdnje potpuno se slažem i uglavnom se slažem pozitivni. Značajnost ovih rezultata treba videti u tome što ova činjenica daje mogućnost za dodatno angažovanje u oblasti fizičkog vaspitanja, rekreacije i sporta, u cilju celokupnog razvoja psihofizičkih osobina studentske populacije.

ATTITUDES OF STUDENTS AT THE FACULTY OF PEDAGOGY ON PHYSICAL EDUCATION

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The aim of this research was to determine the attitudes of students on physical education at the Faculty of Pedagogy in Uzice. We used STSPF questionnaire as the instrument of this research. The questionnaire contains a five-degree scale of Liker type. The research scale contained 10 statements-attitudes, on which the students stated their opinion, with the possibility of completely agreeing or completely disagreeing with the statements. The sample comprised 127 female students, 19 to 20 years of age. The frequency and attitude intensity as well as the frequency percentage were established.

The results of this research showed that the attitudes towards the given statements were positive and they varied from 75% to 85%, given that the answers *I completely agree* and *I agree to a great extent* were considered to be positive answers. The importance of these results lies in the fact that they leave space for additional involvement in physical education, recreation and sport with the aim of a complete development of psycho-physical characteristics of student population.

Key words: attitude scale, students, process account

UPOREDNA ANALIZA ODNOSA, POTREBA I INTERESOVANJA STUDENATA PREMA FIZIČKOM VASPITANJU I SPORTU

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Nastava fizičkog vaspitanja jeste jedan od obaveznih predmeta tokom osnovnoškolskog i srednješkolskog obrazovanja, ali u visokoškolskim ustanovama ona je ukinuta, iako postoji objektivna potreba da se upravo kod ove specifične populacije menja svest o višestrukom značaju fizičkog vežbanja. Cilj ovog istraživanja bio je da se utvrde razlike u odnosima, potrebama i interesovanjima prema nastavi fizičkog vaspitanja i sportu između studenata muškog i ženskog pola. Rezultati ovog istraživanja su pokazali da postoje određene razlike u odnosima, interesovanjima i potrebama, naročito u dužini trajanja nastave fizičkog vaspitanja i sporta, gde se studenti muškog pola više opredeljuju za jednosemestralnu, odnosno student ženskog pola za dvosemestralnu nastavu. Pored toga, studenti muškog pola su aktivniji u fizičkom vežbanju. Takođe, rezultati ovog istraživanja pokazuju, da je samo 41,33% studenata muškog i 21,33% ženskog pola fizički aktivno više od tri puta nedeljno. Dakle, 58,67% studenata muškog i 78,67% ženskog pola je neaktivno ili nedovoljno aktivno, što je svakako zabrinjavajući podatak. Kada se sagledaju rezultati istraživanja sa aspekta identifikacije prisutnosti pojedinih životnih navika kod studenata niškog univerziteta, odnosno njihovog uticaja na pojedine stavove prema ideji „uvođenja“ nastave fizičkog vaspitanja i sporta na Univerzitet, može se konstatovati da pojedine životne navike predstavljaju njihovu značajnu odrednicu. Razvijanjem svesti o značaju fizičke aktivnosti i pravilnom upražnjavanju vežbi, utičemo da u budućnosti student kroz nastavu fizičkog vaspitanja stiču pozitivne životne navike prema svakodnevnom fizičkom vežbanju, radi pozitivnog delovanja na zdravstveni status.

Ključne reči: stavovi, fizičko vežbanje, studenti, nastava

COMPARATIVE ANALYSIS OF RELATIONS, NEEDS AND INTERESTS OF STUDENTS FOR PHYSICAL EDUCATION AND SPORT

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Physical education is one of the compulsory subjects during primary and secondary education, but it has been abolished in higher education institutions, although there is an objective need to change awareness of the vital importance of physical exercise precisely in this specific population. The aim of this research was to determine the differences in relationships, needs and interests in the teaching of physical education and sports between male and female students. The results of this study have shown that there are some differences in relationships, interests and needs, especially in the duration of physical education and sports, where male students are more likely to opt for one-semester or female students for two-semester curriculum. In addition, male students are more active in physical exercise. Also, the results of this study show that only 41.33% of male and 21.33% female students are physically active more than three times a week. So, 58.67% of male and 78.67% of female students are inactive or insufficiently active, which is certainly a worrying fact. When looking at the results of the research from the aspect of identifying the presence of certain life habits among students of the University of Nis, that is, their influence on individual attitudes towards the idea of "introducing" physical education and sports to the University, it can be concluded that certain life habits determine them to a large extent. Developing awareness of the importance of physical activity and proper selection of exercises, we could influence them in such a way so that in the future students acquire acquire positive life habits for daily physical exercise, for positive action on health status through physical education.

Key words: attitudes; physical exercise; students, curriculum.

SEGMENTALNA ANALIZA TELESNOG SASTAVA KODELITNIH KARATISTA: ANALIZA BIOELEKTRIČNOM IMPEDANSOM (INBODY 720)

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Cilj ovog istraživanja bila je analiza distribucije aktivne telesne komponente kod elitnih karatista, članova reprezentacije Republike Makedonije. Ispitivana grupa se sastojala od 22 karatista, pripadnika seniorske nacionalne reprezentacije, prosečnog uzrasta 21.5 ± 3.45 godina, prosečne visine $178 \text{ cm} \pm 5.42$ i težine 76.8 ± 6.12 kg. Za analizu telesnog sastava je korišćena metoda bioelektrične impedance, aparat InBody 720. Pokraj analize telesnih težnosti i ostalih telesnih komponenti, ovaj aparat analizira i segmentalnu distribuciju mišićne mase. Prosečna masa aktivne telesne komponente, ili SLM, iznosila je 63.91 ± 7.32 kg i bila je raspoređena na sledeći način: gornji ekstremiteti, desna i leva ruka: $3.91 \text{ kg vs. } 3.9 \text{ kg}$; donji ekstremiteti, desna i leva noga: $11.01 \pm 1.25 \text{ vs. } 10.47 \pm 1.19$; i trup = 28.43 ± 6.86 kg. Analiza telesnog sastava je od posebite važnosti za karatiste zbog težinskih kategorija koje postoje u ovom sportu. Segmentalna distribucija t.n čiste telesne mase, kod ispitivanih karatista, pokazuje simetričnu građu tela i ravnomernu raspodelu aktivne telesne komponente na desnoj i levoj strani tela.

ključnereči: bioelektrična impedansa, karate, čista telesna masa, segmentalna analiza

SEGMENTAL ANALYSIS OF BODY COMPOSITION IN KARATE ATHLETES: BIA ANALYSIS WITH INBODY720

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The aim of the study was to analyze the active components of the body composition in Macedonian karate athletes with bioelectrical impedance analysis. **The sample** comprised twenty two (22) male karate athletes with the following characteristics (mean \pm SD): age= 21.5 ± 3.45 years; height= $178 \text{ cm} \pm 5.42$; weight= 76.8 ± 6.12 kg. **Method:** The analysis of the body components was made by the bioelectrical impedance analysis (InBody 720). **Results:** Segmental analysis obtained by BIA measurement showed lean mass distribution in five body segments. The mean value of soft lean mass (SLM) was 63.91 ± 7.32 kg. It was distributed as follows: right arm vs. left arm was $3.91 \text{ kg vs. } 3.9 \text{ kg}$; right leg vs. left leg was $11.01 \pm 1.25 \text{ vs. } 10.47 \pm 1.19$ and trunk was 28.43 ± 6.86 kg.

Conclusions: Karate athletes check their body composition continuously, especially before competitive events. The segmental distribution of the lean body mass is important for karatekas. Our results showed that the mean values of lower limbs had insignificantly higher values for right leg and the mean values of right and left arm were slightly different.

Key words: bioelectrical impedance, karate, lean body mass, segmental analysis

POREĐENJE MORFOLOŠKIH KARAKTERISTIKA I MOTORIČKIH SPOSOBNOSTI OSOBA KOJE SE BAVE ALPINIZMOM I OSOBA KOJE SE BAVE NEKIM DRUGIM AKTIVNOSTIMA

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Alpinizam je penjanje na visoke planine u svako godišnje doba po teško pristupačnim i strmim stenama zbog otkrivanja lepote prirodnog okruženja, kao i zbog jačanja fizičke snage, izdržljivosti i volje. Alpinisti su osobe koje se bave alpinizmom. Da bi alpinisti bili u mogućnosti da uspešno i bezbedno obavljaju svoje uspone, neophodne su dobro razvijene motoričke sposobnosti. Motoričke sposobnosti su posledica kompleksnih mogućnosti čoveka za manifestaciju motoričkih struktura u određenim aktivnostima, koje objedinjuju psihičke karakteristike, biohemijske procese i funkcionalne promene. Cilj ovog istraživanja je ispitati da li ima razlike u morfološkim karakteristikama i motoričkim sposobnostima između alpinista i ostalih sportista, oba pola. Uzorak ispitanika sačinjavalo je 30 sportista, 15 iz subuzorka ispitanika koji se bave alpinizmom (6 osoba ženskog pola i 9 muškaraca) i 15 sportista koji se bave nekim drugim aktivnostima (8 osoba ženskog pola i 7 muškaraca). Na osnovu prethodnih istraživanja i ličnog iskustva, postavljene su hipoteze i odabrane motoričke sposobnosti koje će se procenjivati. Ispitivanjem je utvrđeno da se muškarci alpinisti razlikuju od ostalih sportista u meri kompozicije tela BMI. Žene alpinistkinje se razlikuju od ostalih sportistkinja u sposobnosti eksplozivne snage mišića opružača nogu. Muškarci i žene alpinisti imaju bolje rezultate od muškaraca i žena ostalih sportista u relativnoj snazi i izdržljivosti gornjeg dela tela. Između muškaraca alpinista i ostalih sportista, kao i između žena alpinistkinja i ostalih sportistkinja nema razlike u motoričkim sposobnostima agilnost i brzina kretanja i sposobnost održavanja ravnoteže na prednjem delu stopala.

Ključne reči: alpinizam; morfološke karakteristike, motoričke sposobnosti, razlike

COMPARATION OF MORPHOLOGICAL CHARACTERISTICS AND MOTOR SKILLS BETWEEN ALPINISTS AND OTHER ATHLETES

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Alpinism is climbing to high mountains or hardly accessible and steep walls in every season due to the discovery of the beauty of natural environment, as well as the improvement of physical strength, endurance and will. Alpinists are people who are engaged in alpinism. To ensure that alpinists are able to successfully and safely make their ascents, well-developed motor skills are required. Motor skills are the result of man's complex ability to manifest motor structures in certain activities, which integrate psychic characteristics, biochemical processes and functional changes. The aim of this research is to examine whether there are differences in morphological characteristics and motor skills between alpinists and other athletes of both sexes. The sample comprised 30 athletes, 15 from the sub-sample of respondents who are engaged in alpinism (6 females and 9 males) and 15 athletes of other sport (8 females and 7 males). The hypotheses and selected motor skills are assessed on the basis of previous researches and personal experience. The results of the research show that male alpinists differ from other athletes in terms of BMI body composition. Women alpinists differ from other athletes in the capacity of the explosive muscle strength of lower limbs. Men and women alpinists have better results than other male and female athletes in the relative strength and stamina of the upper body. There is no difference between men alpinists and other athletes, as well as between women alpinists and other athletes considering the agility and speed; as well as the ability to maintain balance standing on tiptoe.

Key words: alpinism; morphological characteristics; motor skills; differences

ANTROPOMETRIJSKE KARAKTERISTIKE I POSTURALNI STATUS DECE MLAĐEG ŠKOLSKOG UZRATA

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Sa ciljem da se ispituju razlike antropometrijskih karakteristika i posturalnog statusa dece mlađeg školskog uzrasta, primenjeno je istraživanje na uzorku 76 dece starosti 11 godina (± 6 meseci) oba pola, pri čemu je prvi subuzorak činilo 36 dečaka, a drugi 40 devojčica. U prostoru antropometrijskih karakteristika izmereno je 17 mera, a za procenu posturalnog statusa mereno je stanje kifotične, lordotične, torakalne skoliotične i lumbalne skoliotične krivine. Primenom analize varijanse testirane su razlike istraživanih varijabli između polova, a na osnovu dobijenih rezultata može se zaključiti da su u prostoru antropometrijskih karakteristika uočene statistički značajne razlike samo u merama širine ramena, širine između laktova i širini kukova, u kojima su dečaci imali veće mere. U posturalnom statusu nije bilo značajne razlike između polova, a vrednosti krivina kičmenog stuba su se kretale u granicama normalnih vrednosti.

Ključne reči: antropometrijske karakteristike, posturalni status, razlike, dečaci i devojčice, mlađi školski uzrast.

ANTHROPOMETRIC CHARACTERISTICS AND POSTURAL STATUS OF THE YOUNGER SCHOOL AGE CHILDREN

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In order to examine the differences in anthropometric characteristics and postural status of children of the younger school age, a sample of 76 children aged 11 years (± 6 months) of both sexes was applied, with the first subsample being 36 boys and the other 40 girls. In the space of anthropometric characteristics, 17 measures were measured, and the state of the kyphotic, lordotic, thoracic scoliotic and lumbar scoliotic curves was measured for the assessment of postural status. Differences of the investigated variables between the sexes were tested using the analysis of variance, and on the basis of the obtained results it can be concluded that the area of the anthropometric characteristics showed statistically significant differences only in the shoulder width, elbows width and the hips width, in which the boys had higher rates. In the postural status there was no significant difference between the sexes, and the values of the spinal column curvatures were within the limits of normal values.

Key words: anthropometric characteristics, postural status, differences, boys and girls, younger school age

RELACIJE ANTROPOMETRIJSKIH KARAKTERISTIKA SA KOORDINACIJOM UČENIKA MLAĐEG ŠKOLSKOG UZRASTA

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Uvod/Cilj: Koordinacija kao veoma složena motorička sposobnost predstavlja bazu za razvoj drugih motoričkih sposobnosti. Cilj ovog istraživanja je uticaj antropometrijskih varijabli na koordinaciju učenika mlađeg školskog uzrasta.

Metod: Na uzorku od 422 učenika osnovnih škola uzrasta 11-13 godina, primenjena je multipla regresija, gde je analizirana povezanost antropometrijskih karakteristika sa koordinacijom. Za procenu antropometrijskog prostora primenjeno je osam testova. Zajednički varijabilitet između sistema i kriterijske varijable objašnjava 43%.

Rezultati: Posmatrajući uticaj pojedinačnih antropometrijskih varijabli, vidi se da najveći statistički značajan uticaj imaju varijable: kožni nabor trbuha (BETA = .35); obim trbuha (BETA = .25); srednji obim grudi (BETA = -.24); obim podlaktice (BETA = -.22).

Zaključak: Određene antropometrijske karakteristike predstavljaju značajne prediktore koordinaciji. Stoga im treba prići na adekvatan način, stručno i programirano.

Cljučne reči: koordinacija, dečaci, morfološke karakteristike.

THE RELATIONS BETWEEN ANTROPOMETRIC CHARACTERISTICS AND THE COORDINATION OF YOUNGER PUPILS

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Introduction/Goal: Coordination as a very complex motor ability represents a basis for the development of other motor abilities. The goal of this research is to investigate the influence of anthropometric variables on coordination of younger pupils.

Method: Multiple regression was applied on the sample of 422 primary school pupils aged 11 to 13 years, and the connection between anthropometric characteristics and coordination was analyzed. Eight tests were used for the estimation of anthropometric space. The system and the criterion variable explain the 43% of common variability.

Results: Observing the influence of single anthropometric variables it can be seen that the following variables: Skin layer of the abdomen (BETA = .35), Abdominal volume (BETA = .25), Average chest volume (BETA = -.24), Volume of the forearm (BETA = -.22) have the biggest statistically relevant influence.

Conclusion: Certain anthropometric characteristics represent significant predictors for coordination. Therefore, they need to be approached in an adequate manner, with competence and program.

Key words: Coordination, boys, morphological characteristics.

KOMPARATIVNA ANALIZA RAZLIČITIH METODA ZA PROCENU MASNOG TKIVA KOD ADOLESCENATA

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Sa ciljem da se utvrde razlike između rezultata dobijenih primenom različitih metoda za procenu količine masnog tkiva u organizmu kod adolescenata, izvršena je komparativna analiza metode bioelektrične impedance, kao novijeg metoda za procenu telesne kompozicije, i tradicionalne metode za procenu telesne kompozicije merenjem kožnih nabora. Uzorak ispitanika činilo je 86 učenika sedmog razreda osnovne škole (42 devojčice i 44 dečaka). Količina masnog tkiva je procenjena pomoću vage koja koristi bioelektričnu impedancu za procenu telesne kompozicije "OMRON BF-511, Japan" i tradicionalno pomoću merenja kožnih nabora kaliperom i daljim izračunavanjem pomoću matematičkih formula prema Slaughter (1988). Nakon analize dobijenih rezultata, utvrđeno je da ne postoje statistički značajne razlike između procenta masnog tkiva dobijenog metodom bioelektrične impedance i metodom merenja kožnih nabora tricepsa i leđa ($p=0.711$) i tricepsa i potkolenice ($p=0.850$) kod devojčica, dok su kod dečaka utvrđene statistički značajne razlike između rezultata dveju metoda ($p=0.001$; $p=0.009$). Obe metode kao najzastupljenije i praktično primenljive daju slične rezultate kod devojčica, dok nije isti slučaj kod dečaka.

Ključne reči: masno tkivo, bioelektrična impedanca, kožni nabori, komparacija, adolescenti.

COMPARATIVE ANALYSIS OF DIFFERENT METHODS FOR EVALUATION OF BODY FAT IN ADOLESCENTS

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In order to determine the differences between results obtained by using two different methods for estimating the body fat percentage in adolescents, a comparative analysis was carried out on bioelectric impedance method as a newer method for assessing body composition and a traditional method for assessing body composition by skinfold measurements. The sample comprised 86 seventh grade students of elementary school (42 girls and 44 boys). Body fat percentage was estimated using electronic scale through bioelectric impedance for assessing the body composition "OMRON BF-511, Japan" and traditionally by measuring skinfolds with caliper and further calculations using equations according to Slaughter (1988). After analyzing obtained results, it was found that no statistically significant differences were present between body fat percentage obtained by the method of bioelectric impedance and the method of skinfold measurements of triceps and subscapular ($p = 0.711$) and triceps and calf ($p = 0.850$) in girls, while statistically significant differences were found between the results of these two methods ($p = 0.001$; $p = 0.009$) in boys. Comparison of two most commonly used methods for assessing body fat percentage showed similar results in girls, while significant differences were present between measurements of these two methods in boys.

Key words: body fat, bio, skinfolds, comparison, adolescents.

ZNAČAJ IDEJE PJERA DE KUBERTENA ZA NASTANAK I RAZVOJ UNIVERZITETSKOG SPORTA

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U kontekstu moderne kulture, sport treba smatrati fenomenom 19. i 20. veka. Osim uloge u razvoju fizičkih sposobnosti i zdravlja, sport podstiče formiranje socijalnih, kognitivnih, pedagoških, psiholoških sposobnosti i veština značajnih za razvoj dece i mladih. Zato je, od nastanka savremenog sporta, postojala jaka veza između Olimpijskog pokreta, obrazovanja, vaspitanja i akademizma. Značaj te veze uočio je Pjer de Kuberten (franc. *Pierre de Frédy, Baron de Coubertin*; Pariz, 1. januar 1863 - Ženeva, 2. septembar 1937), osnivač savremenog olimpijskog pokreta. U svom radu, Kuberten se uvek oslanjao na princip povezivanja sporta sa obrazovanjem i humanizmom. Ideje o Univerzitetском sportu kao relativno nezavisnom ogranaku savremenog sportskog pokreta, začete su u dvadesetim godinama 20. veka i u velikoj meri se oslanjaju na ideje Olimpijskog pokreta. U radu je predstavljen razvojni put Univerzitetского sporta i njegova veza sa idejom Pjera de Kubertena o povezanosti sporta i akademizma.

Ključne reči: Univerzitetски sport, Pjer de Kuberten, nastanak i razvoj

RELEVANCE OF PIERRE DE COUBERTIN'S IDEA FOR ORIGIN AND DEVELOPMENT OF UNIVERSITY SPORT

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In the context of modern culture sport should be considered as the phenomenon of the 19th and 20th centuries. Except its role of the development of physical abilities and health, sport fosters the development of social, cognitive, pedagogical, psychological skills and abilities significant for development of children and youth. Therefore, from the very beginning of modern sport, there was a strong connection between the Olympic movement, education and academia. The importance of that connection was noted by Pierre de Coubertin (*Pierre de Frédy, Baron de Coubertin*; Paris, January 1, 1863 – Geneva, September 2, 1937), the founder of the modern Olympic movement. In his work de Coubertin always relied on the principle of linking sport and education and humanistic thinking. The ideas of University sport as a relatively independent branch of modern sports movement originated back to the 1920s and they mainly relied on the ideas of the Olympic movement. This paper presents the developmental path of University sport and its connection to the Pierre de Coubertin's idea of the link between sport and academia.

Key words: University sport; Pierre de Coubertin; origin; development

PRILOG DEFINISANJU ELEMENATA EFIKASNOSTI IGRE U ODNOSU NA RAZLIČITU TAKMIČARSKU USPEŠNOST KOD VRHUNSKIH RUKOMETAŠICA

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Cilj ovog rada je da se utvrde neke karakteristike strukture rukometne igre u takmičarskom režimu, kod najkvalitetnijih rukometnih reprezentacija, i da se utvrdi koji tahnčko-taktički elementi imaju statistički značajan doprinos u ostvarivanju što boljeg plasmana na takmičenju. Dobijeni rezultati se mogu koristiti za poboljšanje trenažne procedure i detaljnije usmeravanje trenažnog procesa u cilju postizanja što boljih rezultata.

Metod rada: Uzorak istraživanja predstavljaju sve odigrane utakmice na 22. Svetskom prvenstvu u rukometu za žene, odigranom 2015. godine u Danskoj. U radu je ispitivana zavisnost konačnog plasmana u odnosu na prosečan broj datih golova iz kontranapada, kao i sa 6 metara.

Rezultati: Vrednost koeficijenta korelacije između prosečnog broja postignutih golova iz kontranapada i plasmana iznosi $r = -0,21665$. Ovo pokazuje da vrednosti golova postignutih iz kontranapada opadaju u odnosu na konačni plasman (udaljenost od prvog mesta). Vrednost koeficijenta korelacije prosečnog broja postignutih golova sa 6 metara i konačnog plasmana na ovom takmičenju iznosi $r = 0,21518$, što znači da vrednosti postignutih golova rastu u odnosu na konačan plasman.

Ključne reči: rukomet, analiza takmičarske aktivnosti, efikasnost igre i broj golova.

SUPPLEMENT TO DEFINING PLAY EFFICIENCY ELEMENTS REALATIVE TO COMPETITIVE EFFICIENCY IN ELITE WOMEN HANDBALL PLAYERS

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The aim of this paper is to determine the characteristics of handball game structure in competitive mode, in some of the best handball national teams, and to set forth which technical and tactical elements have statistically significant contribution to attaining the best possible championship ranking. Findings of this paper should be used for training procedure improvement, as well as for more exhaustive training process aimed at achieving the highest possible results.

Method: The research sample are all matches held at the 22nd World Women's Handball Championship, which took place in Denmark in 2015. This paper represents the analysis of the interdependence of the final ranking of the teams and the average number of counterattack goals, as well as the average number of six-meter goals.

Results: The value of the correlation coefficient of the average number of counterattack goals and ranking is $r = -0,21665$. This indicates that the figures for the counterattack goals decline in relation to the final ranking (distance from the first place). The value of the correlation coefficient of six-meter average goal number and this competition's final ranking is $r = 0,21518$, thus indicating an increase of scored goals in correlation to the final ranking.

Key words: handball; competitive activity analysis; play efficiency; number of goals scored.

**PARAMETRI CRVENIH KRVNIH ČELIJA I NJIHOVA KORELACIJA SA TELESNIM
KOMPONENTAMA KOD DEVOJČICA STARIH OD 12 DO 18 GODINA****Vesela Maleska, Jasmina Pluncević Gligoroska, Ljudmila Efremova, Lidija Todorovska,
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Cilj ovog istraživanja bio je da se odrede vrednosti hematoloških parametara kod devojčica tinejdžerskog uzrasta i njihova korelacija sa komponentama telesnog sastava. U ovo istraživanje bilo je uključeno četrdeset i pet (45) devojčica uzrasta od 12 do 18 godina, prosečne starosti 14.49 ± 2.5 godina. Našim ispitanicama urađene su analiza kompletne krvne slike i antropometrijska ispitavanja. Iz hematološke analize izdvojeni su sledeći parametri: ukupan broj crvenih krvnih ćelija (RBC); hematokrit (Hct); koncentracija hemoglobina (Hb) i hematološki indeksi (MCV, MCH, MCHC). Antropometrijskim merenjem dobijeni su elementi telesnog sastava, upotrebom metode po Matiegki. Telesne komponente su relativna i apsolutna mišićna masa (MM% i MMkg), relativna i apsolutna koštana masa (KM% i KMkg), relativna i apsolutna masa potkožnog masnog tkiva (MT% i MTkg). Analizom krvi dobijeni su sledeći rezultati: $RBC = 4.65 \pm 0.34 \times 10^{12}/l$, $Hb = 13.25 \pm 1.21$ g/dl, $Hct = 40.88 \pm 3.3\%$, $BMI = 20.68 \pm 2.7$ kg/m². Telesni sastav je izražen sledećim komponentama: relativna mišićna masa (MM%) imala je prosečnu vrednost 51.34 ± 4.12 %, koštana masa (BM) prosečno je iznosila $16.82 \pm 1.6\%$ i telesne masti (BF%) $= 16.71 \pm 2.92$ %. Ispitivanje korelacije između nekih hematoloških i antropometrijskih parametara, pokazalo je da je najjača korelacija postojala između Hb i Hct sa jedne strane i mišićne mase ($r = 0.6$; $r = 0.63$) i LBM ($r = 0.55$) sa druge strane. Korelacija između hematoloških parametara i potkožnog masnog tkiva bila slabijeg je intenziteta ($r_{Hb} = 0.43$; $r_{Hct} = 0.44$; $r_{RBC} = 0.46$).

Ključne reči: krvna slika, hematološki indeksi, hemoglobin, mišićna masa i telesni sastav.

RED BLOOD CELL VARIABLES AND CORRELATIONS WITH BODY COMPONENTS IN GIRLS AGED 12-18 YEARS

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The objective of this study was to determine the red blood cell variables, and their correlations with body composition components in teenage girls.

Material: The sample comprised forty five girls, 12 to 18 years of age, mean age 14.49 ± 2.5 years. The following hematological parameters were measured: red blood cell count (RBC); hematocrit (Ht); hemoglobin mass (Hb) and hematological indexes. The body components derived from Matiegka anthropometric method were assessed: relative muscular mass (MM %), relative bone mass (BM %), relative body fat mass (BF %).

Results: The hematological parameters were $RBC = 4.65 \pm 0.34 \times 10^{12}/l$, $Hb = 13.25 \pm 1.21$ g/dl, $Hct = 40.88 \pm 3.3\%$. BMI was 20.68 ± 2.7 kg/m², relative muscular mass (MM %) was $51.34 \pm 4.12\%$, bone mass (BM) was $16.82 \pm 1.6\%$ and body fat percent (BF%) was $16.71 \pm 2.92\%$. The strongest correlations were found between Hb and Hct and the muscular mass ($r = 0.6$; $r = 0.63$) and the lean body mass ($r = 0.55$). The correlations between body fat mass and hematological variables were significantly weaker ($r_{Hb} = 0.43$; $r_{Hct} = 0.44$; $r_{RBC} = 0.46$).

Conclusion: The strongest correlations were found between RBC variables and skeletal muscle mass and lean body mass.

Keywords: red blood cells; hemoglobin; hematocrit; body composition, girls

PARAMETRI CRVENIH KRVNIH ČELIJA I NJIHOVA KORELACIJA SA TELESNIM KOMPONENTAMA KOD DEČAKA STARIH 12 DO 18 GODINA

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Cilj ovog istraživanja bio je da se odrede parametri krvnih ćelija kod dečaka starih 12 do 18 godina i njihova korelacija sa telesnim komponentama. U istraživanju je učestvovalo devedeset (90) dečaka tinejdžerskog uzrasta, prosečne starosti 15.57 ± 3.5 godina. Svim ispitanicima uzeta je kapilarna krv, za analizu kompletne krvne slike i napravljena procena telesnog sastava. Analizirani su sledeći hematološki parametri: crvene krvne ćelije (RBC); hematokrit (Ht); koncentracija hemoglobina (Hb) i hematološki indeksi (MCV, MCH, MCHC). Telesne komponente su određene pomoću antropometrijskog protokola po Matiegki, iz kojeg proizilaze sledeći parametri: relativna i apsolutna mišićna masa (MM% i MMkg), relativna i apsolutna koštana masa (KM% i KMkg), relativna i apsolutna masa potkožnog masnog tkiva (MT% i MTkg). Analizom krvi dobijeni su sledeći rezultati: $RBC=5.09 \pm 0.62 \times 10^{12}/l$, $Hb=14.64 \pm 2.33$ g/dl, $Hct=43.89 \pm 3.8\%$. Izmerene su sledeće antropometrijske karakteristike: $BMI = 20.46 \pm 3.43$ kg /m², relativna mišićna masa (MM) iznosila je $52.77 \pm 3.15 \%$, koštana masa (BM) iznosila je $18.89 \pm 4.12\%$ procenat telesnih masti (BF%) bio je $15.89 \pm 2.66 \%$. Najjača korelacija ustanovljena je između hematoloških parametara Hb i Hct i mišićne komponente ($r=0.62$; $r=0.65$) i LBM ($r=0.59$). Korelacija između masne telesne komponente i hematoloških parametara bila je slabija ($r_{Hb}=0.45$; $r_{Hct}=0.48$; $r_{RBC}=0.41$).

Ključne reči: eritrociti, hemoglobin, hematocrit, telesni sastav i dečaci

RED BLOOD CELL VARIABLES AND CORRELATIONS WITH BODY COMPONENTS IN BOYS AGED 12-18 YEARS

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Introduction/Objective of this study was to determine the red blood cell variables, and their correlations with body composition components in young male adolescent.

Material: The sample comprised ninety physically active male subjects, aged 12 to 18 years, mean age 15.57 ± 3.5 years. Capillary blood was taken from all subjects and the following hematological parameters were measured: red blood cell count (RBC); hematocrit (Ht); hemoglobin mass (Hb) and hematological indices (MCV, MCH, MCHC). The body components derived from Matiegka anthropometric method were assessed: relative muscular mass (MM%), relative bone mass (BM%), relative body fat mass (BF%).

Results: The mean values (\pm SD) for hematological parameters were $RBC = 5.09 \pm 0.62 \times 10^{12}/l$, $Hb = 14.64 \pm 2.33$ g/dl, $Hct = 43.89 \pm 3.8\%$. Anthropometric characteristics were as follows: BMI was 20.46 ± 3.43 kg /m², relative muscular mass (MM) was $52.77 \pm 3.15 \%$, bone mass (BM) was $18.89 \pm 4.12\%$ and body fat percent (BF %) was $15.89 \pm 2.66 \%$. The strongest correlations were found between Hb and Hct and the muscular mass ($r=0.62$; $r=0.65$) and the lean body mass ($r=0.59$). The correlations between body fat mass and hematological variables were significantly weaker ($r_{Hb}=0.45$; $r_{Hct}=0.48$; $r_{RBC}=0.41$).

Conclusion: The strongest correlations were found between hemoglobin levels and hematocrit and skeletal muscle mass and lean body mass.

Keywords: red blood cells; hemoglobin, hematocrit; body composition; boys

PROCENA FIZIČKOG RAZVOJA I VREME POSVEĆENO FIZIČKOJ AKTIVNOSTI KOD ADOLESCENATA IZ MOLDAVSKOG REGIONA

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Uvod: Rast i razvoj su pod uticajem unutrašnjih (genetičkih) i spoljašnjih (sredinskih) faktora. U okviru ovih faktora fizička aktivnost ima veoma značajan uticaj.

Materijal i metod: Istraživanje je urađeno na grupi studenata više škole, koja je obuhvatila 97 osoba iz dve oblasti u zapadnoj Moldaviji (Bacău i Suceava). Na osnovu referentnih nacionalnih vrednosti, utvrđen je fizički razvoj, kao i fizička aktivnost i navike u ishrani.

Rezultati: Visina tela učenika većinom je u okviru prosečnih vrednosti (70.10%), kao i masa tela (72.16%). Harmoničan razvoj prisutan je samo kod 58.76% učenika od 18-19 godina, a njihov je razvoj skoro završen. Kada rast prestaje, ovaj procenat postaje problem jer je usmeren ka visokom procentu učenika sa gojaznošću ili pothranjenošću. Vreme provedeno u fizičkim aktivnostima kreće se od 15 do 60 minuta (59.79%). Naročitu pažnju privlači podatak da 17.52% mladih izdvaja manje od 15 minuta za dnevnu fizičku aktivnost. Mleko se nedeljno konzumira 2-3 puta (37.11%). Pileće meso se konzumira 42.26%, a voće je prisutno u ishrani 4-7 puta (72.16%).

Zaključak: Fizički razvoj ispitivane grupe učenika ne odstupa od normalnih vrednosti. Prilično malo vremena se provodi u fizičkoj aktivnosti, tačnije, nedovoljno.

Ključne reči: fizički razvoj, sport i ishrana.

THE ASSESSMENT OF PHYSICAL DEVELOPMENT AND TIME ALLOCATED TO PHYSICAL ACTIVITY FOR A GROUP OF ADOLESCENTS FROM MOLDOVAN AREA

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Growth and development are two processes influenced by the action of internal (genetic) and external (environmental) factors. Physical activity plays a special role within these factors.

Material and method: The sample comprised 97 high school students from two Moldavian counties (Bacău and Suceava). Physical development was assessed with the help of national reference values, time spent on physical activity and eating habits.

Results: The students' height values are mostly within the average range (70.10%), and the same can be said for body weight (72.16%). Harmonic development is present only in 58.76% of 18-19 year old students whose growth is almost complete. When growth begins to stop this percentage becomes a problem because it is directed towards a high percentage of obese and undernourished students. The time allocated to daily physical activity ranges from 15 to 60 minutes (59.79%). Our attention is drawn by the 17.52% of young people who set aside less than 15 minutes for daily physical activity. Weekly milk consumption is mostly 2-3 times (37.11%). Chicken meat (42.26%), and fruit are present in menus especially 4-7 times a week (72.16%).

Conclusions: The physical development of the examined students does not raise any particular problems. The time allotted to daily physical activity is quite moderate.

Keywords: physical development, sport, diet.

Socio-kulturna antropologija

Socio-cultural Anthropology

DISOCIJACIJA IZGOVORENOG I NAPISANOG U ZADATKU SERIJSKOG ODUZIMANJA SEDMICA

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Cilj ovog izraživanja bio je da se ukaže na moguće greške kod istovremenog izgovaranja i pisanja rezultata pri rešavanju zadatka serijskog oduzimanja sedmica, počev od hiljadu, u trajanju od pet minuta. Prethodnim istraživanjima pokazali smo da postoji korelacija grafomotornih i vokalnih parametara pri rešavanju ovog zadatka. U ovom izraživanju pratili smo tačnost pri rešavanju zadatka serijskog oduzimanja sedmica. Kod većine od ukupno sto subjekata, nađena je saglasnost između izgovorenog i napisanog rezultata. Međutim, jedan broj subjekata je, u određenom periodu vremena, pravio greške ili pri pisanju ili pri izgovoru rezultata ovog zadatka. Najzanimljiviji tip grešaka bio je disocijacija napisanog i izgovorenog. Ovaj test, koji se u uslovima hipoksije, označava kao test korisne svesti (test of useful consciousness), pokazao je da pojedini subjekti ne mogu održavati pažnju i privesti svesti obe kognitivne funkcije (govor i pisanje) sve vreme u toku rešavanja ovog zadatka. U radu će biti razmatrani mogući neurofiziološki mehanizmi.

Ključne reči: pažnja, svest, zadatak serijskog oduzimanja sedmica.

DISSOCIATION OF SPOKEN AND WRITTEN IN SERIAL SUBTRACTION OF SEVEN TEST

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The aim of this research was to indicate the potential mistakes made while simultaneously speaking and writing results of the serial subtraction of seven test, starting from 100, in the duration of five minutes. In previous research we showed that there is a correlation between graphomotor and vocal parameters in solving this test. In this research we monitored accuracy in solving the serial subtraction of seven test. In the majority of 100 subjects the spoken results were in accordance with the written results. However, a certain number of subjects made mistakes in speaking and writing at certain periods of time. The most interesting type of mistakes was dissociation of spoken and written. This test, which is in the condition of hypoxia referred to as a test of useful consciousness, has shown that some subjects cannot maintain their focus and have awareness of both cognitive functions (speech and writing) the whole time during the test. Possible neurophysiological mechanisms will be considered in this paper.

Key words: attention, consciousness, serial subtraction of seven test

RODNA IDEOLOGIJA U DISKURSU MLADIH

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Dok se rodni poredak definiše kao društveni sistem podela zasnovan na polno-klasnim zadacima, pravima, obavezama, slobodama i ograničenjima (Eckert&McConnell- Ginet, 2003: 34), rodna ideologija se definiše kao skup verovanja koji upravlja učešćem ljudi u rodnom poretku (Eckert&McConnell- Ginet, 2003: 26). Rodni stereotipi koji utiču na stvaranje rodni ideologija mogu u velikoj meri uticati na pristup komunikaciji kako govornika/ica, tako i slušaoca ili sagovornika/ica (Eckert, McConnell- Ginet, 2003: 197). Stoga se u ovom radu bavimo upravo uticajem rodne ideologije na jezičku upotrebu, s posebnim osvrtom na diskurs mladih. S obzirom na to da govorimo o rodnoj podeli, analiziraćemo upotrebu rodno osetljivog i rodno diskriminatornog jezika kod mladih. Nakon teorijskog uvida u pojam jezičke ideologije i podelu na egalitarnu i tradicionalnu rodnu ideologiju, rad predstavlja istraživanje na temu upotrebe rodno osetljivog jezika i rodno diskriminatornog govora kod mladih u skladu sa njihovom rodnom ideologijom. U radu je potvrđena početna hipoteza da studenti/studentkinje koji neguju tradicionalnu rodnu ideologiju ne koriste rodno osetljiv jezik, dok studenti/studentkinje koji neguju egalitarnu rodnu ideologiju koriste rodno osetljiv jezik u svakodnevnoj komunikaciji.

Ključne reči: rodna ideologija, rodno osetljiv jezik, rodno diskriminatorni govor

GENDER IDEOLOGY IN THE DISCOURSE OF THE YOUTH

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While gender order is defined as a social system of divisions based on gender- class rules, tasks, obligations, freedoms and limits (Eckert&McConnell- Ginet, 2003: 34), gender ideology is defined as a cluster of beliefs that manages the participation of people in gender order (Eckert&McConnell- Ginet, 2003: 26). Gender stereotypes that have an influence on the creation of gender ideologies can also have an immense influence on the communicative approach of both speakers and interlocutors (Eckert, McConnell- Ginet, 2003: 197). Therefore, this paper defines the impact of gender ideology on language usage, with specific reference to the discourse of the youth. Having in mind that gender division is involved, the paper analyses the usage of gender sensitive language and gender discrimination speech. After the theoretical introduction to gender ideology and the division of egalitarian and traditional gender ideology, the paper also includes a research regarding the usage of gender sensitive language and gender discrimination speech in the discourse of the youth, based on their gender ideology. The paper confirms the main hypothesis that those students who cherish traditional gender ideology do not use gender sensitive language, while those students who cherish egalitarian gender ideology use gender sensitive language in everyday communication.

Key words: gender ideology, gender sensitive language, gender discrimination speech

ANTROPOLOŠKI ASPEKTI IDENTITETA JUNAKA „NEČISTE KRVI“ BORE STANKOVIĆA

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Imajući u vidu da roman „Nečista krv“ Borisava Stankovića obuhvata događaje, porodične i društvene odnose, u definisanom prostoru, varošici na jugu Srbije, u konkretnom vremenu, od 1850. do 1900. godine, otvara se mogućnost za istraživanje aspekata života čoveka kao centralne tačke previranja toga vremena i na tom prostoru. Interpretacijom delova iz romana „Nečista krv“ može se sagledati odnos pisca prema pojedinačnim ljudskim sudbinama u društvenim situacijama u Vranju, posle oslobođenja od Turaka. Antropološki aspekt postavljenog problemskog pitanja usmeren je ka glavnim predstavnicima (efendi-Miti i gazda Marku) društvenih sredina koje su date u romanu, gradskoj i seoskoj, ali i prema njihovom potomstvu. Bora Stanković je u ovom romanu opisao niz tragičnih sudbina likova koji su često bili u nemilosti nepisanih pravila svoje sredine i nasleđenih obrazaca ponašanja. Borini likovi su doživeli dramu identiteta i zbog propadanja trgovačkih porodica koje su imale ugledno i povlašćeno mesto u varošici, ali i zbog sudara sa novim vremenom koje je omogućilo prodiranje seoskih porodica u grad. Tako je došlo do mešanja dva sveta u kome je novac počeo da određuje društvene odnose i da remeti samorealizaciju ličnosti. Dakle, sve te okolnosti dodatno otežavaju ulogu *nedovršenog* čoveka koji traga za svojim identitetom, potvrđujući ili negirajući ličnu potrebu i iskustvo predaka. Stankovićevi junaci su u dubokom su nesaglasju sa sobom i drugima i kao takvi pokazali su nesposobnost i nemoć da se bore za svoj identitet. Rad će se baviti i mogućim razlozima za takve izbore junaka.

Ključne reči: identitet, psihologija likova, kulturni modeli, efendi-Mita, gazda Marko

ANTHROPOLOGICAL ASPECTS OF THE CHARACTERS' IDENTITY IN THE NOVEL "IMPURE BLOOD" BY BORA STANKOVIĆ

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Having in mind that the novel "Impure Blood" by Borisav Stanković covers the events, family and social relations, in the defined area, a small-town in the south of Serbia, at a specific time, from 1850 to 1900, it is possibly to research the aspects of human life as the central point of the turmoil of that time and that area. After analyzing some parts from the novel "Impure Blood", the writer's attitude towards individual human fates and social situations in Vranje, after the liberation from the Turks, can be seen. The anthropological aspect of the raised issue is addressed to the main figures (Effendi-Mita and Landlord "Gazda" Marko), representatives of the social communities given in the novel, urban and rural, and also to their descendants. In this novel, Bora Stanković described a series of tragic fates of the characters who were often in disgrace of unwritten rules of their background and inherited patterns of behaviour. Bora's characters experienced identity crisis due to the collapse of merchant families that had a prominent and privileged place in the small-town, but also because of the collision with new times that enabled rural families to come to towns. This led to the mixing of two worlds in which money began to determine social relations and to disrupt self-reliance of personality. Therefore, all these circumstances further complicate the role of an *unfinished* man looking for his identity, confirming or denying the personal need and experience of ancestors. Stanković's characters are in deep discord with themselves and others, and as such they proved weak and incapable of struggling for their own identity. The paper also deals with the possible reasons of such choice of the characters.

Key words: identity, psychology of characters, cultural patterns, Effendi-Mita, Landlord ("Gazda") Marko

POSTER PREZENTACIJE / POSTER PRESENTATIONS

DEMOGRAFSKE IMPLIKACIJE NISKOG FERTILITETA NA PROSTORU SEMBERIJE**Rada Mandić, Stevo Pašalić**

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U drugoj polovini 20. vijeka i početkom 21. vijeka u regionu Semberija su se desile značajne promjene u reprodukciji stanovništva. Veliki priliv izbjeglica u tom periodu i nepovoljan društveni i ekonomski ambijent za donošenje odluka o rađanju, otvarali su pitanja kako se to odrazilo na plodnost stanovništva i da li su se trendovi nastavili. U radu se kroz nekoliko pokazatelja plodnosti u navedenom periodu, sa posebnim akcentom na devedesete i početak novog vijeka, osvjetljavaju osnovne tendencije i intenzitet promjena. Predstavljene su promjene u broju živorođenih, specifičnim stopama fertiliteta, prosječnom broju djece po ženi, generacijskom fertilitetu, starost pri rađanju prvog djeteta i učestalost skalpanja braka. Iako su BiH u početku karakterisale značajne subregionalne razlike u tempu demografske tranzicije, početkom 21. vijeka stopa ukupnog fertiliteta ispod 2,1 odlikuje i sve ostale populacije u regionima. Cilj je razmotriti dugoročne implikacije niskog fertiliteta, te da li u tom smislu dolazi do demografske homogenizacije regiona u BiH. Poseban akcent je na prognozama populacione dinamike do 2050, imajući u vidu pretpostavke o postepenom ulasku BiH u post-tranzicionu fazu oporavka fertiliteta, te očekivanu tranziciju ka neto imigraciji u skladu sa konceptom migracionog ciklusa, prema kojem se Evropa dugoročno pretvara u imigracioni kontinent.

Ključne riječi: fertilitet, reprodukcija, BiH regioni i Semberija

DEMOGRAPHIC IMPLICATIONS OF LOW FERTILITY RATE ON THE TERRITORY OF SEMBERIA**Rada Mandić, Stevo Pašalić**

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Significant changes in the reproduction of the population occurred in the second half of the 20th century and the beginning of the 21st century in the Semberija region. The large influx of refugees in that period and the unfavorable social and economic environment for decision-making about having children have raised questions as to how it affected the fertility of the population and whether the trends continued. In this paper the basic tendencies and intensity of changes are illuminated, through several fertility indicators in the mentioned period, with a special accent on the nineties and the beginning of the new century. Changes in the number of live births, specific fertility rates, the average number of children per woman, generational fertility, age at the birth of the first child and the frequency of marriage scaling. Although BiH was initially characterized by significant subregional differences in the pace of demographic transition, at the beginning of the 21st century, fertility rate below 2.1 is common in other populations in the region. The goal of this study is to consider the long-term implications of low fertility rate and whether there is a demographic homogenization of the region in BiH in this respect. Particular emphasis is placed on the forecasts of population dynamics by 2050, bearing in mind the assumption of a gradual entry of BiH into the post-transition phase of fertility recovery, and the expected transition to net immigration in accordance with the concept of the migration cycle, according to which Europe will turn into an immigration continent in the long run.

Key words: fertility, reproduction, BiH regions, Semberija

KOMPARATIVNA ANALIZA FERTILITETA U ENTITETIMA BOSNE I HERCEGOVINE

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Bosna i Hercegovina je zajedno sa zemljama u regionu suočena sa poremećajima reproduktivnog karaktera, a samim tim i s ostalim demografskim parametrima koji determinišu fertilitet i rast populacije. Predmet istraživanja su socio-demografske determinante fertiliteta u okviru jedne države sa dva entiteta koji se razlikuju u verskom i nacionalnom sastavu stanovništva. Cilj rada je da se prikažu, analiziraju i uporede osnovne karakteristike fertiliteta i svi relevantni činioci čijim posredstvom dolazi do promene plodnosti u Republici Srpskoj i Federaciji Bosne i Hercegovine. Fertilitet je od velike važnosti u savremenim demografskim istraživanjima i predstavlja neizostavan deo u planiranju porodice, kako nacionalnih tako i pojedinačnih populacionih ciljeva. Plodnost je jedna od tri glavne komponente koje utiču na dinamiku populacije koja ujedno određuje veličinu i strukturu stanovništva neke zemlje. Ona je proizvod više različitih faktora čije je razumevanje od ključne važnosti za rešavanje problema nedovoljnog rađanja. Za istraživanje određena je komparativna analiza dva entiteta čija demografska slika ne zavisi samo od starosti reproduktivne populacije, već i mnogobrojnih determinanti društvenog karaktera među kojima se ističu obrazovanje, mesto stanovanja kao i faktori individualnog ponašanja. Za analizu podataka koristili smo deskriptivni, matematičko-statistički metod i t test. Dobijeni rezultati ukazuju da postoji razlika u fertinim karakteristikama ova dva entiteta i da Bosna i Hercegovina, bez obzira na pojedinosti u karakteru rađanja, nema stopu fertilitet koja bi doprinela revitalizaciji stanovništva prirodnim putem.

Ključne reči: fertilitet, rađanje, entiteti

COMPARATIVE ANALYSIS OF FERTILITY IN ENTITIES OF BOSNIA AND HERZEGOVINA

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Bosnia and Herzegovina, together with the countries in the region, faces reproductive disorders, and consequently with other demographic parameters that determine fertility rate and population growth. The purpose of this research is to show socio-demographic determinants of fertility within a country with two entities that differ in the religious and national composition of the population. The aim of this paper is to present, analyze and compare the basic characteristics of fertility and all relevant factors through which fertility changes occur in the Republic of Srpska and the Federation of Bosnia and Herzegovina. Fertility is of great importance to contemporary demographic research and is an indispensable part of family planning, and both national and individual population goals. Fertility is one of the three main components that affect population dynamics, and at the same time determines the size and structure of the population of a country. It is the product of many different factors whose understanding is crucial for solving the problem of low birth rate. A comparative analysis of the two entities whose demographic picture depends not only on the age of the reproductive population, but also on numerous determinants of social character, among which emphasize education, place of residence and factors of individual behavior are determined for the research. We used the descriptive, mathematical-statistical method and t test for the analysis of the obtained data. The obtained results indicate that there is a difference in the fertile characteristics of these two entities and that Bosnia and Herzegovina, irrespective of the details in the nature of the birth, has no fertility rate which would contribute to the revitalization of the population naturally.

Key words: fertility, birth, entities

DEMOGRAFSKE PROMENE U SRBIJI U VREME AGRARNE REFORME 1945-1948. GODINE

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Poslovi agrarne reforme i kolonizacije započeli su sa donošenjem Privremenog zakona za agrarnu reformu i kolonizaciju od strane Privremene Narodne skupštine DFJ avgusta 1945. godine. Tada je stvoren Agrarni savet DFJ, koji se bavio poslovima agrarne reforme i kolonizacije u DFJ. Praktična kolonizacija počela je u jesen 1945. godine, samo u Vojvodini, a u ostalim delovima Jugoslavije je načelno postojala. Potrebno je naglasiti da je jedino sprečen povratak starih kolonista na Kosovo i Metohiju. Razlog za to datira iz novembra 1928. godine, kada je održan IV kongres Komunističke partije Jugoslavije u Drezdenu na kome su, između ostalog, Srbi pominjani kao najmnogoljudniji narod u državi sa bogatom državnom i kulturnom tradicijom, što predstavlja pretnju budućoj politici zajednice jugoslovenskih naroda. Agrarna reforma je počela u Jugoslaviji tek u januaru 1946. godine, kada je stvoreno Ministarstvo za agrarnu reformu i kolonizaciju Vlade FNRJ i ona je obuhvatila celu Jugoslaviju. Pri ovom Ministarstvu sakupljali su se programi, izveštaji, spiskovi kolonista i agrarnom reformom oduzetih zemljišnih poseda i naseljenih agrarnih interesenata, kao i statistički podaci o kolonizaciji i agrarnoj reformi. Ministarstvo za agrarnu reformu i kolonizaciju ukinuto je 1948. godine, a njegovi poslovi su prešli u nadležnost Ministarstva poljoprivrede Vlade FNRJ. Posleratna kolonizacija bila je veoma značajna seoba na Balkanu u poslednjih nekoliko vekova, možda značajnija, u političkom smislu, od seobe Srba pod Arsenijem Čarnojevićem. Kolonisti su sobom doneli svoje običaje, moral, shvatanja života. Agrarna reforma i kolonizacija 1945. godine imaju dalekosežni značaj za dalji razvoj demografske strukture stanovništva, ekonomskih i društvenih odnosa u Srbiji.

Ključne reči: agrarna reforma, kolonizacija, Srbija i demografska struktura.

DEMOGRAPHIC CHANGES IN SERBIA DURING THE AGRARIAN REFORM 1945-1948

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Construction of agrarian reform and colonization began with the adoption of the Interim Law for Agrarian Reform and colonization by the Provisional National Assembly DFJ August 1945. Then DFJ Agrarian Council, which dealt with matters of agrarian reform and colonization in the DFJ, was created. Practical colonization began in the fall of 1945, only in Vojvodina, but in other parts of Yugoslavia it had already started. It should be noted that it only prevented the return of the old colonists in Kosovo and Metohija. The reason for this dates back to November 1928 when IV Congress of the Communist Party of Yugoslavia was held in Dresden, where, among other things, the Serbs were mentioned as the most populous nation in the country with a rich national and cultural tradition, which was a threat to the future policy of the community of Yugoslav people. Agrarian reform began in Yugoslavia in January 1946, when the Ministry of Agrarian Reform and Colonization of the Government of FPRY was created, it included the whole of Yugoslavia. In this Ministry programs, reports, lists and agrarian reform settlers seized land tenure and agrarian settlements of interested parties, as well as statistical data on colonization and agrarian reform were collected. The Ministry of Agrarian Reform and Colonization was abolished in 1948, but its operations were moved to the Ministry of Agriculture of the Government of the FPRY. Postwar colonization was the most significant migration in the Balkans in the last few centuries, perhaps more important, in political terms, since it was guided by Arsenije Čarnojević. The colonists brought with them their customs, morality, understanding of life. Agrarian reform and colonization in 1945 had a dominant influence on the further development of the demographic structure of the population, economic and social relations in Serbia.

Key words: Agrarian reform; colonization; Serbia; demographic structure.

DETERMINANTE DEMOGRAFSKOG RAZVOJA OPŠTINE ZAJEČAR

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Demografski razvoj opštine Zaječar karakteriše izrazita depopulacija, negativan prirodni priraštaj, starenje fertilnog kontingenta i starenje stanovništva. U radu su analizirane tendencije demografskog razvoja istraživanog područja u periodu od 1971. do 2011. godine. U tu svrhu bilo je neophodno utvrditi doprinos pojedinih komponenti demografskog razvoja (prirodno i mehaničko kretanje stanovništva) i izvršiti njihovu analizu. Smanjenje ukupnog broja stanovnika decenijama se odvijalo pod snažnim uticajem iseljavanja, da bi kasnije ukupnoj depopulaciji najviše doprineo negativan prirodni priraštaj. Takođe, u radu su analizirane i reproduktivne karakteristike stanovništva u periodu od 1971. do 2011. godine. Opšta stopa fertiliteta tokom celog posmatranog perioda beleži silazno kretanje. Sa 50,9 koliko je iznosila 1971. godine, smanjena je na 31,9 2011. godine. Vrednost stope ukupnog fertiliteta ukazuje na to da nije osigurano jednostavno obnavljanje stanovništva. Neto stopa reprodukcije, kao pokazatelj obnavljanja ženskog stanovništva, u čitavom posmatranom razdoblju je ispod granične vrednosti za prostu reprodukciju. To znači da se već u dužem vremenskom periodu ženska populacija, kao nosilac reprodukcije, ne obnavlja u dovoljnoj meri. Na osnovu toga se može zaključiti da je posmatrani prostor, pored prirodne i ukupne depopulacije, zahvaćen i snažnom reprodukcijom depopulacijom. Promene nastale u ukupnom broju žena u fertilnom dobu sledile su smer promena u ukupnom broju stanovništva Pirota. Na osnovu svega analiziranog, može se zaključiti da je slabljenje vitalnog potencijala i pad bioreproduktivne moći bitno demografsko obeležje posmatranog prostora.

Ključne reči: opština Zaječar, demografski razvoj, prirodno kretanje, migracije, ferilitet

* Rad je deo aktivnosti na projektu 179013 koji finansira Ministarstvo prosvete, nauke i tehnološkog razvoja Republike Srbije.

DETERMINANTS OF DEMOGRAPHIC DEVELOPMENT OF ZAJEČAR MUNICIPALITY

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Demographic development of the municipality of Zajecar is characterized by significant depopulation, negative population growth, ageing of the fertile contingent and ageing of the population. The paper analyzes the tendencies of the demographic development of the observed area in the period from 1971 to 2011. For this purpose, it was necessary to determine the contribution of certain components of the demographic development (natural and mechanical movement of the population) and analyze them. The decrease in the total population had for decades been under the strong influence of emigration, and later the overall depopulation was largely contributed to by the negative population growth. The paper also analyzes the reproductive characteristics of the population in the period from 1971 to 2011. The total fertility rate throughout the observed period is marked by downward trend. From 50.9 in 1971, it was reduced to 31.9 in 2011. The value of the total fertility rate indicates that simple population renewal is not ensured. The net reproduction rate, as an indicator of the renewal of the female population, is below the limited reproduction value throughout the observed period. This means that the female population, as the pillar of reproduction, did not renew sufficiently in a long period of time. It can be concluded that the observed area, besides natural and total depopulation, was also affected by severe reproductive depopulation. The changes in the total number of women in the fertile period followed the trend of the changes in the total population of Pirot. On the basis of this, it can be concluded that the drop of the vital potential and the decrease of the bioreproductive power represent significant demographic features of the observed area.

Keywords: Municipality of Zaječar, demographic development, natural movement, migrations, fertility

*This paper is the activity in the Project Grant 179013 financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia

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