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BODY HEIGHT AND WEIGHT AND NUTRITIONAL STATUS IN ADULT POPULATION OF NORTHWEST BAČKA AND CENTRAL BANAT (SERBIA, VOJVODINA)

ABSTRACT: Body height and weight are influenced by interaction of genetic and environmental factors but also depend upon the ethnic and socio-cultural characteristics of populations.

The aim of the study is to determine the height, weight and nutritional status of adult population of Vojvodina, as well as to establish similarities and differences among various ethnic groups, i.e. the natives of Vojvodina and newcomers from different parts of former Yugoslavia.

The investigation was conducted in 10 rural settlements of northwest Bačka and central Banat. The investigation included 608 males (mean age 41.34 ± 11.49) and 768 females (mean age 41.85 ± 10.64). Data processing included standard statistical methods, while t-test was employed for testing differences among groups. In relation to ethnic group belonging, the analysis included Serbs, Hungarians and Montenegrins, while natives and newcomers from Bosnia and Herzegovina were analysed in relation to the native land origin.

The subjects of both sexes from central Banat have greater height than the subjects from northwest Bačka. Hungarians of both sexes exhibit lower body height in comparison with all other groups, while Herzegovina newcomers have the greatest height values. For body weight, similar values are obtained in both of the areas. The average BMI in males equals 27.23 kg/m^2 in Bačka and 26.59 kg/m^2 in Banat. In females, the values are lower and equal 26.12 kg/m^2 in Bačka and 25.29 kg/m^2 in Banat.

The population of this region is characterised by great height. Natives of both sexes show markedly lower height and weight values in relation to all three newcomers groups. The greatest number of male population falls in the category of overweight (46%). Females are mostly of normal weight (47.81%), while the number of overweight and obese females equals 34.67% and 14.42%, respectively.

KEY WORDS: Body height, weight, BMI, ethnic groups, males, females, adults, Banat, Bačka, Vojvodina

INTRODUCTION

Body height and weight are the two traits most often characterised as the best indicators of physical status of populations. These traits are primarily influenced by interaction of genetic and environmental factors but also depend upon the ethnic and socio-cultural characteristics of populations. Their ratio can be used for determining body proportions and nutritional status. Today the use of BMI (body weight (kg)/body height (m²)) is widespread in large-scale epidemiological surveys for assessing overweight, obesity and underweight (Heyward and Wagner, 2004). In the cases when BMI values exceed the standard limit set for normal weight, serious health problems can be encountered. Data from the literature have pointed out that BMI values are influenced by various factors, such as age, gender, body constitution, life-style, social status and ethnic group belonging (Rolland-Cachera et al., 1991, Shetty and James, 1994, Kuczmarski et al., 1997, Hajniš and Petrásek, 1999, Ishizaki et al., 2004, Danubio et al., 2005, Andreenko, 2005).

Due to its good geographic position, Vojvodina region has always attracted nations with different ethnic, religious, cultural, social and anthropological characteristics. According to the latest census, today in Vojvodina there are 2 031 992 inhabitants belonging to 41 ethnic groups. The largest among them are the Serbs (65%), followed by Hungarians (14.28%), Slovaks (2.79%), Montenegrins (1.75%), Rumanians (1.50%), Romanies (1.43%), Bunjevci (0.79%) etc.

According to Vlahović (1994, 2004), in present population of Vojvodina, the Serbs represent the oldest ethnic group. Hungarians were the next who settled in this region, together with Slovaks, after the liberation from Turks. In comparison with other ethnic groups, Serbs and Hungarians are the oldest groups, or so-called natives, and represent 54% of the whole population today (Serbian Statistical Annual, 2003). In addition, a large number of the inhabitants of Vojvodina (46%) are so called newcomers who arrived in this region from different parts of former Yugoslavia after the First and particularly the Second World War. In the postwar period, Montenegrins coming from all parts of their country constituted a significant percentage of newcomers in northwest Bačka. Bosnian population (Ključ, Bosanska Krupa, Bosanska Gradiska, Livno and Bosanski Petrovac) as well as Herzegovinian (Trebinje, Mostar, Ljubinje, Stolac, Konjic) mostly settled in the central Banat.

Ethnic diversity is the real treasure of Vojvodina and as such offers large possibilities for anthropological investigations. Previous investigations of the height of Montenegrins and other newcomers to Vojvodina showed that Montenegrins had greater height in comparison with natives (Gavrilović, 1960a, b) and other newcomer groups (Božić, 1976). In first investigations of Herzegovinian population in Vojvodina, Gavrilović (1962) concluded that Herzegovinian adults were characterised by great height and together with Montenegrins could be classified into tallest groups on the Balkan Peninsula. In comparison with natives, they had greater weight. As for the newcomers from Bosnia (Gavrilović, 1964), they were characterised by great height, nor-

mal nutritive condition and greater weight than in natives. Following investigations of the population of Vojvodina in the area of Srem (Pavlica, 1996, Pavlica et al., 2005) showed that newcomers of both sexes had greater values of height, weight and BMI in comparison with natives.

Adults of Vojvodina were subjected to a detailed analysis in 1976, while recent studies included only adults of Srem (1996). Therefore, there is a necessity of conducting researches in other two parts of Vojvodina (Bačka and Banat).

The aim of the study is to determine the height, weight and nutritional status of adult population of Vojvodina living in rural areas in northwest Bačka and central Banat, as well as to establish similarities and differences among various ethnic groups, i.e. the natives of Vojvodina and newcomers from different parts of former Yugoslavia.

MATERIAL AND METHODS

An anthropological investigation of adult population was conducted in rural settlements of northwest Bačka and central Banat (The Province of Vojvodina, Serbia) in summer and autumn 2004 and in autumn 2005. It was a cross-sectional survey conducted in compliance with recommendations of In-



Fig. 1 — Map of North Serbia — Vojvodina

ternational Biological Program (IBP) and World Health Organisation (WHO) and original Martin's anthropometric instrument was employed (Sieber Hegner, Switzerland).

For all of the subjects height and weight were measured and BMI was obtained. Subsequently, the subjects were classified into categories that complied with the criteria of WHO (2000).

The investigation included 279 males (mean age 43.35 ± 10.85) and 367 females (mean age 42.58 ± 10.73) living in northwest Bačka (Mali Idoš, Lovćenac, Sivac and Crvenka) and 329 (mean age 39.33 ± 12.84) males and 401 females (mean age 41.13 ± 10.56) living in central Banat (Žitište, Klek, Novi Bečej, Ravni Topolovac, Sečanj and Srpska Crnja) (Figure 1).

The data obtained from all subjects in this investigation included the date and place of birth, ethnic group and native land origin. Decimal age obtained from the date of investigation and the date of birth was calculated for all of the subjects. As for data regarding native land origin, they included the place of birth of grandparents. The subjects whose grandparents were born in Vojvodina are classified as natives, while those whose grandparents were born in other parts of former Yugoslavia (Montenegro, Bosnia, Herzegovina, Lika, Kosovo, Dalmatia, Croatia) are classified as newcomers. Those subjects whose grandparents from one side are natives and from the other newcomers are classified as "mixed population".

The data were processed in relation to the sex, ethnic group and native land origin. Data processing included standard statistical methods, while t-test for large sample was employed for testing differences among groups. In relation to ethnic group belonging, the analysis included Serbs, Hungarians and Montenegrins, while natives and newcomers from Bosnia and Herzegovina were analysed in relation to the native land origin. Newcomers from other parts of former Yugoslavia and "mixed population" were not analysed separately, since their number was insufficient for a valid analysis.

RESULTS

The distribution of northwest Bačka subjects of both sexes with reference to their ethnic group belonging and native land origin is shown in Table 1.

Tab. 1 — Distribution of the subjects by ethnic group and native land origin in northwest Bačka settlements

Investigation site	Natives		Hungarians		Newcomers from Montenegro		Newcomers from Bosnia		Newcomers from different parts of former Yugoslavia		Mixed population	
	n	%	n	%	n	%	n	%	n	%	n	%
Lovćenac	11	10.48	—	—	65	61.90	13	12.38	13	12.38	3	2.86
Sivac	60	31.09	5	2.59	93	48.19	4	2.07	19	9.84	12	6.21
Crvenka	25	22.52	—	—	21	18.92	32	29.73	30	27.03	2	1.81
Mali Idoš	3	0.84	227	95.78	—	—	—	—	6	2.53	2	0.84
Total	99	15,33	232	35,91	179	27,71	49	7,59	68	10,53	19	2,94

It includes 4 settlements and the total population is divided into 6 categories. The group of natives includes the population of Serbian origin and other smaller ethnic groups whose grandparents from both sides were born in Vojvodina. The highest percentage is observed in the following 3 categories: Hungarians (35.91%), newcomers from Montenegro (27.71%) and natives (15.33%). As for other categories, they are present in lower percentage.

The distribution of central Banat subjects in relation to the native land origin (Table 2) shows that natives are the most numerous group (33.70%), followed by newcomers from Bosnia (25.89%) and Herzegovina (21.51%). The other categories are present in lower percentage. The distribution of northwest Bačka and central Banat subjects obtained in this study complies with the percentage data obtained in the latest census in 2002.

Tab. 2 — Distribution of the subjects by native land origin in central Banat settlements

Investigation site	Natives		Newcomers from Bosnia		Newcomers from Herzegovina		Newcomers from different parts of former Yugoslavia		Mixed population	
	n	%	n	%	n	%	n	%	n	%
Žitište	37	25.52	55	39.31	21	14.48	20	13.79	10	6.89
Klek	31	14.69	61	28.91	71	33.65	36	17.06	12	5.68
Novi Bečej	110	78.57	11	7.86	1	0.71	12	8.57	6	4.28
Ravni Topolovac	3	6.45	13	41.93	14	45.16	1	3.22	1	3.22
Sečanj	27	25.71	18	17.14	43	40.95	9	8.57	7	15.23
Sr. Crnja	38	38.00	31	31.00	7	7.14	14	14.28	10	10.20
Total	246	33,70	189	25,89	157	21,51	92	12,60	46	6,30

The basic parameters of descriptive statistical analysis and t-test values for height, weight and BMI of the total number of male and female subjects are shown in Tables 3 and 4, respectively.

Tab. 3 — Distribution of body height, weight and BMI in northwest Bačka and central Banat — males

	Northwest Bačka				Central Banat			
	Age	Body height (cm)	Body weight (kg)	BMI (kg/m ²)	Age	Body height (cm)	Body weight (kg)	BMI (kg/m ²)
n	279	279	279	279	329	329	329	329
Mean	43.35	174.78	83.32	27.23	39.33	178.40	84.72	26.59
SD	10.85	7.23	14.44	4.16	12.14	7.24	13.00	3.56
Min	18.01	156.50	51.50	18.02	17.87	157.50	55.00	18.38
Max	68.53	199.00	138.00	40.76	66.15	202.00	125.00	37.03
CV	25.02	4.14	17.33	15.28	30.87	4.06	15.35	13.38
t-test				2.01*		6.15**	1.33	

* p < 0.05; ** p < 0.01

It is observed in Table 3 that the average age is 43.35 years for northwest Bačka subjects and 39.33 years for the subjects of central Banat. The males

from central Banat show greater height (178.40 cm) than the males from northwest Backa (174.78 cm), this difference being statistically significant ($p < 0.01$). Coefficient of variation for both of the groups equals approximately 4%, thus indicating homogeneity of the samples.

The average weight in males of central Banat and northwest Bačka equals 84.72 kg and 83.32 kg, respectively; this difference is statistically insignificant. This trait, however, shows greater coefficient of variation (15%), which complies with usual manifestation of this trait in a human population. The average BMI in both groups of the subjects is approximately 27 kg/m².

Tab. 4 — Distribution of body height, weight and BMI in northwest Bačka and central Banat — females

	Northwest Bačka				Central Banat			
	Age	Body height (cm)	Body weight (kg)	BMI (kg/m ²)	Age	Body height (cm)	Body weight (kg)	BMI (kg/m ²)
n	367	367	367	367	401	401	401	401
Mean	42.58	162.38	68.79	26.12	41.13	163.06	67.21	25.29
SD	10.73	6.36	12.36	4.63	10.56	6.32	11.34	4.25
Min	15.94	140.00	40.00	16.73	19.29	143.00	45.00	17.06
Max	69.52	179.00	122.00	42.08	67.33	183.20	115.00	43.28
CV	25.19	3.91	17.96	17.72	25.67	3.87	16.88	16.81
t-test			1.84	2.58**		1.49		

* $p < 0.05$; ** $p < 0.01$

As for females, both of the groups (Table 4) are above 40 years of age. Alike males, greater height is observed in central Banat females (163.06 cm) than in females from northwest Bačka (162.38 cm), but this difference shows no statistical significance. Variation coefficients indicate the homogeneity of the female sample.

The average weight of females from Bačka is 1.5 kg greater than the average weight of Banat females, this making no significant statistical difference. As for the average BMI, it is lower than in males.

Tab. 5 — Distribution of body height, weight and BMI in natives and newcomers from different parts of former Yugoslavia — males

Characteristics		Serbs	Serbs	Hungarians	Newcomers	Newcomers	Newcomers
		natives in Bačka	natives in Banat		from Montenegro	from Herzegovina	from Bosnia
Body height	n	44	63	104	82	77	87
	Mean	175.8	176.50	172.42	176.33	180.74	179.48
	SD	6.56	7.00	7.00	7.18	7.07	5.83
Body weight	Mean	82.8	83.10	80.86	86.74	88.52	86.22
	SD	13.63	14.26	14.74	13.81	13.02	11.69
BMI	Mean	26.7	26.60	27.14	27.89	27.10	26.80
	SD	3.32	3.90	4.37	3.99	3.70	3.40

Tables 5 and 6 show the distribution of height, weight and BMI in natives and newcomers. In both sexes there are 6 categories representing largest ethnic and native land groups. It can be observed in Table 5 that the lowest height is recorded in Hungarians (172.42 cm), and the greatest in newcomers from Herzegovina (180.74 cm) and Bosnia (179.48 cm). These differences are statistically significant ($p < 0.01$). Hungarians show significantly lower values of height in comparison with both groups of Serb natives and Montenegrins ($p < 0.01$). Approximately equal values of height are observed in natives of Serbian nationality and newcomers from Montenegro.

A similar distribution is observed with reference to weight. The lowest values are recorded in Hungarians (80.86 kg) and the highest in newcomers from Herzegovina (88.52 kg) and Bosnia (86.22 kg), this being statistically significant ($p < 0.01$). It can be observed that natives of Serbian and Hungarian nationality are characterised by significantly lower weight in relation to the three groups of newcomers ($p < 0.01$).

The average BMI values are mostly equal. The lowest BMI is recorded in Serbian natives in Banat (26.60 kg/m²) and the highest in Montenegrin newcomers (27.89 kg/m²), making this difference statistically significant ($p < 0.05$). No statistically differences are observed in other categories.

Tab. 6 — Distribution of body height, weight and BMI in natives and newcomers from different parts of former Yugoslavia — females

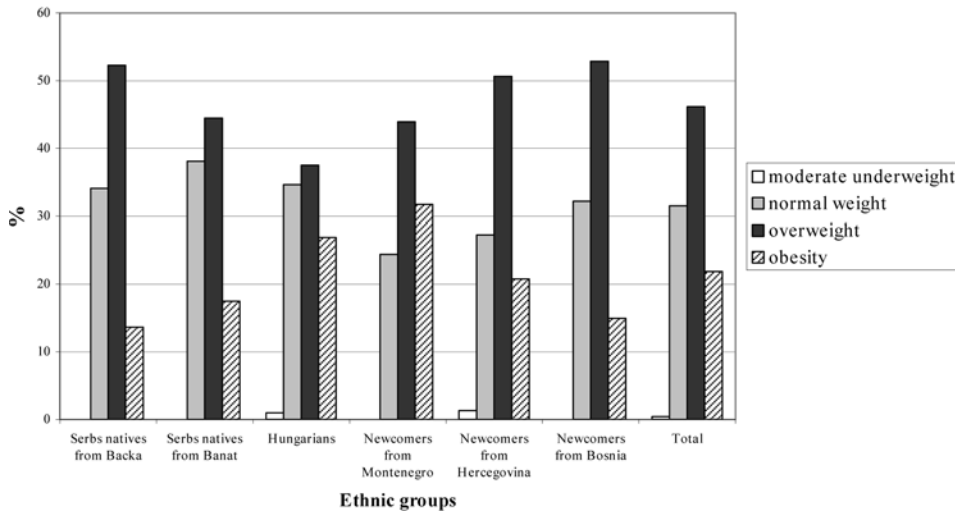
Characteristics		Serbs natives in Bačka	Serbs natives in Banat	Hungarians	Newcomers from Montenegro	Newcomers from Herzegovina	Newcomers from Bosnia
Body height	n	34	90	145	95	80	104
	Mean	163.5	162.33	160.63	164.58	166.48	163.24
	SD	6.02	6.04	6.39	5.97	6.14	5.78
Body weight	Mean	71.5	66.48	67.67	69.18	68.41	67.22
	SD	13.22	11.50	12.63	12.66	10.67	11.04
BMI	Mean	26.9	25.22	26.23	25.62	24.74	22.58
	SD	5.49	4.10	4.62	4.83	3.91	4.24

In females (Table 6), lower height is observed in Serbian natives in Banat and Hungarians, while newcomers from Montenegro and Herzegovina show greater height values. Significantly lower height is observed in Hungarian females (160.63 cm) in comparison with all native and newcomer groups ($p < 0.05$ and $p < 0.01$, respectively). The greatest height is recorded in female newcomers from Herzegovina (166.48 cm).

The lowest weight value is observed in Serbian females from Banat (66.48 kg) and the heighest in Serbian females from Bačka (71.5 kg). Differences observed among individual groups are statistically insignificant.

The average BMI shows greater variability than in males ranging from 22.58 kg/m² (female newcomers from Bosnia) to 26.9 kg/m² (Serbian natives in Bačka). Female newcomers from Bosnia show significantly lower BMI ($p < 0.01$) in comparison with other groups.

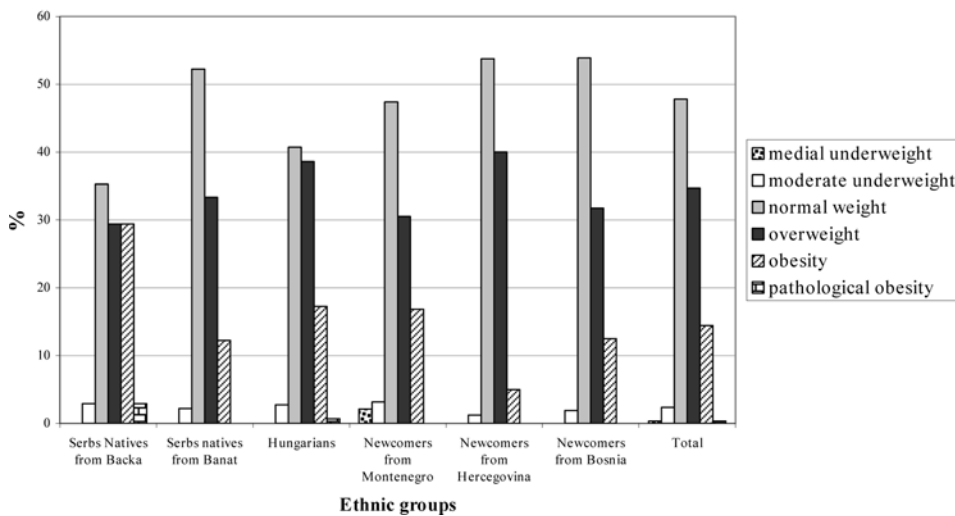
Categorization of body mass index in relation to ethnic groups - males



Graph. 1 — Categorization of body mass index in relation to ethnic groups — males

Graph 1 and 2 present the category of BMI in both sexes of different ethnic groups. In males (Graph 1), the identical trend of BMI distribution in all groups is observed. The greatest number of subjects are overweight (25—29.9 kg/m²). In general, 46% of subjects from all ethnic groups are overweight. Within this category, the smallest number is observed in Hungarians

Categorization of body mass index in relation to ethnic groups - females



Graph. 2 — Categorization of body mass index in relation to ethnic groups — females

(37.50%) and the greatest in newcomers from Bosnia (52.87%) and natives from Bačka (52.27%). The percentage of subjects with normal weight equals 31.51%. This refers to all ethnic groups with an exception of newcomers from Montenegro and Herzegovina where this percentage is lower. Obesity (BMI 30—39.9 kg/m²) is present in 21.88%, varying from 13.64% (Serbian natives in Bačka) to 31.71% (newcomers from Montenegro). In none of the cases pathological obesity has been observed.

In females (Graph. 2), the identical trend of BMI distribution for all ethnic groups is also observed. Female subjects are mostly of normal weight (47.81%), while a smaller number falls into the category of overweight and obese (34.67% and 14.42% respectively). The same percentage (0.36%) is recorded with reference to pathological obesity and medial underweight.

DISCUSSION

The paper analyses height, weight and nutritive status in adult population of northwest Bačka and central Banat (Serbia). The analysis included 1376 subjects of both sexes in 10 rural settlements. The subjects' average age is above 40 years, except males from central Banat (39 years). Apart from natives who are mostly of Serbian and Hungarian nationality, the analysis included the offspring of newcomers of Serbian nationality that settled in this region. They mostly arrived from Bosnia and Herzegovina in the period from 1946. to 1952.

The results obtained in the analysis of the whole sample in northwest Bačka and central Banat indicate that the population of this region is characterised by great height. The subjects of both sexes from central Banat have greater height than the subjects from northwest Bačka. This is particularly observed in males, where the difference is statistically significant (3.62 cm), which is not the case with females (0.68 cm). The reason for such distribution probably lies in the fact that most of the population of northwest Bačka are natives, opposed to central Banat where there are a lot of newcomers from Herzegovina and Bosnia. This population, as previous studies have shown (Gavrilović, 1962, 1964, Božić, 1976), is characterised by greater height than it is the case with natives. In relation to some studies of the Czech and Slovak populations of the same age (Hajniš and Petrásek, 1999), similar values of body height are observed.

The analysis based upon ethnic group belonging and native land origin shows that Hungarians of both sexes exhibit lower body height in comparison with all other groups, while Herzegovina newcomers have the greatest height values. Natives of both sexes show markedly lower height values in relation to all three newcomers groups, which is in compliance with earlier investigations of body height of natives and newcomers (Gavrilović, 1960a, b, 1962, 1964, Božić, 1976, Pavlica, 1996, Pavlica et al., 2005).

With reference to the first investigations of Herzegovinian (Gavrilović, 1962) and Bosnian (Gavrilović, 1964) populations in Vojvodina, which included only male subjects, an increase in height is observed (5.74 cm

in Herzegovinians and 6.48 cm in Bosnians). It points to the acceleration, i.e., higher growth and physical development, a phenomenon which has been present worldwide.

As for body weight, similar values are obtained in both of the areas included in this investigation. In males of central Banat and northwest Bačka body weight equals 84.72 kg and 83.32 kg, respectively. Speaking of females, the average weight is greater in Bačka (68.79 kg) than in Banat (67.21 kg), but in neither of the cases these differences are statistically significant. Similar values of body weight are observed in the Czech and Slovak populations (Hajniš and Petrásek 1999).

The analysis of the results by ethnic group belonging and native land origin indicates the same distribution of males' weight as it is the case with height. The lowest body weight is recorded in Hungarian males (80.86 kg) and the highest in newcomers from Herzegovina (88.52 kg) and Bosnia (86.22 kg). Natives show lower weight values as compared with newcomers, which complies with previous investigations of body weight in Vojvodina (Gavrilović, 1962, 1964, Pavlica, 1996, Pavlica et al., 2005). Opposed to males, greater uniformity is observed in females' weight, which is also in compliance with previously obtained results (Pavlica, 1996). The lowest body weight is recorded in Serbian females from Banat (66.48 kg) and the highest in Serbian females from Bačka (71.5 kg). Differences observed among various groups are not statistically significant. In comparison with previous studies (Gavrilović, 1962, 1964) there has been an increase in body weight equalling approximately 12 kg.

In the sample of the total population of Vojvodina the average BMI in males equals 27.23 kg/m² in Bačka and 26.59 kg/m² in Banat. In females, the values are lower and equal 26.12 kg/m² in Bačka and 25.29 kg/m² in Banat. These values are markedly higher in comparison with the results obtained for the same age in Japan (Ishizaki et al., 2004), in Italian immigrants (Danubio et al., 2005), in France (Rolland-Cacherer et al., 1991) and in developing countries (Shetty and James, 1994). American population measured in the period between 1988 and 1994 (Kuczmariski et al., 1997) shows similar averages for 30—59 year-old subjects (males 27.1, females 27.0). The same is observed in the Czech and Slovak population (Hajniš and Petrásek, 1999).

The average BMI of different ethnic and native land origin groups is almost identical in males and indicates the condition of overweight in all of the categories. Significant differences are only observed between the lowest and the highest values (Serbian natives and Montenegrin newcomers).

With regard to females, the average BMI is lower but varies in a larger span. The lowest BMI is recorded in female newcomers from Bosnia, this being a significant difference when compared to all other groups.

In BMI categorisation of different ethnic groups the same trend of distribution is observed. The greatest number of male population falls in the category of overweight. In all ethnic groups the percentage of individuals with BMI ranging 25—29.9 kg/m² equals 46%, with the largest number recorded in Bosnian newcomers and the smallest in Hungarians. The number of indivi-

duals of normal weight is above 30%. The percentage of obese males varies from 13.64% (Serbian natives in Bačka) to 31.71% (Montenegrin newcomers). The first degree obesity is recorded in all of the subjects (30.0 kg/m² — 34.9 kg/m²). No cases of pathological obesity are recorded. A similar distribution of BMI categories is observed in male Bulgarians (A n d r e e n k o, 2005).

Females of different ethnic groups are mostly of normal weight (47.81%), while the number of overweight and obese females equals 34.67% and 14.42%, respectively. Pathological obesity and moderate underweight is present in 0.36%. In relation to the results of BMI studies from different parts of the world (S h e t t y and J a m e s, 1994), our results point to certain similarities between the population of Vojvodina and American and Hungarian populations, as far as the percentage of the overweight and obese is concerned. In comparison with developing countries of South America and Africa, however, the percentage of the overweight and obese is markedly higher in Vojvodina region.

Adults of this region is characterised by great height. Natives of both sexes show markedly lower height and weight values in relation to newcomers groups. The greatest number of male population falls in the category of overweight (46%). Females are mostly of normal weight (47.81%), while the number of overweight and obese females equals 34.67% and 14.42%, respectively.

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ВИСИНА ТЕЛА, МАСА ТЕЛА И СТАЊЕ УХРАЊЕНОСТИ КОД ОДРАСЛОГ СТАНОВНИШТВА СЕВЕРОЗАПАДНЕ БАЧКЕ И ЦЕНТРАЛНОГ БАНАТА (СРБИЈА, ВОЈВОДИНА)

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Резиме

Висина и тежина тела су под утицајем генетских и спољашњих чинилаца, али на њихово формирање утичу и етничке и социокултурне особине популација.

Циљ рада је био да се утврде висина, тежина и стање ухрањености одраслих становника Војводине, као и сличности и разлике између етничких група, староседелца Војводине и досељеника из различитих крајева бивше Југославије.

Истраживање је спроведено у 10 руралних насеља у северозападној Бачкој и централном Банату. Истраживањем је обухваћено 608 мушкараца (41.34 ± 11.49) и 768 жена (41.85 ± 10.64). При обради података коришћена је стандардна статистичка метода, а разлике између група су тестиране т-тестом. Према етничкој припадности анализирани су Срби, Мађари и Црногорци, а према завичајном пореклу староседеоци и досељеници из Босне и Херцеговине.

Испитаници оба пола из централног Баната имали су веће вредности висине тела од испитаника из северозападне Бачке. Мађари оба пола имали су мању висину тела у поређењу са свим осталим групама, док су досељеници из Херцеговине имали највећу телесну висину. За масу тела уочене су сличне вредности у оба испитана региона. Просечна вредност БМИ код мушкараца је 27.23 kg/m^2 у Бачкој и 26.59 kg/m^2 у Банату. Код жена вредности су ниже и износе 26.12 kg/m^2 у Бачкој и 25.29 kg/m^2 у Банату.

Популација ових региона карактерише се високим стасом. Староседеоци оба пола имају значајно ниже вредности висине и тежине тела од све три групе досељеника. Мушкарци су претежно прекомерно тешки (46%). Жене су већином нормално ухрањене (47.81%), прекомерно тешких је 34.67%, а гојазних 14.42%.