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## NUTRITION HABITS AND ANTHROPOMETRIC PARAMETERS OF SLOVAK CHILDREN

### NAWYKI W ŻYWIENIU I PARAMETRY ANTROPOMETRYCZNE U SŁOWACKICH DZIECI

**Abstract:** The aim of the study was to collect and analyse information on dietary patterns, to find out and assess anthropometric measurements and evaluate differences between age groups among with 204 schoolchildren (110 girls and 94 boys), aged 9 to 14 years, from Slovak city Nitra (average age  $11.40 \pm 1.62$  years). Data were compared between two age groups: schoolchildren aged 9 to 11 years (52.45 % of pupils) and 12 to 14 years (47.55 % of pupils). Body fat content was in the younger group  $29.28 \pm 7.19$  % ( $11.91 \pm 5.10$  kg) and in the older age group  $22.04 \pm 6.55$  % ( $11.84 \pm 5.15$  kg). 18.69 % of younger and 30.93 % of older children do not eat breakfast regularly ( $p < 0.05$ ) and even 14.02 % of younger group and 23.71 % of older group do not eat breakfast at all. The most frequently eaten meat by those children is poultry; just small share of participants (14.95 % and 16.49 %) is consumed fish almost every week. Less than once a week or never drink milk 17.75 % of younger and 14.44 % of older children. Markedly negative founding is fairly deficient (less than once a week) of fruit intake in 5.61 % and 10.31 % of children; as well as vegetable consumption in 14.02 % and 21.65 %; further, legumes consumption (less than twice a month) in 27.10 % and 36.08 % of children.

**Keywords:** dietary patterns, food preferences, anthropometrics, schoolchildren, Slovak Republic

A school-age child begins to make food choices independently, with more peer influence and less parental supervision. It is a period of few apparent feeding problems. Appetite and food intake will naturally increase with the added activities of school and

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play. Adolescents who are misinformed about their nutritional needs and who make independent food choice are at risk for developing nutritional deficiencies [1].

## Material and methods

The aim of the study was to collect and analyse information on dietary patterns, to find out and assess anthropometric measurements and evaluate differences between age groups among with 204 schoolchildren (110 girls and 94 boys), aged 9 to 14 years (Table 1), from Slovak city Nitra (average age  $11.40 \pm 1.62$  years). The questionnaire used in the study was designed by Babinska et al [2] and adapted at the Department of Human Nutrition in Nitra. It was used to analyze the dietary patterns of subjects. Children's parents completed a questionnaire about food habits. The data were collected in May and in June 2008. Participants' age was recorded at last birthday. An overweight and an obesity prevalence examined by body mass index (BMI) were evaluated in randomly selected group of pupils. Height and weight were measured and body mass index was calculated [ $\text{kg} \cdot \text{m}^{-2}$ ].

Table 1

Age composition of analyzed set (n = 360)

Age	n	[%]	n	[%]
9 years	33	16.18	107	52.45
10 years	38	18.63		
11 years	36	17.65		
12 years	23	11.27	97	47.55
13 years	58	28.43		
14 years	16	7.84		
Sum	204	100.00	204	100.00

Based on the data on height and weight we evaluated a Quetelet index – body mass index (BMI), according to following formula:  $\text{BMI} = \text{mass} [\text{kg}] \cdot \text{height} [\text{m}]^{-2}$ .

Waist and hip circumference was measured [cm]. Anthropometric parameters and information on dietary patterns were compared between two age groups: 107 schoolchildren aged 9 to 11 years (52.45 % of scholars) and 97 children aged 12 to 14 years (47.55 % of scholars). The younger group compounded of 57 girls (53.27 %) and 50 boys (46.73 %), and older group compounded of 53 girls (54.64 %) and 44 boys (45.36 %). Statistical analysis was performed using Statgraphics Centurion software. The statistical significance of differences was tested by  $\chi^2$  test.

Obtained information on nutrition habits of children from Nitra were compared with study on nutrition habits of 1000 children (476 boys and 524 girls) aged 6 to 16 years (average age was  $10.8 \pm 3.1$  years), from whole Slovakia (ten districts – Banská Bystrica, Bardejov, Cadca, Komarno, Levice, Nove Zamky, Nitra, Presov, Stara Lubovna, Ziar nad Hronom) [2, 3].

## Results and discussion

Body fat content was in the younger group  $29.28 \pm 7.19$  % ( $11.91 \pm 5.10$  kg) and in the older group  $22.04 \pm 6.55$  % ( $11.84 \pm 5.15$  kg). Body fat content in girls group was  $25.70 \pm 6.75$  % and in boys group was  $25.99 \pm 8.86$  %, what is above upper limit of recommended range (16 to 22 % for girls and 14 to 20 % for boys, aged 7 to 17 years) in both cases [4]. Most of the children (71.82 % girls and 71.28 % boys) had body fat content above upper limit of mentioned ranges (Table 2). Last years we can see obesity increase also in children, which in consideration of its high prevalence and numerous complications it becomes increasingly serious health problem of child's age in developed countries including Slovakia [5, 6]. Another anthropometric features of children are mentioned in Table 3.

Table 2

Body fat [%]

Girls (n = 110)			Boys (n = 94)			Sum (n = 204)	
Body fat [%]	n	[%]	Body fat [%]	n	[%]	n	[%]
< 16.0	7	6.36	< 14.0	8	8.51	15	7.35
16.0–19.0	12	10.91	14.0–17.0	9	9.57	21	10.29
19.1–22.0	12	10.91	17.1–20.0	10	10.64	22	10.78
> 22.0	79	71.82	> 20.0	67	71.28	146	71.57

Table 3

Characterization of analyzed set ( $\bar{x} \pm s$ )

Parameter	9–11 years (n = 107)	12–14 years (n = 97)	Sum (n = 204)
Age [years]	$10.02 \pm 0.80$	$12.92 \pm 0.63$	$11.40 \pm 1.62$
Weight [kg]	$40.18 \pm 11.33$	$52.31 \pm 10.38$	$45.95 \pm 12.45$
Height [cm]	$146.03 \pm 10.53$	$162.33 \pm 8.78$	$153.78 \pm 12.69$
Body fat [%]	$29.28 \pm 7.19$	$22.04 \pm 6.55$	$25.83 \pm 7.77$
Body fat [kg]	$11.91 \pm 5.10$	$11.84 \pm 5.15$	$11.88 \pm 5.11$
Waist circumference [cm]	$64.87 \pm 9.13$	$70.24 \pm 8.52$	$67.42 \pm 9.22$
Hip circumference [cm]	$80.94 \pm 9.06$	$88.75 \pm 8.25$	$84.66 \pm 9.50$

Epidemiological research refers to connections between irregular alimentation and increasing risk of obesity. Irregular food intake has also negative influence to a mental activity, which has effect to a prosperity and behavior of child at school [7]. In major part of the examined children (83.82 %) the lunch has represented the biggest portion of food, but 13.73 % move the major portion of food to supertime (Table 4). The lunch as the biggest portion of food is more typical for younger than older group ( $p < 0.05$ ). The children have consumed meal on average nearly 5 times a day ( $4.70 \pm 0.80$  times girls and  $4.66 \pm 0.85$  times boys per day).

Table 4

Which portion of meal is the biggest?

Meal	9–11 years (n = 107)		12–14 years (n = 97)		Sum (n = 204)	
	n	[%]	n	[%]	n	[%]
Breakfast	2	1.87	3	3.09	5	2.45
Lunch	95	88.79	76	78.35	171	83.82
Supper	10	9.35	18	18.56	28	13.73

We noticed by evaluating of main meals, that a regular consumption of breakfast was determined in 67.29 % of younger schoolchildren and in 45.36 % of older children ( $p < 0.05$ ) (Table 5). Important detection is, that 18.69 % of younger and 30.93 % of older children did not eat breakfast regularly ( $p < 0.05$ ), and even 14.02 % of younger group and 23.71 % of older group did not eat breakfast at all, eventually they drank only a tea. Breakfast can be an important meal for adults and children alike. The school lunch program was establish to provide a third of the recommended dietary allowance. Home-prepared lunches allow for increased variety [1].

Table 5

Consumption of main meals and its regularity

Consumption	9–11 years (n = 107)		12–14 years (n = 97)		Sum (n = 204)	
	n	[%]	n	[%]	n	[%]
Breakfast						
Mostly regularly	72	67.29	44	45.36	116	56.86
Mostly irregularly	20	18.69	30	30.93	50	24.51
Do not have breakfast at all or only tea	15	14.02	23	23.71	38	18.63
Lunch						
Regularly complete lunch in canteen	81	75.70	52	53.61	133	65.20
Regularly complete lunch at home	20	18.69	39	40.21	59	28.92
Irregularly at home or in canteen	6	5.61	6	6.19	12	5.88
Regularly fast food from snack bar* instead of lunch	0	0.00	0	0.00	0	0.00
Supper						
Daily hot supper or nearly daily	61	57.01	50	51.55	111	54.41
Mostly cold supper	41	38.32	37	38.14	78	38.24
Irregular supper	5	4.67	10	10.31	15	7.35
Do not have supper at all	0	0.00	0	0.00	0	0.00

\* Hot-dog, hamburger, baguette...

In comparison with study of children from whole Slovakia [2, 3] we detected insignificant lower portion of children, which regularly consumed breakfast (56.86 % in

comparison with 61.7 % of children from whole Slovakia,  $p \geq 0.05$ ) and on the contrary slightly more portion of children, which irregularly consumed breakfast (24.51 % versus 21.1 % children from ten districts of Slovakia,  $p \geq 0.05$ ), and did not have breakfast at all (18.63 % versus 17.2 %;  $p \geq 0.05$ ).

The 18.69 % and 40.21 % of children ( $p < 0.01$ ) have consumed regularly complete lunch at home; 75.70 % and 53.61 % of children from individual age groups in school canteen ( $p < 0.01$ ). Regularly lunch have consumed 94.12 % of examined children, ie less than in the study from whole Slovakia (95.2 %;  $p \geq 0.05$ ). In the study from whole Slovakia 0.4 % children had lunch in snack bar, but we did not determine any case.

Regularly supper have consumed 95.33 % and 89.69 % of children of younger and older age group. Mostly cold supper have eaten 38.32 % and 38.14 % of children. More children from Nitra have consumed supper regularly (92.65 %) in comparison with children from whole Slovakia (90.7 %) ( $p \geq 0.05$ ). Irregular consumption of supper was determined mostly in older group from Nitra ( $p \geq 0.05$ ). In the study from ten districts of Slovakia was irregular supper more typical for girls.

We noticed by evaluating of snacks, that the most children (52.34 % younger and 43.30 % older children) have consumed for snack fruit or dairy products sporadically (versus 43 % in study from whole Slovakia), regularly have consumed this foodstuff 40.69 % (versus 45.1 % in study from whole Slovakia;  $p \geq 0.05$ ) (Table 6).

Table 6

## Consumption of snacks and its regularity

Consumption	9–11 years (n = 107)		12–14 years (n = 97)		Sum (n = 204)	
	n	[%]	n	[%]	n	[%]
Morning snack						
Regularly fruit, vegetable or dairy products	46	42.99	37	38.14	83	40.69
Irregularly fruit, vegetable or dairy products	56	52.34	42	43.30	98	48.04
Regularly sweets or fastfood from snack bar*	3	2.80	16	16.49	19	9.31
Do not have snack at all	2	1.87	2	2.06	4	1.96
Afternoon snack						
Regularly fruit, vegetable or dairy products	38	35.51	28	28.87	66	32.35
Irregularly fruit, vegetable or dairy products	54	50.47	46	47.42	100	49.02
Regularly sweets or fastfood from snack bar*	9	8.41	12	12.37	21	10.29
Do not have snack at all	6	5.61	11	11.34	17	8.33
Second supper						
Regularly fruit, vegetable or dairy products	43	40.19	26	26.80	69	33.82
Do not have second supper at all	54	50.47	45	46.39	99	48.53
Regularly bread, cheese, sweets or nuts	10	9.35	26	26.80	36	17.65

\* Hot-dog, hamburger, baguette...

Only 1.96 % children did not have snack at all, which is surprising and positive result (similar result 1.8 % was determined in study Babinska et al [2]). For afternoon snack

fruit, vegetable or dairy products have regularly consumed 35.51 % and 28.87 % ( $p \geq 0.05$ ), while sporadically have eaten at afternoon snack time 50.47 % and 47.42 % of children according to age.

Babinska et al [2] quotes, that 91.7 % children usually have afternoon snack, thereof 40.3 % (versus 32.35 % Nitra's schoolchildren) ( $p < 0.05$ ) regularly and 47.6 % (versus 49.02 % pupils from Nitra) irregularly have consumed fruit, vegetable or dairy products.

Second supper has not eaten 50.47 % of younger and 46.39 % of older children. Fruit, vegetable or milk products have regularly eaten 40.19 % pupils from younger and 26.8 % from older group ( $p < 0.05$ ) for second supper. According to Babinska et al [2], mostly younger children have consumed regularly fruit, vegetable or dairy products for second supper, likewise in our experimental set.

The most frequently eaten meat by those children is poultry; just small share of participants (14.95 % and 16.49 %) is consumed fish almost every week.

The meat has not been eaten at all by 3.43 % examined children (Table 7), what are about 1.93 % more children than in whole Slovakia study ( $p \geq 0.05$ ). Preferred type of meat has been poultry, which have consumed up to 88.73 % pupils from Nitra and 92.8 % from whole Slovakia ( $p < 0.05$ ). Then follows a pork, which is usually eaten by 63.73 % of pupils (versus up to 81.6 % pupils from whole Slovakia) ( $p < 0.001$ ). A beef is not eaten by 62.25 % of children from Nitra and 49.4 % from whole Slovakia ( $p < 0.001$ ).

Table 7

Consumption of meat

Meat	9–11 years (n = 107)		12–14 years (n = 97)		Sum (n = 204)	
	n	[%]	n	[%]	n	[%]
Poultry	97	90.65	84	86.60	181	88.73
Pork	70	65.42	60	61.86	130	63.73
Beef	45	42.06	32	32.99	77	37.75
Do not eat	2	1.87	5	5.15	7	3.43

Weekly average intake of poultry meat has been  $2.48 \pm 1.02$  times in younger and  $2.26 \pm 0.91$  times in older group from Nitra (versus 1.8 times weekly in children from ten districts of Slovakia). Pork was consumed  $1.65 \pm 0.85$  times in younger and  $1.74 \pm 0.90$  times in older children weekly (versus 1.8 times in study from whole Slovakia) and beef was consumed  $1.62 \pm 0.91$  times in younger and  $1.34 \pm 1.04$  times in older group monthly (versus 2 times monthly in whole Slovakia study).

At least one time a week 15.69 % of pupils from Nitra have consumed fish, within the whole Slovakia it was 13.7 % ( $p \geq 0.05$ ) of such pupils (Table 8). Fish meat have included one to three times monthly into menu 41.67 % respondents (in comparison with 54.9 % children from whole Slovakia). Most of the examined children from Nitra have consumed fish even less than once a month (42.65 % from Nitra versus 31.2 % from whole Slovakia;  $p < 0,01$ ).

Table 8

## Fish consumption

Frequency	9–11 years (n = 107)		12–14 years (n = 97)		Sum (n = 204)	
	n	[%]	n	[%]	n	[%]
Every week	16	14.95	16	16.49	32	15.69
1 to 3 times per month	46	42.99	39	40.21	85	41.67
Less than once per month	45	42.06	42	43.30	87	42.65

In a milk consumption monitoring was found, that daily drink milk 60.75 % and 64.95 % of children in quantity  $0.31 \pm 0.18$  and  $0.40 \pm 0.31 \text{ dm}^3$  in younger and older group. Daily the milk have drunk 62.75 % of all children and 7.35 % have not drunk the milk at all (Table 9). Something more children from older group have drunk it more than younger pupils ( $p \geq 0.05$ ). Less than once a week or never drink the milk 17.75 % of younger and 14.44 % of older children. In the milk consumption at least once a week (83.83 % versus 71.5 %;  $p < 0.001$ ) we have noticed statistically significant difference between children from Nitra and whole Slovakia, but not in daily consumption of the milk (62.75 % versus 62.6 %;  $p \geq 0.05$ ).

Table 9

## Consumption of milk, dairy products and cheese

Consumption	9–11 years (n = 107)		12–14 years (n = 97)		Sum (n = 204)	
	n	[%]	n	[%]	n	[%]
Milk consumption						
Daily	65	60.75	63	64.95	128	62.75
1 to 6 times per week	23	21.50	20	20.62	43	21.08
Less than once per week	12	11.21	6	6.19	18	8.82
Do not drink at all	7	6.54	8	8.25	15	7.35
Dairy products consumption						
Daily	55	51.40	49	50.52	104	50.98
1 to 6 times per week	47	43.93	41	42.27	88	43.14
Less than once per week	5	4.67	7	7.22	12	5.88
Cheese consumption						
Daily	30	28.04	27	27.84	57	27.94
1 to 6 times per week	59	55.14	50	51.55	109	53.43
Less than once per week	14	13.08	15	15.46	29	14.22
Do not eat at all	4	3.74	5	5.15	9	4.41

Dairy products (besides cheese) have consumed daily by around half of the children from both groups (51.40 % and 50.52 %;  $p \geq 0.05$ ); and cheese has consumed more than quarter of children (28.04 % a 27.84 %). Daily dairy products have consumed almost

same part of children from Nitra and whole Slovakia (50.98 % versus 49.2 %;  $p \geq 0.05$ ). Children from Nitra have eaten daily  $1.31 \pm 0.61$  pieces (in younger group) and  $1.73 \pm 0.81$  pieces (in older group) of dairy products. In daily consumption of cheese was not significant differences between younger and older group, but between children from Nitra and whole Slovakia are differences ( $p \geq 0.05$ ). Cheese was daily included into the menu by 27.94 % and 22.7 % of children from these experimental sets (Nitra and whole Slovakia).

Markedly negative founding is fairly deficient (less than once a week) of fruit intake in 5.61 % and 10.31 % of children; as well as vegetable consumption in 14.02 % and 21.65 %; further, legumes consumption (less than twice a month) in 27.10 % and 36.08 % of children (Table 10). At least once a day have consumed fruit and vegetable statistically insignificantly more younger than older pupils, but statistically significantly more children from whole Slovakia than from Nitra in case of fruit, and more children from Nitra in case of vegetable consumption ( $p < 0.001$ ). Daily 65.5 % of children from whole Slovakia have included fruit into diet and vegetable 25.9 %. Alarmingly, insufficient intake of legumes (less than twice a month) was sharply noticed in older pupils and in case of children from Nitra (31.7 % versus 26.0 %), but differences between groups, divided according to gender and region, were not statistically significant ( $p \geq 0.05$ ). Consumed amount of fruit and vegetable was not evaluated.

Table 10

## Fruit, vegetable and legumes consumption

Consumption	9–11 years (n = 107)		12–14 years (n = 97)		Sum (n = 204)	
	n	[%]	n	[%]	n	[%]
Fruit consumption						
Minimally once per day	61	57.01	54	55.67	115	56.37
Minimally once per week	40	37.38	33	34.02	73	35.78
Less than once per week	6	5.61	10	10.31	16	7.84
Vegetable consumption						
Minimally once per day	50	46.73	42	43.30	92	45.10
Minimally once per week	42	39.25	34	35.05	76	37.25
Less than once per week	15	14.02	21	21.65	36	17.65
Legumes consumption						
Minimally 2 times per week	23	21.50	23	23.71	46	22.55
Almost every week	55	51.40	39	40.21	94	46.08
Less than 2 times per month	29	27.10	35	36.08	64	31.37

Sweets eat daily more than half of children from both groups (58.88 % and 62.89 %) (Table 11). Insufficient daily intake of sweets in our and compared experimental sets concerned 60.78 % of children from Nitra and 55.2 % children from whole Slovakia. Significant differences between Nitra and whole Slovakia sets, as well as between younger and older pupils within Nitra set was not determined ( $p \geq 0.05$ ).



Table 11

## Sweets and drinks consumption

Consumption	9–11 years (n = 107)		12–14 years (n = 97)		Sum (n = 204)	
	n	[%]	n	[%]	n	[%]
Sweets consumption						
Almost never	1	0.93	0	0.00	1	0.49
3 times per month and less	4	3.74	2	2.06	6	2.94
Minimally once per week	39	36.45	34	35.05	73	35.78
Daily	63	58.88	61	62.89	124	60.78
Drinks consumption						
Perhaps 5 glasses	89	83.18	89	91.75	178	87.25
Less than 3 glasses	10	9.35	3	3.09	13	6.37
During a day forget to drink; at an evening fill up	8	7.48	5	5.15	13	6.37

Incorrect fresh schedule (daily water intake less than 3 glasses or unequal splitting of drinks during the day) has got 16.83 % of younger and 8.24 % of older children. Similarly, in both groups we have not noticed significant differences in incorrect fresh schedule defined by daily intake less than 3 glasses or unequal splitting of drinks during the day and its evening refilling. This way is characterized fresh schedule in 12.74 % children from Nitra and in 13.1 % children from whole Slovakia.

In the study is analyzed also intake of particular foodstuffs as for example honey with children or biofoodstuffs in family. Honey is consumed often by 15.20 % of pupils and never by 19.61 % children. Allergic to honey is 2.45 % children. Biofoodstuff is never consumed in 49.02 % children's families; thereof 21.57 % do not know them at all, and occasionally are biofoodstuff consumed in 11.27 % children's families. According to Kretter [8] biofoodstuffs represent a new quality level in the supply of foodstuffs. Their consumption in Slovakia is however minimal. The causes are price, information and habit barrier.

According to observation and evaluation of nutrition habits of children from Nitra we positively evaluate the poultry preference, which was observed in our experimental set, as well as in the set from whole Slovakia. Selection of meat with lower content of fat is important step to reduction of saturated fatty acids and also fats in total [3].

In the experimental set is very low intake of fishes and legumes, even more children than in set from ten districts. According to actual recommendations for children with this age, the optimal intake of fishes is twice a week. We positively evaluate daily intake of fruit and vegetable in more children from Nitra's district in comparison with set of children from whole Slovakia.

From monitoring of frequency and preference of poultry meat and the fishes consumption in 298 high scholars [9] we figured out, that poultry meat consumed the most children, 2 to 3 times a week (46.98 % pupils) and once a week 33.89 %. Between girls and boys were significant differences in preference of poultry meat (more girls

have preferred it – 81.18 % girls and 68.75 % boys). Most of the older pupils included the fishes into their diet only several times a year (34.40 % boys and 28.57 % girls).

Comparison of our results and results from Babinska et al [2, 3] with previous epidemiologic studies of children nutrition manners in Slovakia at the end of nineties years [10, 11] referred to ongoing irregular breakfast intake.

Bederova [12] declares, about evaluation of nutrition schedule of children and adolescents (from elementary and high schools), that in meat intake dominated the pork and permanent insufficient was the fish consumption.

In general, regular nutrition schedule and regular distribution of meals during a day are considered as optimal for mental performance of a person [7, 13].

## Conclusion

Results from our study provide information about actual problems in children nutrition in Nitra, as well as comparison of nutrition habits of children from Nitra with children from different districts of Slovakia. Overall, we can positively evaluate preference of poultry meat in the experimental set of scholars from Nitra, and also daily consumption of fruit and vegetable in major part of set. The most important observed deficiencies are: the breakfast skipping and insufficient intake of fishes and legumes. These factors can negatively influence nutritive value of food and consequently health and nutritive conditions of child body and its mental performance.

An aim of dietary counseling is oriented to prevention of nutrition-related diseases, which should be provided by pediatricians, and it should also include recommendations for regular dietary patterns.

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#### NAWYKI W ŻYWIENIU I PARAMETRY ANTROPOMETRYCZNE U SŁOWACKICH DZIECI

**Abstrakt:** Celem pracy było zebranie oraz analiza danych dotyczących nawyków żywieniowych, wybór pomiarów antropometrycznych oraz ocena różnic występujących między dziećmi z różnych grup wiekowych. W badaniach wzięło udział 204 osoby (110 dziewcząt i 94 chłopców) w wieku szkolnym (średnia wieku  $11,40 \pm 1,62$  lat) mieszkających w słowackim mieście Nitra. Dzieci zostały przyporządkowane do 2 grup wiekowych, mianowicie 9–11 lat (52,45 %) i 12–14 lat (47,55 %). Zawartość tkanki tłuszczowej w grupie młodszych dzieci wynosiła  $29,28 \pm 7,19$  % ( $11,91 \pm 5,10$  kg), a w grupie dzieci starszych  $22,04 \pm 6,55$  % ( $11,84 \pm 5,15$  kg). Spośród badanych dzieci 18,69 % młodszych i 30,93 % starszych osób nie spożywa regularnie śniadań ( $p < 0,05$ ). Wśród dzieci młodszych 14,02 %, a wśród dzieci starszych 23,71 % osób w ogóle nie spożywa śniadań. Głównym rodzajem mięsa spożywanego przez badaną grupę dzieci jest mięso drobiowe. Tylko 14,95 do 16,49 % dzieci jada ryby raz w tygodniu. Spośród młodszych dzieci 17,75 %, a spośród starszych dzieci 14,44 % pije rzadziej niż raz w tygodniu lub w ogóle nie pije mleka. Owoce jedzone są rzadziej niż raz w tygodniu przez 5,61 do 10,31 % dzieci. Warzywa jedzone są rzadziej niż raz w tygodniu przez 14,02 % dzieci młodszych i 21,65 % dzieci starszych. Rośliny strączkowe są spożywane rzadziej niż 2 razy w miesiącu przez 27,10 do 36,08 % dzieci.

**Słowa kluczowe:** zwyczaje żywieniowe, preferencje żywieniowe, antropometria, dzieci szkolne, Republika Słowacka