ASSOCIATION BETWEEN ANTHROPOMETRIC PARAMETERS, PHYSICAL ACTIVITY LEVEL, GENDER AND PLACE OF RESIDENCE IN PRESCHOOL CHILDREN

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Background and aims

Obesity in childhood is a global problem, influenced by socio-demographic and cultural factors.

The aim of our research was to determine the correlation of the anthropometric parameters of pre-school children (ages 6 and 7) with the level of physical activity, gender and place of residence.

Materials and methods

The research was conducted in February and March 2018. The study involved 200 examinees (102 boys and 98 girls). The values of the observed parameters are obtained by standard procedures of anthropometric measurements. Parents filled in the appropriate questionnaire.

The nutritional status is determined according to the WHO parameters (overweight BMI ≥ 85 percentile, obesity ≥ 95 percentile).

Results

- The mean values of body weight, height, BMI and waist circumference showed no statistically significant difference in relation to gender ($p > 0.05$).
- The percentage distribution of BMI shows that 3% was underweight, 61.50% had physiologic nutrition, 13% were overweight and 22.50% were obese. All underweighted subjects were male. Out of a total of 45 obese subjects, 27 were male (60%) and 18 female (40%).
- There was no statistically significant difference in the mean values of the observed parameters relative to the place of residence ($p > 0.05$).
- The results showed that physically less active children have statistically significantly higher values of body weight, BMI and waist circumference compared to physically more active children ($p < 0.05$).

Conclusions

Our results show that physical activity has significantly influences on the nutritional status of children, and therefore it is necessary to develop educational programs of quality physical activity.

Graph 1. Examinees by gender and year of birth

Table 1. Characteristics of the examinees (by gender)

Gender	Boys		Girls		p-value
	Mean	SD	Mean	SD	
Body mass (kg)	23.799	4.826	23.148	4.398	0.320
Body height (cm)	118.832	4.896	117.755	5.628	0.149
WC (cm)	55.333	6.705	54.7245	6.357	0.511
BMI	16.756	2.587	16.628	2.475	0.720

Table 2. Characteristics of the examinees (by place of residence)

Place of residence	City area		Rural area		p-vaule
	Mean	SD	Mean	SD	
Body mass (kg)	23.796	4.151	23.325	4.843	0.477
Body height (cm)	118.894	5.087	118.019	5.087	0.263
WC (cm)	55.652	6.95	54.731	6.313	0.366
BMI	16.774	2.316	16.653	2.632	0.741

Table 3. Characteristics of the examinees (by weekly activity)

Weekly activity	Less than 3 days		More than 3 days		p-vaule
	Mean	SD	Mean	SD	
Body mass (kg)	27.124	3.827	23.199	4.561	0.002
Body height (cm)	120.179	6.556	118.167	5.168	0.28
WC (cm)	61.286	6.925	54.565	6.267	0.003
BMI	18.899	2.652	16.527	2.445	0.006

Table 4. Distribution of BMI (percentile of BMI)

BMI	Boys		Girls		total	
	N	%	N	%	N	%
Underweight	6	5.88%	0	0.00%	6	3.00%
Physiologic nutr.	57	55.88%	66	67.35%	123	61.50%
Overweight	12	11.76%	14	14.29%	26	13.00%
Obese	27	26.47%	18	18.37%	45	22.50%

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