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*Frequency of occurrence of obesity and body mass deficits
among children of Lublin grammar-schools*

Obesity is a chronic disease caused by excessive – in comparison with body demand –supply of energy contained in foods. As a result, its surplus is stored up in the form of a fatty tissue (12). Obesity is accompanied by numerous complications, mainly on the part of the cardiovascular system. This disease more often affects young people and even children (2, 5, 6). Insufficient supply of basic nutrients leads to the occurrence of deficiency states, with the consequence of growth – disorders and body mass deficits (9).

The aim of this paper was to evaluate the occurrence of obesity and body mass deficits among children from grammar schools of Lublin.

MATERIAL AND METHODS

The research included 1,096 school children (549 girls and 547 boys) of randomly selected grammar schools of Lublin. Among the examined children, there were 474 pupils (227 boys and 247 girls) at the age of 14 and 622 pupils (320 boys and 302 girls) at the age of 15.

Measurements of height and weight were taken. The index of relative body mass was calculated (BMI), with the use of the formula $BMI = \text{weight (kg)}/\text{height}^2(\text{m})$. The obtained values were compared with standards for age and sex with the use of centile charts elaborated by Mother and Child Institute in Warsaw (9). The results were shown as minimum values, maximum values, arithmetic means and standard deviations.

RESULTS

The research showed that average values of height, weight and body mass index both of girls (Table 1) and boys (Table 2) are placed in the section between 25 and 75 centile. Obesity was diagnosed with 4.9% of the examined children (5.5% girls and 4.4% boys). Obesity features occurred more often in the group of 15-year-olds and concerned 6% of girls and 5.9% of boys. Among the examined children at the age of 14, obesity occurred with 4.9% of girls and 2.2% of boys (Fig.1) Body mass deficits were found with 5.5% of all examined children (6.0% of girls and 4.9% of boys). It concerns 7.7% of girls and 5.3% of boys at the age of 14 and 4.6% of girls and 4.4% of boys at the age of 15 (Fig. 2).

Table 1. Physical development parameters of girls from grammar schools of Lublin

Parameters	Age (years)	Min. – Max.	Mean	SD	Percentiles
Height (cm)	14	146.0–185.0	162.4	5.8	50–75
	15	142.0–180.0	162.7	6.2	25–50
Body mass (kg)	14	32.0–83.0	53.8	10.9	50–75
	15	33.5–108	53.1	9.7	25–50
BMI (kg/m ²)	14	15.0–35.1	20.7	2.0	50–75
	15	15.6–33.3	20.3	2.5	25–50

Table 2. Physical development parameters of boys from grammar schools of Lublin

Parameters	Age (years)	Min. – Max.	Mean	SD	Percentiles
Height (cm)	14	143.0–183.0	167.1	8.4	50
	15	145.5–191.0	168.9	8.25	25–50
Body mass (kg)	14	30.0–99.0	56.2	10.9	50–75
	15	35.0–120.0	58.6	12.9	50–75
BMI (kg/m ²)	14	12.7–32.5	20.1	1.9	50–75

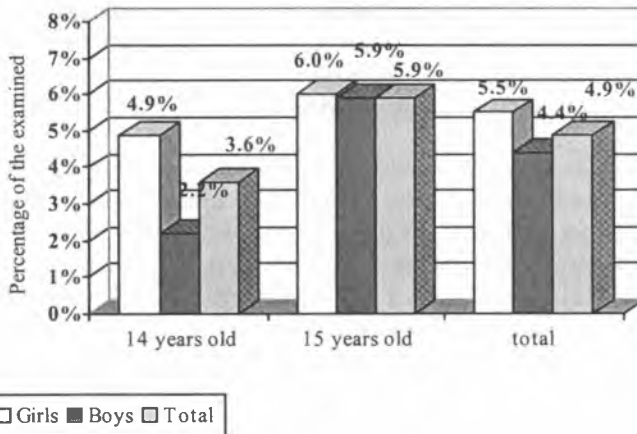


Fig. 1. Frequency of obesity occurrence among the children from grammar schools in Lublin

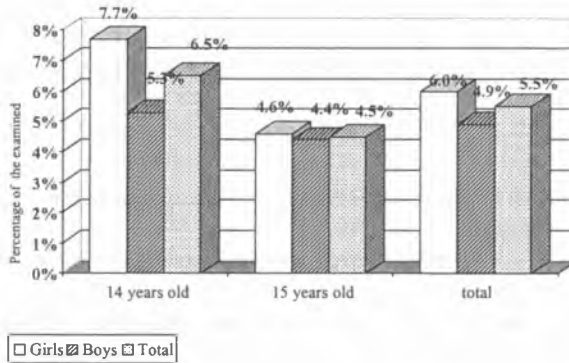


Fig. 2. Frequency of body mass deficits among the children from grammar-schools in Lublin

DISCUSSION

In recent years we can observe an increase in the frequency of occurrence of simple obesity, which now ranks among civilization-related diseases (5, 12). It has been proved that people with obesity occurring in their juvenile period, at the age of over 55, nearly twice more often die of circulatory system diseases than people with physical development parameters in the juvenile period meeting standards (6, 10, 12). In Poland it was found, that obesity occurs with 5% of children and young people (8). Results obtained in our own research are similar. Obesity features have been observed with 4.9% of the examined children from grammar schools, and obesity was more often observed in the group of girls (5.5%) than in the group of boys (4.4%). Some authors point to the fact that obesity occurs more often in the group of boys (12). The reason for that may lie in the care for appearance among girls by complying with appropriate dietetic recommendations and by appropriate dosing of physical activity (1, 7). Disadvantageous to the health and the rate of physical development of children and young people is also a deficient diet, which does not secure a sufficient amount of energy and basic nutrients. The effect of that are, among other things, deficits in body mass and height. Such deficits were observed with 5.5% of the examined children (6% of girls and 4.9% of boys). An index useful for defining, overweight or body mass deficits is BMI (1, 2, 3, 7). It is considered that the value of BMI in the age of puberty corresponds with BMI in the adult life (2, 12). It is necessary to constantly monitor physical development parameters of children and young people so that prevention and treatment could be started as early as possible (4, 5). To treat obesity with children and young people, limitation of consumed calories and increase in physical activity is necessary as well as changin lifestyle and eating habits of the whole family. With simple obesity pharmacotherapy is generally not applied, because it may even be harmful (6, 11). Isolated in the course of study groups of children with obesity features and body mass deficits, demand constant medical checking and keen analysis of factors, which have led to incorrectness of physical development parameters. There should be widespread educational actions concerning eating principles as a basic element of prevention of physical development rate disorders in children and young people.

CONCLUSIONS

1. Both obesity and body mass deficits are a serious problem among the children of grammar schools in Lublin.
2. Incorrectness of physical development parameters occurs more often in the group

of girls than in the group of boys among the children of grammar schools in Lublin.

3. It is necessary to develop preventive activities aiming at developing pro-health behaviour among children, young people and their parents or patrons.

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SUMMARY

The aim of the research was to evaluate the frequency of occurrence of obesity and body mass deficits among the children of grammar schools in Lublin. The research included 1,096 children (549 girls and 547 boys) at the age of 14 and 15. The measurements of height and weight of the examined children were taken and BMI – index of related to age standards presented in centile charts elaborated by the Institute of Mother and Child in Warsaw. The research showed that the average values of height, weight and BMI index of the examined children were between centile 25 and 75. Obesity features were observed with 4.9% of all the examined children (5.5% of girls and 4.4 %of boys). Body mass deficits were observed with 5.5% of the examined children (6% of girls and 4.9% of boys). Incorrectness of physical development parameters are more often observed with 15-year-olds and more often in the group of girls than in that of boys. Obesity was observed with 4.9% of girls and 2.2 % of boys at the age of 14 and with 6% of girls and 5.9% of boys at the age of 15. Features of body mass deficit were observed with 7.7% of girls and 5.3% of boys at the age of 14 and with 4.6% of girls and 4.4% of boys at the age of 15.

Częstość występowania otyłości i niedoborów masy ciała wśród młodzieży lubelskich gimnazjów

Celem pracy była ocena częstości występowania otyłości oraz niedoborów masy ciała wśród młodzieży z lubelskich gimnazjów. Badaniami objęto 1096 dzieci (549 dziewczynek i 547 chłopców) w wieku 14 i 15 lat. Dokonano pomiarów wzrostu i masy ciała badanych, obliczono wskaźnik względnej masy ciała (BMI). Uzyskane wartości odniesiono do norm wiekowych zawartych w siatkach centylowych opracowanych przez Instytut Matki i Dziecka w Warszawie. Badania wykazały, że średnie wartości wzrostu, masy ciała oraz wskaźnika BMI badanych kształtowały się w przedziale między 25 a 75 centylem. Cechy otyłości stwierdzono u 4,9% ogółu badanych (5,5% dziewcząt i 4,4% chłopców). Niedobory masy ciała zaobserwowano u 5,5% badanych (6,0% dziewcząt i 4,9% chłopców). Zaburzenia parametrów rozwoju fizycznego częściej występują wśród młodzieży 15-letniej oraz częściej w grupie dziewcząt niż w grupie chłopców. Otyłość stwierdzono u 4,9% dziewcząt i 2,2% chłopców w wieku 14 lat oraz u 6% dziewcząt i 5,9% chłopców 15-letnich. Cechy niedoboru masy ciała występowały u 7,7% dziewcząt i 5,3% chłopców w wieku 14 lat oraz u 4,6% dziewcząt i 4,4% chłopców w wieku 15 lat.