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Effect of physical activity on body weight of elementary school children

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Summary

BACKGROUND: Physical activity is an extremely important part of diet and carries a number of health-promoting benefits towards health. A distinction is made between exercise-related physical activity and spontaneous physical activity. The diet of school-aged children is of particular importance, due to the development of the body. The consequence of low physical activity with an inadequate diet generates the development of various diseases. **Purpose: The purpose** of this study is to evaluate the impact of physical activity on the body weight of students of elementary schools 1 and 2 in Radzionków.

Material and methods: The study included 260 students of grades I-VIII of Elementary Schools Nos. 1 and 2 in Radzionków. A proprietary questionnaire addressed to the parents of the students containing questions about the students' anthropometric measurements, physical activity and eating habits was used to conduct the study. **Results:** Physical activity is at a high level. Most children had a normal body weight. Among the students surveyed, 71% indicated that they mainly spend their free time in active form. Students participate in swimming classes in the greatest number. Several times a week

(55%) children attend extra-curricular activities. Consumption of sweets and fast food is at a low level. Eating the recommended daily serving of fruits and vegetables affects only 43% of children. Among the most commonly consumed beverages, 84% of children choose water at 1-1.5 liters per day. **Conclusions:** A significant part of the study group has a normal body weight, so it can be assumed that physical activity combined with appropriate eating habits has a health-promoting effect on body weight.

Keywords: children, physical activity, body weight, eating habits

Introduction

Child and adolescent obesity is a serious health problem worldwide. In Poland, the number of overweight and obese children is also on the rise. Among the factors affecting children's body weight, physical activity is one of the most important. It is therefore important to study the effect of physical activity on the body weight of children, especially those attending elementary schools [1].

According to a study by the World Health Organization (WHO), obesity is a major risk factor for many chronic diseases, including heart disease, diabetes and cancer. Child and adolescent obesity is particularly dangerous because it can lead to serious health complications in the future [2].

The European Childhood Obesity Surveillance Initiative (COSI) research project has been conducted since 2007 under the auspices of the WHO, which Poland joined in 2014, and has studied sedentary lifestyle behaviors (so-called sedentary activities), which are characterized by low amounts of energy expended by the body. They are usually combined with immobility, mainly in a sitting position [3]. The growing body of research on this type of behavior is primarily due to the fact that it is recognized as an independent risk factor for many chronic non-communicable diseases, including cardiovascular disease, type 2 diabetes, and overweight and obesity [4]. In the case of school-aged children and adolescents, sedentary activities are most often associated with the fulfillment of school duties (classroom activities, homework at home). They occupy several or even more than a dozen hours a day, the remaining free time available, children and adolescents usually use based on their own tastes, talents and abilities. Watching TV, videos, as well as computer games and surfing the Internet are the most common forms [5].

In Poland, according to the Central Statistical Office, in the 2019/2020 school year, 12.3% of elementary school students were overweight and 8.9% were obese. Therefore, it is necessary to take measures to reduce the number of children with weight problems [6]. A study of Polish children attending elementary schools showed that the COVID-19 pandemic affected the eating behavior and lifestyle of children attending elementary schools. Pandemic COVID-19 changed the body weight of almost half of the children studied, with more weight gain than weight loss [7].

Hypokinesia, or deficiency of exercise in children, has consequences such as decreased circulating blood counts, decreased red blood cell counts, worsened adaptation of the body to work on the part of the respiratory system through decreased oxygen ceiling, decreased ability of tissues to bind oxygen, worsened lung ventilation, and impaired respiratory function [8]. According to the WHO, children aged 5-17 should devote at least 60 minutes of moderate to vigorous physical activity every day [9].

Table I. Physical activity for children and adolescents .

Age	Recommended time for physical activity	Method of implementation of physical activity
Children (5-9 years old)	At least 60 minutes of moderate to intense physical activity each day, including: Intensive classes at least 3 days per week. Activities that strengthen muscles and bones at least 3 days a week.	Implemented sports activities should have short breaks, flexible rules, offer free time in practice and focus on fun.
Children (10-12 years old)	At least 60 minutes of moderate to intense physical activity each day, including: Intensive classes at least 3 days per week. Activities that strengthen muscles and bones at least 3 days a week.	Children reach puberty at different times. Physical size, strength and maturity vary widely among this age group. Usually ready to participate in team sports that focus on skill development, equal participation and fun. He can start weight training with lighter weights and proper supervision.
Adolescents (13-17 years old)	At least 60 minutes of moderate to intense physical activity each day, including: Intensive classes at least 3 days per week. Activities that strengthen muscles and bones at least 3 days a week.	Activities should be based on fun and include activities with friends. Teens are ready to focus on: Fitness (fitness classes after school), Active sports (walking, cycling), housework, competitive and non-competitive sports.

Source: own compilation based on Caring for Kids. Information for parents from Canada's paediatricians (https://www.caringforkids.cps.ca/handouts/physical_activity)

Among children diagnosed with obesity, at least one of the metabolic syndrome factors is indicated, including elevated insulin levels and hypertension. Overweight children are noted to be ten times more likely to develop type 2 diabetes compared to children of normal weight. Obesity occurring in childhood can cause joint degradation, and affect the entire skeletal system by generating

conditions such as curvature of the spine or flat feet. Children affected by obesity often feel inferior among their peers. They perceive themselves as less attractive, resulting in low self-esteem and a lack of acceptance of their own appearance. Children may face negative feedback from peers and harassment through which they feel rejection, and consequently isolate themselves from other children and often fall into depressive states. Disorders that result from excessive body weight also contribute to the development of mental anorexia nervosa (anorexia) or bulimia [10, 11].

The purpose of the study is to evaluate the impact of physical activity on the body weight of children of elementary schools 1 and 2 in Radzionków. In addition, the study also sought to answer the following research questions:

(1) Who is more physically active - boys or girls?

(2) What additional sports activities do children participate in most often?

(3) How are children more likely to spend their free time?

(4) Are children adequately hydrating their bodies?

Material and methods

Sample selection

The study group consisted of students in grades I-VIII of elementary schools No. 1 named after Adam Mickiewicz in Radzionków and No. 2 named after John Paul II in Radzionków. Informed consent to participate in the study was obtained from a total of 260 students, including: 87 students of Sz. P. Nr. 1 and from 173 students of Sz. P. Nr. 2.

Research tool

The study was carried out using a proprietary survey questionnaire, aimed at the parents of students, consisting of 22 questions on such topics as the child's anthropometric measurements, physical activity and diet.

Characteristics of the study group

Due to the disparity between the number of students, the results obtained were combined and broken down by gender and class (Table II). The total number of girls was 137 (53%), and the total number of boys was 123 (47%). Classes I-III are attended by 58 (50%) girls and 57 (50%) boys, classes IV-VI by 68 (54%) girls and 57 (46%) boys, and classes VII-VIII by only 11 (55%) girls and 9 (45%) boys.

Table II. Number of students by gender and grade .

Gender	Total N (%)	Class		
		I-III N (%)	IV-VI N (%)	VII-VIII N (%)
Girls	137 (53%)	58 (50%)	68 (54%)	11 (55%)
Boys	123 (47%)	57 (50%)	57 (46%)	9 (45%)

A breakdown was also made according to the weight of the children (TTable III). Body weight of less than 30kg was recorded among 113 (44%) of all participating children, including 52 (42%) boys and 61 (44%) girls. Body weight of less than 30kg was also found among 65 (57%) students in grades I-III and 21 (17%) students in grades IV-VI. Body weight between 30 and 50 kg included the largest group of students, as 125 (48%), including 61 (50%) boys and 64 (47%) girls. Among classes, the largest group in this mass category included classes IV-VI at 91 (73%) students, 48 (42%) students in classes I-III, and 9 (45%) students in classes VII-VIII. Body weight above 50 kg concerned a small number of children. There were a total of 22 (8%), including 10 (8%) boys and 12 (9%) girls. In grades I-III, only 1 (1%) child was in this mass category. In grades IV-VI and VII-VIII, this category included 13 (10%) and 11 (55%) students in these grades, respectively.

Table III. Student body weight by gender and class .

Body weight [kg].	Total N (%)	Boys N (%)	Girls N (%)	Class		
				I-III N (%)	IV-VI N (%)	VII-VIII N (%)
<30	113 (44%)	52 (42%)	61 (44%)	65 (57%)	21 (17%)	-
30-50	125 (48%)	61 (50%)	64 (47%)	48 (42%)	91 (73%)	9 (45%)
>50	22 (8%)	10 (8%)	12 (9%)	1 (1%)	13 (10%)	11 (55%)

Results

A total of 260 students took part in the survey, including girls in the number of 137 (53%) and boys in the number of 123 (47%). The vast majority, as many as 258 (99%), were children living in urban areas. These were all boys participating in the survey and 135 (99%) girls. Rural areas, on the other hand, were inhabited by only 2 (1%) girls. The characteristics of the study group are presented below (Tab.IV).

Table IV. Characteristics of the study group .

Gender	Total N (%)	Place of residence	
		City N (%)	Village N (%)
Girls	137 (53%)	135 (99%)	2 (1%)
Boys	123 (47%)	123 (100%)	-

Based on the child's reported weight and height, BMI was calculated. The resulting body mass index values were compared to BMI centile grids of girls and boys aged 3-18 years, which include age and BMI by gender.

The group of girls below the 5th percentile includes 46 (34%) of all girls. The largest number of underweight girls is 11 (35%) at age 9. Normal weight, that is, between the 50th and 90th percentile, is possessed by 82 (60%) girls. It can be assumed that in each age group about 50% of girls are in this range. Overweight and obesity in the girls' group has a low prevalence. A BMI between the 90th and 97th percentile affects only 9 (6%) girls. In contrast, a BMI greater than or equal to the 97th percentile does not occur at all (Fig.1).

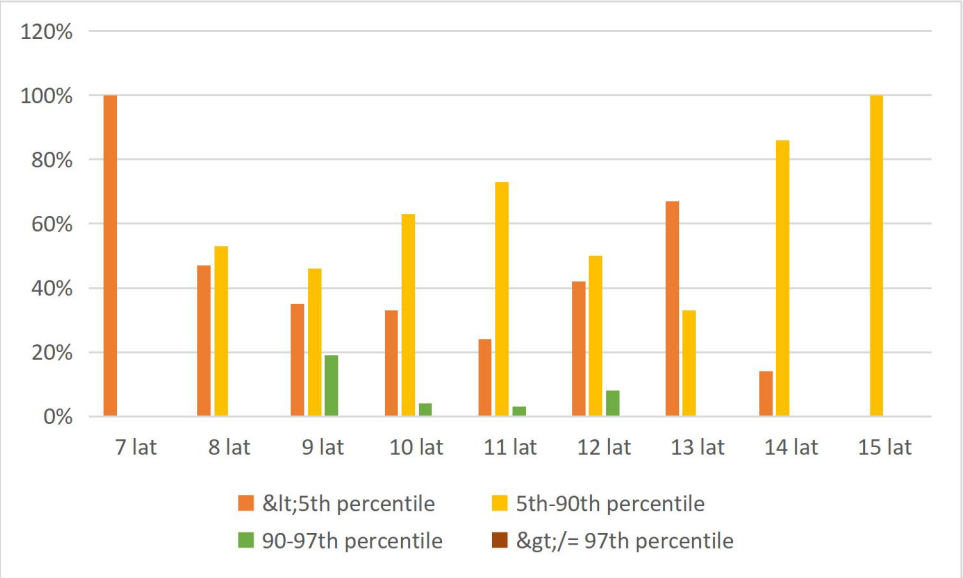

Figure 1. BMI in the girls' group.

There were 16 (13%) of all boys below the 5th percentile. The largest number of underweight cases, as 5 (24%) were recorded at age 11. A body mass index between the 5th and 90th percentile was possessed by 82 (67%) of the boys, of which the highest number of boys with normal body weight was 18 (75%) at age 8. Between the 90th and 95th percentile, 22 (18%) boys were recorded, where the highest number of boys with overweight problems was at age 10, with 8 (27%). A body mass index greater than or equal to the 97th percentile was noted among 3 (2%) of the boys participating in the study (Fig.2).

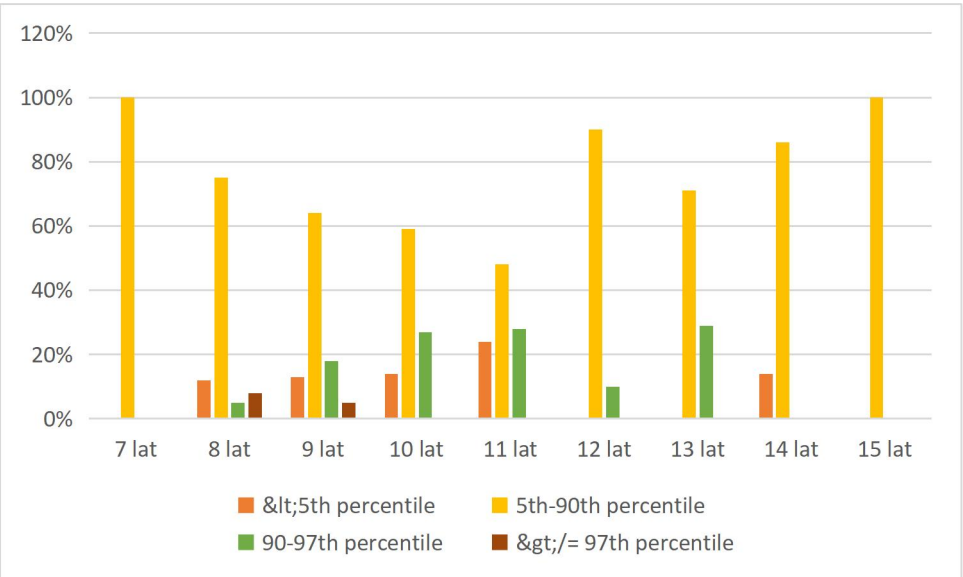

Figure 2. BMI in the boys' group.

The child's health condition was rated as very good by more than half of the parents, as many as 142 (55%). The health status as good was indicated by 110 (42%) parents, and only 8 (3%) rated it as average. More than half (>50%) of all boys' and girls' health status was rated as very good. The same was true by class (Fig.3).

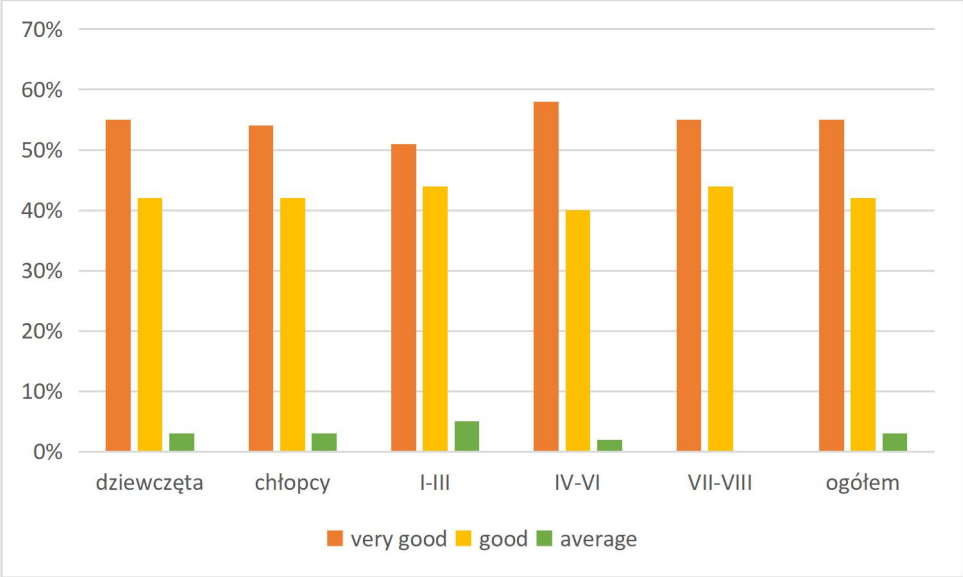

Figure 3. Child's health status according to parents' opinion by gender and class .

There are 30 (10%) students with chronic diseases, including 13 (37%) students with various types of allergies, 12 (34%) with bronchial asthma and 5 (14%) with atopic dermatitis. There were also 2 (6%) children with thyroid disease, as well as 1 (3%) child with boleriosis, 1 (3%) with gastric reflux and 1 (3%) with Stevens Johnson syndrome (Fig.4).

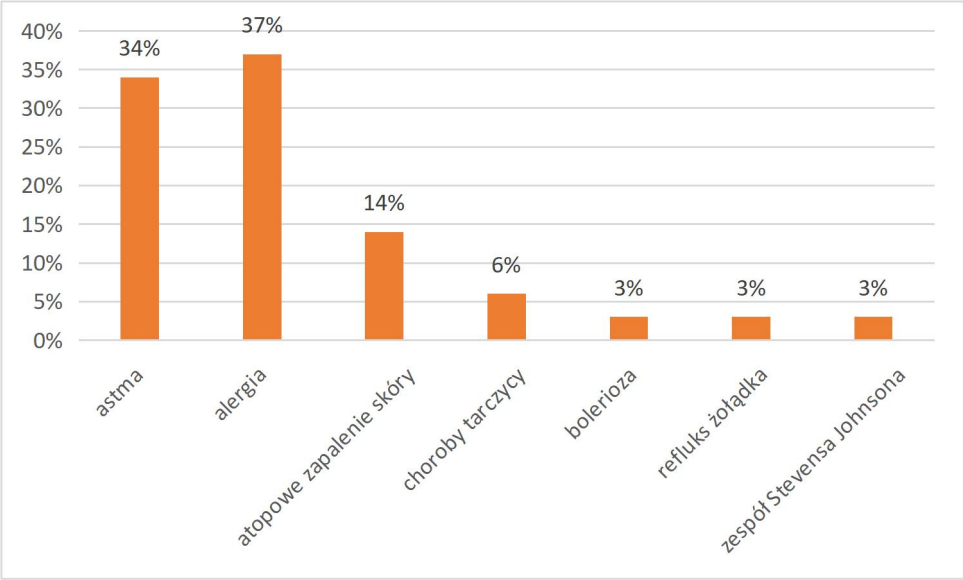

Figure 4. Chronic diseases present in the study group.

Physical education classes at the school are attended by almost all children, with the exception of one girl who takes tennis classes as part of her physical education classes.

Additional sports activities are attended by 180 (69%) of all children participating in the survey, including 99 (72%) girls and 81 (66%) boys. Among additional sports activities, children in the greatest number using swimming classes - 83 (46%) children. This is followed by dance classes (34%), soccer (17%), tennis (14%), volleyball (10%), judo (6%) and athletics (1%). Among other activities (3%) attended by children, parents mentioned: acrobatics, gymnastics, krav maga, horseback riding, karate and badminton (Tab.V).

Table V. Most frequently undertaken forms of additional physical activity by gender .

Type of additional activities	Total		Girls		Boys	
	Number N	**%**	**Number N**	**%**	**Number N**	**%**
Soccer	30	17	-	-	30	37
Volleyball	18	10	9	9	9	11
Tennis	25	14	12	12	13	16
Swimming	83	46	53	54	30	37
Judo	11	6	2	2	9	11
Athletics	2	1	2	2	-	-
Dance	62	34	49	49	13	16
Other	27	15	21	2	6	7

15 (8%) children attend extra classes every day. The largest number of children, as many as 100 (55%) attend extra classes several times a week. Taking classes once a week is declared by 58 (32%) parents of children attending additional sports activities. Six (3%) children attend extra classes several times a month, and one boy (1%) attends extra classes once a month (Fig.5).

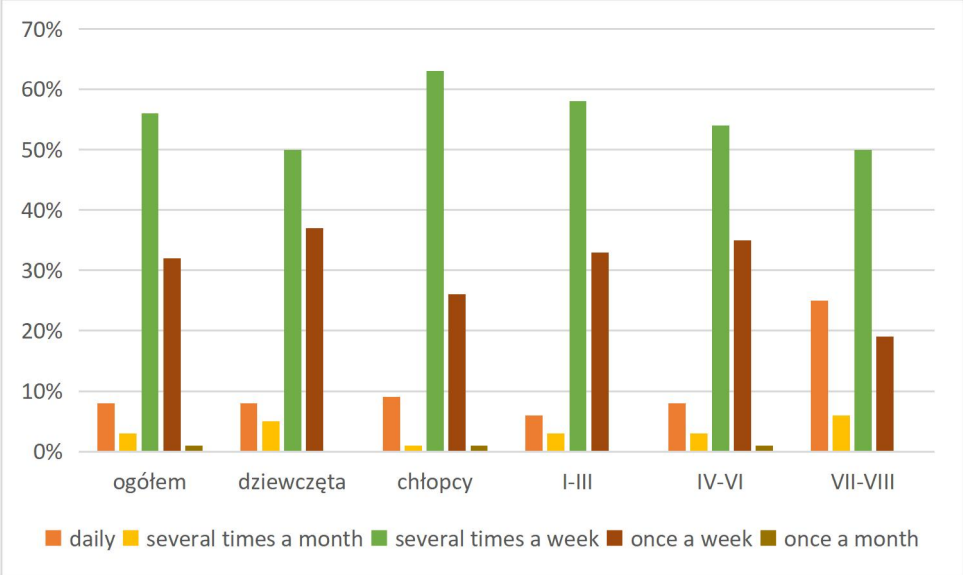

Figure 5. Intensity of additional physical activity undertaken by gender and class .

The majority of children spend their free time, as many as 185 (71%) of them, in an active way. In a passive way, on the other hand, it is only 75 (29%). The difference in active spending of leisure time between boys and girls is small, but girls are more active. 99 (72%) of all girls spend their free time actively, while the figure for boys is 86 (70%) (Fig.6).

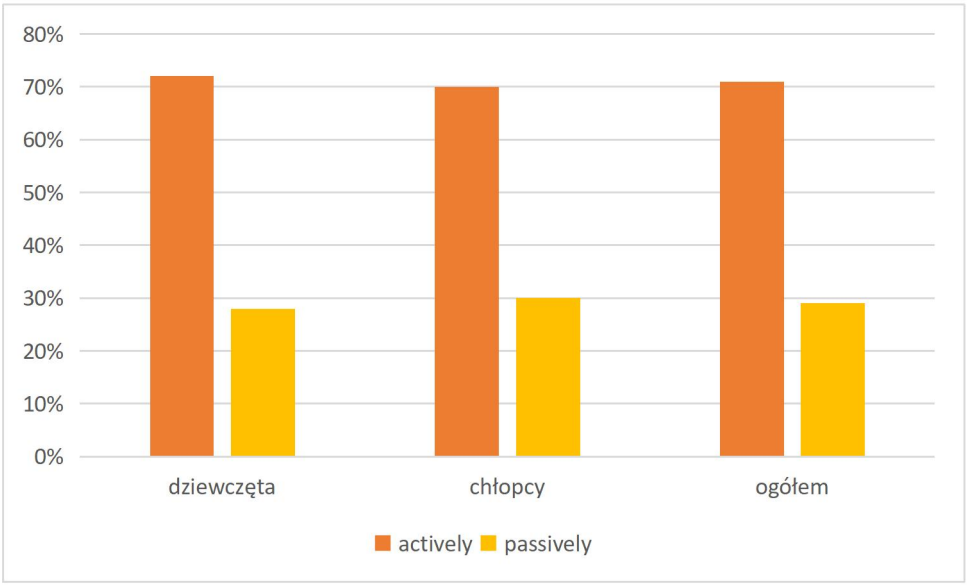

Figure 6. Leisure activities by gender .

During the week, 202 (78%) children spend between one and two hours in front of the TV, while 228 (88%) spend the same time in front of the computer. Television for three to four hours is watched by 54 (21%) children, while the computer is used at the same time by 26 (10%) children. Three (1%) and five (1%) children spend time in front of the TV and computer for five to six hours, respectively, and above that time 1 (<1%) child each (Fig.7).

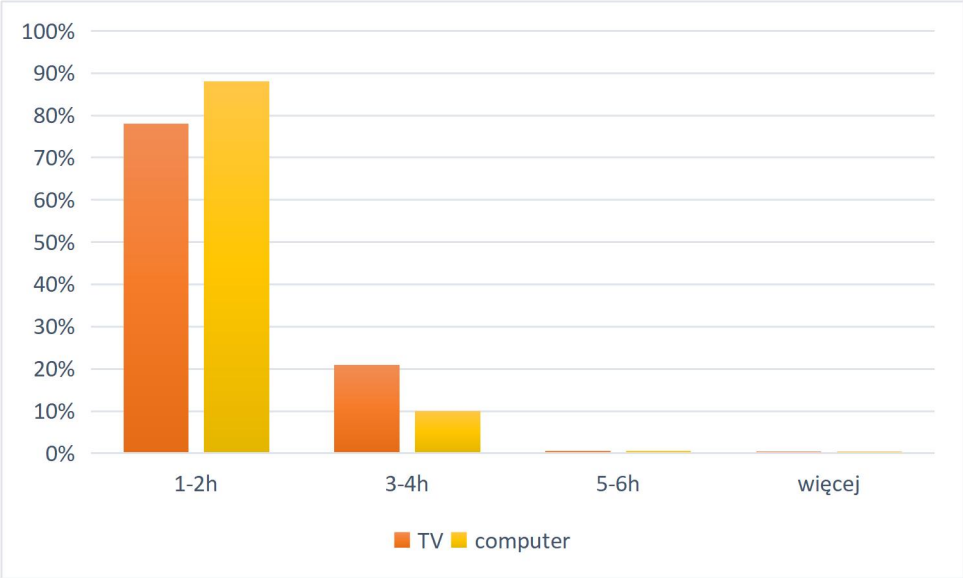

Figure 7. Time spent in front of TV and computer during the week.

During the week, the largest number of children, as 144 (55%) receive sweets several times. Eighty-seven (33%) children eat them daily, 22 (9%) eat them once, and 7 (3%) boys and girls do not eat sweets at all (Fig.8).

Figure 8. Consumption of sweets during the week.

When asked if their child eats the recommended daily serving of fruits and vegetables, 147 (57%) parents answered in the negative. The affirmative answer was given by 113 (43%) parents.

In the girls' group, the recommended daily portion of fruits and vegetables is consumed by 62 (45%), while in the boys' group, on the other hand, by 51 (41%). On an interclass basis, as for the consumption of fruits and vegetables per day, it looks best in grades VII-VIII, where the recommended portion is consumed by 12 (60%) students. On the other hand, the portion is consumed by 59 (47%) students in grades IV-VI, and 42 (37%) students in grades I-III (Fig.9).

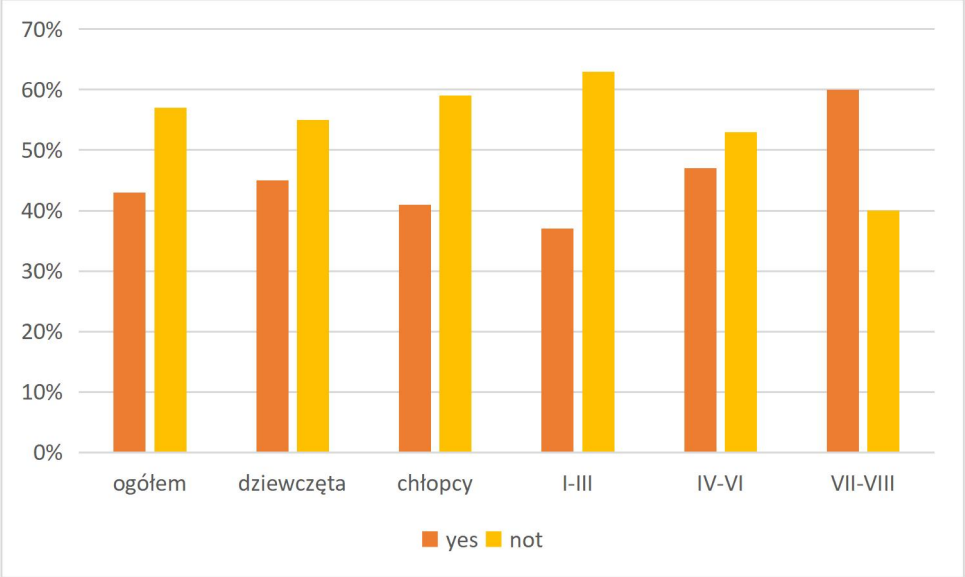

Figure 9. Intake of recommended daily servings of fruits and vegetables by gender and class .

Regarding, children's eating of fast-food meals, as many as 171 (66%) parents said that their children eat this type of meal rarely, and hardly ever, 71 (27%) children eat it. Only 17 (7%) parents felt that their children eat fast-food on a level - often. In terms of gender, fast food is eaten less often by girls. Forty-four (32%) girls hardly ever eat them, while among boys it is 27 (22%) of them. In a cross-class comparison, the consumption of fast-food meals ranks at a similar level. Rarely this type of meal is eaten by about 70% of students in all classes (Fig.10).

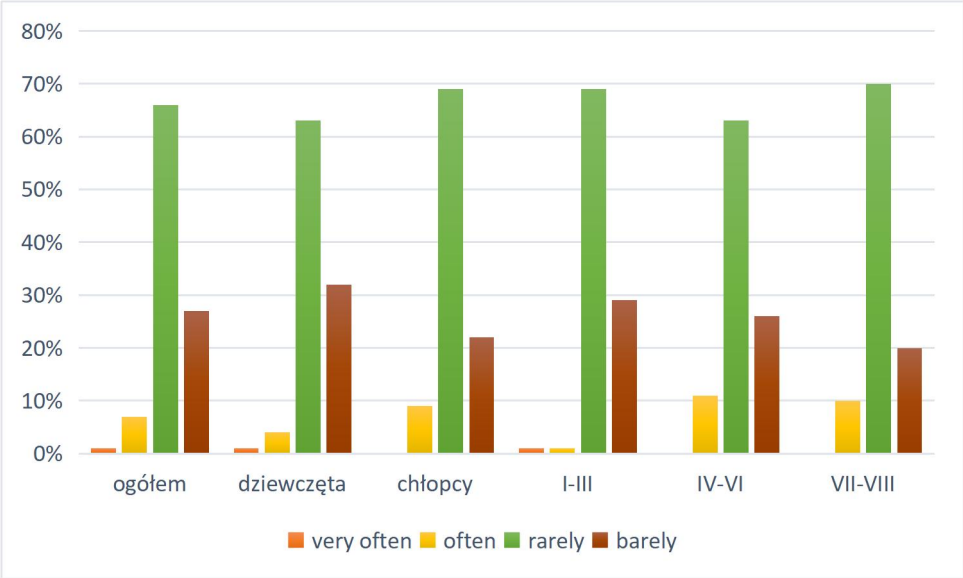

Figure 10. Fast-food consumption by gender and class .

Among the most common drinks consumed by children, according to parents, was water, which is consumed by 218 (84%) of the total. Sweet sodas such as coca-cola are consumed by the smallest number of children, i.e. 25 (10%) of the total, and juices by more than half of the children at 134 (52%). By gender, as well as by class, water consumption is at the highest level (>80%). More than half (>50%) in these ranges consume juices, only in grades VII-VIII this consumption is slightly lower, affecting only 5 (25%) children. It is also evident that the consumption of sweet sodas is higher (25%) in the group of classes VII-VII compared to the other classes (Fig.11).

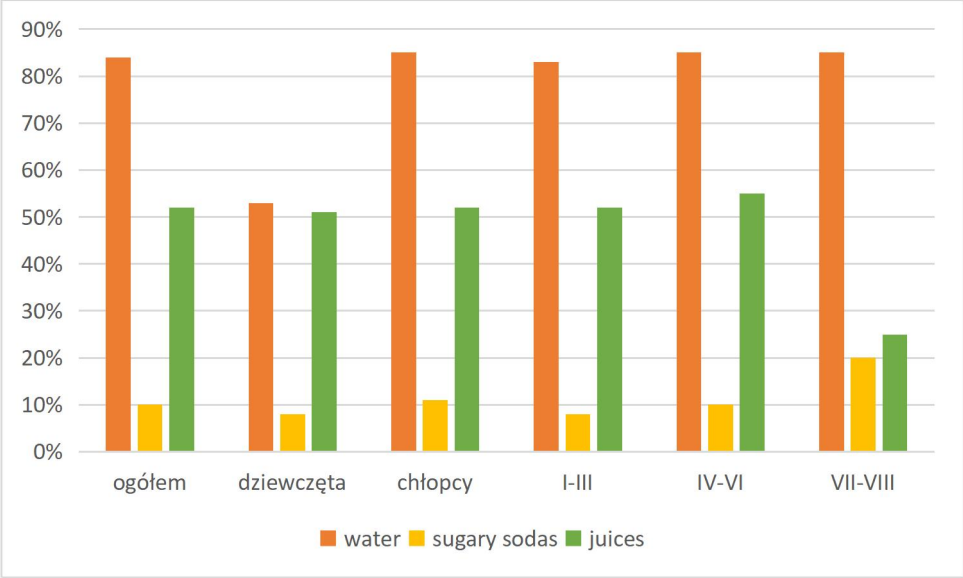

Figure 11. Most consumed beverages by gender and class .

A child's daily water consumption of less than 1 liter was declared by 72 (28%) parents. An amount of less than 1 liter of water per day is consumed by 44 (32%) girls and 28 (23%) boys. In grades I-III, less than 1 liter of water per day is consumed by 37 (32%) students, and for grades VII-VIII this applies to only 2 (10%) students. Daily water consumption of 1-1.5 liters is declared by 151 (58%) parents of children, including 76 (56%) girls and 75 (61%) boys. Water consumption in this range in the largest number includes students in grades IV-VI and amounts to 72 (58%) people, with the smallest number of students in grades VII-VIII at 11 (55%) people. Water consumption of 2-2.5 liters was indicated by 32 (12%) parents.

Compared to gender, boys drank more water in this amount, there were 18 (14%) of them. On the other hand, when broken down by class, students in grades IV-VI dominated at 16 (13%). Drinking more than 3 liters of water per day concerned only 5 (2%) students, and this applied only to boys and girls in grades VII-VIII (Fig.12).

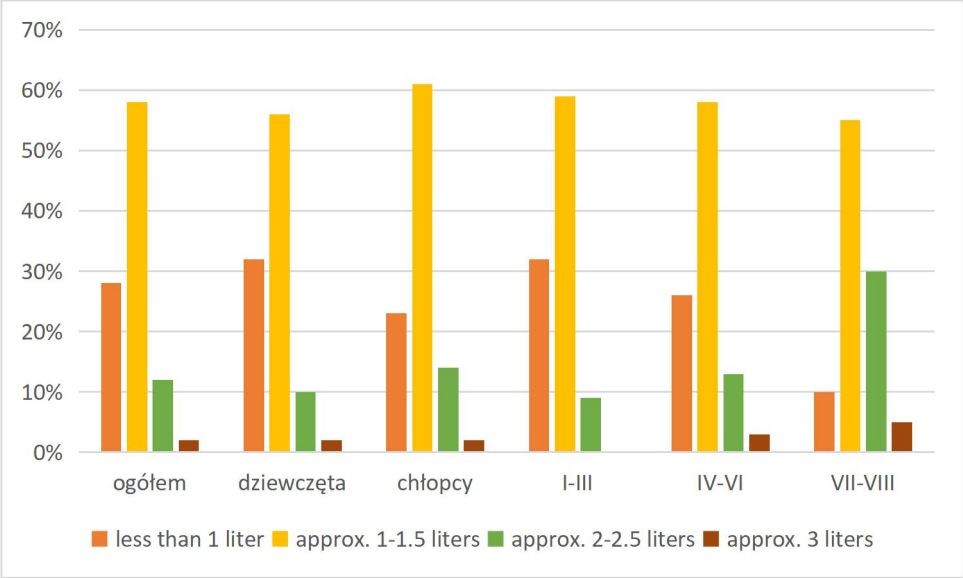

Figure 12. Daily water intake by gender and class .

Discussion

A number of recommendations can be found in the literature regarding the nutritional status of children, their dietary preferences and the forms of physical activity performed. The negative consequences that are associated with insufficient physical activity and improper nutrition are also known.

According to the WHO *(World Health Organization),* the recommended amount of physical activity undertaken, for children aged 5-17, should be in accordance with the MVPA *(Moderate-to-Vigorous Physical Activity)* indicator, and should be at least 60 minutes a day

for 7 days a week to meet basic developmental and physical needs. The WHO also recommends engaging in vigorous physical activity *(VPA - Vigorous Physical Activity) to* strengthen bones and muscles, which should be undertaken at least 3 times a week, in the form of, for example, games, physical activities or all kinds of sports [9,12].

The results indicate that children in the vast majority, i.e. 55%, attend additional sports activities - several times a week. Therefore, it can be assumed that in the studied group, the majority of children meet the WHO recommendations for intensive physical activity. Almost all children also attend physical education classes at school, and at the same time a large part of them, as many as 71% also prefer to spend their free time actively. In view of this, it can also be assumed that the studied group meets the WHO recommendations in line with the MVPA indicator. Significant participation of children in physical education classes in their study was also noted by Kaczor-Szkodny et al, where 76.8% of the studied group participated in classes, Wojtyła et al, where out of 12,005 students, as many as 96% of them participated in classes, and Zimna-Walendzik, where 82.8% of the studied children participated in physical education classes [3,12,13]. It has also been noted that girls are more physically active compared to boys. Similar results were obtained in a study conducted by Kurzak and Pawelec [14]. In the study group there, the declaration of practicing sports outside of physical education classes at school was obtained from almost 3/4 of the respondents. Girls were also more physically active in this group than boys [14]. Slightly different results were obtained in the 2014 HBSC *(Health Behaviour in School-aged Children)* study. They indicated that the recommended level of physical activity necessary to maintain health and proper development is demonstrated by a small number of adolescents in Poland. The health of more than 3/4 of adolescents aged 11-15 is compromised by insufficient levels of physical activity. Physical activity among both boys and girls decreases with age, so that more and more adolescents do not meet WHO recommendations [15]. Among additional sports activities, children in the study conducted attend swimming classes in the highest number, i.e. 83%. In a study conducted by Kaczor-Szkodny et al, among the most frequently chosen forms of additional activity, children chose cycling in 56.5%, while swimming classes were attended by only 33.6% of the study group there [15].

Many authors involved in research on children's physical activity draw attention to the phenomenon of choosing passive leisure activities in the form of watching TV and using a computer. In our own study, spending children's leisure time passively was declared by 29% of respondents. The amount of time spent in front of both TV and computer was estimated by parents to be about 1 to 2 hours per day, 78% and 88%, respectively. Kubasiak-Słonina et al,

observed a similar phenomenon in their study group. Half of the group there reported spending between 1 and 2 hours a day in front of the computer and television [16]. Slightly lower results were obtained in a study conducted among students aged 12 to 15, where 37.6% of children spend an hour a day at the computer, and 2 to 3 hours were spent by 38.4% of respondents [13].

In addition to physical activity itself, proper eating habits are also important for maintaining a healthy body weight.

Vegetables and fruits are not only a source of vitamins and minerals, but also dietary fiber. Various studies indicate inadequate intake of this food group among children. Similar results were also obtained in our own study, where more than half of the subjects do not eat the recommended daily serving of fruits and vegetables. The results of the HBSC survey indicate that one-third of children aged 11-15 consume fruit daily, while vegetable consumption is at an even lower level. Rarer consumption of both vegetables and fruits was evident in the boys' group [17]. Consumption of vegetables and fruits in the study conducted in Ciechanow County regardless of age was at a low level. Eating the recommended daily serving of fruits and vegetables was declared by one in five students, and several said they did not eat fruits and vegetables at all [18].

Fast-food is a type of food that is prepared quickly, served hot, and is generally inexpensive [19]. Fast-food products are characterized by their high energy value, high fat and salt content, as well as sugar while being low in dietary fiber, minerals and vitamins [20]. In our study, consumption of meals of this type was described by 66% of respondents as infrequent. It was also noted that boys reached for these meals more often compared to girls. In their study, Wanat et al. noted that fast-food meals in the study group were consumed by 33% several times a week, and 60% consumed them several times a month [21]. Data on fast-food consumption in Gajewska and Zawieska's study indicated that 53.5% of children, according to their parents, eat these meals only occasionally or not at all. In contrast, the children themselves said that occasional consumption of such meals affected 33.3% of them [22].

Sweets are a group of products that have a high energy value and contain large amounts of sugars and fats, while being poor in vitamins and minerals. According to specialists, excess sweets cause fat accumulation, so they should be limited [22]. In the study group, a significant number of children consumed sweets several times or once a week. Similar results were obtained in their study by Nowak and Kardas, as well as Wojtyla et al, where nearly half of the respondents ate them with such frequency [13,21]. A slightly lower

frequency of consumption in their study was obtained by Stefanska et al. where sweets were consumed daily and several times a week by 32% of the respondents [23].

A very important aspect in maintaining a healthy body weight is proper hydration. Drinking water is widely recognized as healthy. Water is a non-energetic beverage, so implementing it in the diet instead of other liquids leads to a reduction in energy intake and therefore promotes the maintenance of normal body weight [24]. In the study group, 84% of the children drank water. According to recommendations, school-aged children should drink at least 1.5 liters of water daily, or about 6-7 glasses a day. This amount should be increased by about 2 glasses when the child performs some physical activity, when the air temperature exceeds 22 degrees Celsius or in case of medical conditions, such as when there is a fever. The rest of the fluids should be supplied to the body with food [25]. The amount of water drunk daily by children in the study group of 1-1.5l was consumed by 58%. More than half also claimed to consume juices, while sweet sodas were not very popular in the study group. In the study conducted by Marcysiak et al, sweet sodas were among the most popular drinks consumed by boys, while girls, in turn, preferred various types of fruit juices. Water consumption concerned 30% of respondents [26]. Marcinkowska et al, showed in their study that the majority of children, as much as 96% most often consume water, 44% choose sweet sodas and these are definitely more often boys. Juice drinking in this group was also at a high level with 94% of respondents consuming it regularly [27].

According to the IOTF report, nearly 155 million children worldwide are struggling with overweight or obesity. In the European Union, of 72 million children, 29% are overweight and 6.8% are obese [28]. Due to the high physical activity in the study group, as well as a fairly normal diet, a small number of children with excessive body weight was noted. Only in the group of girls can be noted an increase in their number below the 5th percentile. This phenomenon may be due to the fact of the ideal of beauty created in front of the modern world, based on the possession of an ideal figure, in view of which girls undertake physical activity, while at the same time maintaining an inadequate diet, which may be deficient in nutrients necessary for this age. In a study conducted among students from Bialystok, as in our own research, it was noted that the problem of being underweight was more common among girls than boys [29].

In conclusion, it can therefore be said that the lifestyle of the study group has a positive impact on their health. Eating habits that do not deviate significantly from the norm, combined with physical activity, indicate that the study participants do not have chronic non-communicable diseases such as type 2 diabetes or obesity, among others, and their overall

health is assessed as very good. An aspect that needs improvement is eating the recommended daily serving of fruits and vegetables. Both in our own study and in studies conducted by other authors, this intake was at a low level. This may be due to the fact that children and adolescents do not fully know how much one serving means. It would be necessary to carry out nutrition education among the pediatric group about the importance of fruits and vegetables in the diet, how much one serving means and the different forms under which they can be introduced into the diet.

Limitations and strengths of the study

One of the main limitations of the survey is the subjective assessment of children's physical activity. Although the physical activity questionnaire was completed by the children's parents, the level of physical activity may be over- or underestimated by the parents. Also, the children's anthropometric data came from self-reporting by parents. The study did not control for children's diet, which may affect the results. Diet is one of the factors affecting body weight, and certain foods can lead to overweight.

Despite its limitations, the survey also has strengths. The survey was conducted on a group of 260 children, which provides ample opportunity to analyze the results and the study group.

Applications

In conclusion, based on the study, it can be said that physical activity combined with proper nutrition has an effect on the normal body weight of children. Children mostly drink water, mainly about 1-1.5 liters, so it can be concluded that their body is properly hydrated.

Greater physical activity in the study group was characterized by girls compared to boys. Among the additional sports activities in which both girls and boys participate most often is swimming. In addition, the children's free time is definitely more likely to be spent in an active way.

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