

## **A study on the dietary and physical activity practice behaviours in children aged 12-15 from urban areas**

### **Studiu privind comportamentul alimentar și cel legat de practicarea activităților fizice la copii de 12-15 ani din mediul urban**

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#### **Abstract**

*Background.* The rapid pace of everyday activities and the temptations offered by the new technologies (unlimited Internet access, various gadgets, video games etc.) result in improper and disorganized diets, as well as in the reduction of the time dedicated to physical activity practices. Given the adolescents' relatively busy curriculum, we assumed that these are concerned with improving their dietary behaviour and promoting physical activity practices.

*Aims.* The lifestyle in correlation with the sustained practice of physical exercises, diet hygiene and education influence body growth and development processes. The aim of this study is to identify the lifestyle adopted by children aged 12-15 years, from urban areas.

*Methods.* In order to collect data on diet hygiene, practice of physical exercises, and sedentary lifestyle, we conducted a questionnaire-based survey (15 items) on 234 schoolchildren, 116 girls and 118 boys, from the General School 30 of the Brașov municipality.

*Results.* The obtained data show that a significant percentage of the schoolchildren have adopted an inadequate lifestyle through high calorie food consumption associated with the absence of physical activity practice. From the selected group of 234 respondents, around 50% eat 3 meals/day, of which breakfast is the most important. Between 40-47% of the schoolchildren prefer fruit, 23% of the boys prefer meat, and 23% of the girls prefer to consume refined sweets. 40-50% of them watch TV programs, films, etc. and/or sit in front of the computer 1-2 hrs/day, while 25-30%, between 3 and 4 hrs/day.

*Conclusions.* A multitude of factors, such as demographic, sociocultural, and environmental, influence the nutritional behaviour and the practice of physical activities. TV watching and computer use are considered sedentary behaviours and consequently associated with excess weight.

**Key words:** lifestyle, physical activity, sedentary behaviour, diet hygiene, excess weight.

#### **Rezumat**

*Premize.* Ritmul alert al activităților cotidiene și tentațiile oferite de noua tehnologie (accesul nelimitat la internet, gadgeturi, jocuri video etc.) au drept efect o alimentație incorectă și dezorganizată, precum și diminuarea timpului în vederea practicării activităților fizice. Știind că programul de studiu al adolescenților este destul de încărcat, am presupus că aceștia au preocupări în vederea îmbunătățirii comportamentului alimentar și a promovării practicării activităților fizice.

*Obiective.* Stilul de viață corelat cu practicarea sistematică a activităților fizice, educația și igiena alimentară, influențează procesele de creștere și dezvoltare a organismului. Scopul cercetării este de a identifica stilul de viață adoptat de copiii de 12-15 ani, din mediul urban.

*Metode.* Pentru a obține informații referitoare la igiena alimentară, practicarea activităților fizice și sedentarism, am realizat o anchetă pe baza unui chestionar (14 itemi), pe un număr de 234 de elevi, 116 fete și 118 băieți.

*Rezultate.* Datele obținute relevă faptul că un procent important din elevii chestionați au adoptat un stil de viață neadecvat, prin consumul de alimente calorice, asociat cu lipsa practicării activității fizice. Din lotul ales, de 234 de elevi, aproximativ 50% au 3 mese/zi, iar micul dejun reprezintă cea mai importantă masă, 50% dintre elevi preferă consumul de fructe, 20% dintre băieți preferă consumul de carne și 20% dintre fete, consumul de dulciuri rafinate. Între 40-50% dintre ei, vizionează emisiuni TV, filme etc. și/sau își petrec timpul în fața computerului între 1-2 h/zi, iar 25-30% dintre aceștia, între 3 și 4 h/zi.

*Concluzii.* Factorii multipli, precum factorii demografici, socio-culturali și de mediu, influențează comportamentul alimentar și practicarea cu regularitate a activităților fizice. Vizionarea TV și utilizarea computerului sunt considerate comportamente sedentare, fiind asociate cu excesul ponderal.

**Cuvinte cheie:** stil de viață, activitate fizică, sedentarism, igienă alimentară, exces ponderal.

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## Introduction

A healthy diet as well as childhood obesity prevention are public health priorities. Children and youth are an important target group because the early development of healthy dietary habits represents the most effective way for the long-term preservation of health. Dietary disorders and overeating can lead to increased energy intake in children and adolescents, favouring the occurrence of obesity (Krebs et al., 2007), while current dietary behaviours are obesogenic due to the high lipid and carbohydrate content. A caloric intake that is unmatched by energy consumption leads to the disorder of the individual's energy balance (Donald, 2002).

A healthy diet associated with physical activities, practiced on a regular basis, is crucial in the prevention of chronic diseases such as cardiovascular disease, cancer, cerebrovascular accidents, which are the main causes of mortality among the adult population (Daniels et al., 2005) (1, 2, 8, 9). Nutrition guides recommend that all population segments, including children and adolescents, engage in attaining and maintaining a normal body mass index (BMI). More precisely, children and adolescents are encouraged to maintain their nutrition balance as required for normal growth and development, without generating excessive weight (7).

Dietary and physical activity practice behaviours are influenced by society, family, educational institutions, health services providers, religious organizations, government agencies, the mass media, and the food industry. Each of these aims at improving dietary behaviours and at promoting physical activity practice.

Most excess weight cases are the result of a caloric intake that exceeds the individual's energy consumption (Beers, 2006). The worldwide increase of excess weight prevalence is caused by excessive caloric intake, especially due to high calorie foods, rich in fats and sugars, as well as by a decrease in physical activity as a consequence of a sedentary lifestyle. Children with excessive weight during the first years of life have an 80% risk of becoming obese adults if both parents are obese, and a 40% risk if only one parent is obese (Arion et al., 1983; Nader et al., 2006). Both childhood and adolescence obesity represents a risk factor for the development of cardiovascular diseases (Ogden, 2002), depression (Hedley et al., 2004) arterial hypertension (Summerbell, 2005), several forms of cancer (Kelishadi, 2006), type 2 diabetes mellitus (Kelishadi, 2007), and sleep apnea syndrome.

Physical activities practiced on a regular basis by children and adolescents relate to demographic, sociocultural and environmental factors (3). Society, family and relatives encourage the youth's involvement in multiple physical activities (Sallis et al., 2000; Van der Horst et al., 2007b; Baker et al., 2003; Frenn, 2005; Motl et al., 2007; Springer et al., 2006; Voorhees, 2005; Vu et al., 2006; Gustafson & Rhodes, 2006). Children and adolescents who wish to attain a good physical condition during the subsequent life periods, and are convinced that practicing physical activities is important for maintaining a healthy lifestyle should engage in various physical activities (Haverly & Davison, 2005). The youth's perception about their

capability to perform a physical activity and their physical competencies affects the practice of various physical activities (Sallis et al., 2000; Haverly & Davison, 2005; Van der Horst et al., 2007b). Girls are motivated by pleasant physical activities and by the confidence in their ability to perform the envisaged physical activity. In contrast, boys are motivated by performance attained during physical activities, as well as by the opinions expressed by friends and family (Trost et al., 1999).

Environmental factors could represent either an advantage or a hindrance in the practice of physical activities. These factors could be an impediment to physical activity practice due to the limited availability of dedicated facilities for performing physical activities, inaccessibility of sports equipments, costs related to physical activities, and lack of time (Motl et al., 2007; Gomez et al., 2004; Romero et al., 2001; Ferreira et al., 2006).

## Hypothesis

Despite the adolescents' relatively busy curriculum, we assumed that they are concerned with improving their dietary behaviour and interested in promoting physical activity practices.

## Material and methods

### *The research protocol*

#### *a) Period and location of the research*

The research was conducted between March and June 2014, among schoolchildren of the General School No. 30 of the Braşov municipality. We should mention that this research was formally approved by the Ethics Commission of the School. Also, for studies conducted on human subjects, the informed consent of each of the subjects involved in the research and of their parents was obtained.

#### *Subjects and groups*

The research involved a number of 234 middle school students, of which 116 girls and 118 boys, aged between 12 and 15 years.

#### *b) Tests applied*

In order to acquire data on dietary hygiene and physical activity practices both during physical education classes and during free time, a questionnaire entitled "Dietary habits and the pleasure of practicing physical activities" containing 14 items was administered. The questionnaire was designed by the author in cooperation with the academic staff from the Faculty of Physical Education and Mountain Sports of Braşov.

#### *c) Statistical processing*

Result interpretation, tabulation and graphical representations were achieved using Microsoft Office Excel 2003. The answers to the questionnaire items are presented as percentages.

## Results

Subsequently to the questionnaire administration, data centralization and processing, the following results were obtained:

#### *Item 1 – How many meals a day do you eat ?*

Answer options: a. 3 meals/day, b. 2 meals/day, c. more than 3 meals/day, d. as many as I need.

Of all questioned schoolchildren, around 50% eat 3 meals/day, while >25% of these eat whenever they feel the need. Statistical analysis, considering the two groups, girls and boys, showed no statistically significant differences in the answers provided to item 1, significance threshold  $p = 0.1541 > 0.05$  for Chi-Square = 5.25 and df (degrees of freedom) = 3 (Table I).

**Table I**  
Frequency of student responses to item 1 and statistical significance.

Group	a	b	c	d	P	Pearson Chi-Square	df
Girls	51.72	18.1	4.31	25.9	0.1541	5.25	3
Boys	50.00	12.71	11.86	25.42			

Item 2 – Which meal is the most important of the day?

Answer options: a. breakfast, b. lunch, c. dinner.

For 57.76% of the girls and 48.31% of the boys, breakfast is the most important meal of the day, 32% of the girls and 39% of the boys have opted for lunch, while dinner is the most important for 10.3-12.71% of the questioned subjects. Statistical analysis, considering the two groups, girls and boys, showed no statistically significant differences in the answers provided to item 2, significance threshold  $p = 0.3502 > 0.05$  for Chi-Square = 2.10 and df (degrees of freedom) = 2 (Table II).

**Table II**  
Frequency of student responses to item 2 and statistical significance.

Group	a	b	c	P	Pearson Chi-Square	df
Girls	57.76	31.9	10.3	0.3502	2.10	2
Boys	48.31	38.98	12.71			

Item 3 – How do you usually eat your meals?

Answer options: a. together with my family, b. at the fast-food restaurant, c. in front of the TV/computer.

Over 80% of the respondents eat at home, together with their family, while around 15% of them eat in front of the TV/computer. Statistical analysis, considering the two groups, showed no statistically significant differences between the two groups, with a significance threshold  $p = 0.2852 > 0.05$  for Chi-Square = 2.51 and df (degrees of freedom) = 2 (Table III).

**Table III**  
Frequency of student responses to item 3 and statistical significance.

Group	a	b	c	P	Pearson Chi-Square	df
Girls	82.8	0.00	17.2	0.2852	2.51	2
Boys	84.75	1.69	13.56			

Item 4. What do you usually eat at school during lunch break?

Answer options: a. I eat my packed lunch, b. I eat at the cafeteria (after school), c. I buy my food at the nearby store, d. I do not eat.

At school, around 75% of the boys and 80% of the girls eat home-packed lunches, while a small percentage

consume foods bought at the nearby store. Statistical analysis, considering the two groups, showed statistically significant differences between the two groups, with a significance threshold  $p = 0.0363 < 0.05$  for Chi-Square = 3.93 and df (degrees of freedom) = 3 (Table IV).

**Table IV**  
Frequency of student responses to item 4 and statistical significance.

Group	a	b	c	d	P	Pearson Chi-Square	df
Girls	82.76	5.17	1.72	10.35	0.0363	3.93	3
Boys	76.27	0.85	5.93	16.95			

Item 5. What is your favourite food?

Answer options: a. fruits, b. vegetables, c. dairy products, d. pasta, e. meat, f. sweets.

About 50% of the respondents consume fruits, 20.34% of the boys eat meat, while 20.70% of the girls consume sweets. Statistical analysis, considering the two groups, showed highly statistically significant differences between the two groups, with a significance threshold  $p = 0.0010 < 0.001$  for Chi-Square = 20.50 and df (degrees of freedom) = 5 (Table V).

**Table V**  
Frequency of student responses to item 5 and statistical significance.

Group	a	b	c	d	e	f	P	Pearson Chi-Square	df
Girls	49.14	5.17	10.30	8.66	6.03	20.70	0.0010	20.50	5
Boys	49.15	5.08	14.41	4.24	20.34	6.78			

Item 6. Do you usually eat fast food?

Answer options: a. daily, b. every 2-3 days, c. once a week, d. rarely, e. never.

Among the questioned schoolchildren, around 75% rarely consume fast food, 17% of the boys consume fast food once a week, 6-7% of the schoolchildren never eat fast food, while a very small percentage eat fast food daily. Statistical analysis, considering the two groups, showed statistically significant differences between the two groups, with a significance threshold  $p = 0.0387 < 0.05$  for Chi-Square = 2.51 and df (degrees of freedom) = 2 (Table VI).

**Table VI**  
Frequency of student responses to item 6 and statistical significance.

Group	a	b	c	d	e	P	Pearson Chi-Square	df
Girls	2.59	2.60	4.31	83.60	6.90	0.0387	10.10	4
Boys	3.39	5.08	16.95	68.64	5.93			

Item 7. What method of preparing the food would you prefer?

Answer options: a. frying, b. boiling, c. baking/roasting, d. unprepared, raw.

Around 30% of the girls and 45% of the boys prefer fried foods, about 25% of the questioned schoolchildren prefer to eat boiled foods, while 18% of the girls and 11% of the boys prefer raw food. Statistical analysis, considering the two groups, showed no statistically significant differences

between the two groups, with a significance threshold  $p = 0.2057 > 0.05$  for Chi-Square = 4.58 and df (degrees of freedom) = 3 (Table VII).

**Table VII**  
Frequency of student responses to item 7 and statistical significance.

Group	a	b	c	d	P	Pearson Chi-Square	df
Girls	33.60	27.60	20.70	18.10	0.2057	4.58	3
Boys	44.92	24.58	19.49	11.02			

Item 8. *Do you consume 1.5-2 litres of liquids on a normal activity day?*

Answer options: a. yes, b. less than this quantity, c. more than this quantity.

About 70% of the respondents drink 1.5-2 litres of liquids per day, 20% of the girls and 14.41% of the boys consume less than 1.5 litres, while around 10% consume more than 2 litres of liquids per day. Statistical analysis, considering the two groups, showed no statistically significant differences between the two groups, with a significance threshold  $p = 0.4953 > 0.05$  for Chi-Square = 1.41 and df (degrees of freedom) = 2 (Table VIII).

**Table VIII**  
Frequency of student responses to item 8 and statistical significance.

Group	a	b	c	P	Pearson Chi-Square	df
Girls	68.10	19.84	12.06	0.4953	1.41	2
Boys	74.58	14.41	11.01			

Item 9. *Do you believe that eating is a way of life or just one of the basic necessities of life?*

Answer options: a. it is a necessity, b. it can be associated with a way of life, c. both options are correct.

Eating is a way of life for 55.20% of the girls and 70.80% of the boys, while for 11.64% of the girls and 14.66% of the boys, it is a basic life necessity. Statistical analysis, considering the two groups, showed statistically significant differences between the two groups, with a significance threshold  $p = 0.0085 < 0.05$  for Chi-Square = 9.54 and df (degrees of freedom) = 2 (Table IX).

**Table IX**  
Frequency of student responses to item 9 and statistical significance.

Group	a	b	c	P	Pearson Chi-Square	df
Girls	70.80	11.64	17.56	0.0085	9.54	2
Boys	55.20	14.66	30.14			

Item 10. *How do you prefer to spend your free time?*

Answer options: a. I walk, b. I practice sports, c. I navigate the web/watch TV/play computer games, etc., d. I do household work, e. other.

During free time, 45% of the girls prefer walking, 52% of the boys and 27% of the girls prefer to practice sports, 23.73% of the boys prefer to navigate the web/watch TV/play computer games, etc., and 9.48% of the girls and 5.94% of the boys prefer to participate in household work.

Statistical analysis, considering the two groups, showed no statistically significant differences between the two groups, with a significance threshold  $p > 0.05$  for Chi-Square = 28.18 and df (degrees of freedom) = 4 (Table X).

**Table X**  
Frequency of student responses to item 10 and statistical significance.

Group	a	b	c	d	e	P	Pearson Chi-Square	df
Girls	44.85	26.70	16.38	2.59	9.48	1.147	28.18	4
Boys	16.95	51.69	23.73	1.69	5.94			

Item 11. *How many hours a day do you watch TV programs, movies, cartoons, etc., and/or sit in front of the computer?*

Answer options: a. less than 1 hour/day, b. 1-2 hours/day, c. 3-4 hours/day, d. more than 4 hours/day.

Around 50% of the girls and 40% of the boys watch TV programs, movies, cartoons, etc., and/or sit in front of the computer 1-2 hours/day, 25% of the girls and 28.81% of the boys, 3-4 hours/day, while 10.34% of the girls and 14.41% of the boys, more than 4 hours/day.

Statistical analysis, considering the two groups, showed no statistically significant differences between the two groups, with a significance threshold  $p = 0.4036 > 0.05$  for Chi-Square = 2.92 and df (degrees of freedom) = 3 (Table XI).

**Table XI**  
Frequency of student responses to item 11 and statistical significance.

Group	a	b	c	d	P	Pearson Chi-Square	df
Girls	15.50	49.10	25.06	10.34	0.4036	2.92	3
Boys	16.95	39.83	28.81	14.41			

Item 12. *What kind of transport do you most frequently use to go to school?*

Answer options: a. public transport, b. family car, c. bicycle, d. I walk.

About 70% of the questioned schoolchildren walk to school, 13-15% use public transport means, and 8% of the girls and 12% of the boys use the family car to get to school. Statistical analysis, considering the two groups, showed no statistically significant differences between the two groups, with a significance threshold  $p = 0.6892 > 0.05$  for Chi-Square = 1.47 and df (degrees of freedom) = 3 (Table XII).

**Table XII**  
Frequency of student responses to item 12 and statistical significance.

Group	a	b	c	d	P	Pearson Chi-Square	df
Girls	12.90	7.76	3.48	75.86	0.6892	1.47	3
Boys	15.25	12.71	3.39	68.65			

Item 13. *Do you attend physical education and sports classes?*

Answer options: a. yes, b. no, c. I am medically exempt. More than 95% of the questioned schoolchildren attend



physical education and sports classes in school, while only 2% are medically exempt. Statistical analysis, considering the two groups, showed no statistically significant differences between the two groups, with a significance threshold  $p = 0.0667 > 0.05$  for Chi-Square = 10.02 and df (degrees of freedom) = 2 (Table XIII).

**Table XIII**  
Frequency of student responses to item 13 and statistical significance.

Group	a	b	c	P	Pearson Chi-Square	df
Girls	96.61	0.85	2.54	0.0667	10.02	2
Boys	98.3	0.00	1.70			

Item 14. *How many hours a day do you sleep ?*

Answer options: a. less than 6 hours, b. 6-8 hours, c. 8-10 hours, d. more than 10 hours.

Of the questioned girls, 51.72% sleep between 6 and 8 hours daily, 35.34% sleep between 8 and 10 hours daily, around 11% sleep less than 6 hours, and 6%, more than 10 hours daily. Among the boys, 46% of the respondents sleep between 8 and 10 hours daily, 40% sleep between 6 and 8 hours daily, 7.63%, more than 10 hours daily, while about 7% sleep less than 6 hours daily. Statistical analysis, considering both groups, showed no statistically significant differences between the two groups, with a significance threshold  $p = 0.3091 > 0.05$  for Chi-Square = 3.59 and df (degrees of freedom) = 3 (Table XIV).

**Table XIV**  
Frequency of student responses to item 14 and statistical significance.

Group	a	b	c	d	P	Pearson Chi-Square	df
Girls	6.04	51.72	35.34	6.90	0.3091	3.59	3
Boys	6.78	39.83	45.76	7.63			

## Discussions

When asked "What is your favourite food?", around 50% of the questioned schoolchildren declare their preference for fruits, 5% prefer to consume vegetables, between 10.30 and 14.41% consume dairy products, 8.66% of the girls prefer to consume pasta, 20.34% of the boys prefer meat, while 20.70% of the girls prefer to consume sweets. Although nutrition guides do not specifically indicate the daily dose of sugar that can be consumed, these recommend, however, a reduction of sugar intake (7). Children and adolescents tend to eat diets high in carbohydrates, with a sugar intake of about 18% of the total amount of daily calories. Acidulated beverages contain a high percentage of sugar and contribute around 8% to the daily caloric intake among children and youth aged between 2 and 18 (Reedy & Krebs-Smith, 2010). Certain behaviours and attitudes observed among children and adolescents are related to a healthy diet. For example, establishing objectives regarding the consumption of fruits and vegetables or the rewards for consuming fruits and vegetables, as well as the pleasure offered by their taste, are important predictors for the consumption of fruits and vegetables (Zabinski et al., 2006). The family environment strongly influences the dietary behaviour of the youth.

The readiness of the family to consume healthy foods is one of the most important hypotheses for consuming fruits, vegetables, and dairy products (Larson et al., 2006; Neumark-Sztainer et al., 2003). The menus specific to each family, the rules of a healthy diet imposed and observed in every family, as well as the healthy lifestyle of the parents influence the consumption of fruits, vegetables, dairy products, and fats among the youth (Neumark-Sztainer et al., 2003; Zabinski et al., 2006; Larson et al., 2007; Van der Horst et al., 2007a).

When asked "What do you usually eat at school during lunch break?", 82.76% of the girls and 76.27% of the boys declare their preference for eating home-packed lunches, 5.17% of the questioned girls eat during the after-school program, 5.93% of the boys consume foods from the nearby store, while 10.35% of the girls and 16.95% of the boys report that they never eat during lunch break. It is worth mentioning that the dietary behaviour of children and adolescents is influenced by multiple factors, such as demographic, environmental, social, whereas the preferences of children and adolescents play an important role in nutritional intake (Neumark-Sztainer et al., 2003; Zabinski et al., 2006). The academic and educational environment also influences the dietary behaviour of the youth, providing opportunities to consume various food products and beverages throughout the day (O'Toole et al., 2006; Fox et al., 2009).

To the question "Do you usually eat fast food?", 2.59% of the girls and 3.39% of the boys answer that they eat fast food every day, 2.60% of the girls and 5.08% of the boys consume fast food meals 2-3 times/week, 83.60% of the girls and 68.64% of the boys rarely consume fast food, 4.31% of the girls and 16.95% of the boys consume fast food once a week, while 6-7% of the schoolchildren never eat fast food meals. Youths that are reporting frequent fast food consumption (at least three times a week) are more inclined to declare that healthy foods do not taste good, or to blame the lack of time to eat healthy food, showing disinterest in healthy diets (Neumark-Sztainer et al., 2003; Zabinski et al., 2006).

When asked "How do you prefer to spend your free time?", 23.73% of the boys and 16.38% of the girls prefer to navigate the web/watch TV/ play computer games, etc. Moreover, when asked "How many hours a day do you watch TV programs, movies, cartoons, etc., and/or sit in front of the computer?", 25% of the girls and 28.81% of the boys report spending in front of the TV/computer 3-4 hours/day, 49.10% of the girls and 39.83% of the boys watch TV programs, movies, cartoons, etc., and/or spend in front of the computer between 1-2 hours/day, 15.50% of the girls and 16.95% of the boys spend in front of the TV/computer less than 1 hour/day, and 10.34% of the girls and 14.41% of the boys, more than 4 hours/day. By analyzing the answers provided by the questioned schoolchildren, it can be concluded that spending time in front of the TV as well as the rapid progress of technology influence the preferences of the youth through food product advertising for sale promotion, as well as the daily consumption of the advertised products (6). Children and adolescents are exposed to many forms of advertising for food products, through TV or web advertisements, various prize contests,

etc. A recent report issued by the Federal Trade Commission estimated that, in 2006, around 1.6 billion USD were spent for advertising fast food meals, beverages, and restaurants to children (5).

Also, there is substantial evidence correlating the number of TV hours with weight excess in the childhood population. In a study conducted on a representative sample of 7216 children aged between 7 and 11, TV watching and video game playing were risk factors for overweight (between 17% and 44%) or obesity (between 10% and 61%) (Tremblay & Willms, 2003). According to another study, the association between TV watching time and weight excess in children is unlikely to be clinically relevant (Marshall et al., 2004). The authors emphasize that it would be necessary to examine more than one single sedentary behaviour (e.g., watching TV), especially because not all sedentary behaviours can be associated with obesity (Shields & Tremblay 2008; Tremblay et al., 2010).

When asked "How do you prefer to spend your free time?", 44.85% of the girls indicate walking, while 51.69% prefer to practice sports. Around 9.48% of the girls and 5.94% of the boys participate in household work. It can be observed that the level of physical fitness is correlated with gender, as boys, in contrast to girls, are interested in practicing more physical activity (Sallis et al., 2000; Robbins et al., 2004; Gordon-Larsen et al., 2000). The national YRBS (Youth Risk Behavior Surveillance) survey, conducted in 2009, indicated that 25% of the boys and 11% of the girls participated in a type of physical activity, for at least 60 minutes daily, during the last week (3). This trend is maintained until adulthood, with the mention that, compared to men, women are less active (4). Also, during adolescence, boys tend to be more active than girls of the same age group (Robbins et al., 2003).

## Conclusions

1. A significant percentage of the questioned schoolchildren have a balanced nutritional diet.

2. Both questioned groups prefer to consume fast food at least once a week.

3. Among the questioned schoolchildren, both girls and boys prefer to watch various TV programs, movies, cartoons, etc., and/or sit in front of their computer 1-2 hours/day.

4. Both questioned groups participate on a regular basis in physical education and sports classes at school.

## Conflicts of interest

Nothing to declare.

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## References

Arion C, Dragomir D, Popescu V. Obezitatea la sugar, copil și adolescent, Ed. Medicală București, 1983.

Baker CW, Little TD, Brownell KD. Predicting adolescent eating and activity behaviors: the role of social norms and personal agency. *Health Psychol* 2003;22(2):189-198.

Beers MH Coord. Manualul Merck de diagnostic și tratament, Edit. a XVIII-a, Ed. All, București, 2006.

Daniels SR, Arnett DK, Eckel RH et al. Overweight in children and adolescents: pathophysiology, consequences, prevention, and treatment. *Circulation* 2005;111(19):1999-2012.

Ferreira I, Van der Horst K, Wendel-Vos W, Kremers S, Van Lenthe FJ, Brug J. Environmental correlates of physical activity in youth—a review and update. *Obes Rev* 2006;8(2):129-154.

Fox MK, Gordon AR, Nogales R, Wilson A. Availability and consumption of competitive foods in U.S. public schools. *J Am Diet Assoc* 2009;109:S57-66.

Frenn M. Determinants of physical activity and low-fat diet among low income African American and Hispanic middle school students. *Public Health Nurs* 2005;22(2):89-97.

Gomez JE, Johnson BA, Selva M, Sallis JF. Violent crime and outdoor physical activity among inner-city youth. *Prev Med* 2004;39(5):876-881.

Gordon-Larsen P, McMurray RG, Popkin BM. Determinants of adolescent physical activity and inactivity patterns. *Pediatrics* 2000;105:83-91. Epub June 1, 2000.

Gustafson SL, Rhodes RE. Parental correlates of physical activity in children and early adolescents. *Sports Med* 2006;36:79-97.

Haverly K, Davison KK. Personal fulfillment motivates adolescents to be physically active. *Arch Pediatr Adolesc Med* 2005;159(12):1115-1120.

Hedley AA, Ogden CL, Johnson CL, Carroll, Curtin LR. Prevalence of overweight and obesity among US children, adolescents, and adults, 1999-2002. *JAMA* 2004;291(23):2847-2850.

Hensrud DD. Clinica Mayo-despre menținerea unei greutate sănătoase. Ed. All, București, 2002

Kelishadi R. Childhood obesity in the Eastern Mediterranean region. In: Flamenbaum RK. Global dimensions of childhood obesity. 1st ed. New York, NY: NOVA Science Publishers, 2006:71-89.

Kelishadi Roy. Childhood Overweight, Obesity, and the Metabolic Syndrome in Developing Countries, *Epidemiol Rev.*, 2007;29:62-76.

Krebs FN, Himes HJ, Jacobson D, Nicklas AT, Guilday P, Styne Dennis. Assessment of Child and Adolescent Overweight and Obesity *Pediatrics*, 2007;120, Suppl. 4: S193-S228.

Larson NI, Neumark-Sztainer D, Hannan P, Story M. Family meals during adolescence are associated with higher diet quality and healthful meal patterns during young adulthood. *J Am Diet Assoc* 2007;107(9):1502-1510.

Larson NI, Story M, Wall M, Neumark-Sztainer D. Calcium and dairy intakes of adolescents are associated with their home environment, taste preferences, personal health beliefs, and meal patterns. *J Am Diet Assoc* 2006;106(11):1816-1824.

Marshall SJ, Biddle SJ, Gorely T, Cameron N, Murdey I. Relationships between media use, body fatness and physical activity in children and youth: a meta-analysis. *Int. J. Obes. Relat. Metab. Disord.* 2004;28(10):1238-1246. doi:10.1038/sj.ijo.0802706. PMID:15314635.

Motl R, Dishman R, Saunders R, Dowda M, Pate R. Perceptions of physical and social environment variables and self-efficacy as correlates of self-reported physical activity among adolescent girls. *J Pediatr Psychol* 2007;32(1):6-12.

Nader PR, O'Brien M, Houts R, Bradley R, Belsky J, Crosnoe R, Friedman S, Mei Z, Susman EJ. Identifying risk for obesity in early childhood. *Pediatrics* 2006; 118:e594-e601.

Neumark-Sztainer D, Wall M, Perry C, Story M. Correlates of fruit and vegetable intake among adolescents. Findings from Project EAT. *Prev Med* 2003;37(3):198-208.

O'Toole T, Anderson S, Miller C, Guthrie J. Nutrition services

- and foods and beverages available at school: results from the school health policies and programs study 2006. *J Sch Health* 2007;77:500-521.
- Ogden CL, Flegal KM, Carroll MD, Johnson CL. Prevalence and trends in overweight among US children and adolescents, 1999-2000. *JAMA*. 2002;288(14):1728-1732.
- Reedy J, Krebs-Smith SM. Dietary sources of energy, solid fats, and added sugars among children and adolescents in the United States. *J Am Diet Assoc* 2010;110(10):1477-1484.
- Robbins LB, Pender NJ, Kazanis AS. Barriers to physical activity perceived by adolescent girls. *J Midwifery Womens Health* 2003;48(3):206-212.
- Robbins LB, Pis MB, Pender NJ, Kazanis AS. Physical activity self-definition among adolescents. *Res Theory Nurs Pract* 2004;18(4):317-330.
- Romero AJ, Robinson TN, Kraemer HC et al. Are perceived neighborhood hazards a barrier to physical activity in children? *Arch Pediatr Adolesc Med* 2001;155(10):1143-1148.
- Sallis JF, Prochaska JJ, Taylor WC. A review of correlates of physical activity of children and adolescents. *Med Sci Sport Exer* 2000;32(5):963-975.
- Shields M, Tremblay MS. Sedentary behaviour and obesity. *Health Rep*. 2008;19(2):19-30. PMID:18642516
- Springer AE, Kelder SH, Hoelscher DM. Social support, physical activity and sedentary behavior among 6th-grade girls: a cross-sectional study. *Int J Behav Nutr Phys Act* 2006;3:8-18.
- Summerbell CD, Waters E, Edmunds LD, et al. Interventions for preventing obesity in children. *The Cochrane Database of Systematic Reviews* 2005; 20(3):CD001871.
- Tremblay MS, Colley RC, Saunders TJ, Healy GN, Owen N. Physiological and health implications of a sedentary lifestyle. *Appl. Physiol. Nutr. Metab.* 2010;35(6):725-740. doi: 10.1139/H10-079.
- Tremblay MS, Willms JD. Is the Canadian childhood obesity epidemic related to physical inactivity?, *Int. J. Obes.* 2003;27(9):1100-1105. doi:10.1038/sj.ijo.0802376.
- Trost SG, Pate RR, Ward DS, Saunders R, Riner W. Correlates of objectively measured physical activity in preadolescent youth. *Am J Prev Med* 1999;17(2):120-126.
- Van der Horst K, Oenema A, Ferreira I et al. A systematic review of environmental correlates of obesity-related dietary behaviors in youth. *Health Educ Res* 2007a;22:203-226.
- Van der Horst K, Paw MJ, Twisk JW, van Mechelen W. A brief review on correlates of physical activity and sedentariness in youth. *Med Sci Sport Exer* 2007b;39:1241-1250.
- Voorhees CC, Murray D, Welk G et al. The role of peer social network factors and physical activity in adolescent girls. *Am J Health Behav* 2005;29(2):183-190.
- Vu MB, Murrie D, Gonzalez V, Jobe JB. Listening to girls and boys talk about girls' physical activity behaviors. *Health Educ Behav* 2006;33:81-96.
- Zabinski MF, Daly T, Norman GJ, et al. Psychosocial correlates of fruit, vegetable, and dietary fat intake among adolescent boys and girls. *J Am Diet Assoc* 2006;106(6):814-821.

**Websites**

- (1) CDC. Youth Risk Behavior Surveillance-United States, 2013. MMWR 2014;63(SS-4). Available online at [http://www.cdc.gov/mmwr/pdf/ss/ss6304.pdf?utm\\_source=rss&utm\\_medium=rss&utm\\_campaign=youth-risk-behavior-surveillance-united-states-2013-pdf](http://www.cdc.gov/mmwr/pdf/ss/ss6304.pdf?utm_source=rss&utm_medium=rss&utm_campaign=youth-risk-behavior-surveillance-united-states-2013-pdf) Accessed on 17.01.2015
- (2) CDC. The Association Between School-Based Physical Activity, Including Physical Education, and Academic Performance. Atlanta, GA: U.S. Department of Health and Human Services; 2010. Available online at [http://www.cdc.gov/healthyyouth/health\\_and\\_academics/pdf/pape\\_executive\\_summary.pdf](http://www.cdc.gov/healthyyouth/health_and_academics/pdf/pape_executive_summary.pdf) Accessed on 17.01.2015
- (3) CDC. Youth risk behavior surveillance-United States. MMWR 2010;59(No. SS-5), 2009. Available online at <http://www.cdc.gov/mmwr/pdf/ss/ss5905.pdf> Accessed on 17.01.2015
- (4) CDC. Trends in leisure-time physical inactivity by age, sex, and race/ethnicity-United States, 1994-2004. MMWR 2005;54:991-994. Available online at <http://www.ncbi.nlm.nih.gov/pubmed/16208312> Accessed on 17.01.2015
- (5) Federal Trade Commission. Marketing food to children and adolescents: A review of industry expenditures, activities, and self regulation. Washington, DC, Federal Trade Commission, 2008. Available online at <https://www.ftc.gov/reports/marketing-food-children-adolescents-review-industry-expenditures-activities-self-regulation> Accessed on 17.01.2015
- (6) Institute of Medicine. Food marketing to children and youth: threat or opportunity? Washington, DC: Institute of Medicine, 2006. Available online at [http://www.nap.edu/openbook.php?record\\_id=11514](http://www.nap.edu/openbook.php?record_id=11514) Accessed on 17.01.2015
- (7) US Department of Agriculture, US Department of Health and Human Services. Dietary guidelines for Americans, 2010. 7<sup>th</sup> ed. Washington, DC: US Government Printing Office, 2010. Available online at <http://www.health.gov/dietaryguidelines/dga2010/dietaryguidelines2010.pdf> Accessed on 02.01.2015
- (8) U.S. Department of Health and Human Services. Physical Activity Guidelines Advisory Committee report. Washington, DC: U.S. Department of Health and Human Services, 2008. Available online at <http://www.health.gov/paguidelines/pdf/paguide.pdf> Accessed on 02.01.2015
- (9) U.S. Department of Health and Human Services. 2008 Physical Activity Guidelines for Americans. Washington, DC: U.S. Department of Health and Human Services; 2008. Available online at [http://fitprogram.ucla.edu/workfiles/Documents/Fit%20for%20residents%20curriculum/Step\\_5/2008\\_Physical\\_Activity\\_Guidelines\\_for\\_Americans.pdf](http://fitprogram.ucla.edu/workfiles/Documents/Fit%20for%20residents%20curriculum/Step_5/2008_Physical_Activity_Guidelines_for_Americans.pdf) Accessed on 02.01.2015