

## Nutritional habits of middle-aged schoolchildren from Kaunas town and Raseiniai district

Lina Škėmienė, Rūta Ustinavičienė, Ričardas Radišauskas, Jolita Kirvaitienė,  
Robertas Lažauskas<sup>1</sup>, Sandra Sabonaitytė

Department of Environmental and Occupational Medicine,

<sup>1</sup>Department of Physiology, Kaunas University of Medicine, Lithuania

**Key words:** schoolchildren; nutrition habits; town; district.

**Summary.** *Objective.* To evaluate nutritional habits of middle-aged schoolchildren living in a town and district of Lithuania.

*Material and methods.* The 8th–9th-grade schoolchildren were questioned by an anonymous questionnaire. A total of 329 students, 169 from Kaunas and 160 from Raseiniai district, participated in the study.

*Results.* Only half of students reported that they had breakfast (61.3% of schoolboys and 47.6% of schoolgirls). More students from the district had dinner in the school canteen as compared to Kaunas students. Only 14.0% of schoolchildren followed nutrition regimen (14.8% of students from Kaunas and 13.1% of students from Raseiniai always had their meal at the same time). Every second schoolboy and schoolgirl consumed vegetables and fruits every day. Whole grain bread was consumed every day similarly frequently by students from Kaunas and Raseiniai, 25.4% and 18.8%, respectively; the students from Kaunas consumed skim milk more frequently, 26.0% and 11.9%, respectively ( $P<0.05$ ). Confectionery was consumed more frequently by schoolchildren from Kaunas as compared to schoolchildren from Raseiniai district (63.9% vs. 55.0%); however, it was consumed more frequently by boys than girls. Less than one-fourth of Kaunas students (20.7%) consumed potato chips every day, whereas the percentage of the students from Raseiniai district was only 10.0% ( $P<0.05$ ). Pizzas, kebabs, and hamburgers were consumed more frequently by schoolboys than schoolgirls. Knowledge of healthy nutrition was obtained mainly from media by 48.6% of students; every eighth student got this information from parents, every tenth from physicians, and 7.0% from teachers.

*Conclusions.* Middle-aged students from both Kaunas town and Raseiniai district did not follow nutrition regimen; half of them did not have their breakfast before going to school. Fruits and vegetables as recommended foods were consumed by half of the participants; every fourth student consumed skim milk, and every fifth student consumed whole grain bread. The students more frequently consumed such foods as confectionery and smoked meat, which are not recommended (every second student); every fourth had an intake of carbonized drinks (the students from Kaunas more frequently) and potato chips (the students from Kaunas more frequently), and every tenth consumed pizzas and fried potatoes. More than half of students obtained knowledge of healthy nutrition from media, and every tenth – from the physicians.

### Introduction

Healthy and balanced nutrition has a significant impact on human physical and mental development, working capacity and longevity. Proper nutrition is the basis of health. According to the data of different

scientists, healthy nutrition makes up 25–30% of our health (1). Physical and mental working capacity, physical education, and good health are important conditions to develop children physically, mentally and spiritually. The regular checkups revealed that the

number of sick children every year was increasing: more children were ill with diseases of nervous, respiratory, and gastrointestinal systems (2). One of the main healthy lifestyle elements that prevent gastrointestinal diseases is healthy nutrition (3). The market offers for children and adolescences more attractive foods, which have a low dietary value; canteens of schools are being privatized, prices of foods are increasing, less attention is given to nutrition because of increased involvement of students in school activities (4).

The aim of this study was to investigate and analyze nutritional habits of middle-aged schoolchildren in a town and district of Lithuania.

### Study contingent and methods of research

The study of students was carried out from January to February 2007. A total of 329 8th- and 9th-grade students were questioned by an anonymous questionnaire-based inquiry. There were 169 students from Kaunas and 160 from Raseiniai and Raseiniai district (51.4% and 48.6%, respectively). In the study, 163 boys (49.5%) and 166 girls (50.5%) participated. The age of respondents was 13–15 years.

Nutrition of students was analyzed by evaluating regimen and frequency of nutrition (how frequently per day the students consumed vegetables, fruits, whole-grain bread, milk); in addition, the intake of foods, which are recommended to restrict, was analyzed. The students reported how frequently they consumed potato chips, confectionery, smoked foods, carbonized

drinks. It was studied if the students had breakfast and followed nutritional regimen. After the study, nutrition of students and nutritional habits of boys and girls in Kaunas and Raseiniai district were compared. Information on where the students gained knowledge on healthy lifestyle and nutrition was also obtained from questionnaire.

Data of questionnaire-based inquiry were stored and analyzed using the software package SPSS 13.0 for Windows. Statistical links were calculated using “EPI Info” program by applying nonparametric chi-square ( $\chi^2$ ) criterion. Statistical significance was determined by applying Student (*t*) criterion; a *P* value of  $<0.05$  was considered statistical significant.

### Results

Only half of studied schoolchildren had their breakfast every morning. More than one-third (34.7%) of respondents had breakfast sometimes, and 10.9% of children never had breakfast. A comparison of schools in Kaunas and Raseiniai district presented the similar data: 52.7% and 56.3% of students in Kaunas and Raseiniai district, respectively, always had breakfast. More than one-third (36.1%) of Kaunas and 33.1% of Raseiniai students had breakfast sometimes. Even 11.2% of Kaunas respondents reported that they never had breakfast, whereas in Raseiniai district, this percentage was 10.6% ( $\chi^2=0.43$ ,  $P=0.81$ ). The distribution of respondents having breakfast is presented in Fig. 1.

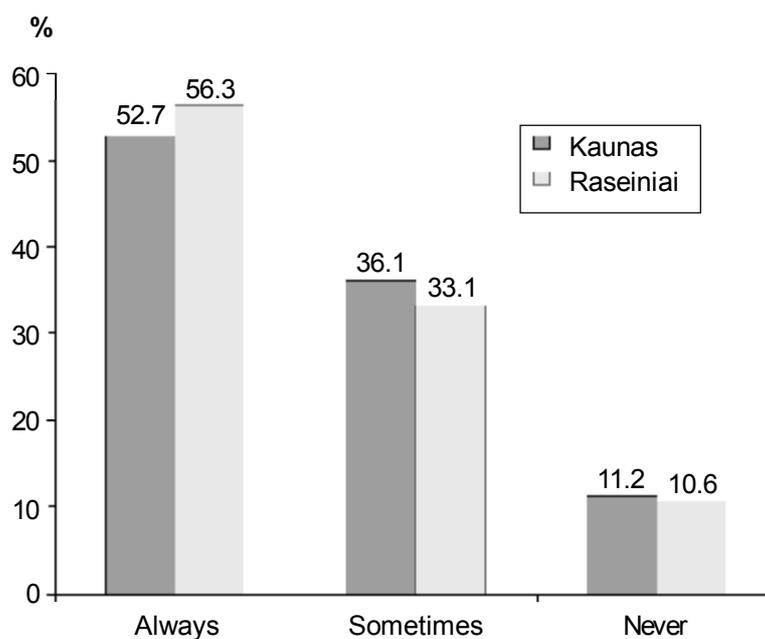
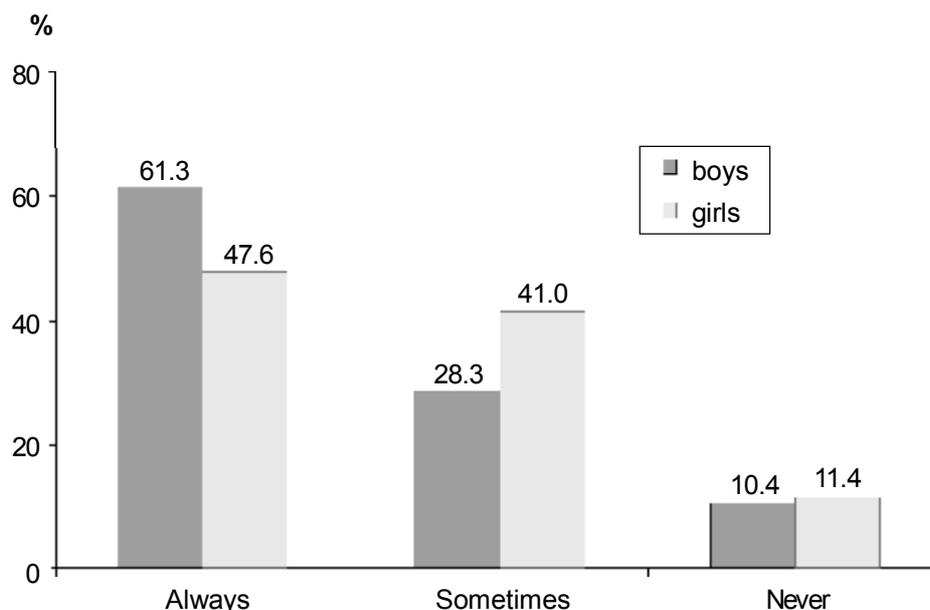


Fig. 1. The distribution of respondents from Kaunas and Raseiniai district by frequency of having breakfast  $\chi^2=0,43$ ,  $P=0,81$ .



**Fig. 2. Distribution of boys and girls by frequency of having breakfast**

$\chi^2=6.79$ ;  $P=0.03$ .

A comparison of nutritional habits between boys and girls showed that more boys than girls always had breakfast (61.3% vs. 47.6%). This is shown in Fig. 2. Even 10.4% of boys and 11.4% of girls never had breakfast ( $\chi^2=6.79$ ;  $P=0.03$ ).

The questionnaire revealed that only 63 students out of 329 (19.1%) always had dinner at school, 151 (45.9%) students had dinner occasionally, and one-third (35.0%) never had dinner at school.

The study also showed that the respondents in the town less frequently had their dinner than the respondents living in the district. Only 13.0% of Kaunas and 25.6% of Raseiniai students always had their dinner at school. More than one-third of Kaunas students (35.5%) and more than half of all participants in Raseiniai (56.9%) had their dinner at school occasionally. Almost 51.5% of Kaunas respondents never had their dinner at school, whereas in Raseiniai this percentage was three times lower, i.e. 17.5% ( $P<0.05$ ).

In comparison to girls, more boys always had their dinner at school (22.1% and 16.3%, respectively). However, 38.6% of boys never had dinner, whereas among girls this percentage was 31.3% ( $\chi^2=5.81$ ,  $P=0.055$ ).

Analysis of nutritional regimen showed that 86.0% of participants did not have meal regularly, and only 14.0% followed nutritional regimen. The respondents of schools in Kaunas and Raseiniai district provided a similar answer to this question. Only 14.8% of students from Kaunas and 13.1% from Raseiniai district always had their meal at the same time; 85.2% of

Kaunas students and 86.9% of Raseiniai respondents were having meal not at regular intervals ( $\chi^2=1.49$ ,  $P>0.05$ ).

Analysis of frequency of meal consumption by gender showed significant differences ( $\chi^2=14.5$ ,  $P=0.003$ ). A greater proportion of boys (8.6%) had meal seven times and more per day; among girls, this percentage was 3.6%, but more girls than boys (18.7% vs. 8.0%) had meal once or twice per day.

It was interesting to evaluate the frequency of consumption of healthy foods and not recommended foods (confectionery, carbonized drinks, pizzas, and hamburgers) by students.

Less than half of participants in our study consumed raw vegetables every day (45.0% in Kaunas and 41.9% in Raseiniai); 7.7% of Kaunas and 4.4% of Raseiniai respondents stressed that they never ate vegetables ( $\chi^2=2.34$ ,  $P=0.31$ ). An association between frequency of vegetable intake and sex was determined ( $\chi^2=7.1$ ,  $P=0.03$ ). More boys than girls consumed vegetables (45.4% vs. 41.6%). However, 9.2% of boys never ate vegetables, whereas only 3.0% of girls reported that they almost never consumed them.

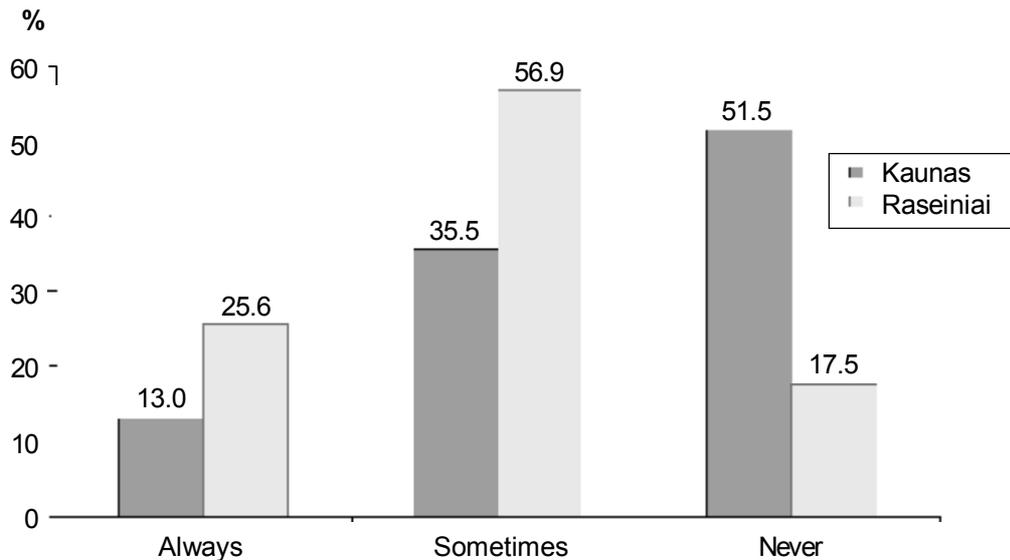
In addition, an association between frequency of vegetable intake and place of residence was determined ( $\chi^2=10.63$ ,  $P=0.005$ ). Only half of Raseiniai students (51.3%) consumed fruits every day. Kaunas students reported (66.3%) that they ate fruits once or twice a day, and 31.3% of Kaunas and 48.1% of Raseiniai participants consumed fruits occasionally.

Fruits were consumed every day by the same proportion of children of different gender (59.5% of boys and 58.4% of girls, respectively).

Whole-grain bread was consumed more frequently by Kaunas students: 25.4% of Kaunas students had whole-grain bread one or more than one time per day, whereas in Raseiniai district this percentage was 18.8%. More than one-fourth (25.4%) of Kaunas and 27.5% of Raseiniai respondents never had such bread ( $\chi^2=2.13, P=0.34$ ).

Analysis of consumption of skim milk revealed that one-third of Kaunas and almost half of Raseiniai schoolchildren did not consume skim milk. One or more times per day, it was consumed by 26.0% of Kaunas and only 11.9% of Raseiniai district schoolchildren ( $\chi^2=10.18, P=0.005$ ). A gender comparison showed that more boys (23.3%) than girls (15.1%) had an intake of skim milk every day ( $\chi^2=4.53, P=0.1$ ).

Thus, distribution of respondents consuming recommended products of healthy nutrition one or more



3 pav. Moksleivių pietavimo mokykloje skirstinys Kauno mieste ir Raseinių rajone  $\chi^2=42.15, P<0.01$ .

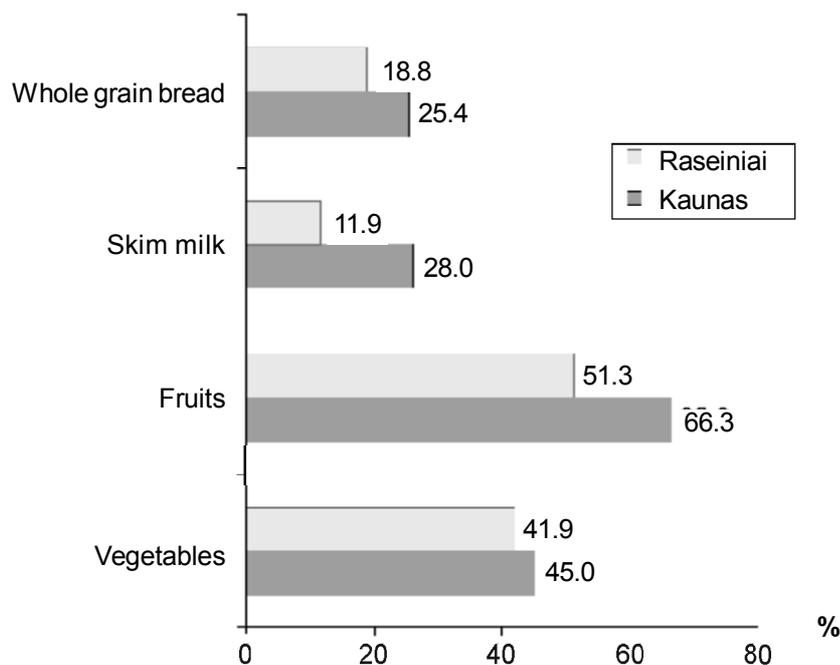


Fig. 4. Distribution of respondents consuming recommended products of healthy nutrition one or more times per day in Kaunas and Raseiniai district

times per day in Kaunas and Raseiniai district is shown in Fig. 4.

It was interesting to evaluate the frequency of consumption of foods, which are recommended to restrict, among students of Kaunas and Raseiniai district. One-third (30.2%) of Kaunas schoolchildren had an intake of Coca-Cola one or more times daily. Among the respondents from Raseiniai district, this percentage was 1.5 times lower – 20.4% ( $\chi^2=4.56$ ,  $P=0.1$ ). Coca-Cola was consumed more frequently by boys (35.0%) than girls (16.3%); 14.5% of girls and 5.5% of boys never had an intake of Coca-Cola ( $\chi^2=9.03$ ,  $P<0.01$ ). More than one-third (39.2%) of Kaunas schoolboys consumed Coca-Cola and other carbonized drinks daily.

Confectionery was consumed once or more daily by 60.7% of schoolboys and 58.4% of schoolgirls. An association between frequency of confectionery consumption and place of residence was determined in our study ( $\chi^2=6.31$ ,  $P=0.04$ ). Higher daily consumption of confectionery was determined among Kaunas (63.9%) than Raseiniai schoolchildren (55.0%).

Analysis of potato chip consumption among students in Kaunas and Raseiniai district revealed an association between frequency of potato chip consumption and place of residence ( $\chi^2=12.1$ ,  $P=0.002$ ). The data showed that chips were consumed more frequently by Kaunas than Raseiniai schoolchildren. One-fifth of Kaunas students (20.7%) one or more times daily had potato chips, whereas in Raseiniai, this per-

centage was only 10.0%. Only 13.6% of Kaunas and 7.5% of Raseiniai respondents never had chips. An association between potato chip consumption and sex was also found ( $\chi^2=11.21$ ,  $P=0.004$ ). In comparison to girls (9%), more boys consumed potato chips once or more daily (22.1%). More schoolboys in Kaunas than Raseiniai district consumed potato chips daily (26.8% vs. 15.2%).

An association between frequency of fried potato consumption and place of residence was established. Even 15.4% of Kaunas residents had fried potatoes one time or more daily; the percentage of Raseiniai students was smaller (5.6%,  $\chi^2=8.35$ ,  $P=0.015$ ). A comparison between genders showed that fried potatoes were consumed more frequently by boys than girls: 14.7% of schoolboys had them daily, whereas only 6.6% of schoolgirls answered to this question positively ( $P=0.02$ ,  $\chi^2=8.24$ ). Fried potatoes were consumed more frequently by schoolboys from Kaunas than Raseiniai (19.6% and 7.6%, respectively;  $P<0.05$ ).

Analysis of frequency of pizza, kebab, and hamburger consumption showed an association between frequency of intake of these products and place of residence ( $\chi^2=11.46$ ,  $P=0.01$ ). Even 13.6% of Kaunas participants consumed pizzas and kebabs once or more per day, whereas in Raseiniai – only 5.6% of participants ( $P<0.05$ ). A very similar percentage of students from Kaunas and Raseiniai district consumed these products more than once per week (26.6% and 22.5%,

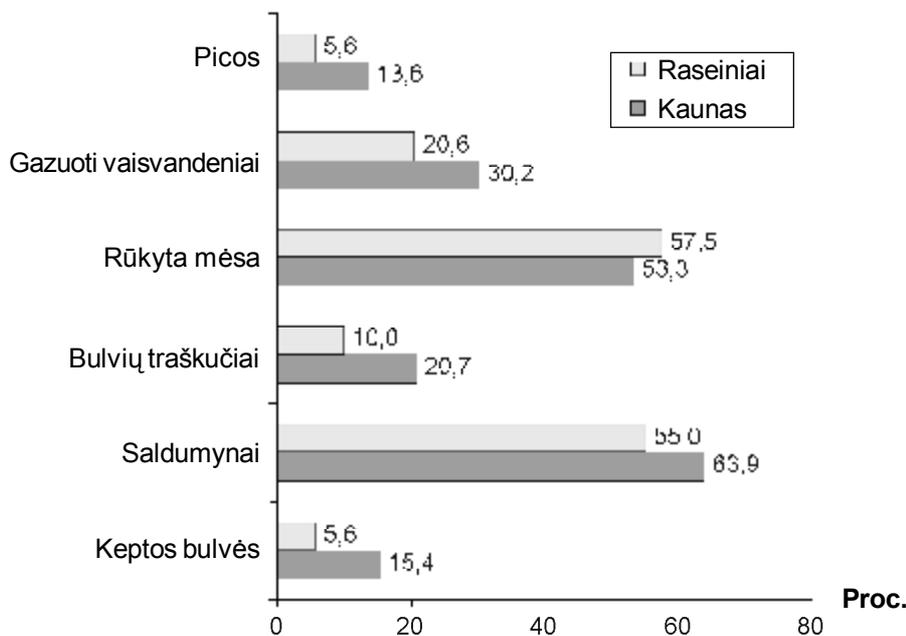


Fig. 5. Distribution of respondents consuming foods that are recommended to restrict

respectively). Only 15.6% of Raseiniai and 7.1% of Kaunas students reported that they never had these products ( $P<0.05$ ). An association between frequency of pizza, kebab and hamburger consumption and sex was also determined ( $\chi^2=15.25$ ,  $P=0.002$ ). These products were consumed more frequently by boys. Daily consumption of these products was reported by 12.9% of schoolboys and 6.6% of schoolgirls; 30.7% of boys and 18.7% of girls consumed these products more than one time per week. Only 15.7% of girls and 6.7% of boys answered that they never had these products.

Pizzas and hamburgers were consumed more frequently by Kaunas schoolgirls than schoolgirls in Raseiniai district. These products were consumed daily by 11.1% of Kaunas girls and 9.1% of Raseiniai schoolgirls.

There was no significance difference in egg consumption between Kaunas and Raseiniai respondents. Daily consumption of eggs was reported by 10.6% of Kaunas participants and 8.1% of Raseiniai participants. Less than one-third (31.3%) of Raseiniai schoolchildren had eggs more than one time per week, in Kaunas – 27.2%. Almost one-fifth (17.8%) of Kaunas respondents never had eggs; in Raseiniai, this percentage was lower (11.2%,  $\chi^2=3.83$ ,  $P=0.28$ ).

Analysis of the frequency of smoked food consumption revealed that 33.1% of schoolchildren in Raseiniai district and 27.8% of Kaunas participants consumed smoked meat more than one time per week.

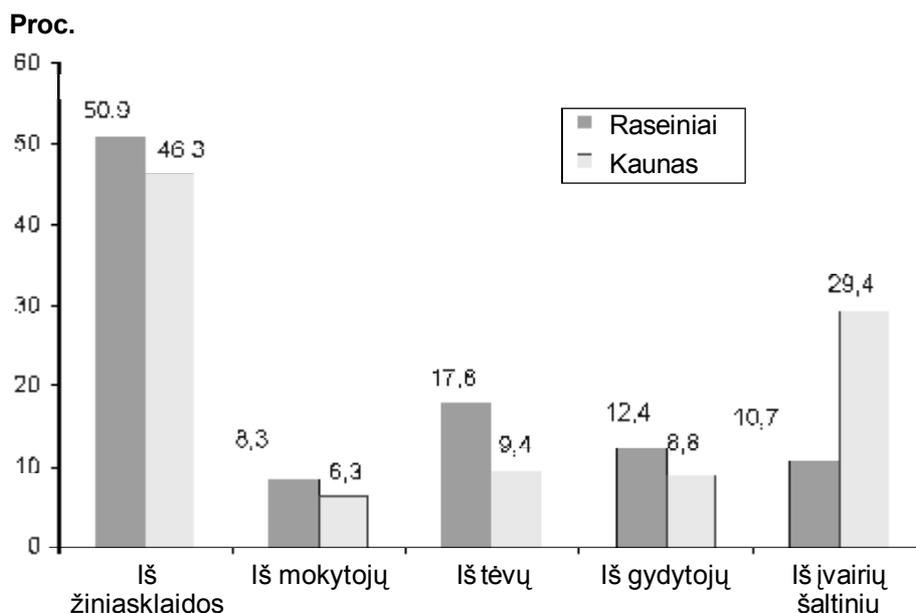
Only 5.3% of Kaunas and 1.3% of Raseiniai schoolchildren reported that they never consumed smoked meat ( $\chi^2=7.37$ ,  $P=0.06$ ). Analysis revealed an association between the frequency of smoked meat intake and sex ( $\chi^2=17.89$ ,  $P<0.01$ ). More schoolboys than schoolgirls consumed smoked meat one or more time daily (65.6% and 45.2%, respectively). However, more girls (38.6%) than boys (22.1%) consumed smoked meat more than one time per week ( $P<0.05$ ).

Both schoolchildren in Kaunas and Raseiniai district were interested in healthy nutrition. Almost half of all participants in the study (48.6%) obtained information on healthy nutrition from media. Teachers were the second source of information (every fourth student gained knowledge on healthy nutrition from their teachers). Only 13.7% of students obtained information on healthy nutrition from doctors, and 7.3% pointed out other sources.

A comparison of schoolchildren in Kaunas and Raseiniai district showed that more students in Kaunas than in Raseiniai district obtained information from media as well as from their parents ( $\chi^2=20.67$ ,  $P<0.01$ ) (Fig. 6).

### Discussion

Following the recommendations of healthy nutrition, breakfast should consist of 25% of calories of daily ration. Breakfast should include proteins (an egg, cheese, yogurt), carbohydrates (grains and vegetables),



**Fig. 6.** Distribution of the sources of information from which respondents in Kaunas and Raseiniai district obtained knowledge on healthy nutrition

$\chi^2=20.67$ ,  $P<0.01$ .

and warm drink. Breakfast provides students with alertness during lessons; it also contributes to prevention of gastrointestinal diseases (5).

Only half of participants in our study had breakfast daily, and 10.6% of students in Raseiniai district and 11.2% in Kaunas never had breakfast. In comparison to 61.3% of schoolboys, only 47.6% of schoolgirls had breakfast always. The number of girls who reported that they never had breakfast was twice higher in Kaunas. Breakfast is very important and determines person's well-being and working capacity during the rest of the day. It was observed that the children who never had breakfast demonstrated poor school performance, had less iron, and are prone to be overweight (6). Analysis of older students from Šiauliai revealed that 11.4% of participants never had breakfast (7). The similar analysis at Kaunas secondary schools in 2003 showed that 10.8% of students never had breakfast, and there were more girls than boys not having breakfast. Schoolgirls did not have breakfast because of their diet; schoolboys reported a lack of time (8). The Polish Institute of Nutrition carried out the study, in which 846 students of secondary schools were questioned; 45.8% of respondents reported that they never had breakfast (9). Study by Schneider in Australia showed that 12.0% out of 699 students did not have breakfast because the students reported that they wanted to have more sleep (10).

Nutrition regimen is a number of meals at the same time daily, distribution of food to each meal (for breakfast, dinner, afternoon meal, and supper). Only 14.8% of Kaunas and 13.1% of Raseiniai students always had their meal regularly, whereas 85.2% of Kaunas and 86.9% of Raseiniai respondents reported that they had meal irregularly. Having meal at the same time daily produces a reflex, i.e. gastric juice is secreted before a meal. Enzymes present in gastric juice cleave proteins, fats, carbohydrates, and other components. Irregular meals may disturb the activity of the gastrointestinal system. Thus, regular nutrition is an essential part of proper nutrition (11). An adult should have 3–4 meals a day, whereas a teenager – 5–6 meals. Nutritional regimen of a person should be based on his or her working conditions, age, and physiological characteristics of the body (12).

In case of four meals per day, 35% of daily food ration should be given to dinner. More than one-third (35.5%) of Kaunas students and more than half (56.9%) of all participants from Raseiniai reported that they sometimes had their dinner at school. Even 51.5% of Kaunas respondents never had their dinner at

school. In Raseiniai, this percentage was three times lower, i.e. 17.5% ( $P < 0.05$ ).

While evaluating students' nutritional habits, the answers to the following questions were analyzed: how frequently the respondents consumed recommended foods of healthy nutrition and how frequently they consumed foods, which are recommended to restrict. Bread gives 600–900-kcal energy daily. A person gets from 1/4 to 1/3 all energy necessary for body with bread and its products. The human body assimilates all nutrients that are present in bread (proteins, 75–92%; carbohydrates, 93–98%); vitamins are not destroyed during the process of dough mixture and baking. Bread is enriched with components having a positive effect on health, such as bread with grain, bran, whole-grain bread, bread with dried fruit, sunflower, seeds of pumpkin or sesame, bran of wheat, or other grain. Despite the fact that seeds have many biological active nutrients and dietary fiber, we still have a low intake of them. Thus, bread enriched with grains has a high nutritional value (13).

Whole-grain bread was consumed more frequently by Kaunas students: 25.4% of them had this sort of bread once or more daily, whereas in Raseiniai this percentage was 18.8%. More than one-fourth (25.4%) of Kaunas and 27.5% of Raseiniai participants in our study reported that they never had whole-grain bread.

Milk contains more two hundred nutrients that are essential for cell regeneration and energy. Children need calcium and milk proteins, which have indispensable amino acids, which in turn are not only essential for the growth and development, but also for the brain activity (14). However, fat milk like fat meat contains many saturated fatty acids. These saturated fatty acids elevate cholesterol level in blood (15).

More than one-fourth (26.0%) of Kaunas and only 11.9% of Raseiniai school-children had milk one time or more per day. Every day skim milk was consumed more frequently by schoolboys (23.3%) than schoolgirls (15.1%).

Vegetables are the source of dietary fiber. A link between health and fruits and vegetables was studied among the students from Crete University of Medicine. Consumption of fruits and vegetables was directly related to absorption of dietary fibers, calcium, magnesium, potassium, folic acid, and vitamins and indirectly related to enrichment of trans-fatty acids and cholesterol (16). Fruits and vegetables have antioxidants and polyphenols that protect the epithelium of the stomach from inflammation caused by *Helicobacter pylori* infection or inhibit formation of endogenous cancerogen nitrosamine (17).

More schoolboys (45.4%) than schoolgirls (41.6%) consumed vegetables every day. However, 9.2% of boys reported that they never had vegetables, whereas only 3.0% of girls marked this answer. Only half of Raseiniai schoolchildren (51.3%) had an intake of vegetables daily. Two-thirds (66.3%) of Kaunas participants had fruit intake one or more times per day; 31.3% of schoolchildren from Kaunas and 48.1% from Raseiniai district reported that they sometimes had fruits. Schoolboys and schoolgirls had similar daily intake of fruits (59.5% vs. 58.4%).

We have not included eggs in the table of recommended foods. We have also excluded them from the table of foods, which are recommended to restrict. An egg of good quality is calorific dietary food. Nutritional value of one egg is compared to 40 g of meat or 200 g of milk. Students should not ignore this valuable food. However, an egg may allergize some children even at older age, and frequent consumption of this food elevates cholesterol level (18). Manifestation of allergy may occur even from a low intake of eggs because their proteins pass through the mucosa of the gastrointestinal tract into the bloodstream unchanged. Ovomucoid is a particularly dangerous allergen, which is resistant to thermic denaturation and is trypsin inhibitor (19). In 2005, the study was conducted in Tulsa (France). Schoolchildren from eight schools were questioned if they were allergic to foods. Students pointed out milk in the first place, eggs – in the second, then kiwi, fish, peanuts, shrimps, and others. Thus, allergy to eggs was the most common allergy after allergy to milk. Even 9.4% of studied children were allergic to eggs (20). In 1996 in Madrid schools, the students had to answer to the question, how frequently they consumed animal foods. Eggs were consumed three times a week by 28.2% of participants; eggs were consumed more frequently by schoolboys than schoolgirls ( $P < 0.05$ ) (21).

Eggs were consumed by 10.6% of students from Kaunas and 8.1% from Raseiniai district; 31.3% of Raseiniai schoolchildren had eggs more than one time a week, and in Kaunas, this percentage was 27.2%. Almost one-fifth of Kaunas respondents (17.8%) claimed that they never consumed eggs; in Raseiniai district, this percentage was 11.2%.

The most favorite foods, which were consumed by the students for lunch or dinner at school, were included in the list of foods that are recommended to restrict.

WHO experts, physicians, and nutritional professionals long ago included potato chips, fizzy beverages,

sweet dry breakfast, confectionery, and fast foods (hotdogs, hamburgers) in the list of products recommended to restrict. Although they were reported to be favorites by our schoolchildren, these foods are responsible for weight gain, obesity, and they are risk factors for chronic diseases such as type 2 diabetes mellitus, cardiovascular diseases, hypertension and stroke, some neoplastic diseases (22).

Almost one-fifth (20.7%) of participants in Kaunas and 10.0% in Raseiniai district had an intake of potato chips one or more times daily. Only 13.6% of Kaunas and 7.5% of Raseiniai respondents reported that they never consumed them. A link between chips consumption and sex was also established. Potato chips were consumed one or more times daily by 22.1% of schoolboys, whereas only 9% of girls answered positively. Even 26.8% of Kaunas boys consumed potato chips daily; this percentage among Raseiniai boys was 15.2%.

Mattson and Helmersson in their study on attitude of 16–17-year-old students in Southern Sweden to “junk food” first of all draw attention towards the effect of these foods on a sharp increase in the number of obese teenagers and elevation of cholesterol level worldwide and in Sweden. The study showed a significance difference between the girls and boys consuming “junk food”; the latter tended not to experience a sensation of hunger and more frequently had “junk food” (23).

The students obtained information on healthy nutrition from media, teachers, parents, and doctors. Media was pointed out by 50.9% of respondents in Kaunas and 46.3% of respondents in Raseiniai district. It is a paradox that only 12.4% of schoolchildren in Kaunas and 8.8% in Raseiniai district obtained knowledge on healthy nutrition from doctors.

Children want to be independent and make their own decisions, which foods to choose; however, their choice is not always correct. Students’ nutritional habits depend on their living environment, nutritional habits of family, possibilities of having meal at school, or ability to make their own choice. Well-balanced, regular nutrition influences the growth of child, physical and mental development, and good school performance (24).

## Conclusions

1. Middle-aged schoolchildren from both Kaunas and Raseiniai district did not follow nutritional regimen; a half of them did not have their breakfast before going to school.

2. Students consumed more frequently confectionery and smoked foods, which are included in the list of foods recommended to restrict (every second student in Kaunas and Raseiniai district); every tenth consumed pizzas and fried potatoes, and every fourth had an intake of carbonized beverages (the students in Kaunas more frequently), had potato chips (the schoolchildren in Kaunas more frequently).
3. A half of participants of the study consumed recommended foods, among them, fruits (51.3% of students in Kaunas and 66.3% of Raseiniai district) and vegetables (45.0% of students in Kaunas and 41.9% in Raseiniai). Every fourth schoolchild had an intake of skim milk, more frequently in Kaunas than Raseiniai district; whole-grain bread was consumed by 18.8% of students in Raseiniai district and 25.4% in Kaunas.
4. The students in Raseiniai district had more knowledge on healthy nutrition than the respondents in Kaunas. A greater proportion of students obtained knowledge on healthy nutrition from media (50.9% in Kaunas and 46.3% in Raseiniai district), but only every tenth was informed about healthy nutrition by doctors (2.4% in Kaunas and 8.8% in Raseiniai district).

## **Kauno miesto ir Raseinių rajono vidurinio mokyklinio amžiaus moksleivių mitybos įpročiai**

**Lina Škėmienė, Rūta Ustinavičienė, Ričardas Radišauskas, Jolita Kirvaitienė,  
Robertas Lažauskas<sup>1</sup>, Sandra Sabonaitytė**

*Kauno medicinos universiteto Aplinkos ir darbo medicinos katedra, <sup>1</sup>Fiziologijos katedra*

**Raktažodžiai:** mitybos įpročiai, moksleiviai, miestas, rajonas.

**Santrauka.** Tyrimo tikslas. Ištirti ir išanalizuoti Lietuvos miesto ir rajono vidurinio mokyklinio amžiaus moksleivių mitybos įpročius.

Tyrimo medžiaga ir metodai. Anoniminės apklausos būdu pagal specialiai parengtą anketą apklausti Kauno miesto ir Raseinių rajono 8–9 klasės moksleiviai. Apklausoje dalyvavo 329 moksleiviai, t. y. 169 Kauno miesto moksleiviai ir 160 Raseinių miesto ir rajono moksleivių. Moksleiviai atsakė, kaip dažnai jie pusryčiaudavo, pietaudavo mokykloje, kiek kartų per dieną valgė, ar dažnai vartojo greitojo maisto produktus, gėrė saldžius gazuotus gėrimus ir kt. Palyginti berniukų ir mergaičių mitybos įpročiai.

Rezultatai. Tik pusė apklaustų moksleivių kas rytą valgė pusryčius (61,3 proc. berniukų ir 47,6 proc. mergaičių). Mokykloje pietavo daugiau rajono moksleivių palyginus su Kauno miesto moksleiviais. Tik 14,0 proc. tirtų moksleivių laikėsi mitybos režimo. Visada tuo pačiu metu valgė 14,8 proc. kauniečių ir 13,1 proc. raseiniškių. Kasdien daržovių valgė daugiau berniukų (45,4 proc.) nei mergaičių, o vaisių valgė beveik panašiai – 59,5 proc. berniukų ir 58,4 proc. mergaičių. Rupaus malimo duonos vieną ar kelis kartus per dieną valgė dažniau kauniečiai (25,4 proc.) nei Raseinių rajono moksleiviai (18,8 proc.), liesą pieną taip pat dažniau gėrė Kauno moksleiviai, atitinkamai – 26,0 proc. ir 11,9 proc. ( $\chi^2=10,18$ ,  $p=0,005$ ). Saldumynų daugiau valgė Kauno miesto (63,9 proc.) moksleiviai, Raseinių rajono mokiniai vartojo šiek tiek mažiau (55,0 proc.), daugiau berniukai, nei mergaitės. Net 20,7 proc. Kauno moksleivių vieną ar kelis kartus per dieną valgė bulvių traškučių, o Raseinių rajono mokinių tarpe tik 10,0 proc. Picas, kebabus, mėsainius dažniau valgė berniukai nei mergaitės ( $\chi^2=15,25$ ,  $p=0,002$ ). Net 48,6 proc. moksleivių iš masinės informacijos priemonių sėmėsi informacijos apie sveiką mitybą, antroje vietoje buvo mokytojai (kas ketvirtas moksleivis žinių apie sveiką mitybą gavo iš mokytojų).

Išvados. Tiek Kauno miesto, tiek Raseinių rajono vidurinio mokyklinio amžiaus moksleiviai nesilaikė mitybos režimo, pusė jų ėjo į mokyklą nepusryčiaavę. Iš nerekomenduojamų vartoti maisto produktų moksleiviai dažniau vartojo saldumynus ir rūkytos mėsos gaminius (kas antras mokiny vienodai dažnai Kauno mieste ir Raseinių rajone), kas dešimtas valgė picas ir keptas bulves, kas ketvirtas gėrė gazuotus vaisvandenius (dažniau Kauno moksleiviai) ir valgė bulvių traškučius (dažniau Kauno moksleiviai nei Raseinių rajono). Iš rekomenduojamų vartoti maisto produktų pusė apklaustųjų moksleivių vartojo vaisius (Kaune – 51,3 proc. ir Raseiniuose – 66,3 proc.) ir daržoves (Kaune – 45,0 proc. ir Raseiniuose – 41,9 proc.). Kas ketvirtas mokiny gėrė liesą pieną,

dažniau Kauno moksleiviai nei Raseinių, o rupaus malimo duoną valgė 18,8 proc. Raseinių rajono ir 25,4 proc. Kauno miesto moksleivių. Raseinių rajono moksleiviai daugiau žinojo apie sveiką mitybą nei Kauno. Didesnė dalis moksleivių žinių apie sveiką mitybą sėmėsi iš masinės informacijos priemonių (Kauno – 50,9 proc. ir Raseinių rajono – 46,3 proc.) ir tik kas dešimtas žinių apie sveiką mitybą gavo iš gydytojų (Kauno – 2,4 proc. ir Raseinių rajono – 8,8 proc.).

Adresas susirašinėti: L. Škėmienė, KMU Aplinkos ir darbo medicinos katedra, A. Mickevičiaus 9, 44307 Kaunas  
El. paštas: lina.skemiene@med.kmu.lt

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