

Mateja Videmšek^{1*}**Petja Videmšek²****Jože Štihec¹****Damir Karpljuk¹****SPORTS ACTIVITY AND EATING
HABITS OF 14 YEAR-OLD MALE AND
FEMALE PUPILS****ŠPORTNA DEJAVNOST
IN PREHRANSKE NAVADE
ŠTIRINAJSTLETNIH DEKLIC
IN DEČKOV****Abstract**

The aim of this study is to analyse sports activity and eating habits of 14 year-old male and female pupils. A questionnaire including 23 variables has been used to survey 87 8th grade boys and girls from a primary school in Ljubljana. We have established that on average boys and girls alike have a normal body weight and that 70% of them are satisfied with their appearance. 14 year-old pupils follow a healthy way of eating – the majority has three to five meals a day, mostly eating at home. More than half of the them visit McDonald's less than once a month. 11% of 14 year-old pupils smoke at present, and almost 50% of them drink alcohol, primarily on special occasions. Very few pupils (12%, more boys than girls though) do not practice sport in their spare time. There are significantly more boys who practice sport on a daily basis. Those children, who are more active in sport, smoke or drink alcohol less frequently. It can be concluded that sport is a tool for developing motor abilities in young people and maintaining their health. In addition, sport helps protect young people against various addictions, indifference, bad influence of the street and modern trends as well as develop a positive self image.

Key words: youth, sport, healthy eating, fast food

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Izvleček

Namen raziskave je bil analizirati športno dejavnost in prehranske navade štirinajstletnih učencev in učenk. Z anketnim vprašalnikom, ki vsebuje 23 spremenljivk, smo anketirali 87 učencev in učenk, ki obiskujejo 8. razred osemletne osnovne šole v Ljubljani. Ugotovili smo, da imajo tako fantje kot dekleta v povprečju normalno telesno maso in so večinoma (70%) zadovoljni s svojo zunanostjo. Štirinajstletniki imajo zdrav način prehranjevanja, saj jih večina (83%) poje na dan tri do pet obrokov, najpogosteje se prehranjujejo doma. V restavracijo McDonald's hodijo bolj poredko – več kot polovica obišče restavracijo le manj kot enkrat na mesec. Trenutno kadi 11% štirinajstletnikov, skoraj polovica pa jih pije alkoholne pijače, največ ob posebnih priložnostih. Rezultati ankete so pokazali, da se zelo malo učencev (12%) – več fantov kot deklet – v popoldanskem času ne ukvarja s športom, da pa je bistveno več fantov kot deklet športno aktivnih vsak dan. Tisti otroci, ki se več ukvarjajo s športom, manj kadijo in manj pogosto pijejo alkoholne pijače. Menimo, da je šport sredstvo, s pomočjo katerega mladi razvijajo gibalne sposobnosti in ohranjajo zdravje, poleg tega pa se lahko obvarujejo tudi pred različnimi oblikami zasvojenosti, brezvoljnostjo, slabimi vplivi ulice, modnih trendov in oblikujejo pozitivno samopodobo.

Ključne besede: mladostnik, šport, zdrava prehrana, hitra prehrana

Introduction

Obesity is a growing problem in contemporary society. There are various reasons, ranging from genetics, metabolism processes, social and economic standards, psychological reasons, lack of exercising to irregular eating habits (Bratanič, 2000). Lack of exercising in particular is the factor that causes an increase in obesity and diabetes, while genetics is among the prevailing factors causing obesity (Karpljuk, Videmšek, & Dervišević, 2003). 40 to 50% of obese children come from families where one of the parents is overweight, and 80% of obese children come from families where both parents are overweight. The proportion of obese children where both parents have normal body weight is 10% (Jurovič, 2003).

In addition to genetics, the two most significant factors causing obesity are the way of life and eating habits within a family. Losing the extra body weight is closely related to regular sports activity, whereas irregular sports activity and quick diets do not produce satisfactory results (Battelino, 2000).

Experts are of the opinion that Slovene national cuisine includes all the good eating habits. Nutrition used to be based on meals prepared from grains and vegetables, meat was eaten on Sundays and holidays only, and people used to have regular fasting days. Unfortunately, the plain country meals have almost disappeared from our tables, and like the rest of the modern world, Slovene people increasingly eat unhealthy fast food (Jurovič, 2003). Fast food is often considered as an option for people whose work schedules and lack of free time do not allow them to find the so needed time to relax and enjoy healthy meals. However, based on the studies on nutritional values of fast food, in the period from 1986 to 1991, fast-food restaurants have significantly improved the quality of food and started offering healthier meals as well (Pokorn, 1997). This trend continues today – the fast-food providers know of people's healthy eating awareness and must thus make sure to offer a variety of choices and healthy meals in their fast-food restaurants (Amon, 1996). Fast-food providers have already changed the meals on offer, which now include less deep-fried and more low-fat roasted foods, more vegetable meals, more low-fat milk, and meals prepared from full grain flour (Petrovčič, 2000). In any case, fast food has a solid position in our everyday nutrition; it is important how we combine this way of eating with healthy daily eating habits. A recipe to add value to our daily eating is to have plenty of fruit and vegetables, and occasionally a fast food meal with not too much fat, sugar and salt (Kmetec, 2002).

The research by Jurovič (2003), in which 1000 visitors of Mc Donald's, aged between 15 and 25, were studied, has shown a positive attitude towards fast food. More than one half of the subjects know the basic ingredients of fast food, their eating habits are very good – 72% has three to five meals a day, which conforms to the WHO standards (Požar, 1998). These people primarily eat at home (78%) or in various restaurants (9%). Jurovič (2003) established that fast-food restaurant goers regularly practice sport – over 52% practice sport more than twice a week, not to disregard those 34% who practice sport occasionally. All together 86% of young people aged from 15 to 25 practice sport and eat in Mc Donald's restaurants.

Sport or exercising generally plays a highly significant role in one's life. Sports activity normally does not allow any room for unhealthy eating, alcohol, cigarettes and many other negative factors that too often influence a contemporary way of living. Sport helps suppress negative

factors when already present or prevents them from occurring. Sport is a way to enrich one's life in any age period, whether at a young or old age (Shapiro, 1994).

When parents raise their children to come to love exercising and sport, they do much more than just make them exercise and prevent them from becoming TV or computer addicts. In this way parents influence children's patterns of behaviour, their desires and needs. If engaged in sport, children develop positive motivational structures and permanent, useful habits; they learn to win and lose – the situations they will face in everyday life (Kropej & Videmšek, 2002). It is most important that children learn already in the family that their achievements result from the work and effort they themselves invested. Parents influence all three personality levels of a child: biological, psychological and social – i.e. they positively influence the child as a whole (Videmšek & Visinski, 2001). These influences will not only be present in childhood and youth, but also in the period of growing up. Children are raised to lead a sporty way of life which is one of the most meaningful ways of life in contemporary society (Kalar, Videmšek, & Zavrl, 2003).

The benefits of practicing sport in youth are for good. Experts believe that the problem of wide-spread cardiovascular diseases today has roots in the childhood period. Inadequate exercising extensively contributes to excessive body weight, high cholesterol and high blood pressure. All of these symptoms may be present already in the teenage period and represent a high risk of developing serious heart diseases later in life (Keber, 2000). If alcohol, cigarettes and unhealthy eating are added, the risk of developing various diseases increases rapidly (Berčič, Tušak, & Karpljuk, 1999).

Childhood and youth are the most significant periods of growing up. Growing up can be closely interwoven with sport and its specific movement activities, as well as proper eating habits (Uršič Bratina, 2000a). As the socialization process starts in childhood, family plays a very important role in developing a child's personality. Knowing that parents today are often overloaded with work and have very little time for raising their children, this role is often played by the school and the neighbourhood. Neighbourhood is the place where children most frequently adopt bad habits, whereas school is a kind of a counter balance and struggles to control and dominate these influences. The school should help individuals develop their potentials so as to help them enter an independent life based on own capabilities, high self-esteem and strong determination (Vrba, 2000).

Since the problems and issues described herein are predominant as well as very interesting, we have decided to carry out a research to analyse sports activity and eating habits of 14 year-old boys and girls.

Method

Participants

The sample of subjects included 87 pupils aged 14 (39 boys and 48 girls). All pupils were in the 8th grade of an 8-grade primary school in Ljubljana.

Instruments

This research is based on a questionnaire consisting of 23 questions on sport and eating. The questionnaire is partially resumed from the study by Jurovič (2003) with a few additions.

The questionnaire includes the following variables:

- Age
- Height
- Body weight
- Are you satisfied with your body?
- Do you smoke?
- Do you drink alcohol?
- In addition to PE in school, how frequently do you practice sport (at least 45 minutes a day)?
- How do you practice (recreationally, competitively)?
- Where do you practice (extracurricular activities, club, individually etc.)?
- Which sports activity do you most frequently do?
- What is your opinion of your results of the testing for Sports Educational Chart*?
- Do you know the basic nutritional substances?
- List the nutritional substances!
- How many meals a day do you usually have?
- Where do you most frequently have your meals?
- Do you enjoy food in fast-food restaurants?
- What is your opinion of fast food (high in calorie, tasteful, cheap, filling, variegated, healthy)?
- What do you think about the number of Mc Donald's restaurants in Slovenia (too many, too few, enough)?
- What do you most frequently order at McDonald's?
- What do you most frequently drink at McDonald's?
- Your most prevailing reasons for visiting a McDonald's restaurant (lack of time, fast service, affordable, nice place, quality food, tasteful food, good location, courteous staff, meeting friends).
- How often do you visit McDonald's restaurants?
- What do you like best at McDonald's?

Procedure

Data has been processed by the SPSS software. The Frequency and Contingency tables have been generated with the help of FREQUENCY and CROSSTABS sub-programs. The probability relations among the variables have been tested by the contingency coefficient. Statistical characteristics have been evaluated at a 5% risk level.

Results

The results of this research show that only 12% of 14 year-old pupils (see Figure 1) – more boys than girls – are not sport active in the afternoons. There are significantly more boys than girls who practice sport every day, while most girls practice sport (in addition to PE in school) two to three times a week. The majority of boys and girls practice sport recreationally (Figure 2), usually within extracurricular activities at school. There are a few more boys than

* Sports Educational Chart is a special system designed for yearly monitoring of motor and morphological development of Slovene youth (Strel, Kovač, Leskošek, Jurak, & Starc, 2002).

girls who practice sport competitively in various sport clubs. In their spare time, girls like to roller skate, while boys play football. Both boys and girls are fond of volleyball, cycling and running. Additionally, boys like basketball and girls dancing.

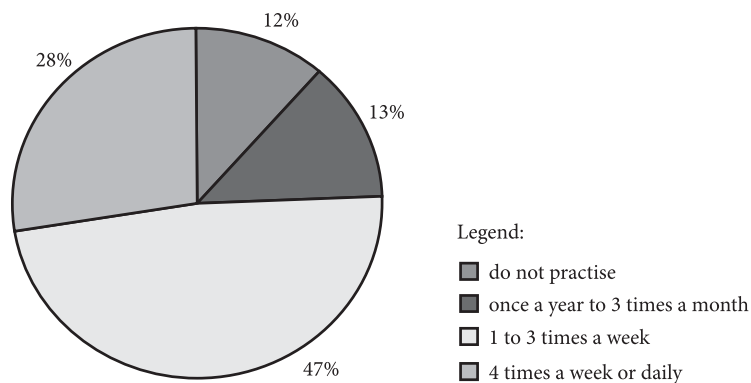


Figure 1: In addition to obligatory PE at school, how frequently do you practice sports (at least 45 minutes a day)?

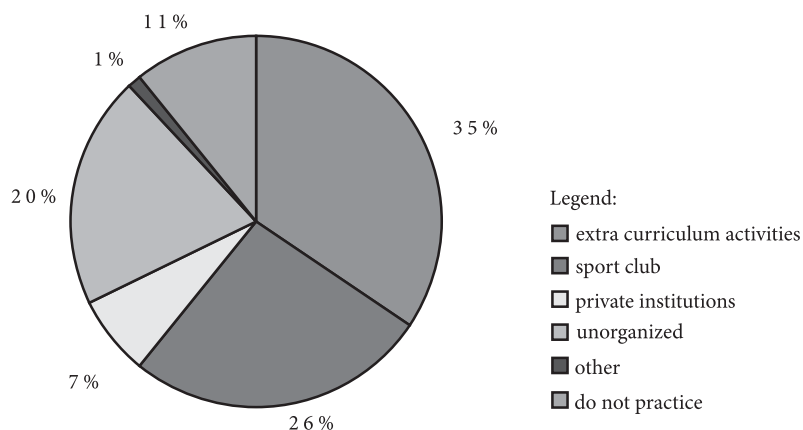


Figure 2: Where do you practice sport?

More than one half of boys and girls (55%) is of the opinion that their Sports Educational Chart results are average, 17% think their results are very good, while 13% think their results are poor. 9% of the pupils are not familiar with their Sports Educational Chart results, 6% did not carry out testing, and all the pupils are familiar with the Sports Educational Chart testing. The Sports Educational Chart is a special system designed for yearly monitoring of motor and morphological development of Slovene youth (Strel, Kovač, Leskošek, Jurak, & Starc, 2002). The results have shown that pupils who are more engaged in sports activities have a better opinion of their own test results. These answers are of course understandable and explainable. During their afternoon sports activities, in addition to learning the sport, children also develop their

motor abilities, such as co-ordination, agility, strength, speed, etc. – all of which form part of the Sports Educational Chart testing.

This research has established that the sampled 14 year-old pupils are well nourished. The body mass index (ITM – weight divided by height squared) of girls and boys in our study is 19.4 kg/m² and 20 kg/m² respectively. According to the percentile table for ITM examination in children and adolescents (Uršič Bratina, 2000b) the over-nourished children are those whose ITM exceeds the 95th percentile applying to their age and sex (Table 1).

Table 1: The body mass index (ITM) in 14 year-old boys and girls – National Health and Nutrition Examination Survey (Uršič Bratina, 2000b)

<i>ITM</i>	<i>95 P</i>	<i>50 P</i>	<i>5 P</i>
Boys (age 14)	26.8	19.1	16.1
Girls (age 14)	28.6	19.4	15.7

Over two thirds of boys and girls are satisfied with their bodies. This is a very encouraging piece of information, because the development of a positive self-esteem in the growing-up period is frequently problematic.

Even though adolescents often tend to get the information about nutrition from their coevals, magazines, and a little from their families, girls and boys in our study are very well informed about healthy food. A high 84% of pupils are familiar with nutritional substances, and most of them listed them correctly. We have established that the majority of children have three to five meals a day and only a few less than three or five meals a day (see Figure 3).

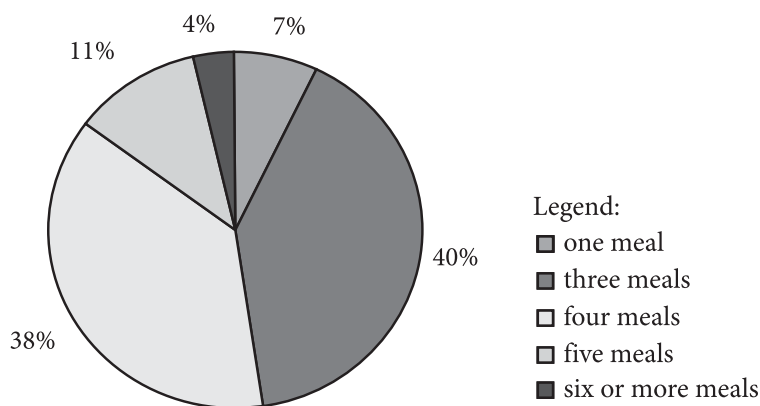


Figure 3: How many meals a day do you usually have?

Accordingly, most of 14 year-old boys and girls have healthy eating habits to follow the biological alternation of nutritional and non-nutritional state of metabolism. Based on the information revealed by the head of the school-meal planning (at the school where the survey was carried out), 83% of all pupils have a morning meal, 57% have lunch, and there is one pupil who has the afternoon meal. However, the majority of pupils (85%) still reported that they mostly eat at home, where they spend most of their time (see Figure 4).

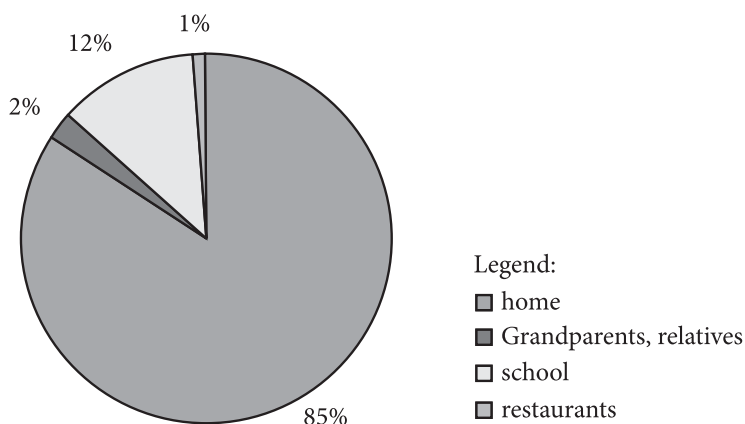


Figure 4: Where do you eat most frequently?

Children rarely visit Mc Donald's restaurants – over one half of them less than once a month, and nobody two or more times a week (see Figure 5). Most 8th grade pupils are of the opinion that fast food is high in calorie, tasteful, rather expensive, filling, and variegated. However, most of them believe that this food is not healthy. In spite of that, they normally have desserts in fast-food restaurants, less frequently menus, sandwiches and French fries, and least frequently salads. They normally have fizzy drinks with the food, rarely fruit juices, and least frequently other drinks such as water, chocolate milk and similar. The most important reasons why 8th grade pupils eat at McDonald's are fast service, tasteful food, location, courteous staff and meeting friends.

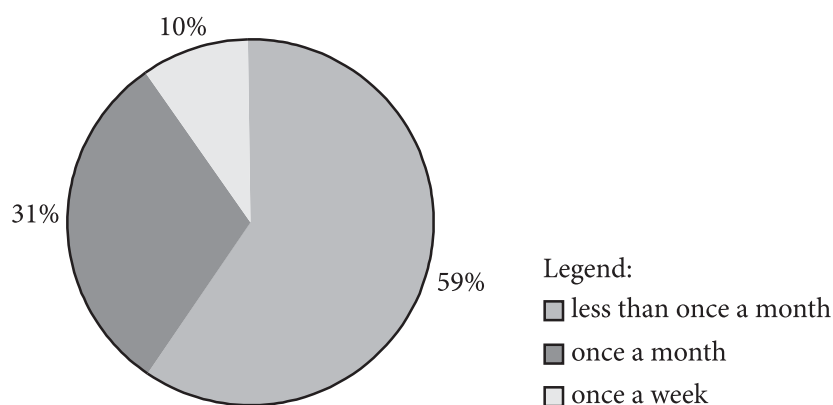


Figure 5: How often do you visit Mc Donald's restaurants?

The results have shown that those children, who are more active in sports, statistically significantly smoke less frequently (Table 2) or they drink alcohol less frequently (Table 3).

Table 2: Smoking habits in regard to frequency of sports activity (in addition to obligatory PE at school)

Do you smoke?	Sports activity						
	Do not practice sport	1 to a couple of times a year	1 to 3 times a month	1 time a week	2 to 3 times a week	4 to 6 times a week	Every day
Yes, regularly		2 28.6%		3 42.9%	1 14.3%	1 14.3%	
Yes, occasionally			1 50.0%			1 50.0%	
I used to, but I quit	1 10,0%			2 20.0%	7 70.0%		
Never did	9 13,4%	5 7.5%	3 4.5%	6 9.0%	22 32.8%	11 16.4%	11 16.4%

Contingency coefficient = 0.529 (p = 0.015)

Table 3: Alcohol drinking habits in regard to frequency of sports activity (in addition to obligatory PE at school)

Do you drink alcohol?	Sports activity						
	Do not practice sport	1 to a couple of times a year	1 to 3 times a month	1 time a week	2 to 3 times a week	4 to 6 times a week	Every day
At least once a week		2 66.7%			1 33.3%		
Once a fortnight			1 20.0%	2 40%	1 20.0%	1 20.0%	
Once a month				2 66.7%		1 33.3%	
On special occasions	3 11.5%		2 7.7%	3 11.5%	11 42.3%	4 15.4%	3 11.5%
I do not drink alcohol	7 14.3%	5 10.2%	1 2.0%	4 8.2%	17 34.7%	7 14.3%	8 16.3%

Contingency coefficient = 0.549 (p = 0.043)

The results do not indicate a statistically significant correlation between sport engagement and eating at fast-food restaurants (Table 4). 14 year-old pupils thus visit fast-food restaurants regardless of how frequently they practice sport.

Table 4: Visiting Mc Donald's restaurants in regard to frequency of sports activity (in addition to obligatory PE at school)

Sports activity	Visits at Mc Donald's restaurants	
	Less than once a month	Once a month to once a week
Do not practice sport	2 4.8%	6 3.2%
Once a year to 3 times a month	7 6.6%	4 4.4%
1 to 3 times a week	25 23.3%	14 15.7%
4 times a week to every day	15 14.3%	9 9.7%

Contingency coefficient = 0.227 ($p = 0.215$)

Generally, 11% of 8th grade pupils smoke (see Figure 5) which is very similar to the results of a study carried out almost 20 years ago by Kalan and Debeljak (1987), when 9% of 14 year-old boys and 14% of girls smoked. A highly concerning is the number of 14 year-old children who drink alcohol – 30% of them drink alcohol on special occasions, and the rest once or more times a month (see Figure 6).

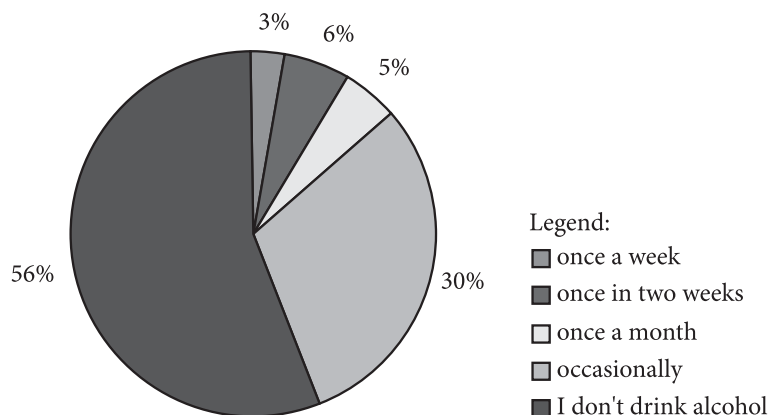


Figure 6: Do you drink alcohol?

Discussion

The aim of this research was to analyse sports activity and eating habits of 14 year-old boys and girls. For the purpose of this research, we have surveyed 87 male and female 8th grade pupils from a primary school in Ljubljana. The majority of the studied 14 year-old male and female pupils practice various sports – in addition to PE at school. The reasons could lie in a wide variety of quality extracurricular sports activities at school and in high awareness of pupils who like spending their afternoons actively, be it in nature or elsewhere outdoors

– roller skating, cycling, walking and running. In contrast to staying behind the four walls, a relaxed exercise in a natural environment is definitely the better choice. The key reasons for young people practicing sport are undoubtedly a good workout to get into shape, relaxation and spending time with friends.

This research has established that the sampled 14 year-old pupils are well nourished. Based on the information of over 200000 primary school children, we can ascertain that an increase in body weight and height occurred in the period from 1990 to 2000 (14 year-old boys 1.4 cm in height and 2.4 kg in weight; 14 year-old girls 0.8 cm in height and 0.8 kg in weight). Despite this it has been established that the number of girls with an extremely low body weight is increasing more rapidly than expected according to the basic principles of children's development. This is inevitably dictated by the contemporary trends (Strel, Kovač, Leskošek, Jurak, & Starc, 2002). American researchers have come to similar results – they have established that in all of the groups young girls had the poorest nutrition because they kept declining food (Gabrijelčič Blenkuš, 2001). Man adopts eating habits already in the early childhood. Child's eating habits are formed on the basis of eating habits in its family (number of meals, selection of food, vegetarian diets etc.), a significant role is also played by the environment – kindergarten, school, friends. Eating habits are thus a sum of many influences; they become part of our everyday life and play an important role in leading a healthy life (Gibney & Wolever, 1996). A child's rapid development, a relatively sedentary way of living (school, learning courses, TV, computer etc.) and a high-calorie food intake can lead to a fast weight gain. With exercising, a child can burn a lot of those extra calories and thus control his or her body weight.

Over two thirds of boys and girls are satisfied with their bodies. This is a very encouraging piece of information, because the development of a positive self-esteem in the growing-up period is very often problematic. More than half of the 15 year-old teenage girls in the developed industrial countries are dieting or think they should be. The top rated country is the U.S.A., where 47% of 11 year-old girls and 62% of 15 year-old girls worry about being overweight (Vereecken & Maes, 2000). Scientists have established that higher-grade girls in primary schools, whose relationships with their parents are good, are less worried about the way they look. An individual's self-esteem at the time of turning from a child into an adult is primarily presented by the physical appearance. Teenagers are often facing great difficulties in developing their own perception and in appreciating their own bodies. This developmental phase is particularly delicate because it coincides with sexual maturing, cultural influences, judgments of values and often prejudices (Strel, Kovač, Leskošek, Jurak, & Starc, 2002). Teenagers often want to achieve a fast loss of real or imaginary extra kilograms by a sudden change of their diet (a restrictive diet) that they usually read about in magazines or hear from friends. Weight loss diets like this can have very dangerous health-affecting consequences with every teenager. They are especially dangerous for top athletes, who can more often face health problems and poorer sport results (Uršič Bratina, 2000a).

Jurovič (2003) already established that young people, aged between 15 and 25, are well informed about a healthy way of eating – more than one half are familiar with the nutritional substances. The percentage is even higher (84%) with 16 year-old teenagers. This could undoubtedly be the result of the home economics subject in primary schools. In the new, 9-grade primary school, children's knowledge and information on healthy eating will further improve – in the 7th, 8th and 9th grades children will have elective subject "Modern Food Preparation". The aim of this

subject is to inform and teach children about nutritional substances and their relation with one's health, quality of food and meals, healthy food preparation, and healthy eating habits.

The results have shown that the majority of children (89%) have three to five meals a day. There are only a few (7%) who have only two meals a day and this should raise concerns – although it is assumed that some of these 7% did not consider chocolate, apples, biscuits etc. as meals. Very few children (4%) eat more than five meals a day. Considering the standards set by the WHO (Požar, 1998), five or at least three meals a day is a very good result. Similar results have been obtained in the research by Jurovič (2003), where 72% of young people aged between 15 and 25 have three to five meals a day.

Although this research does not indicate a statistically significant correlation between sport engagement and the number of meals per day, other researches in Slovenia and around the world indicate (Hawley & Burke, 1996) that athletes plan their meals more appropriately, or they are aware that properly prepared meals – combination of nutritional values – significantly affect their sport achievements and results.

Among those young people who relax through exercise or sport, there are very few who would threaten their own health and lives by acting violently to other or even to themselves. Likewise, there are very few who would look for substitutes such as alcohol and drugs or wander aimlessly and similar. This research shows that those children who are more active in sports are less likely to smoke and drink alcohol (Karpljuk, Videmšek, & Zajc, 2003). Generally, 11.5% of 8th grade pupils smoke, which is very similar to the results of a study carried out almost 20 years ago by Kalan and Debeljak (1987), when 9% of 14 year-old boys and 14% of girls smoked. The fact that only slightly more than 50% of 14 year-old children do not drink alcohol is alarming – 30% drink alcohol on special occasions and the rest of the children once or more times a month. These facts also comply with the results of researches (Papalia, Wendkos Olds, & Duskin Feldman, 2003) indicating that primary school children already drink alcohol occasionally or regularly, and that the age when children first start drinking is decreasing. 80% of teenagers have tried more than a couple of sips of alcohol before the end of primary school, and 25% of 8th grade pupils say they were at least once drunk. According to the experts, these facts are concerning because young people who start drinking before the age of 15 are more likely to become addicted to alcohol than those who start drinking after the age of 20 (Gibney & Wolever, 1996).

Sport can be the tool to protect young people from various addictions, indifference, bad influence of the street, modern trends, and to help them develop a positive self-esteem. When engaged in sport from the early ages, young people get to know certain hardships, strain, the feeling of winning and losing. All of these experiences enrich one's life and are a valuable preparation for battles in life, as there may be quite a few of them. Thus, appropriate sports activity not only contributes to a healthier body but also to a more positive attitude towards oneself (Kropej & Videmšek, 2002).

At the time when children are still susceptible to parents' and teachers' influences, they should adopt a positive attitude towards a sporty way of life and healthy eating, representing the fundamental condition for a normal life without any unnecessary complications due to harmful habits and modern diseases. Authors of this article are aware that this research is just a small piece in the mosaic representing the study of eating habits and sports activity in young people. The sample of subjects is relatively small and is not representative of the Slovene youth. In spite

of this, we have arrived to some tenable conclusions that are valid for our sample. The future research on eating habits and sports activity of young people should more thoroughly study and analyse the assumptions stated herein.

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