

Sport Activity and Eating Habits of People Who Were Attending Special Obesity Treatment Programme

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ABSTRACT

The aims of the study were to analyse the sport activity and eating habits of obese people in their childhood and adulthood. The research was underpinned by a survey questionnaire containing 37 variables which was completed by 71 people attending the obesity programme. The frequencies and contingency tables were calculated, whereas statistical significance was established at a 5% significance level. The analysis of the results showed that more than one-half of the survey respondents joined the obesity programme primarily for reasons of health and well-being. Most obese people did not engage in any organised sport activity in their childhood, nor did most of their parents. The respondents practiced sport in their childhood to a greater extent if their parents were also physically active and if they guided and encouraged their children. No less than one-third of the respondents were overweight in their childhood, of whom two-thirds did not participate in any organised sport activity. The majority of the respondents (85.9%) are currently engaged in an organised sport activity in their adulthood, mainly due to their participation in the weight reduction programme; most of them practice sport twice a week. Their eating habits are encouraging; the share of skipped meals is considerably lower and practically negligible compared to that in childhood. It has to be emphasized that most of them are of opinion that obese people have difficulties finding expert information on obesity, nutrition and sport activities as well as weight management centers and institutions.

Key words: sport activity, eating habits, obesity, childhood, adulthood, people attending obesity treatment programme.

Introduction

Obesity is a chronic disease constituting one of the most acute problems in children and adolescents of modern times. Over the past few decades, the incidence of obesity has been soaring, reaching almost pandemic proportions¹. According to rough estimates, one-fifth of the world's population is obese or eats too much (about one billion). Obesity among adults, adolescents and children is on the rise not only in developed Western countries but also in developing ones where obesity had once been unheard of due to poverty and hunger². In the EU, 14 million children are overweight and 3 million are obese! Bošnjak³ estimated that in Europe over 30% of children aged between 7 and 11 and almost one-half of adults are overweight, with these mostly coming from Italy, Portugal, Spain and Malta. In Slovenia, more than one-half (54%) of adults eat too much and 15% are obese; about

30% of Slovenian children and adolescents are overweight³. It is interesting¹ that overweight people mainly live in rural areas (17%), followed by suburbs (15%) and towns (12%).

In a study by Pišot, Fras and Zaletel-Kragelj⁴ as many as 40.1% of people in Slovenia were overweight, 20.3% were obese and only 38.5% ate normal amounts. A more thorough analysis showed that only 34.3% of people ate normal amounts among physically inactive people, 36.31% among minimally physically active, 40.4% among borderline sufficiently physically active and as much as 42.0% among those who are sufficiently physically active. According to Zaletel-Kragelj and Fras⁵ regular physical activity undoubtedly influences the maintenance of normal food intake.

The onset of obesity depends on hereditary and environmental factors⁶. Those children whose parents, either one or both, are obese are more likely to also be obese compared to children whose parents eat normal amounts of food⁷. Children's nutrition is changing along with their changing lifestyle⁸. The consequence of such lifestyle changes is that many children practice sport insufficiently and/or are generally insufficiently physically active.

The available data show that adults' physical activity in Slovenia is low since 41% of the Slovenian population does not engage in any sport or recreational activity⁴. Sila⁹ reports results that are more encouraging as they reveal an increase in sports and recreational activity, both in terms of the share of the physically active population and in terms of regularity i.e. the frequency of physical activity. The ratio between the inactive, occasionally active and regularly active people is about 4:3:3. The results⁴ showing an increase in women's physical activity are also encouraging since they contribute strongly to reducing gender differences in sport activity. An age-related decrease was recorded, primarily in the case of individuals practising sport on an irregular basis. Those who practice sport regularly continue pursuing an active lifestyle even into their late old age.

About one-third of Slovenian primary school pupils engage in sport within their extracurricular activities, about one-half is occasionally active and one-fifth inactive. Primary school girls and boys practice sport equally, whereas some gender differences were identified in secondary school students: boys practice sport much more frequently than girls. No less than two-thirds of boys participate in sport activities frequently, while physically active girls account for only one-third of the total¹⁰.

Even though physical inactivity as such does not directly cause obesity, there is a scientifically proven relationship between a sedentary lifestyle and the degree of being overweight and obesity^{11,12}. Constant, persistent obesity in childhood can increase the risk of development of various adult diseases, such as: cardiovascular diseases, insulin-independent diabetes (nowadays, it is also being diagnosed in children), osteoarthritis and large intestine carcinoma¹³. Even though the beginning of over-eating and resultant increase in body weight can be related with the family's inappropriate eating habits, obesity is also related to psychosocial and psychological problems which can drag into adulthood^{14,15}.

According to Blair et al. (1989; adopted from Završnik and Pišot¹⁰) there are three postulates about improving health in adulthood through sufficient physical activity in childhood:

- physical activity in childhood favourably affects a child's health and thus contributes to a better health condition in adulthood;
- an active lifestyle in childhood has a positive benefit on health at a later age; and
- an active child grows into an active adult who is considerably less affected by various diseases compared to an inactive adult.

Based on scientifically proven relationships between the sedentary lifestyle of adults and the increased risk of chronic diseases it seems reasonable to draw a conclusion that an active lifestyle in childhood affects one's adulthood or is pursued in adulthood and that in itself has a positive bearing^{10,16}.

In view of the fact that the discussed issues are extremely topical and interesting, we decided to conduct this research on the basis of a survey questionnaire. Our aim was to analyse the sport activity and eating habits of people attending special obesity treatment programme in their childhood and adulthood, establish whether there was any relationship between lifestyle and obesity, analyse the attitude of children's parents towards sport and nutrition during their child's childhood.

Methods

Sample of subjects

The sample included 71 obese people (62 women and 9 men) attending a weight reduction programme at an obesity centre in Ljubljana. The fifty-one subjects (72%) were 25 to 55 years of age, nine (13%) were under 25 and eleven (15%) above 55. Of all subjects, 60.6% live in Ljubljana, 12.7% in the suburbs and 26.8% in rural communities. The subjects' body mass indexes (body weight/height²) were calculated from their body height and weight at the time they joined the programme. It was established that, according to the World Health Organisation's criteria (Physical Status, 1995), one-third of these obese people who decided to start treatment had an increased body mass of the 1st degree (BMI between 25.00 and 29.99), slightly less than one-half of the 2nd degree (BMI between 30.00 and 39.99) and one-tenth of the 3rd degree (BMI 40.00 and more). It is worth noting that 17.7% of the respondents had a normal body mass at the time they joined the programme (a BMI between 18.5 and 24.99). However, they all had a BMI higher than 21.5 kg/m² which is the point where obesity-related diseases can already occur¹.

Sample of variables

The data were gathered by a survey questionnaire (constructed by Starman¹⁷) encompassing 37 variables regarding sport activity and eating habits of obese people in their childhood and adulthood and their present lifestyle. Questionnaire was validated by Starman¹⁷ and is reachable at authors.

Data processing methods

The data were processed with the SPSS statistical programme (i.e. Statistical Package for the Social Sciences) at the Faculty of Sport's computer data processing department in Ljubljana. Frequencies and contingency tables were calculated using the Frequencies and Crosstabs subprogrammes. The probability of a relationship between the variables was tested by the contingency co-

efficient. Statistical significance was established at a 5% significance level.

Results

The research showed that one-half of the participating obese people (50.7%) had a university degree, 15.5% had completed college education, 22.5% secondary school and 8.5% vocational school. More than two-thirds of the respondents (69%) stated that in their childhood they belonged to the middle or upper middle social class, 22.5% to the working class and only 3% to the upper working class. The vast majority of respondents i.e. 84% are currently in the middle or upper middle social class, 9% in the upper class and only 4% in the working class. One-quarter of the respondents (22.5%) work in an office, while more than one-third (35.2%) have a demanding office job. 11.3% of the respondents do physical and office jobs for a living, while the rest of them are either retired, unemployed or students. More than one-third has an eight-hour working day, almost one-third a nine-hour workday while the others have shorter workdays.

More than one-half of the respondents (57.7%) stated health and well-being as the main reason for starting their obesity treatment, whereas slightly less than one-third (29.6%) stated aesthetic reasons. 8.5% decided to join the programme with the encouragement of their family and/or friends. Only one respondent stated the main reason was his doctor's advice.

The subjects' body mass indexes (body weight/height²) were calculated from their body height and weight at the time they joined the programme (Figure 1). They all had a BMI higher than 21.5 kg/m² which is the point where obesity-related diseases can already occur¹.

Nearly one-half of obese people (42.3%) participated in no organised sport activity in their childhood. Only slightly more than one-fifth (22.5%) practiced sport once a week in childhood. 15.5% of the respondents practiced sport twice a week, 9.9% three to four times a week and only 7% five times a week or more. It is interesting that as much as 62% of the respondents' parents engaged in no sport activity in their own childhood, 26.8% practiced

sport occasionally and only 11.3% regularly. Over one-half of the respondents (59%) stated that their parents had not encouraged them to practice sport. The results showed that the respondents engaged substantially more in sports activities in their childhood if their parents also practiced sport (Table 1) and if their parents guided and encouraged them (Table 2), which is logical and expectable.

Presently, a large majority of the respondents (85.9%) are engaged in an organised physical activity (Figure 2). This result is high due to the fact that the respondents are involved in the weight reduction programme and are required to engage in an organised sport activity once or twice a week; hence, the result would probably be much lower before the treatment and after. It is speculated that those individuals who have already reduced their weight and are currently in the phase of maintaining it are not practising any organised sport at all. They are only required to visit their doctor once a month so as to maintain a link with a healthy lifestyle. As they are no longer under strict supervision, they abandon their regime (too) quickly and fall back to the lifestyle they had before their treatment. This includes fewer sport activities in their lives and poorer eating habits.

Eating habits in childhood are assessed as very poor (Figure 3). Almost one-third of the respondents (31%) had no breakfasts in childhood, while one-quarter (26%) had no afternoon snacks. However, most respondents stated they regularly had other meals in their childhood.

In childhood, two-thirds of the respondents (67.1%) usually had meals at home with their families. As many as 32.9% of the respondents were already overweight in their childhood, of whom no less than 65.2% participated in no organised sport activity. The contingency coefficient showed a statistically significant relationship between the respondents' body weight and sport activity in their childhood (Table 3).

Three-quarters of the respondents (74.6%) are employed. In spite of the fact that unhealthy nutrition is characteristic of the actively employed population¹⁸ the eating habits of obese people attending the obesity centre are encouraging. Only 18% of the respondents skip one of the five daily meals. All of them have dinner. The share of

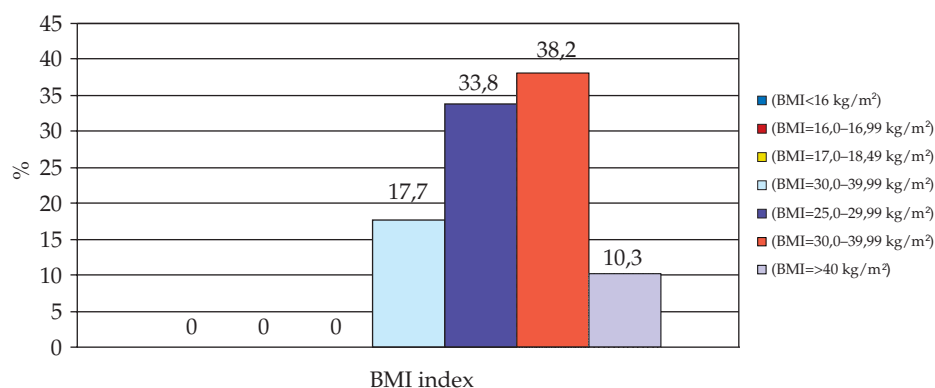


Fig. 1. Body mass index before treatment.

skipped meals, compared to the share of skipped meals in their childhood, is much lower and practically negligible. The share of those who have breakfast increased by as much as 26.7% – three-quarters of obese respondents

(74.6%) have breakfast in their adulthood. It is most likely that their treatment contributed to this as they learned about the positive effects of breakfast on health and weight reduction.

TABLE 1
SPORT ACTIVITY IN CHILDHOOD IN VIEW OF ONE'S PARENTS' SPORT ACTIVITY

Were your parents physically active during your childhood?	Did you engage in any organised sport activity in your childhood?					
	1 – NO	2 – YES, less than once a week	3 – YES, once a week	4 – YES, twice a week	5 – YES, three to four times a week	6 – YES, five times a week or more
	Frequency %	Frequency %	Frequency %	Frequency %	Frequency %	Frequency %
1 – NO	27 61.4	0 0	6 13,6	5 11,4	5 11,4	1 2,3
2 – occasionally	2 10.5	2 10.5	7 36.8	5 26.3	0 0	3 15.8
3 – YES	1 12.5	0 0	3 37.5	1 12.5	2 25	1 12.5
Contingency coefficient	0.540					
Statistical significance	0.001					

TABLE 2
SPORT ACTIVITY IN CHILDHOOD IN VIEW OF ONE'S PARENTS' ENCOURAGEMENT

Did your parents guide you and encourage you to engage in a sport activity?	Did you engage in any organised sport activity in your childhood?					
	1 – NO	2 – YES, less than once a week	3 – YES, once a week	4 – YES, twice a week	5 – YES, three to four times a week	6 – YES, five times a week or more
	Frequency %	Frequency %	Frequency %	Frequency %	Frequency %	Frequency %
1 – NO	26 61.9	1 2.4	3 7.1	7 16.7	2 4.8	3 7.1
2 – YES	4 13.8	1 3.4	13 44.8	4 13.8	5 17.2	2 6.9
Contingency coefficient	0.495					
Statistical significance	0.000					

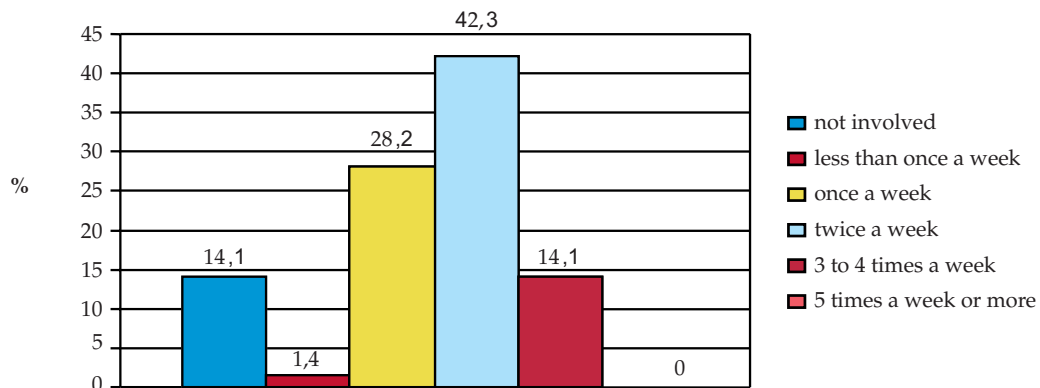


Fig. 2. Current involvement in an organised sport activity.

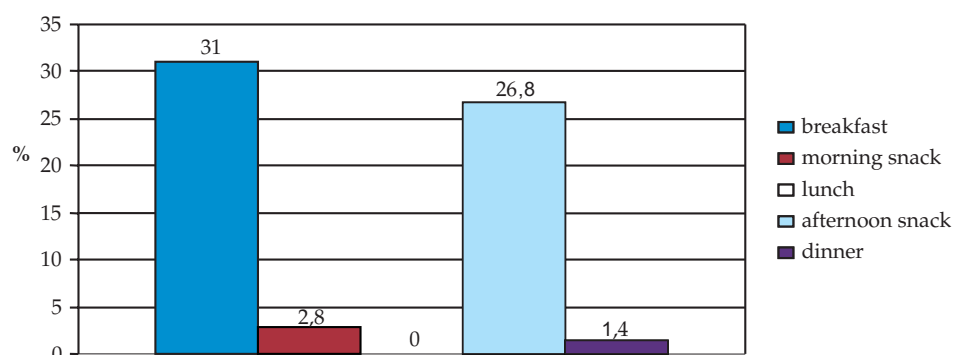


Fig. 3. Skipped meals during childhood.

In response to the question about their leisure time, almost one-half of the respondents (42.3%) answered they did not have enough leisure time. In Ljubljana, the group which is most exposed to the risk of being overweight is the group lacking leisure time⁷. Most respondents do not smoke (82.9%) and do not drink alcohol (54.3%) or drink it only occasionally (44.3%).

The majority of adult subjects spend their leisure time mostly watching television, doing housework, walking or practising an organised sport. Over one-half of them (56.3%) watch television for less than one hour a day and one-quarter (26.8%) up to three hours a day. Half of the respondents (49.3%) do gardening. The answers to the question about housework that requires a certain amount of energy and own initiative reveal that 87.3% of the respondents tidy their flat, three-quarters (76.1%) vacuum clean, 69% hang out the washing and two-thirds wash the dishes and/or the floor.

The answers to the question about the degree of one's self-image show that the respondents' self-images are quite positive. The vast majority see themselves as being full of energy (85.5%), cheerful (85.5%), satisfied (80.2%),

attractive (80.2%), healthy (85.9%), competent (97.2%), happy (83.1%) and optimistic (83.1%). None of the questions revealed any deviation that would indicate a lower self-image. It is assumed that the high level of the participants' self-images is primarily the result of the fact that they successfully reduced their weight in the framework of the obesity treatment programme.

Given the high education levels of the respondents, it is no surprise that they acquired most (28.6%) of their information from professional literature, 25.7% on the television, radio and/or in newspapers, whereas 21.4% obtained it from their doctor and/or healthcare professionals. Only a few of them obtained such information from leaflets, posters and friends.

28.6% of obese respondents think there is insufficient information about the causes and risks of obesity, healthy nutrition, physical activity etc., and no less than 60% are convinced that there is not enough assistance (obesity centres etc.) for overweight people. Only 31% of the respondents think the information and assistance are sufficient.

TABLE 3
INVOLVEMENT IN A SPORT ACTIVITY IN ONE'S CHILDHOOD IN VIEW OF CHILDHOOD BODY WEIGHT

	Did you engage in any organised sport activity in your childhood?					
	1 – NO	2 – YES, less than once a week	3 – YES, once a week	4 – YES, twice a week	5 – YES, three to four times a week	6 – YES, five times a week or more
Was your weight in childhood:	Frequency %	Frequency %	Frequency %	Frequency %	Frequency %	Frequency %
1 – too low	2	0	0	3	0	0
	40	0	0	60	0	0
2 – normal	11	1	9	8	6	5
	27.5	2.5	22.5	20	15	12.5
3 – too high	15	1	7	0	0	0
	65.2	4.3	30.4	0	0	0
4 – I do not know	1	0	0	0	1	0
	50	0	0	0	50	0
Contingency coefficient	0.541					
Statistical significance	0.016					

Discussion

We would like to emphasise that this study involves people treated at an obesity centre, which is something the interpretation of the results should definitely take into account. People treated at the centre receive a lot of information about the significance of healthy nutrition and an active lifestyle in general. They participate in an organised physical activity at least once or twice a week and have to follow the recommendations about regular and balanced nutrition. All of the above is reflected in the results of our study. If data on the respondents' physical activity and eating habits had been acquired before these obese people started losing weight they would probably have been quite different. Given that some of them had already succeeded in considerably reducing their weight, their self-image was highly positive.

In their childhood, their eating habits and physical activity were substantially worse. Their parents' attitude to sport was also inadequate since they themselves were physically inactive and failed to encourage their children to lead a more active lifestyle. Similar results have been noted by many researchers. Kalish¹⁹ reported that the children of those mothers who practiced sport were twice more active than those children whose mothers were physically inactive. The influence of fathers is even stronger – the children of physically active fathers were 3.5 times more active than those with physically inactive fathers. Those children who had both parents participating in sports activities are the most active of all – even six times more than children with physically inactive parents. The results of a survey²⁰ on the sport habits of primary school pupils and secondary school students showed that children would participate in a sport activity if their parents were also physically active. As much as 53% of children from physically inactive families engage in a sport only during physical education classes at school. Parents who practice sport regularly or frequently often encourage their children to engage in organised sport activities, as even 40% of the children are regularly trained in different clubs.

The research results show that, in the respondents' opinion, there was not enough expert information available to overweight people on the causes, threats and consequences of obesity for one's health. They find the information on healthy and regular nutrition as well as healthy

eating habits and lifestyle too scarce. The respondents also think there is a scarcity of information on required sport activity. In newspapers and magazines discussing dietary issues there are too many inexpert articles and misleading advertisements for 'wonder' diets and medicines. At primary healthcare centers leaflets on healthy nutrition are not always available. The promotion of obesity centers is poor. The guidance and assistance, including dietary and nutrition planning, controlled nutrition, meals, achieved results and weight, are inadequate and insufficient.

Much remains to be done to make all people, not only those with obesity, follow the principles of protective nutrition and to be offered possibilities of healthy nutrition, as well as to ensure that those in need of help receive it¹⁸. In this way the number of chronic, non-contagious diseases will surely start to decline. Attention should be focused on the youngest generations who have not yet adopted bad eating patterns and inappropriate ways of spending their leisure time. The raising of awareness in the general public about the significance and role of regular physical activity and providing organised sport activities may be implemented at various levels¹⁰:

- Global level: campaigns are carried out under the auspices of the World Health Organisation (e.g. Global Day of Movement), the European Union (e.g. the strategy of Health Enhancing Physical Activity – HEPA), the United Nations (2005 was the International Year of Sport and Physical Education).
- National level: national programmes for encouraging physical activities of the population (e.g. Programmes for children and adolescents – Golden Sun; Krpan; HEPA Slovenia; CINDI Slovenia; Wind in the Hair; Let's Set Our Lives in Motion etc.
- Local and individual levels: the campaigns are organised and managed by sport associations, sport institutes, public health institutes, schools, kindergartens.

Sport activity and an appropriate diet are the key factors of recovering or maintaining one's health. For a child, they are the cornerstones of overall development whereas for an adult they enable the desired health condition and health-related quality of life to be maintained at a late age.

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SPORTSKA AKTIVNOST I PREHRAMBENE NAVIKE OSOBA UKLJUČENIH U POSEBAN PROGRAM KONTROLE DEBLJINE

S A Ž E T A K

Ciljevi ovog istraživanja bili su analizirati sportsku aktivnost i prehrambene navike pretilih osoba u njihovom djetinjstvu i odrasloj dobi. Istraživanje se temeljilo na upitniku koji je sadržavao 37 varijabli na koje je odgovaralo 71 ispitanika uključenih u program kontrole debljine. Izračunate su frekvencije i kontingencijske tablice, dok je statistička značajnost određena na 5% razinu značajnosti. Analiza rezultata je pokazala da je više od polovice osoba uključenih u program kontrole debljine i ovo istraživanje učinilo to primarno iz razloga poboljšanja zdravlja i dobrobiti. Većina pretilih osoba nije tijekom djetinjstva bila uključena u niti jednu organiziranu sportsku aktivnost, kao ni većina njihovih roditelja. Ispitanici su se u djetinjstvu više bavili sportom ukoliko su i njihovi roditelji bili fizički aktivni i ako su ih poticali na bavljenje sportom. Najmanje trećina ispitanika bila je predebela u djetinjstvu, a barem dvije trećine njih nisu bili uključeni u nikakvu organiziranu sportsku aktivnost. Većina ispitanika (85,9%) su sada, tijekom svoje odrasle dobi, uključeni u neku organiziranu sportsku aktivnost, uglavnom kao dio njihovog programa redukcije težine; većina njih bavi se sportom dva puta tjedno. Njihove prehrambene navike su ohrabrujuće; preskakanje obroka je značajno manje i gotovo zanemarivo u usporedbi s onim u djetinjstvu. Mora se naglasiti kako većina njih smatra da pretile osobe imaju poteškoća u dobivanju stručnih informacija o pretilosti, prehrani, sportskim aktivnostima, kao i o centrima i institucijama uključenim u programe kontrole debljine.