

THE MOVEMENT INACTIVITY OF GRAMMAR SCHOOL` STUDENTS AND THEIR BODY MASS INDEX

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- Movement activity.
- IPAQ questionnaire.
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- Males. Females..

Abstract:

The aim of the paper is to find out the relationship between movement inactivity`s volume of grammar school` male and female students in Vranov nad Topľou and their Body Mass Index (BMI).

The research was applied on 308 students (160 females and 148 males) aged between 15-19 years. For diagnosing of movement activity`s level respectively inactivity was used standardised long version international questionnaire - International Physical Activity Questionnaire (IPAQ). BMI was calculated on the basis of body height and body weight` data of respondents.

During processing of data, we focused on finding out inactive lifestyles especially during weekdays (school attendance days) and during weekends. We presuppose that higher volume of time that students spend in sitting position (eventually lying) will occur during weekdays and lesser during weekends. We also presuppose that higher volume of inactivity will exert on worsened Body Mass Index. Data of students` movement inactivity were related to body mass index. On the basis of correlation`s calculations there was found no relation between mentioned variables.

PROBLEM

Sedentary lifestyle and the lack of children and youth movement are predispositions for movement inactivity in adulthood [4]. Movement inactivity is characterised by minimal energy output during minimal physical motion (sitting, watching television, surfing on internet etc.). Radvanský-Kučera understand movement inactivity as static loading of individual`s muscle apparatus (work from biological aspect) and demand request on mutual proportion between static and dynamic movement activity (work from physical aspect) [6].

Movement inactivity following smoking, high blood pressure and cholesterol is from the health aspect the fourth risk factor of various last illnesses [1].

Within last period, there has been worldwide decrease of children and youth` movement activity which is accompanied by the increase of movement inactivity and remaining occurrence of child`s overweight and obesity.

The lack of movement activity is for the origin of obesity equally dangerous as hyper nutrition. Nevertheless, a daily hour of speed walking decreases the risk of obesity by 24 % and limitation of watching television about 10 hours per week and increase of walking on 30 minutes per day lead to 30% depression of obesity [7].

On the basis of above mentioned knowledge we specified the aim to analyse the relationship between movement inactivity and Body Mass Index of grammar school` students from Vranov nad Topľou. The paper was supported by Slovak Research and Development Agency on the basis of agreement number APVV-0768-11.

METHODICS

The research was applied at Dr. Cyril Daxner grammar school in Vranov nad Topľou in March 2013 in the presence of university tutor. Research group consisted of 308 students (148 males, 160 females), age average was 17.06. For gaining data about the level of movement inactivity was used International Physical Activity Questionnaire that students listed within physical training lessons. We focused on finding out daily average number of hours that students spend inactively within weekdays, weekends and how much time do they spend sitting during travelling. Body Mass Index was calculated following body height and body weight` data of respondents.

We categorised students into four categories on the basis of BMI` percentile norms specified for given gender and age and calculated percentage share of obesity`s occurrence in relation to this index [3]. We used Pearson`s correlation coefficient for investigating the relationship between two variables.

RESULTS AND DISCUSSION

BODY MASS INDEX

The amount of fat mass changes within aging and the amount of body fat shows differences in both genders so we used different criteria for children and adults within interpretation of BMI. Categorisation of students into specific categories of BMI is presented on Fig.1. In our research group we diagnosed 13.1% male students and 2.5% female students with risk values of BMI in relation to obesity within intersexual comparison.

These results correspond to similar research realized in Slovakia just within male group. Gained data show higher prevalence of overweight in overall 12% of children. Generally, the situation in Slovakia is considered to be unfavourable even though it is more favourable than abroad where, for example in Italy or Spain, is more than 30% occurrence of overweight in children [8]. Similar alarming data explicit researches in Czech Republic where live up to 19% of children (aged between 6-14 years) who suffer from overweight of which 10% suffer from obesity. In years 2004-2007 there was percentage increase of overweight and obesity up to 8%. This value corresponds to other European countries [2].

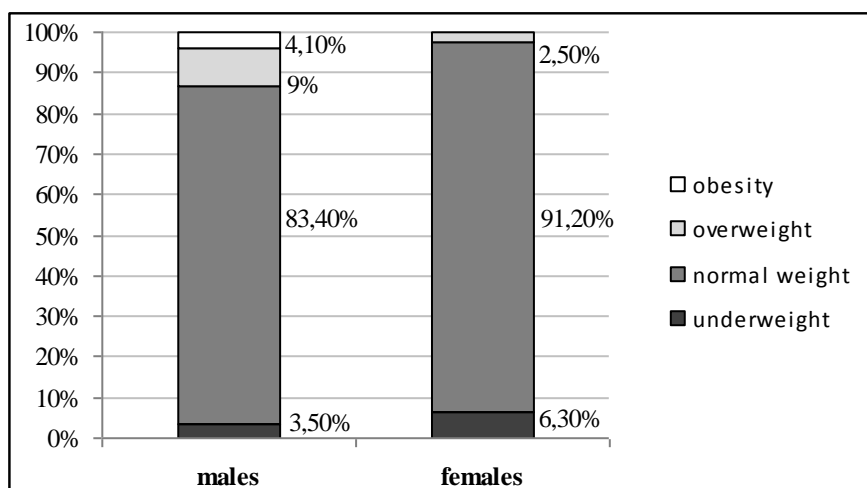


Fig.1 Prevalence of obesity`s occurrence in relation to BMI

MOVEMENT INACTIVITY

The structure of students` movement inactivity consists of: the volume of inactivity during weekdays, during weekends and the period that students spend passively during travelling and transfers. Average data are presented in Table. 1.

During weekdays (school attendance days) male students of our research group spend 8.28 hours and female students up to 9.11 hours passively (static work). Time that is spent at school has mostly passive character, youth seats at the desks during teaching and their loading is mainly psychological and loading on locomotive system has mostly static character. Movement inactivity should be compensated by movement activity during breaks between teaching units. School should be the main pillar of adolescents` active lifestyles and it should not create fundamental stimuli for creating sedentarism in adolescents. Chytilová sees serious problem in low allocation of hours for physical education at schools [5]. With regard to this problem it is problematic to motivate students in the way that students will accept movement activity as a part of daily regime and preserve an idea of active lifestyle. However, there is inevitable cooperation between school and family because child`s upbringing is integrated process (note).

Table 1. Average values of students` movement inactivity

Movement inactivity	males		females	
	x	SD	x	SD
Inactivity during weekdays [hours]	8,28	2,61	9,11	2,42
Inactivity during weekends [hours]	7,39	3,47	6,80	3,00
Inactivity during travelling [hours]	2,93	3,27	3,35	2,82

Legend: x-mean, SD standard deviation

Comparing males and females, results showed for account of males who spent passively fewer time during weekdays. On the contrary, females were inactive 6.8 hours and males up to 7.39 hours during weekends. On the other hand, for example Hamřík et al. found out that more than 55 % of Czech females and 60 % of Czech males aged between 11 – 15 years spend in sitting position (watching television, DVD, chatting etc.) more than 2 hours per day[4].

THE RELATIONSHIP BETWEEN MOVEMENT ACTIVITY AND BMI

The further part of the paper is focused on finding out the relationship between two dependent variables. We presupposed that the volume of students` movement activity would have the influence on body mass index` level. Pearson`s correlation coefficient`s values of males (0.11) and females (0.03) did not confirm linear dependency between the level of movement activity and body mass index (Fig.2). In this way we can talk about no correlation.

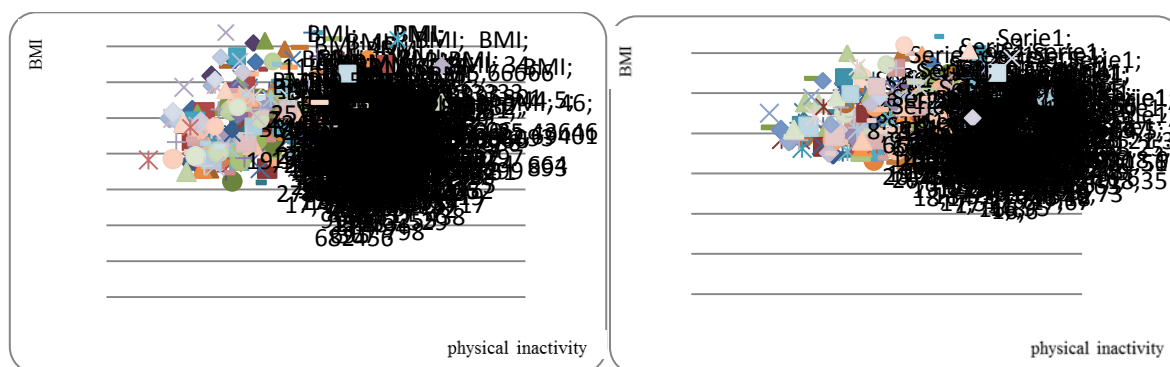


Fig.2 Relationship between Body mass index and physical inactivity

CONCLUSIONS AND RECOMENDATIONS

The aim of the paper was to analyse relationship between the movement activity of grammar school` students from Vranov nad Topľou and their body mass indexes. Results showed that up to 13.1% of male students have overweight or obesity. In female students` group we found out only the occurrence of overweight (2.5%). Underweight is suffered by 6.3% of female students and 3.5% of male students.

Students showed high volume of inactivity during weekdays (males 8.28 hours and females 9.11 hours). More alarming fact is that students continue in the tendency also during weekends when higher values were surprisingly explicated by males (7.39 hours) as well as females (6.8 hours).

The linear dependence between movement activity and body mass index was not found in females or in males.

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