

## **PHYSICAL ACTIVITY OF MALE STUDENTS IN SECONDARY SCHOOLS OF PRESOV DISTRICT REGION**

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### **Keywords:**

- Intensive physical activity.
- Physical activity of medium intensity.
- Leisure time.

### **Abstract:**

More experts focus on the issue, clearer can be defined the way of its elimination. The elimination consists in returning of physically active way of life. On the basis of the newest data amount; the most importantly, there are not research studies only from sport sciences but also from social, biological and mainly medical; we can state that one of the irreplaceable but currently not appreciated ways consists in recovering of physically active way of life. The question is what should be the minimal amount of physical activity that would help to minimize or eliminate this problem. The aim of the paper was to analyse physical activity of male of selected secondary schools in Presov district region from the aspect of intensity and place of realisation. Research group consisted of 320 male students from selected secondary schools in Presov district region. Students were distributed in four groups (15, 16, 17 and 18 years old male students) according to age. Movement activity volume data were diagnosed using standardised questionnaire IPAQ. Questionnaires were administrated online during teaching units through internet system INDARES. Data collecting was processed in September 2014. This paper was supported by the Slovak Research and Development Agency under the contract No APVV-0768-11. From the age aspect 15 years old male students performed the most physical activity and 18 years old male students the less one. The highest values of categorical score in MET/minutes/week were monitored in category of physical activity of medium intensity and physical activity performed out of school. Almost one quarter of male students did not perform either 10 minutes of physical activity per day. Slovak boys in comparison with Polish and Ukrainian ones are behind in intensive physical activity; however, they are above them in physical activity of medium intensity. In all age categories prevails physical activity of medium intensity and physical activity performed in leisure time. With increasing age, the volume of physical activity decreases.

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### **INTRODUCTION**

On one hand increasing energy intake of mankind majority, especially in countries with higher living standards, and on the other hand its decreasing movement performance constitutes manifestly but mainly latently one of the greatest population issues of mankind. More experts focus on the issue; clearer can be defined the way of its elimination. On the basis of the newest data amount; the most importantly, there are not research studies only from sport sciences but also from social, biological and mainly medical; we can state that one

of the irreplaceable but currently not appreciated ways consists in recovering of physically active way of life.

From historical point of view it is about brushing up the knowledge about the fact that the mankind developed for thousands years in relative lack of food but with high presence of physical activity in life. It means that mankind has adapted itself on lower energy intake and higher energy output. At present time the situation is in contrast to the past and new adaptation ability of human being is not developed for this situation. New situation occurs when human being is not able for the first time of its history to fully replace and eliminate drop-out of physical activity (hereinafter referred to as physical activity) caused by changes in manufacturing process and way of life. What is the worst is that the amount of practised physical activity is continually decreasing. Bunc states that in last two decades it is approximately up to 30% [5]. Recent task for science is not only to remind new generation about the issue, but also to offer solutions. The best period to start is in childhood. The advantage of this step is apart from immediate health benefits, children values are created that has transferal effect to adulthood [1, 7].

Variety of applied methods for gaining the volume and intensity of physical activity in individual age categories caused problems with comparing achieved data in national as well as in international level. Consequently, there is problem to generalise recommendations. An effort to create universal standardised method was crowned by creating international questionnaire „The International Physical Activity Questionnaire – IPAQ“in short and long version [6]. The number of researches using this method in last decades enables their acceptable mutual comparability on the basis of reliability and validity criteria. However, there is subjective evaluation of respondent during questionnaire administration and overvaluation is always possible. Therefore, it is ideal to combine this method with device monitoring as pedometer or accelerometer.

Changes in the amount of practised movement activity of children population in last twenty-five years show linear decrease. The reverse effect is recorded in increasing of child obesity. Attendant phenomenon of this way of life is retrogressive health condition of children, their decreasing aerobic fitness, decreased ability to regenerate after load and high risk of civilisation diseases [5, 10].

Minimum need of human being physical activity encloses so called the threshold value. It is about inevitable amount of physical activity which is needed for healthy development of organism. The level of threshold value changes (decreases) with increasing age of individual. Health recommendations of physical activity are reported individually for each age group because of ontogenetic, psychical and social differences in the period of organism development.

Similar trend in recommended values is monitored in adolescents. Not so long ago authors consider healthy oriented physical activity as such that in prevailing number of days per week female achieved energy output 9 kcal/kg.day<sup>-1</sup> and male 11 kcal/kg.day<sup>-1</sup> [4]. At present, experts more incline to physical activity recommendations in which energy output should be on value minimally 6-8 kcal/kg.day<sup>-1</sup> [9]. It means minimally 60 minutes from medium to high intensity per day. We recall that physical activity of medium intensity is characterised by medium effort (3-6 METS) and physical activity of high intensity is characterised by more challenging activity where energy output is increased over basal metabolism at least six times (6 METS).

On the basis of theoretical studies we ask question what is the amount and intensity of physical activity of secondary male students and in which place they perform it. For answering the question we need serious analyses of movement regimes of all age categories.

## THE MATERIAL AND THE METHODOLOGY

The aim of the paper was to analyse physical activity of male of selected secondary schools in Presov district region from the aspect of intensity and place of realisation. Research group consisted of 320 female students from selected grammar schools, secondary vocational schools, business academy and hotel academy, high school of medicine and pedagogical secondary school in Presov district region. Male students were distributed in four groups according to age (see Table 1).

**Table 1.** Age distribution of research group

Age	N
15 years old	81
16 years old	99
17 years old	64
18 years old	76
Total	320

*Note.* N – Accountability

Movement activity volume data were diagnosed using standardised questionnaire IPAQ, long version was used. Questionnaires were administrated online during teaching units through internet system INDARES with respect to manual and with trained person in ratio 10 students on one trained person. Questionnaires were used to gain data about the volume of physical activity. The structure of physical activity was following: intensive and medium physical activity and walking. Moreover, we analysed the volume of physical activity from the aspect of place where the activity was performed. Based on IPAQ questionnaire there are following possibilities: physical activity performed at work that was in our case school, during transport, at home and surroundings and at free time. Unit for the volume of physical activity were MET/minutes/week. Data collecting was done in September 2014. This work was supported by the Slovak Research and Development Agency under the contract No APVV-0768-11.

## RESULTS AND DISCUSSION

As results show (see Table 2) from the aspect of age the most physical activity was performed by 15 years old male students (on average 5194.63 MET/minutes/week) and the less physical activity was performed by 18 years old male students (3858.61 MET/minutes/week).

Whole research group is heterogeneous within realisation of physical activity; however, big differences were found in students of all age categories especially in total physical activity. Minimal values are about 33 MET/minutes/week, on the other hand active students could theoretically reach up to 18 194 Met/minutes/week that means 5 hours of intensive physical activity per day or 10 hours of physical activity of medium intensity.

Categorical score of intensive physical activity indicates that a lot of male students did not perform any activity during monitored week. Up to 26% of 15 years old, 23% of 16 years old, 31% of 17 years old and 26% of 18 years old male students did not fill in either 10 minutes of physical activity for all that from the health aspect this activity is considered to be very important.

Some of male students did not perform either physical activity of medium intensity during week and the only physical activity that they performed was 10 minutes of continual walking; however there were just few cases.

**Table 2.** Average values of the volume of practiced physical activity of 15-18 years old male students

Age	VMET		MMET		WMET		SUMMET	
	x	Min/max	x	Min/max	x	Min/max	x	Min/max
15	840.74	0/5040	2826.05	30/17140	1895.06	0/8316	5194.63	199/18194
16	618.18	0/ 6300	1798.81	0/7780	1821.33	0/8316	4238.33	33/ 15878
17	731.72	0/7650	2093.16	0/15680	1746.42	0/11088	4571.30	386/ 3167.5
18	561.71	0/6480	2005.13	0/12100	1291.78	0/6534	3858.61	264/ 16357

*Note.* x – Average values, min – minimal values, max – maximum values

VMET – MET/minutes/week of high intensity physical activity

MMET – MET/minutes/week of medium intensity physical activity

WMET – MET/minutes/week spend by walking

SUMMET – MET/minutes/week of total physical activity

Comparing our research group with 16 – 18 years old male students in secondary school in Poland [2] we can state that Slovak male in eastern part of Slovakia practiced less physical activity of high intensity than Polish male (1092.2 MET/minutes/week) and in some cases more than 500 MET/minutes/week (18 years old). On the contrary, the results of physical activity of medium intensity showed better results in Slovak male students. While in Polish research group it is on average 623.8 MET/minutes/week our research group reached on average 1798.8 (16 years old) – 1798.8 (15 – years old) MET/minutes/week. In walking, Slovak male students also reached better results than Polish ones when they reached 1291.7 – 1895.0 MET/minutes/week and Polish 924.4 MET/minutes/week. Similar situation is in total volume of physical activity. Polish male reached on average 2640.4 MET/minutes/week and Slovak ones 3858.6 – 5194.6 MET/minutes/week. Previous studies show overall results of 17 – 22 years old university students (male) from Ukraine. In comparison with the Ukrainian research group which in total physical activity reached 3863 MET/minutes/week it seems that similar results reached our 18 – years old male students; moreover, younger year classes reached more MET minutes per week [3].

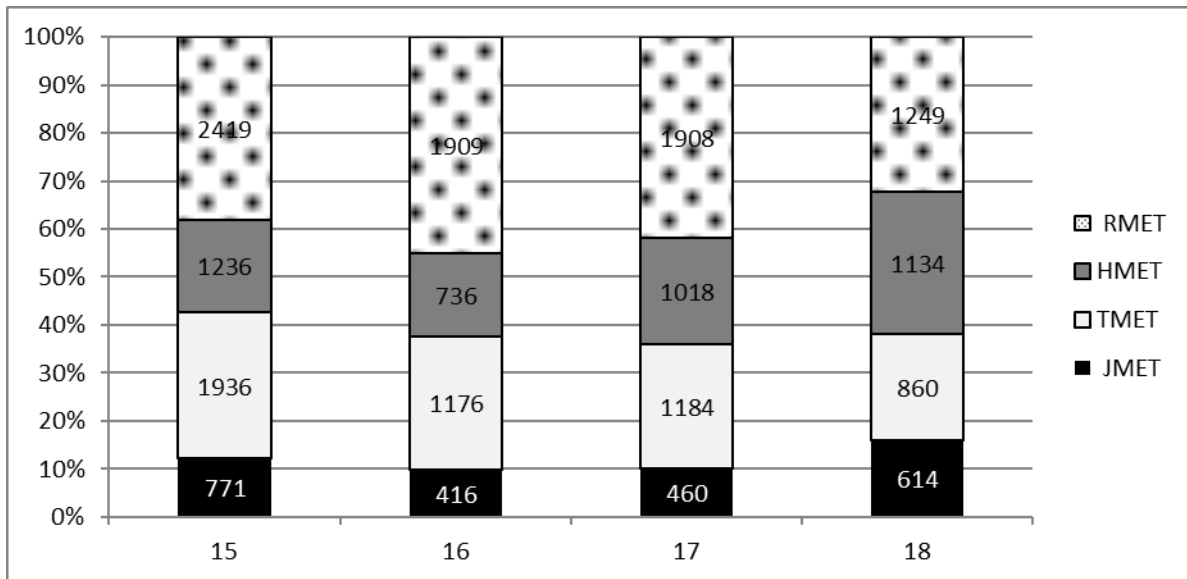
From the aspect of place where students practised physical activity we can state that the least amount of physical activity was performed by students during teaching (see Figure 1. 15 years old – 771; 16 years old - 416; 17 years old – 460; 18 years old – 614 MET/minutes/week).

Students of grammar schools practised physical activity within school only during physical education units. In students of secondary vocational schools we include also activity during praxis performing. If we take into consideration that there are two teaching units of physical education, results indicate that students performed physical activity only 20 minutes of physical activity of medium or high intensity during teaching unit.

The second evaluated area is from the aspect of the volume of physical activity practised at home and surrounding (HMET) where students also reached low values of physical activity volume. Totally, in three year classes it is the second lowest value. A little more are students active during transport from one place to another (TMET) besides male students of fourth year.

The most physical activity performed by students is in period of their free time as it is expected (RMET). In all age categories it is on average 1871 MET/minutes/week that is in

categorical score 267 MET/minutes/day. Basically, it is approximately 33 minutes of practised physical activity of high intensity or 66 minutes of physical activity of medium intensity in each day of week.



**Figure 1.** The structure of movement activity of 15-18 years old male students from the aspect of place of realisation

*Note.* JMET - MET-minutes per week of Job-Related Physical Activity

TMET - MET-minutes per week of walking at least 10 minutes at a time to go from place to place

HMET - MET-minutes per week of physical activities inside your home

RMET - MET-minutes per week of physical activities in your leisure time

## CONCLUSIONS

- ✓ From the aspect of age, the most amount of physical activity on average was performed by 15 years old male (5 194.63 MET - minutes) and least amount was performed by 18 years old male (3 858.61 MET - minutes);
- ✓ The highest average values MET/minutes/week were found in category of physical activity of medium intensity, then in walking and least values in category of physical activity of high intensity; group of females who were in last year of study;
- ✓ After calculating categorical score we found out that students of individual age categories performed physical activity of high intensity from 10 to 15 minutes, physical activity of medium intensity from 64 to 101 minutes and continual walking that last at least ten minutes was performed from 56 to 82 minutes per day;
- ✓ Comparing to foreign data Slovak male achieved better results apart from physical activity of high intensity;
- ✓ The highest values of MET/minutes/week were achieved during performing physical activity in school.

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