
THE ASSOCIATION BETWEEN PARTICIPATION IN ORGANISED PA AND STRUCTURE OF WEEKLY PA IN ADOLESCENTS

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Key words:

- pedometr,
- girls,
- boys,
- school day,
- weeken

Abstract:

Introduction. The influence of positive affect of participation in organised PA is documented on total PA of youth. We know little about the influence of organised PA on the strukture of weekly PA. The aim of this study is to find out association between the participation in organized PA and the structure of weekly PA in boys and girls.

Material and methodology. The research was carried out in seven high schools in the Katowickém region. A sample of 100 boys and 56 girls were included in a data analysis. The pedometer Digi-walker SW-701

and the internet program INDARES were used for the monitoring of weekly PA. Boys and girls were divided according to the participation in organised PA. The data were analyzed using the SPSS 17.0 statistical packet program with the analysis of variance (ANOVA) for repeated measure and crosstables.

Results. We did not find out any significant differences among days in the week in regard to gender and the participation in organised PA. Significant differences were found in total weekly PA, but only in organized and non - organized boys. The differences between school days and weekend days were significant in both boys organized and non - organized and girls organized and non - organized 51.0 % boys and 44.6 % girls met the recommendation 11000 steps days.

Conclusion. The participation in organized PA in boys positively influences a level of weekly PA. Both organized and unorganized boys and girls are less physically activer during weekends than on school days.

INTRODUCTION

Nowadays the progress of the civilization causes that young people above all care about the comfort of their life, forgetting about the physical activity which is essential for the preservation of health. The technique, which developes faster and faster, replaced the work of muscles in human's life. Dominating, sedentary lifestyle do not support the forming of habits of the participation in the physical activity.

The concept of physical activity determines the state, in which moves of the body caused by work of skeletal muscles, are leading to the energy expenditure achieving values above the rest level [3]. This activity is essential to the proper somatic, intellectual, psychological and social human's development, and hence is indispensable element of the healthy lifestyle [18]. In the world of science many attempts to determine the optimum value of the physical activity. The volume, intensity, frequency and the variety of forms of physical

activity should, through realisation of motor needs, stimulate development of the organism, in particular taking into account gender, age, the health condition and the living conditions of the young man.

The elementary, the easiest and the cheapest form of the physical activity which every man can participate in is walk. Hike in the mountain, nordic walking, stairs climbing, walk, everyday move from a to b point on own legs, currently are the most desirable, utilitarian physical activity in the healthy lifestyle. One should not forget about the walk as well as underestimate its meaning. The diagnosis of the number of steps performed per day is also the simplest manner to assess the level of the men's physical activity. Programs promoting the walk encourage to carry pedometers and check the number of performed steps during the day. Teacher of physical education is able to conduct research of the pupil's physical activity level using pedometers. The diagnosis can relate to the number of steps during different types of PE lesson or to the number of steps performed during a day, a week or a month. Acquainting pupil with criteria of the number of performed steps per day and the possibility of comparing one's level of physical activity, will contribute to propagate the walk, which is the cheapest form of the physical activity. [10]. It is worth to mention that currently the majority of cellphones has pedometer's function, so even without the access to approved pedometers, it is possible to determine the number of steps performed by pupils in the period of time.

The minimum quantity of steps everyone should perform every day is different for adolescents and adults. Adolescents should perform 11000 steps per day. Recommended number for adults is 10000 steps per day, suggested for the first time in Japan, where pedometers were produced and recommended so far by programs promoting the healthy lifestyle [12, 16, 17].

THE AIM OF THE WORK

The aim of the work is the diagnosis of the level of physical activity calculated on the basis of quantity of performed steps per day, with particular take differences between girls and boys into consideration and with regard to participation in organised physical activity.

With reference to the aim of the work the following research questions were put:

1. Is there a difference in the physical activity between girls and boys taking the quantity of steps into consideration?
2. Is there a difference in the physical activity between adolescents participating and do not participating in the organised physical activity?
3. Is there a difference between school days and weekend days in participation in the physical activity of examined girls and boys, considering the participation in the organised as well as not organised physical activity?
4. What per cent of the examined adolescents reaches 11 000 steps per day?

MATERIAL AND THE METHODOLOGY

The research was carried out in seven randomly chosen high schools in the Katowickém region. A sample of 100 boys (age $16,06 \pm 0,55$; weight $66,08 \pm 12,89$; height $176,54 \pm 7,49$; BMI $21,08 \pm 2,98$) and 56 girls (age $16,02 \pm 0,45$; weight $56,98 \pm 8,23$; height $165,82 \pm 6,08$; BMI $20,69 \pm 2,56$) were included in a data analysis.

The pedometer Digi-walker SW-701 and the internet program INDARES were used for the monitoring of weekly PA. Boys and girls were divided according to the participation in organised PA.

The data were analyzed using the SPSS 17.0 statistical packet program with the analysis of variance (ANOVA) for repeated measure and crosstables.

RESULTS

We did not find out any difference statistically essential in the number of performed steps among days in the week in regard to the participation in organized PA ($F=1,06$; $p=0,389$). During the majority of week days adolescents participate in the organized physical activity perform more steps than adolescents do not participate in the organized physical activity, this difference, however, is not big enough in order to recognize it as statistically significant. (fig. 1).

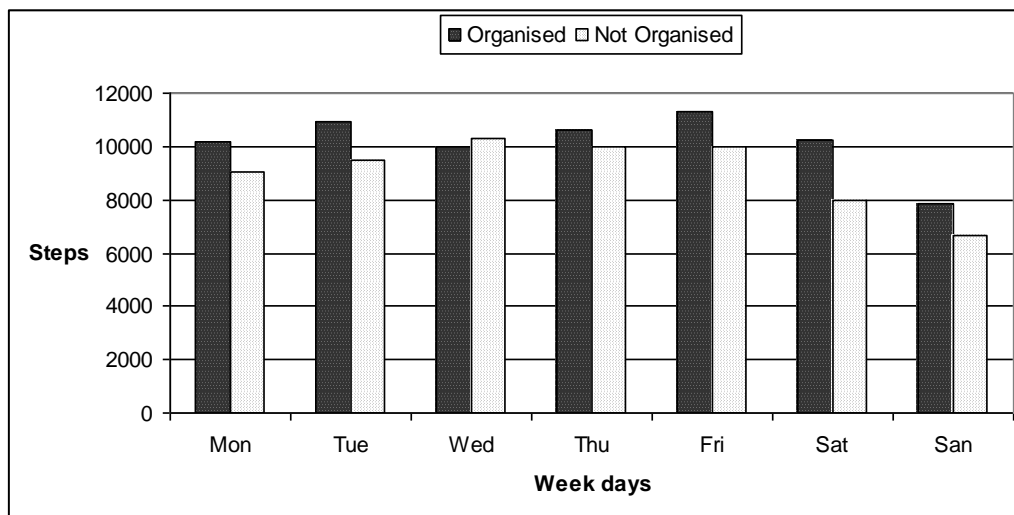


Figure 1. Average quantity of steps performed during the organized and non-organized physical activity

The differences between school days and weekend days were statistically essential ($F = 25.98$; $p = 0.000$) in boys participate in the organized physical activity ($p = 0.026$) and in boys do not participate in the organized physical activity ($p = 0.002$), as well as for girls participate in organized physical activity ($p = 0.002$) and in girls do not participate in the organized physical activity ($p = 0.012$) (fig. 2).

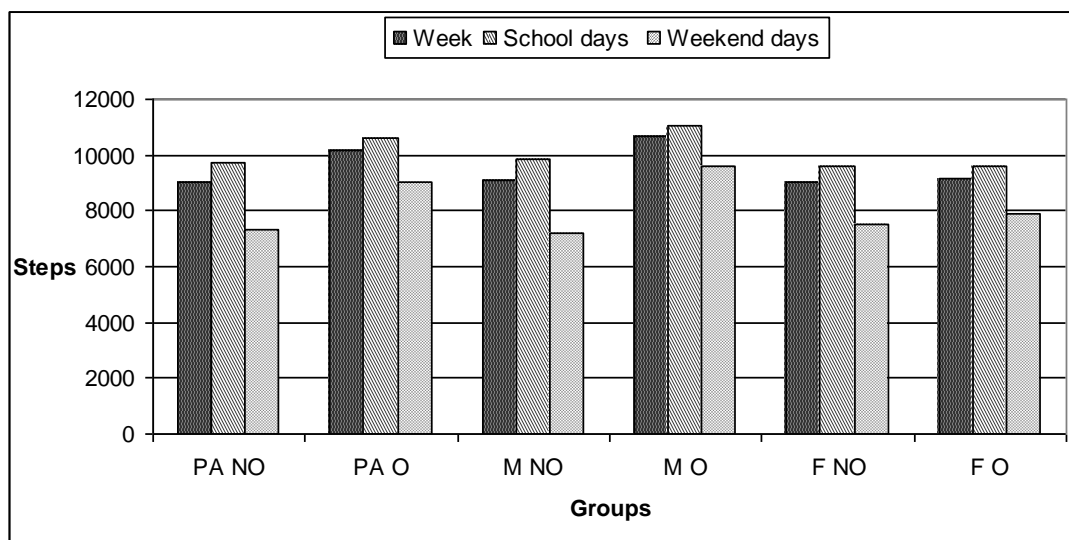


Figure 2. Number of steps performed during the organized and non-organized physical activity of girls and boys during school days, weekend days and days among the whole week

We did not find out any difference statistically essential in the level of physical activity between boys and girls taking the number of performed steps into consideration in individual weekdays (fig. 3). Even though boys perform 1000 steps more per day than girls in majority days of week, this difference was not confirmed statistically.

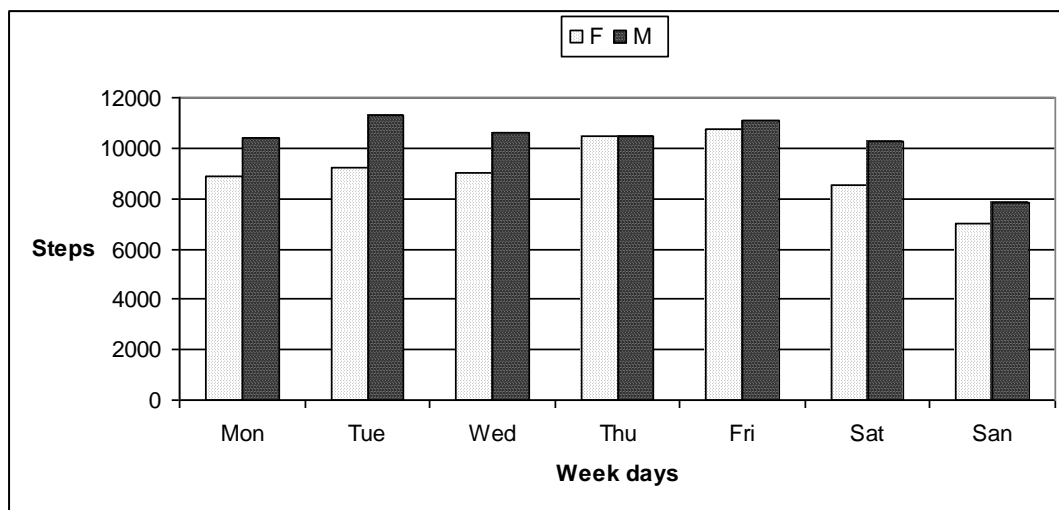


Figure 3. The average number of steps achieved every day by girls and boys

Only 51% of boys and the 47% of girls met the recommendation 11000 steps per day (fig. 4) which means, that the level of physical activity about low intensity which a walk is, at examined majorities does not correspond to norms of the healthy lifestyle.

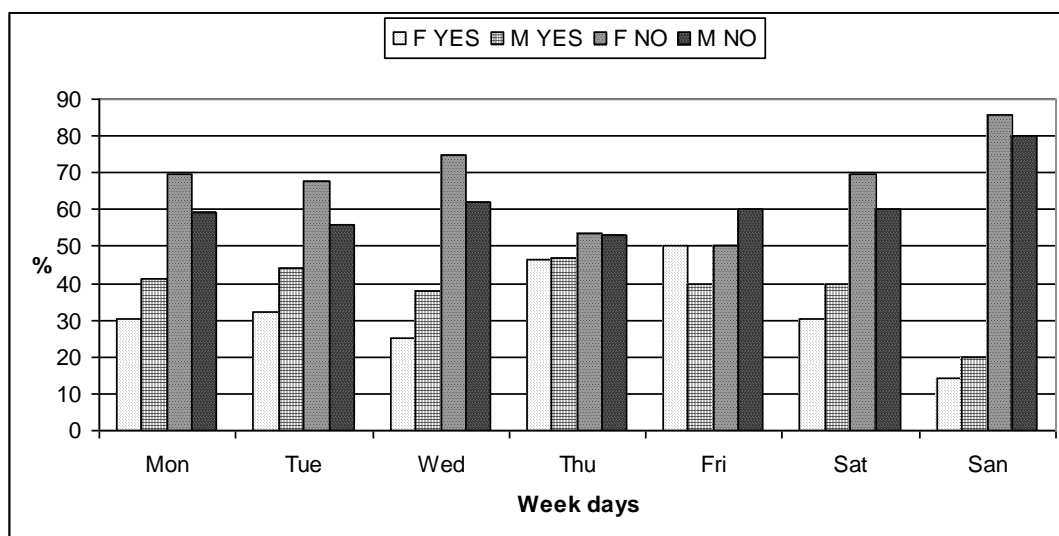


Figure 4. Per cent of adolescents (females and males) which achieved and did not achieve the recommended number of 11000 steps per day.

LEGEND:

- PA NO – adolescents do not participate in the organized physical activity
- PA O - adolescents participate in the organized physical activity
- M NO – males do not participate in the organized physical activity
- M O - males participate in the organized physical activity
- F NO - do not participate in the organized physical activity
- F O - females participate in the organized physical activity
- F Y - females which achieved the recommended number of steps per day
- M Y - males which achieved the recommended number of steps per day
- F N - females which do not achieve the recommended number of steps per day
- M N - males which do not achieve the recommended number of steps per day

DISSCUSION

Own examinations, as well as Groffik, Frömel and others examinations [7,9,] do not shows statistically significant differences in the physical activity between girls and boys, analysing only a number of performed steps.

A lot of research however confirm that boys lead more active lifestyle than girls [4,13,14]. Amstrong and Welsman [1] in their examinations prove that European boys are more physically active from European girls. Similar results of research achived Tudor - Locke and others [15] who show that boys were making more steps per day from girls and are also more active in the leisure time. The same conclusions showed Groffik, Wąsowicz, Polechoński [8] in examinations of 12 years old children and Groffik and Frömel [6] in examinations of children aged 6-12, emphasizing that boys are more physically active from girls, particularly in a young age. Brettschneider and others [2] examining the adolescents in Denmark, Estonia, Portugal and Norway proved, that boys are far more active than girls, particularly during the age of growing up. Particular differences visible in the adolescence, when the so-called "motor laziness" is being monitored, especially at girls, also demonstrated Frömel and others [5] examining young people and adults (14-24 years old) based on the international questionnaire of physical activity IPAQ, stating also, that as many as the 18% of young people do not participate in the intense motor activity, and the 5% do not participate even in the easiest motor activity which a walk is.

Our research , as well as Groffik, Wąsowicz, Polechoński [8] research and also Groffik, Frömel [10, 6,7,9,] research are confirming, that young people: both girls and boys, demonstrate a definitely greater physical activity expressed with number of steps, during school days, than during weekend days. Considering the active energy expenditure, research's results do not give the unambiguous answer to that question, one are diversifying weekend days from school days [6], other not [10]. Fact that within school days children perform more steps than during weekend days is possible to justify with the so-called active transport, which a walk and moving with public transport is, and which is essential in transit to and from the school, as well as with the PE lessons and also with organised classes after the class in the school.

Analysis in our research showed, that a little over the half of boys and less than a half of girls reach the number of 11000 steps per day which is the minimum for adolescents. Also Groffik and Frömel in their examinations of post-secondary adolescents [9] show that young people reach only a criterion proposed for adults in the number of 10000 steps per day, and most often only during school days.

CONCLUSIONS

Difference between taking the physical activity by adolescents in school days and weekend days, shows the fact that the school has a influence on it and causes, that children participate at least in the easiest physical activity, which a walk is. Data shows that only a half of examined achieve the minimum needed for sustaining the health. The school then, specially taking the PE lessons into consideration, should be a place, where not only fitness is shaped and motor abilities are teaching and improving, but above all school should be a place where children are preparing for participation in physical activity for entire life. It is here a time and the place to pass the knowledge about the role of the activity for the human's health, so that prepare and motivate young people for taking the physical activity in the leisure time, with particular reference to of basic form of moving which a walk is.

The participation of particularly boys in organised physical activity has a positive effect on a level of the week's physical activity. Examined pupils are less active during

weekend days in comparison with school days, irrespective of whether they participate or do not participate in organised physical activity.

CONCLUSIONS

1. There is no statistically essential difference in the physical activity between boys and girls taking performed quantity of steps into consideration.
2. There is no statistically essential difference observed in the physical activity expressed with the number of performed steps per day, between adolescents participate in the organised physical activity and adolescents do not participate in the additional motor classes.
3. Physical activity expressed with the number of steps indeed is diversifying school days for time weekend days in both: boys and girls, participate as well as do not participate in the organised physical activity.
4. 51% of boys and the 47% of girls reached the recommended 11 000 steps per day

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