



Aerobic Physical Activity for The Youth

KEYWORDS

physical activity, aerobic, youth

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ABSTRACT *The study aims to assess physical activity performed by young people during one month. The subjects are categorized in two groups (male and female), students aged 20-29. The research methods used were bibliographic documentation and Two Question Physical Activity Assessment. We added a supplementary question that concerns physical activity to the latter. Data was compared to specialty documents that assess physical activity. The results indicate that both groups are Active. According to their age, in terms of METs, men perform at a lower intensity than their capabilities. Women perform at a METs intensity effort appropriate to their age.*

INTRODUCTION

Specialists strongly recommend the inclusion of physical activities into all areas of daily life. For an activity to meet the aerobic physical activity guidelines, it must be aerobic, and it must be performed for at least 10 minutes. The health benefits of physical activity depend on being active throughout the life span, but for most people, physical activity decreases with age (US Department of Healthy People, 2012). Warburton, and al. (2006) listed the following health benefits of physical activity: improved cardiovascular system, reduced incidence of diabetes, specific cancers and pulmonary disorders, increased bone density, strengthened musculoskeletal system, improved psychological well-being.

METHODS AND SUBJECTS

Certain assessments for the level of physical activity have been applied and validated for use in health care. One of them is Two Question Physical Activity Assessment. We included a supplemental question in order to detail and assess the type of physical activities, according to Directory of MET Values (A Data Users Guide to the BRFSS Physical Activity Questions, 2008). The study was conducted on two samples of 43 students, 16 males and 27 females, with ages 20-29. The average age is 24 for males and 22 for females. Physical activity during leisure time was assessed by means of the questionnaire:

Q1. During the last 7 days on how many days have you engaged in moderate to strenuous exercise (7 days; 6 days; 5 days; 4 days; 3 days; 2 days; 1 day; 0 days)?

Q2. On the days when you engaged in moderate to strenuous exercise, how many minutes, on average, have you exercised at this level?

Q3. What type of physical activity or exercise have you spent the most time doing during the last 7 days?

Interpretation for determining level, duration, frequency, intensity of aerobic physical activities:

Response to Q1 X Response to Q2 = _minutes per week of exercise.

Data may be classified into physical activity levels, according to Guidelines (2008):

„Inactive” less than 10 minutes of aerobic activity per week;

“Insufficiently active” – 0 up to 149 minutes of aerobic activity per week;

“Active” – 150 up to 300 minutes of aerobic activity per week;

“Highly active” – more than 300 minutes of aerobic activity per week.

B. Interpretation determining the estimated maximal oxygen intake.

Maximal oxygen intake (VO_2 max) is the main way for assessment the body endurance, especially aerobic capacity (Gheorghe, G.I., 2011). Maximal oxygen intake is the body's capacity to transport and use oxygen during a maximal dynamic contraction of large muscle groups. One MET is 3.5 ml O_2 /kg/min (NCCDPHP, 2008) as the rate of energy expenditure at rest. We estimated the subjects' VO_2 max (in METs) according to the physical activities reported, and we classified it. Estimated VO_2 max (METs) = $(60 - 0.55 \times \text{age in years}) / 3.5$ for men, and Estimated VO_2 max (METs) = $(48 - 0.37 \times \text{age in years}) / 3.5$ for women.

C. Interpretation to determine the METs values for moderate and vigorous intensity activities, according to Directory of MET Values and Aerobic Activities for the BRFSS (2008).

RESULTS

The reported average values for **males** (table 1) are: 54 minutes of soccer (or basketball) 1.8 times and 48 minutes of jogging 2.4 times. Each activity is an aerobic activity and was performed for more than 10 minutes. The overall physical activity for males is moderate (115 minutes jogging) cumulated with vigorous-intensity activity (97 minutes games). Therefore, the males sample participated in a total of 212 minutes of moderate intensity aerobic exercises per week.

For the male group the estimated maximal oxygen uptake (VO_2 max) calculated in METs is 13.32. For a vigorous activity, the amount of oxygen used must be equal or above 60 % of VO_2 max. For the males sample, the calculated

value is 7.99 METs. According to the 2011 Compendium of Physical Activities, the METs value of basketball is 6.5 and the METs value of soccer is 7.0. Analyzing the males' group physical activities, by sport, the METs value for basketball is 6.5, and the METs value for football is 7.0. Therefore, for a male with the age of 24, which is the group average age, the criteria for vigorous activities was not met (6.5 or $7.0 < 7.99$ METs). According to the 2011 Compendium of Physical Activities, jogging is a moderate intensity activity with a METs value of 7.0. The physical activity of the males group does not meet the criteria for vigorous intensity activity (jogging $7.0 < 7.99$ METs.) The METs values for the males group indicate moderate intensity activity.

The average duration of physical activities for the males group per week, is 97 minutes of vigorous-intensity sports and 115 minutes of moderate-intensity jogging which sums up to a total of 212 minutes. Males participated to moderate-intensity activity for a total of 212 minutes per week.

Males reported approximately 212 minutes of moderate-intensity aerobic activity per week.

The 212 minutes value is greater than the borderline 150 minutes, therefore, they meet the aerobic guidelines and are classified as Active.

The females group has an average age of 22. The **female sample** reported an average of 43 minutes of aerobic activity 2.2 times and 24 minutes of walking 3.7 times (table 2). This represents a total of 184 minutes of walking and aerobic activity. Both activities are aerobic activities and are performed for at least 10 minutes.

The estimated maximal oxygen intake (VO_{2max}) for the females group is 11.30 METs. For a vigorous-intensity activity, the amount of oxygen used during physical activity must be equal to or above 60% of the VO_{2max} . For the females sample, the calculated value is 6.60 METs. According to the 2011 Compendium of Physical Activities, the METs value for walking is 3.5 and the METs value for fitness is 7.3. For the females group, the METs value for walking is 3.5 METs, and the METs value for aerobic is 7.3 METs. Walking did not meet the criteria for vigorous activities according to the Compendium of Physical Activities (walking $3.5 < 6.60$ METs). Fitness is a vigorous intensity activity, with a METs value of 7.5. The females group meets the criteria for vigorous intensity activity through the fitness class because $7.5 > 6.90$ METs.

The total duration of the females' intensity activity (fitness and walking) per week is 95 minutes of vigorous intensity aerobic and 89 minutes of moderate intensity activity (walking) which sums up to 184 minutes of total moderate intensity activity. Females participated in moderate intensity activity for a total of 184 minutes per week.

Females reported an average of 184 minutes per week as moderate intensity aerobic activity (>150) so the requirement is met for the Active classification.

TABLE 1. Aerobic Physical Activity – males

Ph. A	Days/Week (x)	Min/Days (x)	Total Time (x/min)	Activity MET value
Games (Football/Basketball)	1.8	54	97	8.0
Jogging	2.4	48	115	3.5

Total moderate intensity aerobic 212 minutes

TABLE 2. Aerobic Physical Activity – females

Ph. A	Days/Week (x)	Min/Days (x)	Total Time (x/min)	Activity MET value
Aerobics class	2.2	43	95	7.3
Walking	3.7	24	89	3.5

Total moderate intensity aerobic 184 minutes

DISCUSSIONS

According to World Health Organization and National Center for Chronic Disease Prevention and Health Promotion (2011) adults should engage in a minimum of 150 minutes of moderate-intensity activity or 75 minutes of vigorous-intensity activity each week. For substantial health benefits, an equivalent combination of moderate and vigorous intensity activity is also sufficient. For more extensive health benefits, they should increase their aerobic physical activity to 300 minutes of moderate intensity per week, or 150 minutes of vigorous intensity activity per week. An equivalent combination of moderate and vigorous intensity aerobic activity would also suffice. **At the same time, they should engage in moderate to high intensity muscle-strengthening activities that involve major muscle groups on 2 or more days per week. These activities provide additional health benefits.** The males sample reported 212 minutes of aerobic activity and the females sample reported 184 minutes of aerobic activity. Both groups reported a total of over 150 minutes of moderate intensity aerobic per week. This meets the Physical Activity Levels Guidelines. Thus, both groups are classified as Active. Ibanez, A. and col. (2014) think that "more than 150 minutes of moderate activity per week is associated with additional health improvement". Physical activity has positive health effects. Some studies (Lupu, 2012) underline that "students who constantly participate in physical education classes have a more developed creative capacity, they can easily make lexical associations, combinations, and all these with speed and ease". "Physically active students have a different degree of conscience and tolerance, with high values, different from their sedentary classmates, or from those with medical exempts" (Lupu, E. and Özcan, D., 2014). The results of the study by Rovniak et al. (2002) suggest that people who participate in customized physical activities are more likely to exercise on a regular basis.

CONCLUSIONS

Regular moderate to vigorous physical activity maintains health, prevents numerous diseases and disabilities, and improves the quality of life. According to Eurobarometer (2010) the reasons of European respondents for engaging into physical activity are to improve health, fitness, relaxation and to have fun. The same source mentions that men in the EU play more sports than women. Our study confirms that tendency, as the males sample spent more time engaging in physical activity than females. The subjects satisfied the criteria of aerobic activity for at least 10 minutes per sessions.

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