

Physical activity of students from selected countries. Studies review.

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ABSTRACT

Purpose: The aim of the presented study was the comparison of physical activity of students from selected countries. The key of paper selection was to find various kinds of students groups from different countries and different cultures. The author compared results of students' physical activity.

Materials and methods: The paper compare the previously published papers about physical activity of students from selected countries. All respondents were examined using as an instrument the International Physical Activity Questionnaire (IPAQ), a standardized questionnaire which enables the investigation and comparison of activity of various population groups.

Results: Analysis of results of the study showed a great differentiation among students from individual countries. In each examined group of students, males proved to be the most active gender; however, among countries characterized by the highest physical activity, the results obtained by females were sometimes higher than those concerning males

from countries characterized by lower activity. The study showed that the most active students are Americans and Czechs, whereas students from Croatia and South Africa show low physical activity.

Conclusions: The conducted analyses demonstrated that in each country in the study the level of total activity is higher among males than females. The differences in the results of the summary MET value in males remained within the range 2,800 – 6,500 MET, while in females - within the range 1,700 – 5,900 MET. Male students were usually characterized by a high level of physical activity, whereas female students by a moderate level. Among Polish students, similar to their contemporaries from other countries, the level of total physical activity was higher among males than females. Polish students were most often characterized by a moderate level of physical activity.

Key words: International Physical Activity Questionnaire, physical activity, students

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Received: 24.07.2015

Accepted: 10.11.2015

Progress in Health Sciences

Vol. 5(2) 2015 pp 169-173

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INTRODUCTION

Today, physical activity is commonly considered as one of the best methods for the prevention of diseases, especially those referred to as civilisation diseases. It plays a tremendous role in counteracting depression, and strengthening self-esteem. Physical activity prevents, among others, ischemic heart disease, overweight, obesity [1] and is also an important factor preventing selected types of cancer. Studies show [2] that physically active women are at 20-30% lower risk of the development of breast cancer, compared to physically passive women. Regular physical activity may also decrease the risk of contracting colorectal cancer by 40-50% [3].

Despite an increasingly greater social awareness concerning the positive effect of physical activity on health, the percentage of active population still leaves a lot to be desired. According to the World Health Organization, at least 60% of the world's population do not meet the WHO requirements for the recommended physical activity, which leads to a sedentary life style [1].

While seeking the causes of the lack of activity, and factors determining participation in various forms of physical activity, studies conducted among different social and occupational groups are of great importance. Among the best instruments used for this purpose is the International Physical Activity Questionnaire (IPAQ), a standardized questionnaire which allows investigation and comparison of various groups aged 15-69 (Booth, 2000). The researchers confirmed that the IPAQ is one of the best diagnostic instruments for the study of physical activity, its greatest advantage being simplicity and a uniform research procedure [4].

The IPAQ enables the recognition of physical activity of various groups. Studies conducted with the use of this questionnaire, both in Poland and worldwide, allow comparison of the results and, subsequently, seeking models of behaviours favouring a health promoting life style. In the presented article, the author draws attention to studies of physical activity carried out with the use of the IPAQ, which were conducted among groups of students from the selected countries.

REVIEW OF STUDIES

In order to present the results of the physical activity of students from Poland, the study was selected with the largest population examined [5]. This study showed great differences in the respondents' physical activity. The largest group (43.6%) demonstrated a moderate level of physical activity. Slightly more than one-third (35.5%) of male and female students performed intensive physical activity. The smallest group of respondents were characterized by the lowest activity;

nevertheless, they constituted 20% of all the respondents examined (Tab. 1). Differences were also found according to gender, males being the most physically active group.

Among all respondents, the most popular form of spending leisure time are: watching television, playing computer games, and using the Internet. In addition, it was confirmed that students spend 300 min/daily, on average, in a sitting position. The above-presented results show changes from activities undertaken outdoors in the fresh air, towards activities undertaken at home, usually in a sitting position. These conclusions should become an impulse indicating a high risk of development of civilisation diseases.

Table 1. Level of physical activity among Polish students [5]

Low	20.8 %
Moderate	43.6 %
High	35.5 %

Li-Ming Chiang [6] conducted studies aimed at comparing the level of physical activity of students from Taiwan and the United States. Among the main conclusions was the information that American students represent a higher level of activity than the Taiwanese. A high level of physical activity was observed among the majority (54.1%) of American students, and slightly more than one-third (35%) of the students from Taiwan (Tab. 2). Similar results were obtained in both nationalities with respect to moderate physical activity (38.6% of Americans and 39.9% of Taiwanese). Low physical activity was noted in only 7.2% of American, and as many as one-fourth of students from Taiwan (25%). In addition, American students showed a considerably higher mean MET min/week value (6,227), compared to the students from Taiwan (4,079.7 MET min/week). Similar results were obtained among female students, the representatives of the United States showed a higher mean MET min/week value (5,921.5) than their contemporaries from Taiwan (3,786.3 MET min/week.) (Tab. 3). Among both American and Taiwanese students, males obtained higher mean MET values than females (Tab. 3).

Table 2. Level of physical activity among students from the United States and Taiwan [6]

	American students	Taiwanese students
HIGH	54.1 %	35 %
MODERATE	38.6 %	39.9 %
LOW	7.2 %	25 %

Table 3. Mean MET min/week value obtained by students from the Unites States and Taiwan, according to gender [6]

Students from the United States		Students from Taiwan	
Males	Females	Males	Females
6,227	5,921.5	4,079.7	3,786.3

No significant differences in physical activity of both genders were observed during studies conducted among students from Croatia [7]. Females obtained an overall value on the level of 45.1 - 54.1 MET/hour/week, while males - 49.3 - 58.7 MET/hour/week (Tab. 4).

Female respondents showed a higher physical activity in the area of household and gardening activities (6.3-8.3 MET/hour/week), whereas males were more active during their leisure time (15.9-22.7 MET/hour/week).

Croatian students proved to be the group showing a very low physical activity. More than one-fourth of females (25.1%), and nearly one-fourth of males (24.6%) did not satisfy the recommendations by the WHO concerning the recommended amount of physical activity. More than one-third of females (37.9%), and exactly 37% of males were defined as not meeting the physical activity requirements on the level which would condition positive health benefits.

The results of the above-presented studies show how important is the need for greater health promotion among Croatian students.

Table 4. Mean MET/hour/week value among Croatian students of both genders [7]

Males	Females
49.3 – 58.7	45.1 – 54.1

Pengpid and Petzer [8], while carrying out studies of students from South Africa, also found a low level of physical activity. The results showed that only 19.4% of respondents undertook physical activity of a high level. The largest group were students who showed a moderate physical activity (47.6%). One-third of all the respondents (33%) were classified on a low level of physical activity (Tab. 5).

In the case of students from South Africa, no significant differences in individual levels of activity were found between males and females.

Table 5. Level of physical activity among students from South Africa [8]

Physical activity	Females	Males	Total
Low	36.3%	30.5%	33%
Moderate	46.2%	48.6%	47.6%
High	17.3%	20.9%	19.4%

Alarming signals related with low physical activity of students from South Africa were also indicated in studies by Bloemhoff [9]. While commenting on the results of the study, the researcher simply used the expression ‘epidemics of physical inactivity’. It was found that as many as 30% of all respondents were defined as physically inactive. The primary goal of the study was comparison of the differences between physical activity of Caucasian and black respondents. The results confirmed that black students were more active (2,522.7 MET min/week), compared to their Caucasian male and female contemporaries (2,167.6 MET min/week). It was found that among all respondents black males were most active (3,756.1 MET min/week), more than one-third of them showing high activity (35.9%). Males characterized by moderate activity constituted the largest group (39.1%), while the smallest group (25%) were students with low physical activity.

Among male Caucasian students, for whom the overall value MET min/week was 2,698.5, exactly a half of the respondents (50%) showed high physical activity, and a considerably lower percentage (26.3%) were defined as moderately active, whereas the smallest group (23.7%) constituted males showing low physical activity (Tab. 6).

Also among female respondents, black students proved to be more active (1,893.7 MET min/week), although - which is interesting - the largest group (38.5%) among which were women with a low level of physical activity, while the smallest group (24.8%) was characterized by high activity. Moderately active students constituted slightly less than one- third (36.7%).

The least active group (1,681.1 MET min/week) were Caucasian female students. Also in this case, the majority (42.4%) were women showing low physical activity, and the smallest group (27.1%) – respondents who demonstrated high activity. In the middle (30.3%), a group of Caucasian female students was found with moderate physical activity.

The comparison of individual results revealed great differences in physical activity between both genders. Among males, the mean

value was 3,002.3 MET min/week, and among females – only 1,754.7 MET min/week.

In addition, only 26% of all female respondents showed physical activity on a high level, whereas 40.5% of them were inactive students. Among males, 24% of respondents were defined as inactive, while nearly a half (44.9%) were those showing a high level of physical activity.

Table 6. Mean MET min/week value among Caucasian and black students from South Africa [8]

Black students		Caucasian students	
Females	Males	Females	Males
1,893.7	3,756.1	1,681.1	2,698.5

The results of studies conducted among students from India [10], demonstrated that 84.5% of respondents met the requirements of moderate or high physical activity. A low level of physical activity (below 600 MET min/week) concerned only 15.4% of students. The highest percentage of students (43.2%) undertook moderate physical activity, and a very large group (41.3%) were also respondents who showed high physical activity.

The largest group among males (51.7%) were students who undertook high physical activity, while the smallest group (13.8%) – respondents who showed low activity. Approximately one-third of students (34.5%) were classified as moderately active. The majority of females (50.3%) were moderately active, followed by highly active students (32.9%), while only 16.8% of female respondents showed low activity (Tab. 7).

Table 7. Level of physical activity among students from India [10]

Level of physical activity	Females	Males	Total
High	32.9%	51.7%	41.3%
Moderate	50.3%	34.5%	43.2%
Low	16.8%	13.8%	15.4%

Favourable results were also obtained in studies conducted among Czech students, who were compared with students from Beijing [11].

Both males and females from Olomouc in the Czech Republic showed a twice as high mean value of MET/min/week, compared to their Chinese contemporaries (Tab. 8). Female respondents from the Czech Republic obtained mean values MET/min/week equal to 5,296, while the students

from Beijing - 1981 MET min/week. Among males, Czech students obtained the mean value 6456 MET min/week, whereas the Chinese - 2846 MET min/week.

Table 8. Mean value MET/min/week for students from Olomouc and Beijing [11]

	Students from Olomouc		Students from Beijing	
	Females	Males	Females	Males
Mean value MET/min./week	5296	6456	1981	2846

Moreover, it was found that the largest group of respondents from the Czech Republic (66.8%), were classified as those who showed high activity. The majority of respondents from China (52.5%) proved to be moderately active.

The above-presented results may also be confirmed by the percentage of inactive students, who in Olomouc constituted 5.8%, while in Beijing as many as 15% of respondents.

The presented results demonstrated differences in the levels of physical activity among various countries and cultures. Individual models may be used, both as examples for which one should reach, and those which should be avoided in order to strengthen health promotion through physical activity. The study shows the importance of physical activity and its influence on health in different countries and cultures.

Studies carried out on the groups of students demonstrate that even at this age individual societies encounter the problem of insufficient activity among the young population. As has been previously mentioned, this type of deficit leads to many serious diseases. The results of the presented study reveal the great importance not only of physical activity, but also the organization of own time in such a way as to limit sitting. They also evoke awareness of the methods and sectors in which prophylactic actions should be undertaken. It is also believed that all subsequent social and occupational groups examined in a similar way will be an invaluable source of information for the improvement of the state of health of individual societies.

CONCLUSIONS

The results of studies concerning physical activity of students from selected countries allow draw the following generalizations:

1. The level of overall physical activity of males was higher than that of females in each of the presented countries.
2. Great differences were observed in the results of summary MET value:

- a) in males within the range from 2,800 – 6,500 MET
- b) in females within the range from 1,700 – 5,900 MET
3. Male students were mostly characterized by a high level of physical activity, while females students – by a moderate level.
4. Among Polish students, similar to their contemporaries from other countries, the level of total physical activity is higher among males than females.
5. Polish students most frequently undertake moderate physical activity.

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Conflicts of interest

The authors declare no conflict of interest.

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