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RELATIONSHIP BETWEEN THE LEVEL OF GENERAL PHYSICAL ACTIVITY AND THE CHOICE OF A MOTOR RECREATION FORM

Key words: physical activity, motor recreation, tennis, sailing.

ABSTRACT

As every form of physical recreation imposes different requirements and rules on the participants, it might be assumed that the participants' personality traits would be differentiated. The aim of the research was to test this hypothesis by way of analysis of one such trait, i.e. general physical activity level of people who practice sailing and tennis as their recreational activities of choice. The study was carried out on a group of 143 adults, who played tennis and practiced sailing. M. Michałków's Personal Fitness Inventory was used for determining the level of physical activity. The level of general physical activity is not related to the choice of the form of physical recreation. It is not related to the level of mastery, training period or age of sailors; nor the mastery level and training period of tennis players.

INTRODUCTION

The changing style of modern man's work and life involves increasing limits of undertaking physical efforts and increasing loads for the nervous system [1]. Seeking possible compensation for hyperkinesias and, at the same time, making excessive psychical efforts and weakening interpersonal links might be regarded as reasons for undertaking various forms of motor recreation. As each feasible recreation form provides requirements and rules for the participants, it may be assumed that they would develop various personal features, including physical ones, according to the measures of a given recreational form [2].

The following paper presents attempts to verify such an assumption by analyzing the level of general physical activity of individuals undertaking two forms of motor recreation: sailing and tennis. It seems that the differentiation with respect to involvement of the muscles and particular body systems as well as energy expenditure [3, 4]

in recreational sailing and tennis may lead to interesting observations of the participants' varied needs of physical activity.

The notion of physical activity is understood here as "the entirety of behavior, possibilities, and motor properties of the human body related to various ways and forms of movement of various parts of one's body" [5]. Following this approach, physical activity consists, first of all, of man's various motor actions aimed at ensuring possibly the best adaptation to one's life situations. The following types of physical activity may be distinguished [5, 6]:

- professional activity – related to execution of actions aimed at ensuring one's material conditions;
- personal activity – related to serving one's body, e.g. practicing good hygiene;
- recreational activity – aimed at accelerating man's biological and creative recuperation, understood as different forms of self-realization and free-time arrangement;

- rehabilitative activity – considered to be a set of actions aimed at recuperation of damages arising in different systems of the human body, irrespective of their causes;
- athletic activity – appropriate for practicing various sports and competition events (athletics can be, in some aspects, regarded as a professional physical activity).

The study aimed to assess the level of general physical activity in individuals undertaking selected forms of motor recreation of differentiated motor elements (sailing and tennis) and identify causes of individual differences in the level of the physical activity under study. The following hypotheses were formulated:

Hypothesis One: The choice of a given form of motor activity depends on the level of general physical activity of a given participant in motor activity.

Hypothesis Two: There is no sex-dependent differentiation with regard to intensity of general physical activity in participants in particular forms of motor recreation.

Hypothesis Three: There is a relationship between the level of general physical activity and the age of the participants in the forms of recreation activity under study, i.e. sailing and tennis.

Hypothesis Four: There is no relationship between the level of general physical activity and the level of experience of the participants in the selected forms of motor recreation.

METHODS

In order to assess the level of general physical activity of the participants in the selected forms of motor recreation the Inquiry Form of Psychophysical Efficiency was used. The inquiry form was based on The Personal Fitness Inventory, developed and implemented in St. Lukas Hospital in the USA by M. Michałków [7]. The author made some modifications of the original version of the inventory in order to adapt the questions to Polish conditions. The evaluation was also updated on the basis of recent literature and took into account the average level of physical activity in Poland. The Inquiry Form consists of two parts. The first part is related to assessment of physical efficiency and health condition; the second to lifestyle determined by four elements: physical activity, dietary habits, reaction to stress, and addictions. The paper makes use only of the part related to physical activity. The subjects provided answers to six questions by underlining one of possible answers.

The Inquiry Form is one of methods of physical activity assessment [8]. Other assessment methods are based on mechanical or electrotechnical monitoring or somatic measurements. Taking into account its data collection efficiency as well as availability, this method was chosen for the present study. A study using inquiry forms is generally based on self-assessment and consists in answering carefully prepared questions, usually including the following topics: the form of physical activity, its intensity, frequency, and duration [9].

The test was carried out on a group of adults (over 18 years old) practicing two forms of motor recreation activity: tennis (N=68; 41 men, 27 women) and sailing (N=75; 47 men, 28 women). The subjects' mean age was 28 years in the group of tennis players (the oldest woman was 48 years and the oldest man 60 years old), and 33 years in the group of sailors (the oldest woman was 56 years and the oldest man was 87 years old). As for the time of practicing the forms of recreation both groups were relatively similar. Most subjects had been practicing tennis and sailing for more than 10 years; somewhat lesser similarities were observed between subjects from both groups of average or short practice time (Fig. 1). Taking into account the level of sports advancement the largest category included subjects of medium experience. Other categories, including subjects with the longest and shortest experience, were similar in both groups (Fig. 2).

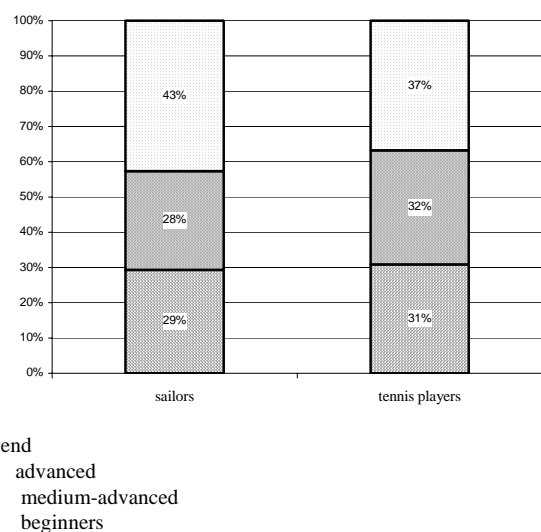


Figure 1. Duration of practicing the recreation form by the examined persons

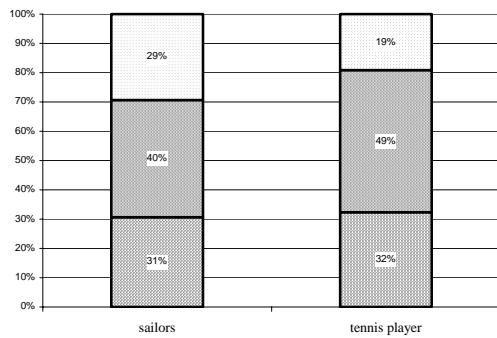


Figure 2. Advancement in practicing given recreation forms by the examined persons

The study was carried out in Poland between 2003 and 2004 at various sports and recreation venues (e.g. tennis courts, bodies of water) in similar conditions. All the subjects had been informed of the aims of the research and provided with necessary instructions and explanations.

RESULTS

The analysis of the study results was to determine relationships between the intensity of general physical activity, sex, and the recreation form, as well as between physical activity and the age of subjects practicing a given recreation form, practicing time and the degree of advancement in their selected motor recreation. Apart from the basic statistical parameters, i.e. the mean value, the median, standard deviation, and coefficient of variation, the significance of differences between variables was determined with the Mann-Whitney U-Test. For correlation relationships Spearman's rank correlation coefficient was calculated.

The data obtained showed that the subjects choosing tennis as a form of recreation displayed a higher level of general physical activity than the ones preferring sailing (Fig. 3, Tab. 1). This observation was made both in the groups of women and men; however, the differences in the former were insignificant (Fig. 4, Fig. 5, Tab. 1).

The score values obtained from the subjects on the scale of physical activity show that the average levels of physical activity are fairly high in both groups. Nevertheless, the coefficients of variation showed a significant dispersion of the

variables, which meant that the groups under study included both subjects of very high level of physical activity and subjects with the activity level below the average (Figures 6, 7). The differentiation with regard to the sex and assessment of general physical activity in selected motor recreation forms was determined with the Mann-Whitney U-Test (Tables 2 and 3).

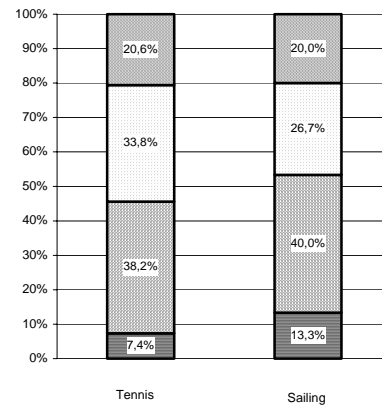


Figure 3. The level of general physical activity in all examined individuals

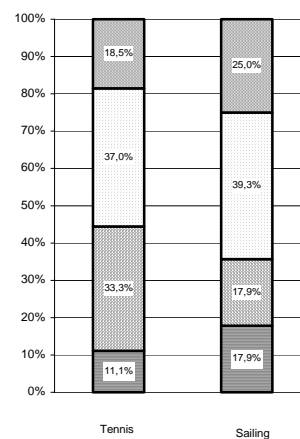
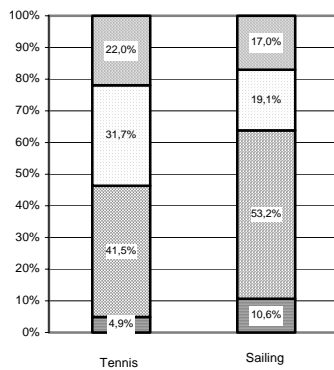
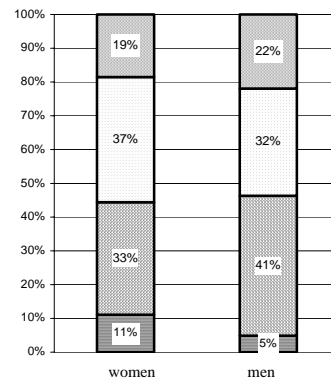


Figure 4. The level of general physical activity in examined women



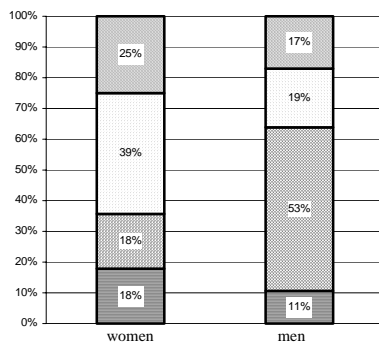
Legend
 very good
 good
 average
 under average

Figure 5. The level of general physical activity in examined men



Legend
 very good
 good
 average
 under average

Figure 6. The level of physical activity in tennis practicing persons



Legend
 very good
 good
 average
 under average

Figure 7. The level of physical activity in sailing practicing persons

The test results showed no statistically significant differentiation between the sex and assessment of general physical activity in subjects practicing tennis or sailing. Hence, it can be stated that the sex is not significant for the level of physical activity in particular forms of motor recreation.

Moreover, no statistically significant differences were found between the form of motor recreation and the assessment of general physical activity in all the subjects practicing such a recreation form. Nevertheless, a separate consideration of the sex shows significance of this feature in the group of men.

Table 1. General characteristics of physical activity of the individuals undertaking selected forms of motor recreation

Motor recreation form	Sex	Statistical parameters	Assessment of physical activity (score)
Tennis	Women	Average value Median Standard deviation Coefficient of variation	40.37 34.00 21.29 53%
	Men	Average value Median Standard deviation Coefficient of variation	40.20 33.00 21.61 54%
	W+M	Average value Median Standard deviation Coefficient of variation	40.26 33.00 21.32 53%
Sailing	Women	Average value Median Standard deviation Coefficient of variation	37.75 33.00 21.26 56%
	Men	Average value Median Standard deviation Coefficient of variation	33.47 25.00 21.52 64%
	W+M	Average value Median Standard deviation Coefficient of variation	35.07 30.00 21.38 61%

Table 2. The Mann-Whitney U-Test – differentiation with regard to sex and assessment of general physical activity

Motor recreation form	Value of the statistics z	p value
Tennis	0.1880	0.8509
Sailing	1.4240	0.1545

Table 3. The Mann-Whitney U-Test – differentiation with regard to the assessment of general physical activity and selected forms of motor recreation

Examined groups	Value of the statistics z	p value
Women	0.2694	0.7876
Men	2.0326*	0.0118
All	1.7746	0.0760

*p<0.05

Irrespective of the above, the relationship between the level of general physical activity and the age, practicing time, and degree of advancement of participants in selected recreation forms were also analyzed (Tables 4, 5, and 6).

Table 4. Correlation relationship between the level of general physical activity and the age of the persons undertaking selected forms of motor recreation

Examined groups	Tennis players			Sailors		
	rank Spearman's correlation coefficient	t Statistics value	p value	rank Spearman's correlation coefficient	t Statistics value	p value
Women	-0.50	-2.8762**	0.0081	0.06	0.3306	0.7436
Men	-0.39	-2.6587*	0.0113	-0.05	-0.3127	0.7560
All	-0.42	-3.7390**	0.0004	0.06	0.4248	0.6730

*p<0.05; **p<0.01

Table 5. Correlation relationship between the level of general physical activity and practicing duration of the persons undertaking selected forms of motor recreation

Examined groups	Tennis players			Sailors		
	rank Spearman's correlation coefficient	t Statistics value	p value	rank Spearman's correlation coefficient	t Statistics value	p value
Women	-0.0577	0.2889	0.7751	-0.2002	1.0419	0.3070
Men	-0.3111	2.0444*	0.0477	0.0806	0.5427	0.5900
All	-0.2146	1.7854	0.0788	-0.0772	0.6613	0.5105

*p<0.05

The relationship between the level of general physical activity and the subjects' age concerns only the tennis players. In the case of other variables no relationship was found. The male tennis players showed a decrease in their level of general physical activity along with an increase in practicing time.

DISCUSSION

It should be noticed that the level of general physical activity is not decisive for undertaking a given form of motor recreation. Individuals featuring a very high level of general physical activity as well as those with the level below the average, undertake recreation forms requiring greater loads, greater motor involvement, and imposing fewer requirements. In result the average values are very similar, without any significant differentiation of the level of examined features in all the groups of subjects under study (except for the men). This might be explained by the fact that the choice of a recreation form is most likely related to the type of subject's occupation or other duties. Individuals burdened with significant physical efforts would preferably aim at regenerating their forces, withdrawal from everyday life, and would undertake such motor recreation forms in which their mus-

Table 6. Correlation relationship between the level of general physical activity and degree of advancement of the persons undertaking selected forms of motor recreation

Examined groups	Tennis players			Sailors		
	rank Spearman's correlation coefficient	t Statistics value	p value	rank Spearman's correlation coefficient	t Statistics value	p value
Women	0.0452	0.2261	0.8230	-0.1273	0.6542	0.5187
Men	-0.2108	1.3469	0.1858	0.1336	0.9040	0.3708
All	-0.1295	1.0610	0.2926	-0.0456	0.3898	0.6978

cles would be less involved, e.g. sailing. On the other hand, white-collar workers tend to spend their free time trying to charge their bodies with greater effort, for example, playing tennis, aimed at recuperation of the nervous system that would later stimulate other systems [11].

The correlation between the level of general physical activity and the age, time of practice, and degree of advancement of participants in the selected forms of recreation exists only with the age of tennis players. The calculated coefficient of correlation takes a negative value, which means that with age the level of general physical activity of tennis players decreases, in accordance with the physiology of the human body [8]. On the other hand, sailing as an activity requiring low physical loads is practiced with the same frequency regardless of the age [12].

No correlation was observed with other variables, except for tennis players, whose general physical activity decreases with age. Tennis is a technically complicated activity, requiring long and intensive practice. It requires not only skills and mastery of hitting techniques, but also a proper strategy aimed at choosing appropriate hits during a game. It can be assumed that people with shorter practice and fascinated with uncovering the secrets of the game display a higher level of tennis activity. The case of sailing is quite different. Here the mastery of skills enabling satisfactory and effective recreational sailing requires much shorter time.

Conclusions:

1. The choice of motor recreation activity does not depend on the level of general physical activity.
2. Participants in various forms of motor activity feature, on the average, a similar level of general physical activity.

3. Sex does not differentiate the level of general physical activity in particular forms of motor recreation.
4. With age the level of general physical activity decreases in subjects practicing recreational tennis, and remains unchanged in sailors.
5. The level of general physical activity is not related to the degree of advancement and the practicing time of people engaged in various forms of motor recreation.

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