

Assessing the level of well-being in individuals practicing sport

Ocena poziomu samopoczucia osób uprawiających sport

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Key words

students' physical activity, regular training, mental health, prevention

Summary

Background and aim: There is an increasing body of evidence that physical exercise may have a positive effect on people's mental condition and well-being. Numerous study results indicate that physical activity helps in the treatment of depression and anxiety. This allows for a conclusion that sport – to a great extent – influences not only people's physical aspects, but also their psyche. Sedentary lifestyle, time pressure and stress that accompanies people at an increasingly younger age contribute both to higher incidence of numerous civilisation diseases and to problems with mental health. The purpose of the study was to verify whether individuals practicing sports manifest better well-being than non-training individuals.

Methods: A general interview was conducted with 80 students (40 individuals practicing sports and 40 individuals not practicing sports at all), whereupon they were requested to complete the Warwick-Edinburgh Mental Well-being Scale questionnaire.

Results: The individuals practicing sport exhibit greater well-being than the subjects from the control group. It was also demonstrated that the males in the study group exhibit greater wellbeing than the females from the same group. However, no findings were made that longer duration of a single training session, its frequency or the time when a given person started practicing sport had any influence on his/her well-being.

Conclusions: Practicing sports has a positive influence on people's well-being. Physical activity should be promoted from as early an age as possible to minimise the risk of numerous diseases in the future, including those affecting mental health.

Słowa kluczowe

aktywność fizyczna studentów, regularny trening, zdrowie psychiczne, profilaktyka

Streszczenie

Wstęp: Istnieje coraz więcej dowodów na to, że ćwiczenia fizyczne mogą w pozytywny sposób wpłynąć na stan psychiczny i samopoczucie ludzi. Wiele wyników badań wskazuje na to, że aktywność fizyczna jest pomocna w przypadku leczenia depresji czy niepokoju. Pozwala to stwierdzić, że sport w dużym stopniu wpływa nie tylko na aspekt fizyczny człowieka ale również na jego psychikę. Siedzący tryb życia, presja czasu oraz stres towarzyszący ludziom w coraz młodszym wieku przyczynia się do wzrostu występowania wielu chorób cywilizacyjnych ale także problemów ze zdrowiem psychicznym. Badanie miało na celu sprawdzenie, czy osoby uprawiające sport będą cechowały się lepszym samopoczuciem od osób nietreningujących. Analizie poddano także czas trwania treningu, jego częstotliwość oraz czas, od kiedy dana osoba rozpoczęła uprawianie sportu.

Metody: Wywiad ogólny został przeprowadzony z 80 studentami (40 osób uprawiających sport i 40 nietreningujących) następnie zostali oni poproszeni o wypełnienie kwestionariusza Warwick-Edinburgh Mental Well-being Scale.

Wyniki: Osoby uprawiające sport cechują się lepszym samopoczuciem niż osoby z grupy kontrolnej. Wykazano także, że mężczyźni w grupie badanej charakteryzują się lepszym samopoczuciem niż kobiety z tej samej grupy. Wyniki te są istotne statystycznie. Nie stwierdzono natomiast, aby dłuższy czas pojedynczego treningu, jego częstotliwość oraz czas rozpoczęcia uprawiania sportu miał wpływ na samopoczucie.

The individual division of this paper was as follows: A – research work project; B – data collection; C – statistical analysis; D – data interpretation; E – manuscript compilation; F – publication search

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Wnioski: Analiza zebranego materiału pozwoliła na stwierdzenie, że uprawianie sportu wpływa pozytywnie na samopoczucie. Ogólny czas trwania treningu nie wykazał związku z samopoczuciem, jednak należy podkreślić, że najkrótszy przedział czasowy treningu wynosi 1 rok. Aktywność fizyczna powinna być promowana od najmłodszych lat, aby w przyszłości zniwelować ryzyko wystąpienia wielu chorób, w tym związanych ze zdrowiem psychicznym.

INTRODUCTION

The issues of sport and physical activity are commonly undertaken by scientists due to their beneficial effects on the human body. This leads to numerous study results demonstrating a series of evidence that physical exercise may have a positive effect, amongst others, on people's mental condition and well-being. A large number of projects were predominantly focused on the immediate effects of exercise on the body and its beneficial influence on heart diseases, the circulatory system, diabetes, osteoporosis, certain cancers, and regulation of the body mass^{1,2}. According to Merriam-Webster, a state of mental and emotional well-being is a constituent of mental health, which is as important as physical health. If homeostasis is maintained, human beings are capable of using their cognitive abilities and emotions, function in the society and cope with the challenges of their daily lives. The results of studies concerning the mental sphere indicate that physical activity supports the treatment of depression and anxiety. Training individuals are also reported to show a lower percentage of suicides. This allows for a conclusion that sport – to a great extent – may influence not only people's physical aspects, but also their psyche³. Sedentary lifestyle, time pressure and stress that accompanies people at an increasingly younger age contribute both to higher incidence of numerous civilisation diseases and to problems with mental health^{4,5}. There is a body of

scientific literature that contains findings concerning programmes targeted at young people and highlighting the importance of a healthy lifestyle⁶, as well as analysing how frequently they practice sports⁷. The issue of physical activity is, therefore, an essential and integral element of proper functioning of human beings, and it is advisable to analyse it in a broader context.

OBJECTIVE OF THE WORK

The aim of the study was to analyze the subjective assessment of the well-being of people regularly practicing various sports disciplines compared to inactive sports people, including answering the following questions:

1. How does exercising regularly affect a person's well-being?
2. Is there a relationship between the time of a single training, its frequency and total training experience, and the subjectively perceived well-being of the trainees?

Based on the above, the following hypotheses were adopted:

1. Regular sporting activities have a positive effect on the well-being of trainers.
2. The time of a single sport training, its frequency and total training period, is not related to well-being.

MATERIAL AND METHODS

The study was conducted on a group of 80 students from the Jagiellonian University Medical College (Col-

legium Medicum) in Kraków. They included regularly training individuals (40) and non-training individuals (40). The groups were homogeneous and did not differ significantly in terms of demographic data (Table 1). In the study group there were 19 women, constituting 47.5% and 21 men, which gives 52.5%, while in the control group there were 22 women, which is 55%, and 18 men, which is 45%. The age of women in the study group ranged from 21 to 30 years with its average of 23.4 years, and men from 19 years of age to 29, which gives an average of 22.7 years, while women in the control group had an age between 21 and 26 years, with an average of 23.5 years, and men from 21 to 28 years, which gives an average of 24 years.

Included in the study, they practiced the following sports: volleyball, football, athletics and shot put (Figure 1).

The duration of these disciplines in women ranged from 1.5 to 19 years with an average of 6 years, and in men from 1 to 18 years giving an average of 6.6 years. The duration of one-time sports training for both men and women ranged from 60 to 120 minutes, with an average of 98 and 101 minutes, respectively. The frequency of training loads in women was on average 3.6 / week and in men 3.4 / week (Table 2).

After the general interview, the students were assigned to the study group (training individuals) and the control group (non-training indi-

Table 1

Characteristics of the study groups			
Variable	Study group n=40	Control group n=40	p
Sex [M/F]	21/19	18/22	0.52
Age [years]	23.7 ±2.5	23.8 ±1.6	0.92
Weight [kg]	69.79 ±15.2	65.65 ±10.2	0.16
Height [cm]	175.9 ±9.9	172.7 ±9.9	0.19

Abbreviations: n – number of patients; p – significance level; M – Males; F – Females
The data were presented in the form of an arithmetic mean and standard deviation.

Table 2

Variable	females					males				
	n	\bar{x}	SD	min.	max.	n	\bar{x}	SD	min.	max.
Number of training sessions a week	19	3.79	1.36	1	6	21	3.43	1.17	2	5
Training experience [years]	19	6.03	4.20	1.5	19	21	6.60	4.24	1	18

Abbreviations: n – number of patients; \bar{x} – arithmetic mean; SD – standard deviation; min. – minimal; max. – maximum.

viduals). Next, they were requested to complete the Warwick-Edinburgh Mental Well-being Scale questionnaire. It is a tool consisting of 14 questions formulated in a positive manner, covering the aspect of eudaimonia and hedonism in the context of well-being. The results are summed up in order to generate the total result ranging from at least 14 to no more than 70, with higher results representing higher levels of mental well-being⁸.

The statistical analysis was conducted in the STATISTICA 12 software, and the Shapiro-Wilk and t-Student tests were used. The Shapiro-Wilk test is a test of normality in frequentist statistics. The t-Student test is used to determine the significance of the difference between the means of two sets of data. In essence, the test compares the difference in means relative to the observed random variations in each set.

RESULTS

The level of well-being in the study and control groups was compared, taking into account the whole group (Figure 2).

The individuals practicing sport exhibit greater well-being than the subjects from the control group ($p < 0.00$). The level of well-being was analyzed in the study and control groups, taking into account gender (Table 3). The average well-being in the group of training women was 49.68 points, while in the group of men 54.47 points. It was shown that men in the study group have better mood than women from the same group (Figure 3) and this result is statistically significant ($p < 0.00$). In the case of the control group, women (on average 46.27 points) also rated their

well-being slightly lower than men (on average 47.77 points), but this relationship is not statistically significant ($p > 0.05$).

It was also demonstrated that the males in the study group exhibit greater well-being than the females from the same group (Figure 3). In

this case, the result is also statistically significant ($p < 0.00$).

However, no findings were made that longer duration of a single training session, its frequency or the time when a given person started practicing sport had any influence on his/her well-being.

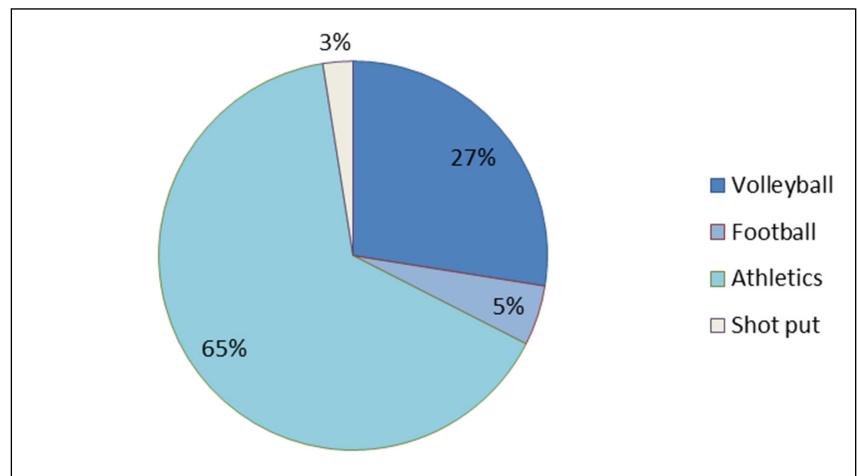


Figure 1
Sports

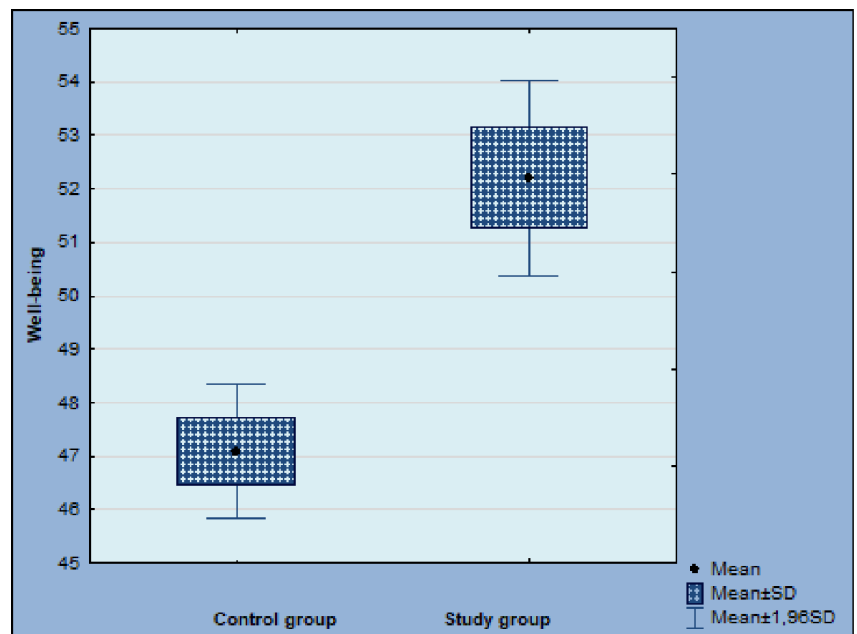


Figure 2
Comparison of well-being in the study and control groups

Table 3

The level of well-being in the study and control group in relation to gender			
Variables	Average well-being in men [points]	Average well-being in women [points]	p
Study group [21M/19W]	54.47 ±5.4	49.68 ±5.4	0.00
Control Group [22M/18W]	47.77 ±4.4	46.27 ±3.6	0.24

M – men, W – women; p – statistical significance.
Data presented as an arithmetic mean and standard deviation

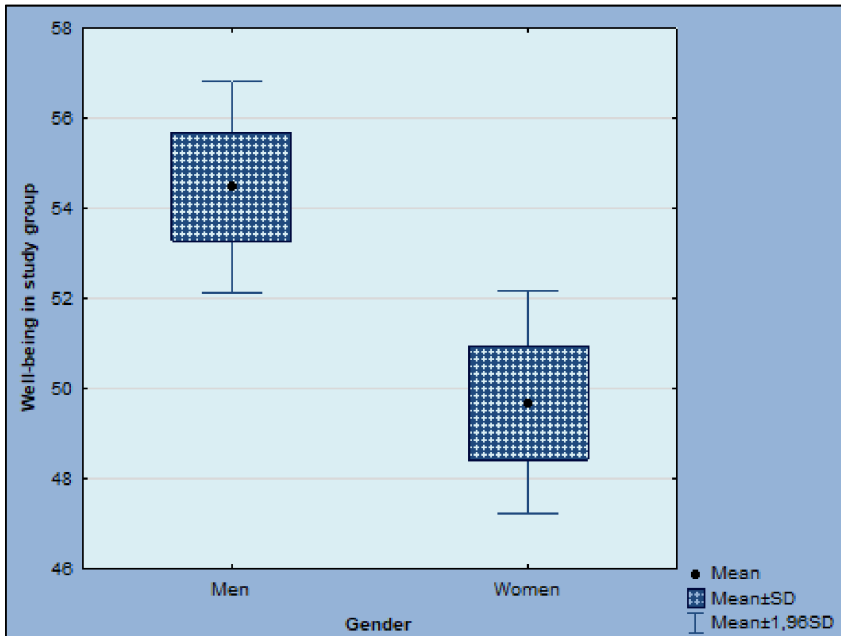


Figure 3
Comparison of well-being in the study group in terms of sex

DISCUSSION

The results obtained indicate that sport may have a positive effect on the subjective assessment of well-being. These data are in line with the publications by other authors and corroborate the above thesis in children⁹, youth¹⁰, adults¹¹ and older adults^{12,13}.

It is worth noting the cross-sectional study by McMahan et al. concerning physical and sports activities and their correlation with well-being, anxiety and depressive symptoms. A large (11,110 subjects) representative sample of teenagers in Europe completed a questionnaire concerning this issue. The frequency of physical activity was positively correlated with well-being and negatively correlated with both anxiety and depressive symptoms, until the threshold of moderate frequency of physical activity. More frequent physical activity and involvement in sport contribute

to the improvement of well-being as well as reduction of anxiety and depressive symptoms in both sexes¹¹.

Significant conclusions were presented in one of the articles dealing with the issue of practicing sport by the youth. It was found that young people who does not practice sport at all or exercise for less than 3.5 hours a week are more susceptible to poor well-being. However, it was pointed out that young people who exercise for more than 17 hours a week also run the risk of a decreased state of well-being in comparison to their peers who practice sports for less than half of the time¹⁴. Young people who trained up to 14 hours a week were less susceptible than individuals training up to 7 hours a week. This implies that poor choice of the duration of physical activity may also have a negative effect, especially in the case of growing up adolescents. However, the results of our observa-

tions fail to confirm that, in the case of the above-mentioned group, the duration of a single training session, its frequency or the time when a given person started practicing sport had any influence on his/her well-being.

The study by J. Rusecki confirms the point that practicing sport increases the feeling of happiness in life. In this case, it is females that self-assessed the feeling of happiness higher, which is contrary to the results above¹⁵. The studies by Unger¹⁶ as well as by Brown and Blanton¹⁷ suggest that the relationship between physical activity and suicide is determined by sex. In the case of males, sport usually leads to reduction in depressive symptoms or suicidal thoughts. In females, an important role is played by the frequency of the physical activities performed. Considerable intensification of exercises may act as a warning sign, possibly due to the link between a negative image of one's own body, low self-esteem, depression and suicides. Unger stated that training activities amongst adolescent girls for 6-7 days in a week is a predictor of suicidal behaviours. Similar results were presented by Brown and Blanton who had analysed this issue amongst female students. Those who trained intensely every day or nearly every day had higher suicide rates than their female peers who trained less frequently. Practicing sport may therefore be an easily observable result of emerging pathologies, which may subsequently be of diagnostic value. On the other hand, physical activity is a form of stress coping strategy, which was confirmed by further studies^{18,19}. In the case of our results, training females self-assessed their well-being lower than males, which may suggest that sport is a means of enhancing one's external appearance.

A different perspective was presented in a review article concerning war

veterans, whose well-being was substantially improved by launching training sessions and rehabilitation²⁰. This demonstrates that engagement in physical activity can help improve human health, including the level of well-being. It would, however, be desirable to adjust it in an appropriate way.

The study by Rice et al. focused on review and assessment of articles pertaining to mental health and positive well-being amongst elite (professional) athletes, including the incidence and/or nature of poor mental health. The findings suggest that professional athletes experience basically a comparable risk of mental disorders of high prevalence (i.e. anxiety, depression) in relation to the general population. The evidence concerning other areas of mental health (i.e. eating disorders, substance use, and stress) is less consistent²¹.

The overall duration of a training session showed no correlation with the level of well-being. However, it should be underlined that the shortest time range of training activities is one year. Therefore, it can be concluded that this is a regular and systematic form of physical activity. Sport and physical exercise should be promoted from as early an age as possible to minimise the risk of numerous diseases in the future, including those affecting mental health. It is appropriate to consider the sporting interests of young people and the fact that too much stress on physical activity may have a negative effect, as demonstrated by certain studies. A human being is a psychophysical unity. Therefore, it is so important to take care of a strong body and psyche alike.

It is worthwhile to repeat this study in a much larger cohort. An innovative project would be to compare the results in athletes from various sports – group sports, individual sports, professional sport enthusiasts and those practising sports as a hobby, where the issue of rivalry could be reflected in the study results. Due to low diversification of sports, this was impossible to achieve in the study above. Valuable information would also be provided by the data on well-being obtained from individuals who are only just starting their sports experience, in or-

der to compare them after a longer period (6 months, 12 months) of regular physical activity. The results obtained in the study may be used as guidance for further, numerous studies.

CONCLUSIONS

Analysis of the results obtained authorizes the following conclusions to be drawn:

1. Regularly exercising various sports disciplines has a positive effect on the well-being of trainers.
2. The time of a single sport training, its frequency and total training period are not related to the subjectively declared well-being of the trainees.

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The authors declare no financial support regarding this paper.

Conflict of Interest

The authors declare that there is no conflict of interest regarding this research.

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