

# BODY COMPOSITION AND KNOWLEDGE ABOUT A HEALTHY LIFESTYLE OF SELECTED COMBAT SPORT ATHLETES

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## Abstract

**Introduction.** Nowadays, the level of physical condition as well as the proper composition of the body gains special importance in terms of proper psychomotor development of children and adolescents. The aim of this research was to obtain knowledge about body tissue composition and selected elements of a healthy lifestyle of combat sports athletes.

**Materials and methods.** The study group consisted of 21 taekwondo athletes. The age of the respondents was 17-18.5 years, training experience M=5.2 years, body height M=175.05 cm and body weight M=71.9. The tool that was used to assess the body composition was the BCA Tanita 545N device and a specially constructed interview questionnaire regarding information on a healthy lifestyle.

**Results.** in the body composition of combat sports athletes, it was found that both partial results and averages are at an adequate level for combat sports athletes to systematic training.

**Conclusion.** It was observed that all individual results of the subjects diagnosed with the BCA Tanita 545 N device are correct and fall within the norms of physically active people, such as people training combat sports. This proves the application of the principles of a healthy lifestyle. We can say that the level of knowledge of taekwondo athletes about a healthy lifestyle is high, because they are able to make a diagnosis, interpret the results and, in the case of values outside the health norm, use a repair algorithm in a professional sense.

**Key words:** body composition, combat sports, taekwondo, lifestyle

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## Introduction

Lifestyle is a fundamental but also a very important factor from the point of view of the pro-health politics of each country. Terms such as leisure time, physical recreation, sport and health should be understood by every person today. Reports such as EUROBAROMETER, Statistical Yearbooks, ministerial studies, other national and international lists reflect that sometimes declared and not real lifestyle, which is sometimes far from the model level of health (1-3).

The World Health Organization (WHO) identifies a holistic-functional approach to the concept of health as the psychosomatic and psychomotor balance of the human body. Today, lifestyle is an important factor in determining health and in various educational programs it is ranked first in terms of importance, regardless of the importance of a national or international document (4), as well as other authors have a similar point of view, e.g. (5-8).

In order to better understand the problem that has been undertaken, it is necessary to define the basic concepts. Health related training is the conscious management of a process con-

sisting in the deliberate use of strictly defined physical exercises to achieve physical and mental effects, counteracting the age-related decline in the body's adaptive capacity to physical effort. The obtained physiological effects can also be important factors in improving health, they prevent or reduce the dynamics of the development of a number of diseases for which reduced physical activity is an important risk factor. Health, on the other hand, understood as full potential (wellness), is an optimal state both in terms of functioning in everyday life and perceived life satisfaction, possible to be achieved by a person at a given moment of life and in the conditions in which he lives. The achievement by people of their full life potential and life satisfaction is the ultimate goal of health promotion (4-5).

The level of physical condition as well as the proper composition of the body nowadays has gained special importance in terms of proper psychomotor development of children and adolescents. In particular, various post-pandemic reports will reveal this sooner or later. In all documents, both Polish and European, attention is paid to physical activity and proper nutrition, apart from sleep quality and personal hygiene, as the most important elements of a healthy lifestyle. Physical fitness

as the main indicator of the level of individual motor skills is understood, among others as „complexes of predispositions integrated with a common, dominant biological and motor basis, shaped by genetic and environmental factors and remaining in mutual interactions, together with motor skills, they form a potential side of motoricity, conditioning the state of readiness of the body to effectively perform various types of motor tasks” (9-11).

In the combat sport taekwondo as well as in other combat sports, both the level of physical fitness as well as BMI and body tissue composition have a significant impact on individual psychophysical properties of a person determining the level of his/her mobility abilities of competitors participating in sports competitions at higher levels of sports competition (12-15). The aim of this research was to obtain knowledge about body tissue composition and selected elements of a healthy lifestyle of combat sports athletes.

### Material and methods

The study group consisted of 21 taekwondo athletes. The age of the respondents was 17-18.5 years, training experience M=5.2 years, body height M=175.05 cm and body weight M=71.9. The respondents training taekwondo were students of various types of secondary schools, i.e. person who had both a significant level of general and specialist knowledge about fitness and health, sports training and the effects of its absence or incorrect performance. The tool that was used to assess the body composition was the BCA Tanita 545N device and a specially constructed interview questionnaire regarding information on a healthy lifestyle.

### Results

Based on the data contained in Table 1, i.e. the statistical presentation of the body composition of combat sports athletes, it was found that both partial results and averages are at an adequate level for combat sports athletes to systematic training.

Table 1: Statistical list of body composition indicators diagnosed with BCA Tanita 545 N training combat sports athletes (n=21)

Statistics	Body height (cm)	Body weight (kg)	BMI	Fat (%)	Water (%)	Muscles	Bones	Visceral tissue (p.)
Mean	175.05	71.90	33.08	17.70	59.98	56.75	3	1.64
SD	8.54	11.82	43.19	5.10	3.20	11.73	0.57	0.77
Min.	163	55.6	20	9.7	54.2	41.6	2.2	1
Max.	189	100.8	226	27.5	65.8	82.5	4.21	3

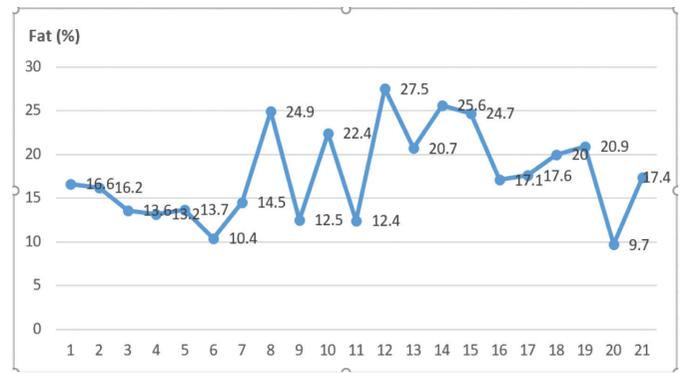


Fig. 1: Fat level in combat sports athletes diagnosed with BCA Tanita 525 N (n=21)

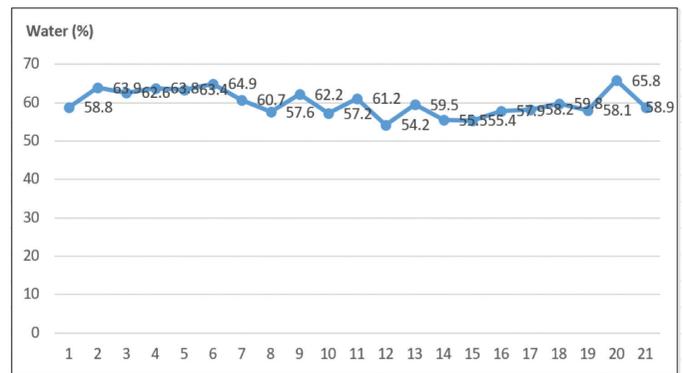


Fig. 2: Water level in combat sports athletes diagnosed with BCA Tanita 545 N (n=21)

Figure 2 shows that the water level in all subjects is at a high level. Each of the participants in the study was within the upper limit proposed by the creators of Tanita 545 N team, which is also defined by WHO standards. This shows that the leading group has sufficient knowledge about proper nutrition in sports, which also results in a large amount of muscle mass (Fig. 3), which accumulates water in the body of the tested athletes.



Fig. 3: Muscle level in combat sports athletes diagnosed with BCA Tanita 545 N (n=21)

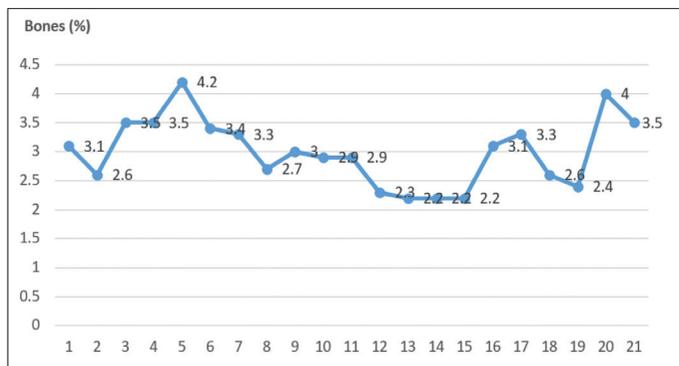


Fig. 4: Bones level in combat sports athletes diagnosed with BCA Tanita 545 N (n=21)

On the other hand, the data contained in Fig. 4, analysing the results, leads to the conclusion that half of the respondents achieved results proportionate to body height and weight, and that taekwondo athletes participate in sports competitions taking into account weight categories; therefore, they would differ significantly from athletes training strength sports. It was also observed that all participants of the study fell within the standard norm considered correct for physically active people.

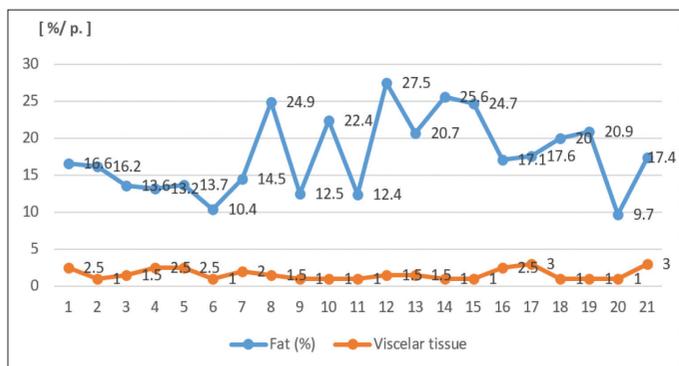


Fig. 5: Fat vs. visceral tissue level in combat sports athletes diagnosed with BCA Tanita 545N (n=21)

Comparing the level of visceral fat tissue, it was observed that the entire group of examined combat sports athletes (taekwondo) had a low level of visceral fat, which is very good news for the trainer, because high results increase the risk of civilization diseases in the future (fig. 5). On the other hand, the level of body fat in a few people is too high and here one should cooperate with a dietician, while in others it is normal and within the normal level for this age.

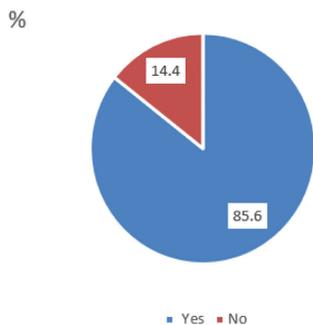


Fig. 6: Declaration on the use of a balanced diet of the tested combat sports athletes (n=21)

According to 86% of respondents, they follow a balanced diet. The remaining 14% do not attach much importance to proper nutrition (Fig. 6).

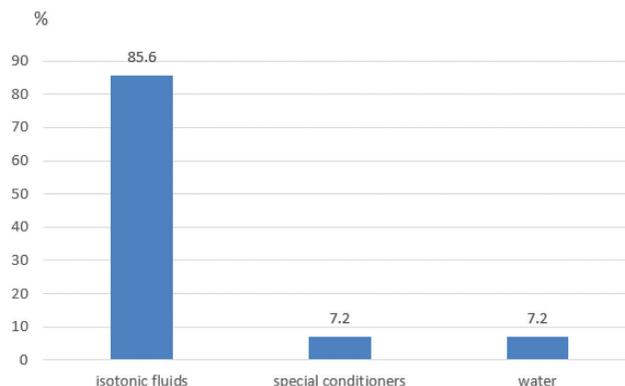


Fig. 7: Declaration on the use of a balanced diet of the tested combat sports athletes (n=21)

Considering the aspect of fluid intake during physical activity, it was noted that more than every third respondent (85.6%) indicated that they consume isotonic fluids during physical activity. Few of them, 7.2% each, declared that they drink special liquids and water (Fig. 7).

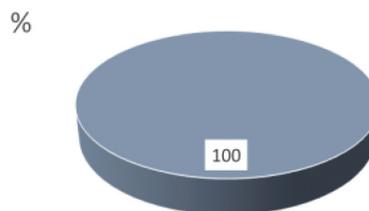


Fig. 8: Declaration of knowledge of heart rate and blood pressure standards and its interpretation by combat sports athletes (n=21)

A fundamental element of evidence of health is the level of knowledge about the importance of norms of normal blood pressure and resting heart rate. They all declared that they were able to measure and properly interpret the results (Fig. 8).

### Discussion

Physical activity, including sports, is an important element of a healthy lifestyle for children, adolescents and adults. Teenagers who train in sports clubs are also indirectly subjected to health education. Coaches and players strive to achieve positive sports results at the special stage. The entire process of sports training includes various means, methods and forms, and the role of the individualization of training and competition tasks in accordance with individual predispositions increases in the players themselves. At the special stage, tests of special fitness as well as general physical fitness play an important role. These tests are mainly used for informative purposes, but aimed at maintaining or raising motor skills to a higher level, on which players build a strategy of technical and tactical activities. The results achieved in the tests allow the trainer to make changes in the selection of appropriate training loads, forms and means (9-11).

Diversity in body composition can affect overall health and thus the quality of athletic performance. In general, in sports practice, the anthropometric method and the increasingly popular bioelectrical impedance analysis (BIA) method are used to analyse body composition. The BIA method is a non-invasive, reliable, effective and safe method of testing body composition with a wide range of applications. The method can be used both in athletes at various levels of sports, as well as in healthy people and people suffering from chronic diseases, with particular emphasis on diseases related to metabolism (16-19).

So far, however, the differences in achieving results in sports competitions, declared by combat sports athletes differing not only in BMI, but also in the type of fat, muscle mass and bone density, have not been analysed (20-25). Other tests can also be used to determine the potential of the athlete's body and energy expenditure (26,27).

To sum up, it should be emphasized that the results of the bioelectrical impedance analysis, especially in competitive sports, can help in creating a training plan as well as in determining the diet and lifestyle changes of the athlete, so as to achieve the correct ratio of adipose tissue to lean muscle mass, especially where in sports we are dealing with weight classes like in most combat sports. Bioelectrical impedance analysis is a reliable, clinically proven and useful way to study body composition and guide top athletes at European and world levels. During the body recomposition process, we have the opportunity to assess body composition, and thus we can adjust the diet accordingly. Both combat sports trainers and motor preparation trainers or personal trainers should use, apart from tests diagnosing the level of physical fitness, also anthropometric indicators, e.g. body composition (28).

### Conclusions

It was observed that all individual results of the subjects diagnosed with the BCA Tanita device are correct and fall within the norms of physically active people, such as people training combat sports. This proves the application of the principles of a healthy lifestyle. We can say that the level of knowledge of taekwondo athletes about a healthy lifestyle is high, because they are able to make a diagnosis, interpret the results and, in the case of values outside the health norm, use a repair algorithm in a professional sense.

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