

Fitness Abilities and BMI Students

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Abstract. *There are many publications that try to explain the problem of the influence of body composition on fitness abilities. The aim of this paper is to determine the extent to which body composition has an impact on the fitness abilities of female students. The method consisted of collecting relevant literature in the period 1996-2011. years, tabular presentation and further analysis. We conclude that elevated BMI is a big problem and is highly correlated with the fitness abilities of female students, limited movement, exercise, reduced endurance are just some of the issues. Encouraging a better diet, promoting and exercising fitness to a greater extent is one of the preconditions for timely sanctioning of this problem.*

Keywords - BMI; students; obesity; physical activity; fitness

1. INTRODUCTION

In recent years, lack of physical activity among students has become an increasingly common problem (ACHA, 2005; ACHA, 2008; Sacheck et al, 2010). The frequency of hypokinesia is more and more present and is the cause of many diseases (Mišigoj et al, 1999), among other things, obesity, ie. elevated body weight, which is perhaps the leading problem of today (Shaw et al, 2006). Body composition according to the American Association for Health, Physical Education, Recreation, and Dance (AAHPERD, 1989) represents the ratio of adipose, muscle, and bone tissue to total body mass. There are several ways to calculate the optimal body. The recommendation of the World Health Organization is to calculate by applying the body mass index. (body mass index). (Maité Garrouste-Orgeas et al, 2004). In general, women have a higher level of adipose tissue, mostly concentrated on the chest and hips, and have 33% weaker muscles. Bones are less dense, strong and heavy. Functionally, there are significant differences in the cardiovascular system, pulmonary ventilation, vital capacity and basal metabolism. Maximum aerobic capacity in women is 25% lower than in the male population. At rest, the heart rate in women is slightly higher than in men, and with an identical load, women also show a higher heart rate than men (Popović, 1998). Body composition and physical appearance change under the influence of exercise. The development of strength is mainly accompanied by an increase in muscle mass, and an increase in aerobic endurance is often accompanied by a decrease in subcutaneous adipose tissue (Stoiljković et al, 2005). Changes in body composition can be even more significant, when, in addition to specially programmed exercise, an appropriate diet is applied (Stoiljković, Đorđević-Nikić, Macura, 2005). Obesity is a limitation of movement, performing basic movements and a great barrier in the activities themselves. Obesity can occur at all stages of life, but is most often seen in the period before the end of adolescence (Kang, 1998). Obesity levels affect physical strength, speed, agility, muscle strength, and $BMI = \frac{m}{L^2}$ endurance (Ko, 1998). The aim of our work is to determine the extent to which BMI affects students' fitness abilities.

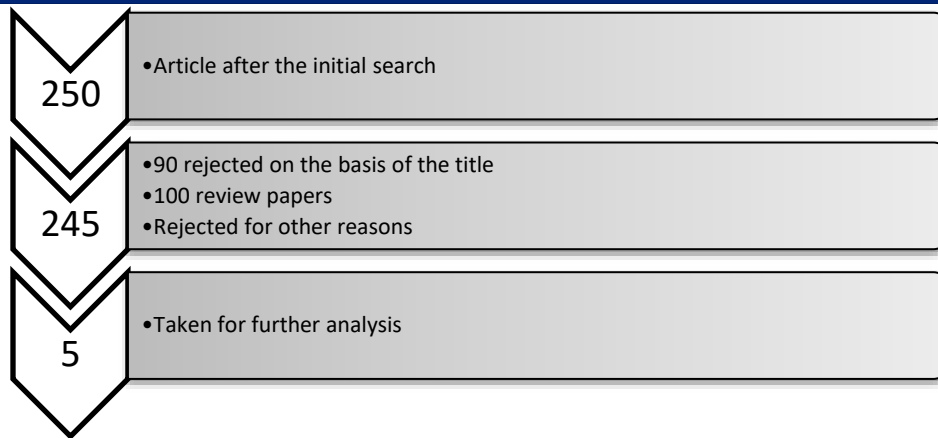
2. METHOD

Research data for the purposes of this review were collected through electronic search engines PubMed, Scholar Google, journals in the field of sports sciences as well as relevant literature that could answer the problem. Keywords used for electronic search: BMI, fitness skills, students, obesity, physical activity, fitness. A descriptive method was used in this paper.

The selection of works was determined on the basis of titles and key words. Two selection criteria were set. The first criterion refers to the issue of body composition and fitness ability. The second criterion was the analysis of works in the period from 1996 to 2014. Thirty original scientific papers were selected from the mentioned time period, which were close to the subject of research and met all the criteria for further consideration.

2.1 The course of the data download process

In a large period of eighteen years, the works that were closest to solving the given topic were included.



3. RESULTS

The results are shown in table no. 1. The content of the table has information about the first author and the year of publication, the sample of respondents (number, age and gender), briefly the relationships examined in the paper and the results, conclusions of the topic that the authors dealt with. The table shows thirty original scientific papers in the period 1996-2011. years.

Table 1. Review of papers taken for analysis

Author and year of publication	Respondents	Variables	Research results
Amine, et al. (1996)	students 566 F	Physical activity, prevalence of obesity	The aim of the study was to determine the prevalence of obesity in female students from the United Arab Emirates and their physical ability. The results show that 10.8% of female students are overweight and 30.6% are obese. Physical activity is largely limited, and a sedentary lifestyle if not changed will bring an even greater range of negativity.
Hye-Bok, et al. (2003)	students 158 F	BMI, physical activity	The relationship between BMI and strength, flexibility, endurance was tested. There are 3 groups according to the bmi index. From the conclusion we see that exercises: sit-ups, jumps, fitness-related exercises have significantly lower results in people with elevated BMI index. Obesity can occur at any time of life, and weight maintenance and activity are paramount.
Susan, et al (2005)	students 764 M / F	BMI, exercise, diet components	The aim was to assess body weight, impact on exercise and choice, ie. student nutrition. 53% female students, 47% male students. Weight gain may occur during study and diet. The questionnaire system showed that 229 students gained weight but there was no association with exercise.
WU, et al. (2006)	students - M / F	BMI, fitness skills, health	In female students with increased weight, vital capacity was significantly reduced compared to the control group. The old test and the long jump also showed poorer results in obese people. Excess weight has a bad effect on respiratory functions and muscles.
LU, Jian-qiang (2011)	students 7334 M / F	Fitness features, BMI	The results show that the body mass index is better in the female population compared to the male. A correlation was found between fitness and BMI in women. BMI is largely related to fitness abilities, ie. obese people have problems performing already basic movements.

The table shows thirty original scientific papers in the period 1996-2011. years. In a large period of eighteen years, the works that were able to provide a solution to the given topic were included. The aim was to determine the extent to which BMI affects students' fitness abilities. Many papers had the presence of both sexes, but in conclusion we gave an opinion regarding the female student population because it was foreseen by the assignment.

4. DISCUSSION

Based on the interpreted results of the 5 papers we have included in the research, we present the most important details of these authors. The first two works of the authors (EK, Amine, et al. 1996) point out that physical activity is limited, and that obesity has a great impact on that, performing exercises is difficult. Compared to the male student population, both studies show an increase in obesity among female students, which is justified in percentage terms. Sedentary life in the future can bring bigger problems, so it is recommended to practice physical activities and confront the problem. (Hye-Bok et al, 2003) examined the relationships between BMI, strength, flexibility, endurance. The analysis showed that people with lower BMI have bad attitudes towards people with higher BMI. In (WU, Xin-yu. Et al, 2006), we found a negative correlation between weight and maximal oxygen intake, after testing in both sexes a decrease in VO₂max was found, students who were obese had higher energy expenditure and poor to moderate ability. Also, movement was limited due to the presence of obesity, and if the problem is not sanctioned in time, the outcome could be much worse. (Susan, BR et al, 2005), in this paper no link was found between BMI and exercise, although 47% of students increased their weight by coming to study. (LIU, Jian-qiang, 2011), obese, especially female students had limited physical abilities, a correlation was found between fitness and BMI in women. Weaker fitness was found in obese, high blood pressure, Heart beats. Correlations were found between BMI and the amount of steps in female students measured using a pedometer. The relationship between obesity / obesity / fitness activities was examined. Many of them avoided activities only for the sake of other participants and hid from the eyes of others — non-obese, using the Bumpu test of 3 min. a reduced condition of obese female students was found. (Sameer, S. et al, 2013); Maryam, RS et al, 2013) point out that students with lower BMI have much better performance. (Nicole, A. et al, 2013); Lemut, I., 2014). The works were constructed in a survey, students with elevated BMI did not present real data and hid the truth, which proves that BMI is a problem and limits their abilities, while in another survey concerning self-esteem related to body appearance.

5. CONCLUSION

Our findings show an increasing problem of reduced movement, which causes weight gain in female students and it is unfortunately still constantly increasing, the same agreement is found in some authors. Female students with elevated BMI have limited mobility compared to those who keep their BMI within normal limits. People with increased body composition have significantly higher energy consumption in some activities that almost do not require it, they get tired faster, coordination is reduced, the occurrence of hypertension is more frequent, and the heart rate is accelerated. A clear link between body composition and fitness ability is reflected in reduced endurance, flexibility and agility in female students. Also, people who are prone to an obese look have less self-confidence, their self-esteem is impaired and they resort to the eyes of other students, probably due to reduced education about fitness activities and their importance. If we want to sanction the problem, more attention should certainly be paid to the control of nutrition, the manner and quality of the above, more frequent promotions of fitness activities and its importance.

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