

LONGITUDINAL RESEARCH OF BODY MASS INDEX OF NEWLY ACCEPTED FEMALE STUDENTS AT CT “TODOR KABLESHKOV”

(Preliminary communication)

Diana Peeva¹ and Marina Nedkova²

¹College of Transport “Todor Kableshkov”, Sofia, Bulgaria

²National Sports Academy “Vasil Levski”, PhD student
Department of Theory of Physical Education, Sofia, Bulgaria

Abstract

The article describes a thorough research of weight - height ratio of newly accepted female students which is known as body mass index and is used as dynamical indicator of physical development of the individual. The results were processed statistically; conclusions related not only with students' physical conditions but also with teachers work have been made.

Keywords: anthropometrical indicators, body mass index, physical development, physical condition, body weight, body height, BMI coefficient, mean, standard deviation

INTRODUCTION

In the period between 2001/2002 to 2011/2012 we made a research of anthropometrical indicators of newly accepted female students in CT “Todor Kableshkov” by manner of specific criteria. According to researchers in science literature there is an insignificant connection between aging and increasing of height and weight while studying in college/university. On the other hand other researches claim that these changes occur in later ages.

In our research except the conventional anthropometrics we measured the individual body mass index as known as a BMI and is calculated by the following formula:

$$BMI = \frac{W}{h^2},$$

Where *BMI* – body mass index; *W* – weight, kg; *h*² – height, m.

The index gathers wide popularity in the 50's and 60's of the last century when people overweight reached large percentage in Europe and the USA. The BMI values are proportional for reference purposes only because the ideal weight depends on whether it is based on muscle mass or under skin fats. This causes a problem, mainly amongst the athletes, whom muscles weights more than

their under skin fat. That is why active athletes may be classified as “over weighted” according to BMI without this being true. For this reason BMI is mainly used for statistics as indicator for the level of weightiness of the population since the 80's.

METHODS

Main target of the research are different number of first grade female students at CT “Todor Kableshkov” because each year the freshmen number is different (Table 1.).

The main parameters of the research are height, weight, wrinkle, waist and BMI. Extra attention is directed toward the BMI.

RESULTS

BMI coefficient and it's relation with the condition of the organism by means of weight is shown in Table 2.

BMI coefficient between 18.5 and 24.99 for adults is considered as normal weight. 9/10 participants in the research belongs into this interval but there is a significant shift (72%) towards the upper limit which proves tendency for overweighting. BMI values above 25 are considered as overweight. 10% of the examined students were in this group

Table 1: Number of female students in the research through years

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
Number	20	20	115	117	108	103	110	102	107	101	115	1218

Table 2. BMI and organism condition
(Oiya & Taksworth, 1995)

Condition	BMI
Underweight	Below 18.5
Heavy malnutrition	Below 16.0
Middle malnutrition	16.00 – 16.99
Light malnutrition	17.00-18.49
Normal weight	18.5 – 24.99
Overweight	Over 25.00
Toward obesity	25.00 – 29.99
Obesity	Over 30.00
High obesity	Over 40.00

Table 3: Statistical references of BMI

Year	X	S	V	Max	Min
2001	22,3	2,23	2,1	26,8	19,1
2002	23.4	2,14	2,5	27,1	20,1
2003	23.9	3,13	3,1	26,3	21,7
2004	24.1	2,01	9,0	28,1	20,1
2005	23.8	1,37	12,0	27,2	19,8
2006	24.2	1,99	2,7	27,9	20,5
2007	23.6	3,12	3,8	26,5	18,8
2008	23.2	2,25	4,9	27,0	21,1
2009	22.7	2,11	3,1	25,9	21,5
2010	21.9	1,98	4,1	26,5	19,2
2011	23,1	1,35	1,8	26,1	20,3

Table 4. BMI comparison through the years

Year	BMI
2001	22.3
2002	23.4
2003	23.9
2004	24.1
2005	23.3
2006	24.2
2007	23.6
2008	23.3
2009	22.7
2010	21.9
2011	23.1

CONCLUSION

The analysis of the statistical data allows us to develop the following conclusions:

1. Increase in hypo dynamics among freshmen

female students, except the year 2010, causes BMI increase. Disturbing results for years 2004 and 2006 in which there is serious gain of BMI towards the overweight.

2. BMI is informative indicator but it's high values bring out many tasks to be solved by physical education in colleges/universities – change in load of lessons, new approach to motivation of female students and participation in classes, more variety of sports etc.

3. BMI and its dynamics could be used for quality proof of teachers work not only in high schools but also in universities.

REFERENCES

- Ангелов, А., Гачев, Е., Данчев, К., Кръшкова, К., Николов, Т., & Сирков, Л. (1985). *Методи за оценка на антропометричния статус*. [Methods for assessing the anthropometrical nutritional status.] София: Университетско издателство „Св. Климент Охридски“.
- Bray, G.A. (1989). Classification and evaluation of obesity. *Medical Clinics of North America*, 73(1), 161-184.
- Брогли, Я. (1988). *Статистически методи в спорта*. [Statistical method in sport. In Bulgarian.] София: Медицина и физкултура.
- Daskalovski, B., Zafirovska, A., & Shukova-Stojmanovska, D. (2013). Value of BMI (Bodi Mass Index) in basketball players of BC Vardar – Skopje. *Research in Kinesiology*, 41(1), 124-126.
- Doncheva, M. (2011). The Bodi mass index (BMI) as an indicator of the health status and the physical efficiency of students at the Technical University of Varna. *Research in Kinesiology*, 39(2), 193-196.
- McArdle, W.D., Katch, F.I., & Katch, V.L. (2004). *Sports & exercise nutrition*. New York: Lippincot Williams & Wilkins
- Oiya, P., & Tacksuort, B. (1995) *Eurofit for adults*. Strasbourg: Council of Europe.
- Пеева, Д. (2008) *Оптимизиране на учебния процес по физическо възпитание и спорт във висшите училища чрез въвеждане на нови и нетрадиционни спортове*. [Optimization of the university's physical education study process by implementation of new nontraditional sports. In Bulgarian.] (Unpublished doctoral dissertation, National Sports Academy "Vassil Levski" Sofia) София: Национална спортна академия "Васил Левски".
- Петкова, Л., & Кватерникова, М. (1985). *Тестове за оценяване на физическата дееспособност*. [Physical capabilities evaluation tests. In Bulgarian.] София: Медицина и физкултура.
- Рачев, К. (1984) *Теория и методика на физическото възпитание*. [Theory and methodology of physical education. In Bulgarian.] София: Медицина и физкултура.
- Stanfield, P., & Hui, Y.H. (1997). *Nutrition and Diet Therapy: Self-instructional Modules*. Sudbury: Jones & Bartlett Publishers.

Correspondence:

Diana Peeva

College of Transport "Todor Kableskov", Sofia

158 Geo Milev Str., 1574 Sofia Bulgaria

E-mail: diana_peeva_1972@abv.bg