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*Original article*

## TENDENCY FOR OBESITY IN STUDENTS WITHIN 12-15 YEAR OLD AGE GROUP

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### Abstract

*Purpose.* In the past decade, in Albania, there has been an increase in the percentage of overweight and obese children. Some of the causes influencing obesity are the technological development, unhealthy eating habits, passive lifestyle, etc.

*The purpose* of this study is to analyze and define the body mass index for students in the middle school averaging from 12 to 15 years of age. The results of this study will help define the objectives of the physical education course that will improve health and wellbeing in children belonging to this age group.

*Methods.* For this study, 120 male and female students were randomly selected. The study took place in "Jeronim De Rada" middle school. For every participant the following information was gathered: height, weight and waist line. The data processed in excel and the results were reflected in tables and graphs.

*Results.* Male students belonging to 12 year old age group have the highest percentage of underweight at about 33.3%, whereas male students belonging to the 15 year old age have the highest percentage of obesity at about 10%. On the other hand, female students belonging to the 12 year old age group score within the normal weight range with about 63.3%, whereas female students belonging to the 15 year old age group have the highest percentage of obesity with a percentage of 23.3%.

*Conclusions.* After the age of puberty, an increase in weight beyond the normal parameters is noticed in both male and female students. There has been a significant increase in the number of overweight male and female students between 12 and 15 years of age averaging 13% and 6.7% respectively.

*Keywords:* overweight, obesity, student, body mass index.

### Introduction

Obesity is an excess accumulation of body fat, often 20% or more, over the ideal weight level, which may have an adverse effect on the normal functions of organs in the human body, leading to health problems and reduced life expectancy. Overweight adolescents aged 12-15 years consume between 700 to 1,000 more calories per day than what's needed for the growth, physical activity and body function of a healthy weight teen. Over the course of 10 years, this excess can pack on 57 unnecessary pounds (Wang, Gortmaker, Sobol, and Kuntz, 2006).

In our country, obesity as a concern has been only recently escalated at a national level, even though its signs have been present for some time.

These findings have been supported not only by various studies, but also by the fact that today Albania is an open society and there is an abundance of information related to the issue at hand. Many of the developed European countries have recognized obesity as an issue long before and have taken various preventive measures against what they call the disease of the century. Albania is in the initial stage of recognizing the issue of obesity and it is mainly focused on the conduct of scientific research about the issue at hand. Nowadays in

Albania, even though there is an increase of obesity in school age children, there has been a significant decrease in the physical education activities incorporated as part of school curriculum. We believe that this is a paradox which needs to be fixed.

Although traditionally viewed as an "adult" illness, the rise in childhood overweight and obesity has corresponded to an increasing proportion of youths with type 2 diabetes, particularly among adolescent minority populations (The Writing Group for the SEARCH for Diabetes in Youth Study, 2007).

Rapid economic growth has improved the nutritional, socioeconomic and health status of many countries (Freedman, Dietz, Srinivasan, Berenson, 1999).

Every year, in other developed countries hundreds of thousands of dollars are invested on funding preventive initiatives against obesity in children. In the past two decades, most of these initiatives have been aimed at increasing the physical activity in schools especially up to 12<sup>th</sup> grade level. It seems like only Albania is an exception in the massive fight against obesity.

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**Methods**

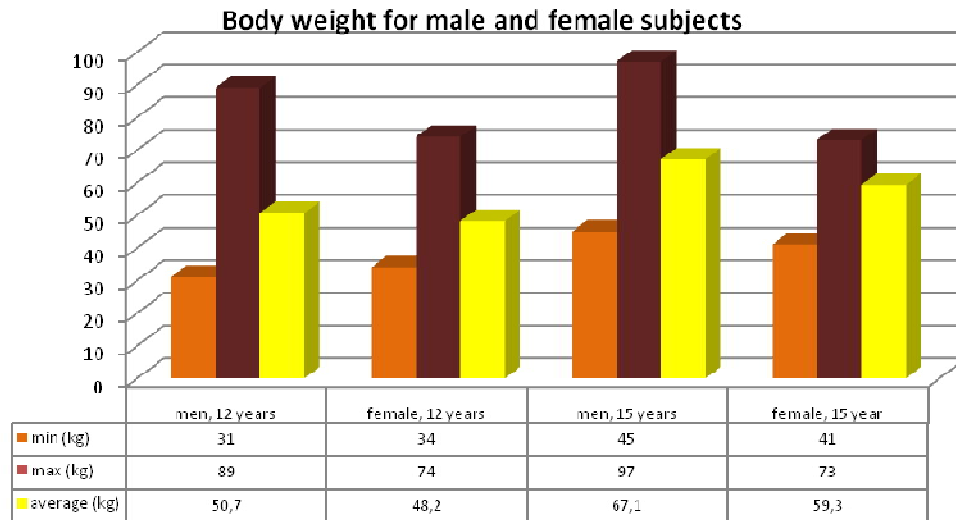
The objective of this study was the measurement of the height, weight and waistline in a group of 120 male and female students between 12 and 15 years of age from "Jeronin De Rada" middle school.

The subjects in this study were tested under the same optimal conditions. They were not suffering from any medical condition and they were not taking any type of medication at the time of study.

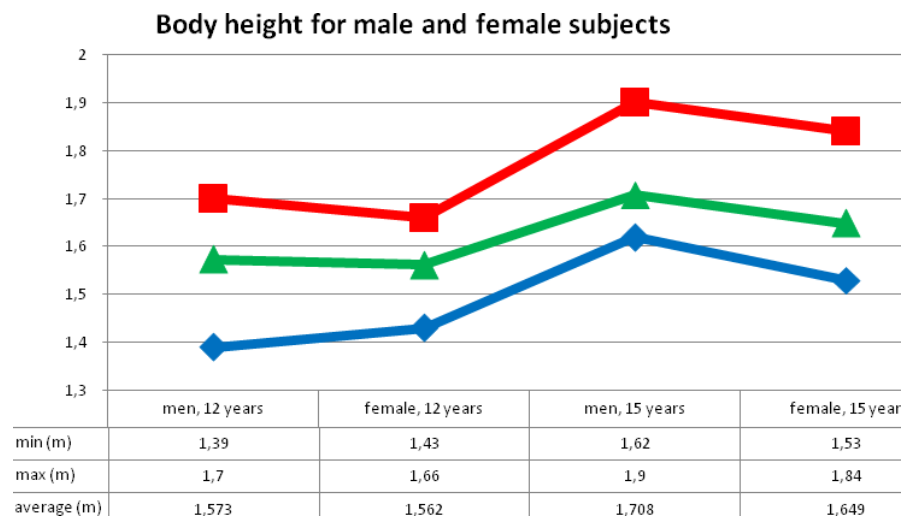
For all 120 students in the study, the BMI measurement was based on three indicators: weight, height and waist line.

The measurements were taken during January-February 2013 and they are evidenced in the respective tables. The data were analyzed and used to calculate BMI and Obesity levels in formulas specified by American College of Sports. The data were processed in excel and the findings are reflected in the respective graphs.

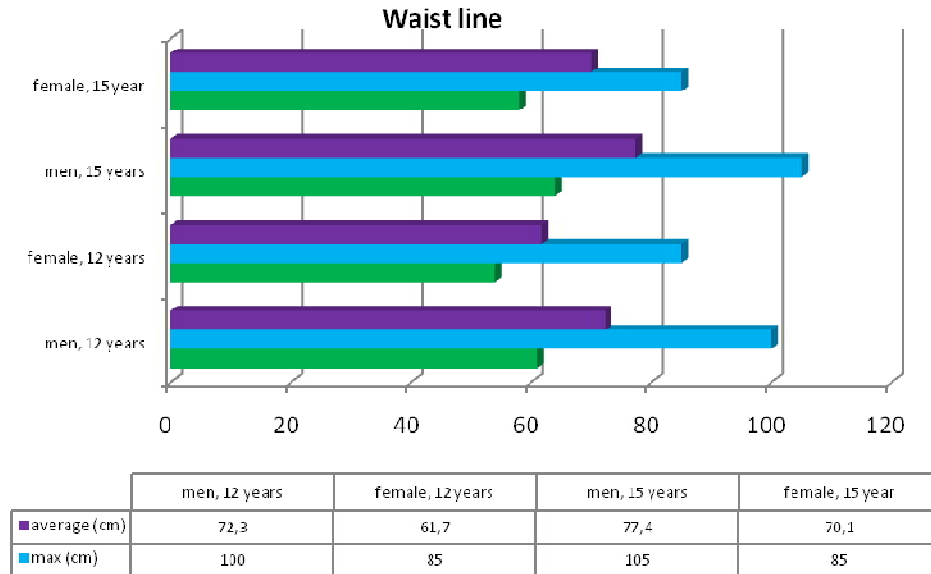
**Results**



**Figure 1.** This graph depicts the average body weight in kg for the male and female subjects in the study belonging to the 12-15 year old age group. It is obvious that in this age group the increase in body weight higher in the female subjects compared to the male subjects.

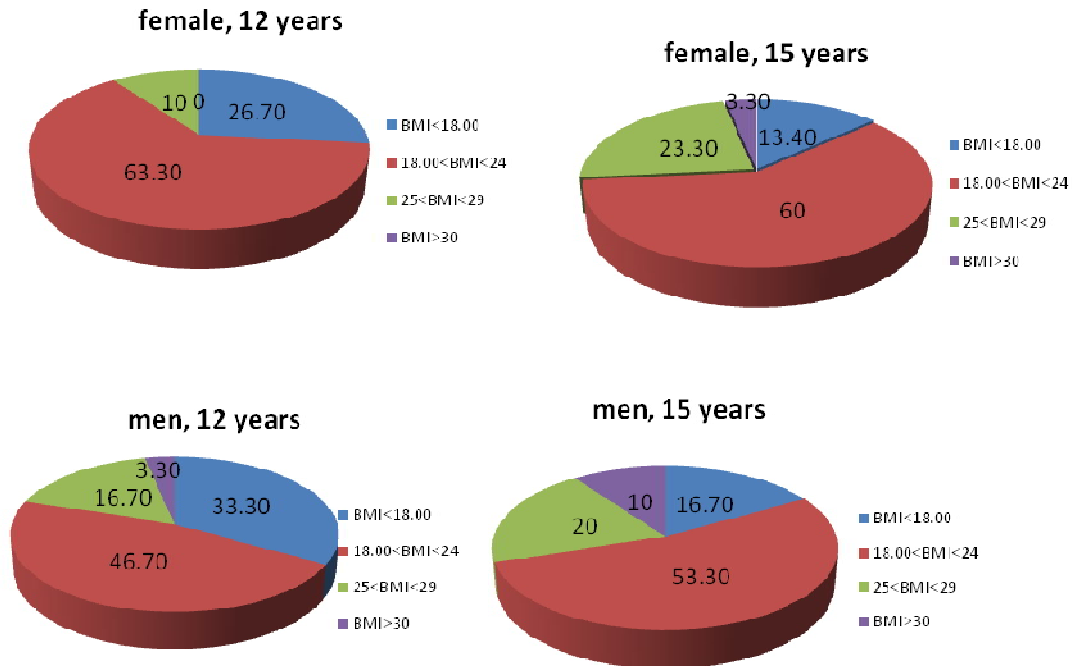


**Figure 2.** This graph depicts the body height for ages 12 to 15. From age 12 to 15, the biggest increase in body height is noticed in the male group compared to the female group. This indicator is also related to the fact that female bodies develop at a faster pace up to age 12 which is the age of puberty. In males, body growth reaches its highest peak after the age of 12.



**Figure 3.** This graph depicts waist line results gathered from all subjects in this study. A higher increase in the waistline is noticed in the female group between age 12-15 compared to the male subjects in the same age group. The smaller increase in the waist line of the male subjects is also explained by the fact that males' body height increases faster compared to the females in this age group.

**Body mass index**



**Figure 4.** This graph depicts the body mass index percentage for both male and female subjects.



Females belonging in the 12 year old age group have the highest percentage of normal weight level with about 63.3%, whereas females in the 15 year old age group have the highest level of obesity of about 23.3%.

### Discussion

Previous comprehensive reviews have looked at prevalence levels of obesity in pre-school children (27/29) and in school-age children (Lobstein, Baur, Uauy, 2004).

The average biological age of the females was 12.3 to 15.1 whereas for the males it was 12.6 to 15.2. Based on the data gathered with respect to highest, lowest and average BMI index and obesity levels, we can further discuss present conditions, future developments of these indicators and the high importance of physical education/activity in our times. These findings will help us understand our children's lifestyle trends from year to year. Males in the 12 year old age group have the highest level of underweight of about 33.3%, whereas males in the 15 year old age group have the highest level of obesity of about 10%. Females in the 12 year old age group have the highest percentage of normal weight level with about 63.3% whereas females belonging to the 15 year old age group have the highest overweight levels with about 23.3 %.

The average body weight has increased by 11kg or about 18.7% in the females group and by 16.4kg or 24.4% in the male group (see Fig.1). The increase in body weight is higher in male group with about 5.3kg or 5.7% more than their female counterparts and this increase has an influence in their personality development. Despite these findings, the conclusion would be inaccurate if we did not correlate the body weight with body height. It has been noticed that the indicator of body height from age 12-15 has an increase of 8.7cm in the female group and 13.7cm in the male group of the same age. This means that the growth of body height, on average, is 5cm or 3.6% more in males than in females in the 12-15 year old age group.

Therefore, in this age group, males show a faster development in height and weight, which plays a role in their physical appearance as well as in the development of their personality and mentality. Body mass index increases from age to age. While at age 12, the body mass index in females is 19.75 and in males 20.53, at age 15 BMI increases to 21.8 for females and 23.14 in males.

It looks like BMI index increases either because there is a lack of the physical activity as required for each age group, or because the time spent on physical activity does not change as age progresses. The gap is more obvious in female group, by 11%, and it gets wider as age progresses, especially when females reach high school age.

### Conclusion

After age of puberty, females and males alike, show an increase in body weight beyond normal levels. Obese children are at a higher risk for psychosocial problems, fatty liver, orthopedic-related problems and sleep apnea (Kershner, Daniels, Imperatore, 2006). A higher increase in obesity is noticed in females with 13% compared to 6.7% in males of the same age group, i.e. 12-15 years of age. During school age, especially after 5<sup>th</sup> grade (12 year old age group), males experience a faster anthropometric development than their female counterparts. As measured in our experimental group, males had 5.7% more body weight and 3.6% more body height compared to the female group.

The fast development in weight and height serves as a factor in the development of personality in males of this age group. Overweight and obesity are associated with a 52% and 60% increased risk, respectively, for new diagnoses of asthma among children and adolescents (Gilliland, Berhane, Islam, 2003).

Based on the results of this study, I believe that physical education classes should be incorporated as part of school curriculum at junior school level. Although the prevalence values of childhood obesity in this study are lower than those of other studies from similar settings (Chhatwal, Verma, SK. Riar, 2004; Kapil, Singh, Pathak, Dwivedi, Bhasin, 2002). This will serve as an early exposure to physical activity for our students and in time will definitely improve the health of the 12-15 year old age group. Lack of didactic measures at schools coupled with lack of sports and recreational areas are one of the main causes of obesity in males and females alike. The sedentary lifestyle of children and adolescents have been attributed mainly to television viewing, computer games, internet, overemphasis on academic excellence, unscientific urban planning and ever-increasing automated transport (Bar-Or, Foreyt, Bouchard, Brownell, Dietz, Ravussin, 1998). There is also a lack of motivation shown by parents and society in general; young people are more interested in computerized games and television; another negative factor is unhealthy eating habits, fast food and an increase in the quantity of contaminated foods. Inactivity and passive lifestyle in this age group has increased enormously and has largely contributed to the increase of obesity as a disease of our modern society. Educational institutions should design policies that help in the development of sports as an urgent preventive measure towards obesity, a threat that our society may have to face in the near future.

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