

Prognosis of the Body Height of Students in UST and Sportsmen in Relation to Their Parents

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Abstract

The study focuses on measuring the body height of first year, second year and third year UST students and some sportsmen of national teams in the male category. Besides this, a measurement of their parents' body height has been calculated, respectively their mothers and fathers of these students and quality sportsmen. The evaluation of body height is achieved with standard measurement, which is done with tools available at every sport environment. 127 male students are considered in this study, with their own approval, whom are from sport categories: soccer, athletics, basketball, volleyball and other sports. Simultaneously, measurements were taken for the body height index from 254 parents, 127 fathers and 127 mothers of the same students. All these data have been undergoing statistical processing through regressive analysis, concluding with regression equations. By measuring the body height of the UST students and some sportsmen of national teams, and that of their parents it was possible to evaluate the statistical parameters, arithmetic mean, quadratic standard deviation, the coefficient of variation, safety intervals, in order to reach a statistical relationship between them and given the statistical relationships, to present the regression equation, which can help us to predict the body height of children when they are systematically involved in sports.

1. Analysis of the study

From generation to generation, the body height of sportsmen in Albania has shown an improvement. This conclusion is already evident in many sports, especially in those like basketball, volleyball, athletics, extending as well to other areas. However, independently of this conclusion, it should be accepted that the realization of a vertical study for measuring and evaluating the body height index of people that are involved in systematic sports has been absent. For this reason, we have measured and studied the body height of UST students and their parents. The following tables describe in more detail this issue (tables nr. 1, 2)

Body height of UST students categorized in four groups.

Table 1. Males

Nr.	Sports	Number of students	Body height of students measured			
			up to 170 cm	171-180	181-190	+191 cm.
1.	Soccer	56 studentë	5	31	19	1 student
2.	Athletics	36 "	3	18	13	2 students
3.	Volleyball Basketball	24 "	--	2	14	8 students
4.	Other sports	11 "	3	6	2	--
5.	Total	127	11	56	48	12 students
	In %	100 %	8.7 %	44.1 %	37.8 %	9.4 %

In this study 127 students and sportsmen have been measured and analyzed, from whom 8.7% or 11 students are of body height up to 170 cm., 44.1% or 56 students are of body height 171 – 180 cm., 37.8% or 48 students are of body height 181 - 190 cm. and 9.4 % or 12 students are of body height over 191 cm. Therefore, the main weight falls under the body height from 171 cm. up to 190 cm.

The body height of parents of male UST students

Tabela 2.

Nr.	Parents	Their number	Body height of the parents of students			
			Up to 170 cm.	171-180	181-190	+191 cm.
1.	Fathers	127	25 fathers 19.7 %	58 45.7 %	39 30.7 %	5 3.9 %
			Up to 160 cm.	161-170	171-180	+181 cm.
2.	Mothers	127	22 mothers 17.3 %	65 51.2 %	37 29.1 %	3 2.4 %

If we are to compare the above two tables we would notice that the fathers of students with body height below 170 cm. are 19.7% of the total of 127 observed. Therefore, if we compare the body height among students and their fathers we obtain a positive difference of 11%. This difference is similar even in the other body heights measured. The conclusive observation is that the body heights of UST students is higher than their fathers. Meanwhile, it must be accepted that independently of other cases of measurements that show a difference between body heights of students and their fathers, with an insignificant and even detached cases with even lower measures than their fathers, we can still conclude that the dominance of body height of students as compared to their fathers holds a positive sign.

Therefore, through this experiment we have aimed to realize the relationship of the body height index of sportsmen and their parents. In order to statistically prove these relationships we have conducted a research for over a year in measuring the body height of students and their parents. Along the way, we have utilized the aid of applied mathematics, which has made possible the statistical elaboration by methods of statistical mathematics.

In order to statistically prove the data of the study we have elaborated on simple statistics and for every body height of UST students, quality sportsmen and their parents, statistical parameters were evaluated, such as arithmetic mean, quadratic standard deviation, coefficient of variation and safety intervals for the mean.

In basis of data elaboration we notice a not so strong correlation from the relationship between the data of body height.

1.1 Analysis

Since $R=0.65$ and $R^2=0.43$ we understand that the body height of male students is explained by 43% of the sample in relation to the body height of their mothers. Likewise, $R=0.65$ tells us that there exists a linear relationship between body heights of males and LT of their mothers in the same direction and with positive sign, but this relationship is linearly not very strong, because R is greater than a coefficient of 0.75.

The existing relationship between male students and their mothers is quite good, since we are considering $R=0.65$ and $R^2=0.43$. Based on the above information, the regression equation for measuring the body height of males and their mothers is like follows:

$$Y = 21.801 + 0.95 \times X_1$$

Where; X_1 = Mothers' body height Y = Male students' body height

2. Male students and their fathers

The relationship that exists between male students and their father is better than the first case, considering $R = 0,694$. and $R^2 = 0,482$. Because the R values for a very strong relationship tends towards $R > 0.75$ dhe $R^2 > 0.85$, we say that the relationship is relatively strong, but not very strong. In the case where $R^2=0.48$ we should understand that the height of male students is explained by 48% of the sample, whereas $R=0.69$ shows a relationship between the height of male students and the height of the father in the same direction. In this case, the equation is presented like follows:

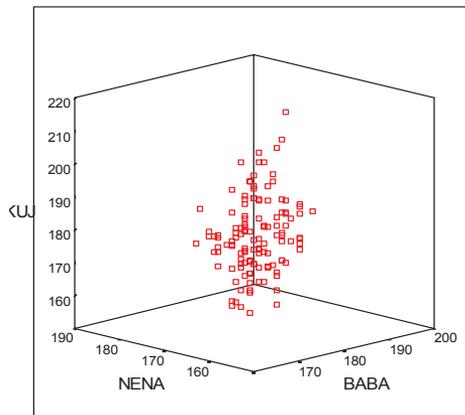
$$Y = 30,172 + 0,84 \times X_1$$

Where; X_1 = Height of fathers Y = Body height of male students

3. Analysis of relationships of LT of male students and their parents

The analysis of statistical relationships between male students and their mothers and fathers is done up to this point only for each relationship with one of the parents. Meanwhile, for purposes of a fuller and more important predictability of body height of students and their parents included in this study, we have obtained a joint statistical equation that includes in it both parents, which means that the body height of male students and their parents is of a specific order. Besides that, a

graphical representation of the statistical relationships is important as well, which can be shown below.
The representation is made in three dimensions. (graph nr1.)



3.1 Analysis

Since $R^2=0,549$, then we can conclude that LT of UST male students is explained by 54% of the sample from LT of both parents. When we have this order of evaluation we can conclude that there is a good statistical relationship. The very good evaluation happens only when the relationship is of order over $R=0.75$. Expressed in a regression equation the relationship is as follows:

$$Y = 3.098 + 0.56 \times X1 + 0.504 \times X2$$

Where - Y = Body height of male students X1 = LT of fathers X2 = LT of mothers

4. Final conclusions

1. The study of body height of UST students follows the prognostic studies, which are an important support for young parents that have been engaged in sports and others that aim to involve their children with sport activities. Accordingly, it should be stressed that such studies are of vertical dimension, since we are dealing with final body proportions, of sportsmen, as well as their parents.
2. The statistical elaboration of the material clarifies us of the body height of UST students and some sportsmen of national teams, as well as the variability that they have compared to their parents. This comparison shows that the improvement is with a positive sign and with high and distinct average values.
3. Despite the fact that the statistical proof is not of a very good order, we still think that the regression equations are a serious support in evaluating the body height in the future. Therefore, the order of the group 0.684 is in the borders of order 0.75, an order which appears with very strong statistical relationships.
4. Despite the fact that the study has mentioned only the students that are involved in sports, it is still important to emphasize the need for efforts in the future regarding comparative studies with people that regularly deal with sport activities and with others that don't practice sport systematically. Thus, the findings of statistical relationships and the comparison between these two contingents, which should and have to be taken into consideration for a study, will provide us with a clear picture of how and how much sport influences the height of children and the young.

References

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