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Comparative study of maturity status between 16 and 18 years school boys of Chandigarh

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Abstract

The present study was selected to compare maturity status between 100 school boys of Chandigarh aged between 16 and 18 years. To find out the maturity status of boys in terms of early, later and normal developers. The body development index (BDI) was determined by different Anthropometric measurements. T ratio was used to find out the significance difference between the different age group of school boys of Chandigarh. The result of this study was that the maturity plays an important role in our life. This study will help the students to improve their health and to enhance their performance in the field of games and sports.

Keywords: Body development index, Anthropometric

Introduction

Maturation is a process, where maturity is a state. Maturation implies progress toward maturity. In case of children and adolescents, the term maturity refers to the extent to which individual has progressed to the mature state or adulthood. Malina (1980) maturity is a variably used term and in growth studies most commonly used term to indicate sexual maturity or attainment of adulthood, through various physiological and hormonal changes that occur in human body. These changes occur during adolescent growth period. But according to Tanner (1978) these changes do not arise suddenly during maturation (adolescent period) though these are more obvious then, as these are present in all stages of life from birth to death. Just as an average girl is always ahead in maturity than an average boy, similarly an early maturing boy is always ahead than a late maturity boy. It is interesting to note that each child has an inborn biological maturation that influences progress to the mature state. A child's biological maturation does not necessarily proceed in concern with the child's chronological age with a group of children of same sex and same chronological age variation will occur in biological age. Some children are biologically in advance of their chronological age and others lay behind. For example, during adolescent period children are seen in all stages of their development i:e in a group of children having chronological age of 14 years, there are three possibilities regarding their biological age or developmental age.

Material and Methods

There are several methods of sampling such as Stratified sampling, purposive sampling, incidental sampling and random sampling. In the present study an effort was made to employ purposive sampling technique. Purposive sampling technique was employed to collect data for the boys of 16 and 18 years of different schools of Chandigarh. The data of 100 boys ranging in age of 16 and 18 years were collected from different schools of Chandigarh. The subjects were divided into two groups i:e (16 and 18 years), Each group contain 50 subjects. The date of birth was converted into decimal age and categorized into 7 groups. The subjects following in the age group of 11.50 – 12.50 were considered as 12 years similarly the other group were formed. The body development index was determined by taking the following Anthropometric measurements:

1. Body weight (kg)
2. Body height (cm)
3. Forearm circumference (cm)

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4. Bicrominal breadth (cm)
5. Billiospinal breadth (cm)

The formula to calculate BDI was used to find out body development index of each subject, the method is explained as follows:

$$BDI = \frac{\text{Middle breadth} \times \text{Forearm circumference}}{\text{Body height (cm)} \times 10}$$

$$\text{Middle breadth} = \frac{\text{Bicrominal breadth} + \text{Billiospinal breadth}}{2}$$

$$\text{Forearm circumference (corrected)} = \frac{2 \times F. A. \text{ circumference (given)} - R. I. \text{ (corrective value)}}{10}$$

$$R. I. \text{ (Rohrer index)} = \frac{\text{Body weight (kg)} \times 10}{\text{Body height (meter)}}$$

Table 1

Age Group (in years)	Group considered as	No. of subjects
15.50 – 16.50	16 years	50
17.50 – 18.50	18 years	50

Total no. of male subjects examined = 100

These male 100 students were examined for their chronological age and development age. Then required statistical analysis was done to present the results.

The findings of the study are discussed as under:

Decimal age

Table 2: Mean and SD of decimal age for the Boys of Chronological age 12 to 18 years

Age Group (in years)	Group considered as	No. of subjects	Mean decimal	S. D Age
15.50 – 16.50	16 years	50	16.005	.330
17.50 – 18.50	18 years	50	17.836	.290

This table have represented the mean and standard deviation values of decimal age for all the boys belonging to the age groups of 16 and 18 years. The first age group which contains the boys belonging to the age group of 15.501 to 16.500 years have shown the mean decimal age as 16.005 years with standard deviations as 0.330 and second age group has shown the mean decimal age as 17.836 years with S. D value as 0.290.

Table 3: Mean and SD of decimal age for the Boys of Chronological age and developmental age of boys of age group of 12 to 18 years

Age	Mean chronological age (years)	Mean developmental age (years)	t-test value
16	16.005	14.580	3.971 S**
18	17.837	13.960	7.585 S**

S** = Significance at 1 % level

Table no. 3 has shown the comparison between chronological age and developmental age for the male children belonging to the age group of 16 and 18 years during their examination. From the result of the above table, it has been observed that in the examination, chronological age and developmental age has shown statistically difference at 1% level in all the groups belonging to 16 and 18 years. In these age groups of boys passed lesser development age as compared to their chronological age in their testing and this difference is of approximately 2 to 3 years.

Table 4: Distribution of Boys on the basis of their maturity status for age group of 12 years (i:e 11.501 to 12.500)

Maturity status	Number of subjects	Percentage of distribution
Early	10	20
Normal	11	22
Late	29	58

The table no. 4 has depicted the number of subjects and their percentage distribution on the basis of their physiological development for the boys of age group 16 years during their testing. Above results have shown that out of total 50 male subjects 20% (i:e 10) were early, 22 (i:e 11) were normal and 58% (i:e 29) were late in their biological development.

Table 5: Distribution of Boys on the basis of their maturity status for age group of 14 years (i:e 13.501 to 14.500)

Maturity status	Number of subjects	Percentage of distribution
Early	33	66
Normal	17	34

The table no. 5 has represented the number of subjects and their percentage distribution who belonged to the age group of 18 years during their testing. Results presented in the above table have shown that out of 50 male subjects only 34% were normal in their maturity status and approximately double of normal i.e. 66% were found to be early mature. No subject was found in late maturity group.

Conclusion

The conclusion of this study was that the maturity plays an important role in our life. This study will help the students to improve their health and to enhance their performance in the field of games and sports. It helps the individual to know about growth of their body. The Body development index shows their health status and through this test they can work on their body to maintain fitness.

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