

# Comparison of Different Categories of Maturity Levels of Students

## Abstract

The aim of this research paper is to assess and compare the different categories of maturity level of school students of age 15 and 16 years s. For this purpose a data of 100 boys of age group 15 to 16 years has been collected from different schools of Punjab. All subjects divided into two groups i.e. 15 and 16 years. Each group has 50 students. Then their decimal age according to Tanner 1964 (table) and their developmental age according to B.D.I. method have been assessed. It has been observed that the subjects of age group 15 years out of 50 boys, 26% normal, 14 % early, 60 % were late mature and at age group 16 years out of 50 boys, 40% normal 12 % early 48 % were late mature.

**Keywords:** Maturity Level, Developmental Age, School Boys.

## Introduction

Although every person experiences growth and development uniquely, the patterns are almost similar for all humans. Different tissues and different regions of the body mature at different rates, and the growth and development of a child consist of a highly complex series of changes. It is like the weaving of a cloth whose pattern never repeats itself. The underlying threads, each coming off its reel at its own rhythm, interact with one another continuously, in a manner always highly regulated and controlled.

In many research papers and studies shows that regular training accelerates the growth process. Increase in stature and weight has also been seen when regular endurance training was given. (Godin 1920, Ekbohm 1969, Ericson 1972). It is important to know that children subjected to training were adolescents. Thus it is very difficult to attribute these differences to the specific effect of exercise. Human beings like other animals start life a single fertilized ovum, in mother's womb, develop into infants in the womb and then meet the large world of adulthood through an organized and channelized phenomenon of growth. Growth and development in humans occurs over a lifetime. At every stage of life, there are physical and psychological changes in the human body.

Growth, development and maturity, these three concepts are more often used together and sometimes considered as synonymous. But it is important to realize that growth, development and maturity are essentially three different concepts. Growth implies changes in size and shape only, development means the integrated functioning of the body, emotional makeup and motor behavior etc, while maturity means maturation of various biological systems towards the adult status. In layman's language, growth of a human being is the increase in size and shape of the body. It starts in mother's womb as a zygote and continuous at the age of approximately 18 years from the birth. In case of males, it takes twenty years for completion from conception. However, in case of females it is shorter by approximately two years i.e. takes place up to years.

Malina (1977) compared maturity status of male athletes with non athletes and found that athletes are generally advanced in their maturity status as compared to their counterpart non athletes. But the finding in case of females adolescent athletes were generally opposite to those of male adolescent athletes. In female athletes maturity was delayed.

## Material and Method

### Collection of Data

The body Development index of 50 subjects of each group was calculated. The variations in the growth were also determined by considering the mean values of chronological and developmental ages. Such variation can in to three categories viz early, normal and late developers. For examples subjects having one year difference considered



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as normal individual. The subjects having difference of two years or more in ascending manner are considered as early matures and the subjects having the difference of two years or more in descending manners considered as late maturates.

The body development index (BDI) was determined by taking the following Anthropometric measurements

1. Body Weight (kg)
2. Body Height (cm)
3. Forearm Circumference (cm)
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:

$$B.D.I. = \frac{\text{Middle Breadth} \times \text{Forearm circumference Breadth}}{\text{Body Height (cm)} \times 10}$$

$$\text{Middle Breadth} = \frac{\text{Bicrominal Breadth} + \text{Billiospinable Breadth}}{2}$$

Forearm circumference (corrected) = 2 x F.A.Circumference (given) – R. I. (correction value).

$$R.I. (\text{Rohrer Index}) = \frac{\text{Body Weight (kg)}}{\text{Body Height}^3 (\text{meters})^3} \times 10$$

The data of 100 boys ranging in age from 15 to 16 years were collected from different schools (Punjab). The subjects were divided into 2 age groups i.e. 15 and 16 years. Each group contains 50 subjects. The date of birth was converted into decimal age and categorized in to 2 age groups. The subjects following in the age groups of 14.501-15.500 were considered as 15 years and age group of 15.501-16.500 were considered as 16 years was formed.

**Table - 1**

**Categorized Different Age Groups Consideration  
13 to 14 Years**

Age group	Age Group Considered as	No. of Subject
14.501 to 15.500	15 years	50
15.501 to 16.500	16 years	50

Total no of subjects examined = 100

**Age (Years)**

The date of birth of each subject was taken from the documentary record of the school and the date of birth data were converted into decimal age by using Tanner's calendar (1964).

These 100 boys of different schools of Punjab examined their developmental level of age groups of 15 and 16 years.

**Statistical Analysis**

"T" ratio was used to find out significance difference between the different age group of school boys of Punjab.

**Results**

**Table-2**

**Mean and F Ratio of Decimal age for 15 to 16  
Years Old Boys**

Age group	Age group consider as	No. of sub	Mean Decimal Age	S.D
14.501-15.500	15 Years	50	15.751	.268
15.501-16.500	16 Years	50	16.952	.327

**Comparison of Chronological Age and Developmental Age**

In the following tables an attempt has been made to make a comparison between chronological age and developmental age of boys in the age group of 15 to 16 years.

**Table- 03**

**Values of test of Significance between  
Chronological Age and Development age of Boys  
of the Age Group of 15 and 16**

Age (in Years)	Mean Chronological Age (years)	Mean Developmental Age (years)	T-test Value
15	14.861	15.340	5.973 S**
16	14.751	16.400	3.899 S**

**Table- 04**

**Percentage Distribution of Early, Normal and Late  
Maturing Boys of age Groups of 15 Years**

Maturity Status	Number of Subjects	Percentage of Distribution
Early	07	14
Normal	13	26
Late	30	60

**Table- 05**

**Percentage Distribution of Early, Normal and Late,  
Maturing Boys of age Groups of 16 Years**

Maturity Status	Number of Subjects	Percentage of distribution
Early	09	18
Normal	15	30
Late	26	52

**Dicussion**

The table no-02 has presented the mean and standard deviation values of Decimal Age for all the boys belonging to the age group of 15 and 16 years. The first age group which contains the boys belonging to the age group of 15.501 to 16.500 years has shown the mean decimal age is 15.751years with standard deviation as 0.268 and in second age group 16.952 years with S.D. value as0.327 respectively.

The table no- 03 has shown the comparison between chronological age and developmental age for the male children belonging to the age group from 15 and 16 years during their examination. From the results of above table, it has been observed that in the examination, chronological age and developmental age has shown statistically significant differences at 1% level in the groups belonging to 15 and16 years. In these age groups of boys passed lesser developmental age as compared to their chronological age in the testing and this difference is of approximately 2 to 3 years.

The table no- 04 has depicted the results of percentage distribution and the number of early, normal and late maturing boys of the chronological age group 15 years. After their examination the result has been found that out of 50 subjects only 13 (i.e. 26%) were found to be normal in their developmental age out of remaining subjects, 07 boys (14%) were early and 30 (60%) were late in their developmental age.

The table no- 05 has depicted the number of subjects and their percentage distribution on the basis of their developmental age (i.e. early, normal and late developer) for the boys belonging to the age group of

16 years during their examination. From the result it has been observed that out of total 50 subjects 12% (i.e. 6) were found to be early developer and 40 % (i.e. 20) were normal and 48% (i.e. 24) were late in their developmental age. These finding explore the fact that high percentage of boys are delayed in their developmental age.

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