International Journal of Multidisciplinary Research and Development

Volume: 2, Issue: 7, 616-618
July 2015
www.allsubjectjournal.com
e-ISSN: 2349-4182
p-ISSN: 2349-5979
Impact Factor: 3.762

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Assess the developmental status of 12 and 13 years old male children of Punjab

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Abstract
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. Although every person experiences growth and development uniquely, the patterns are almost similar for all humans.
Greulich (1957) compared physical growth and developmental status of 989 American born Japanese children (465 boys, 433 girls), aged 6 to 18 years living in San Francisco with children of the same age and sex born in Japan and found that Japanese children born in America were taller and heavier than children born in Japan. In India, Madhavan *et al*. (1964) carried out a cross-sectional study on 587 employees of railway work shop at Hyderabad to find out the secular changes in growth of Indian adults and found that younger generation is taller and heavier than the older generation. Tanner *et al*. (1966 a,b) provided the standards from birth to maturity of British children for their height, weight, height velocity and weight velocity.
Sample: To achieve these objectives, boys from the age groups of 12 and 13 years have been examined from the different regions of Punjab for the assessment of their developmental age.
Hypothesis: Developmental age as assessment of developmental age through morphological age is a valid and well established method.

Keywords: Growth, development, maturity

1. Introduction
Growth and development in humans occurs over a lifetime. At every stage of life, there are physical and psychological changes in the human body. 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.
Growth, development and maturation, 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 and each of these terms has been discussed in detail as under. (Kaur, 2007)
According to Malina (1980) "Growth is a dynamic process, implying movements towards adulthood or maturity. It involves a series of changes from conception to adulthood during which time the individual increases in size as a whole and of its component parts and eventually maturers.
There are three fundamental stages viz. formation, growth and completion or perfection in the growing period of a human being, more or less all these three stages are of six to seven years each. The formation stage is early childhood, the growth stage is during school age and completion or perfection stage is during adolescence.
Howe and Schiller (1952) studied the height and weight of school children in Stuttgart, Germany from 1911 to 1953 and found that during 1939-45 war, due to scarcity of food intake there was a sharp decrease in both height and weight of school children but after war, in 1947 conditions improved greatly and reflected through increased size of children.

The Problem

The reviewed studies are silent about the assessment of developmental age, which is of great importance in the field of sports. Since there is lack of studies in India and particularly in Punjab, to look into maturation process during adolescence among school going students, the proposed study is an attempt in this direction.

Hypothesis

The body development index is the true reflection of the developmental age as assessment of developmental age through morphological age is a valid and well established method.

Sample of the Study

In the present study an effort was made to employ purposive sampling technique. Purposive sampling technique was employed to collect data from the boys 12 and 13 years of different schools of Punjab.

The data of 100 boys ranging in age from 12 and 13 years were collected from different schools of the Punjab. The subjects were divided into 2 age groups i.e. (12 and 13years). 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 11.501-12.500 were considered as 12 years similarly the other age group was formed.

Categorized Different Age Groups Consideration 12 And 13 Years

Age group	Age group considered as	No. of subject
11.501 to 12.500	12 years	50
12.501 to 13.500	13 years	50

To assess developmental status, every age group has been analyzed in their respective age groups. In every age groups maturity status of boys was analyzed. They were assessed as early, normal or late maturers. Following are the results which have been obtained to assess the developmental status of male children of Punjab. Percentage distribution of early, normal and late maturing boys of 12 years age group during their examination.

Table 1: Percentage Distribution of Early Normal and Late Mature Boys of Age Group of 12 Years

Maturity Status	Number of Subjects	Percentage of distribution
Early	9	18
Normal	17	34
Late	24	48

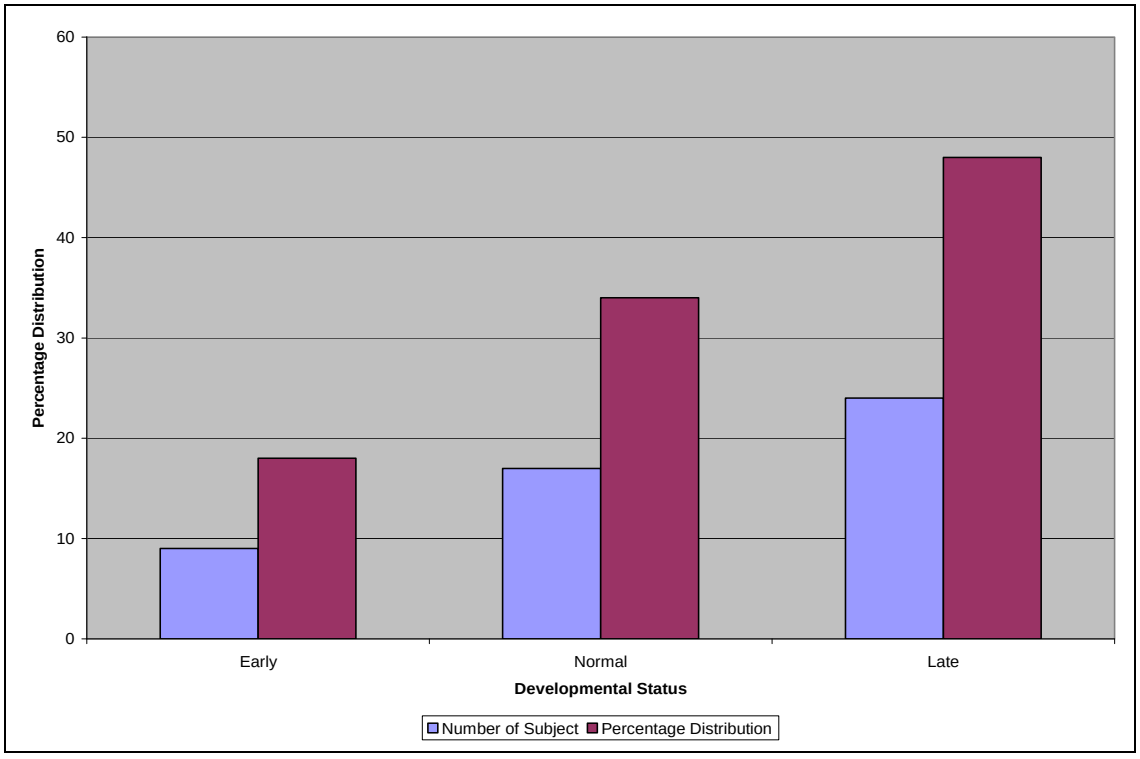

Fig 1

Above table 1 and figure 1 has shown the percentage distribution of early, normal and late mature of boys of 12 years age group. It has been observed from the above table that only 34% were normal in their maturity status and approximately 50% boys were late in their maturity and remaining 18% were early in their maturity status (Table-1, Fig 1).

Table 2: Distribution of Boys On The Basis Of Their Maturity Status of the Age Group of 13 Years

Maturity Status	Number of Subjects	Percentage of distribution
Early	10	20
Normal	10	20
Late	30	60

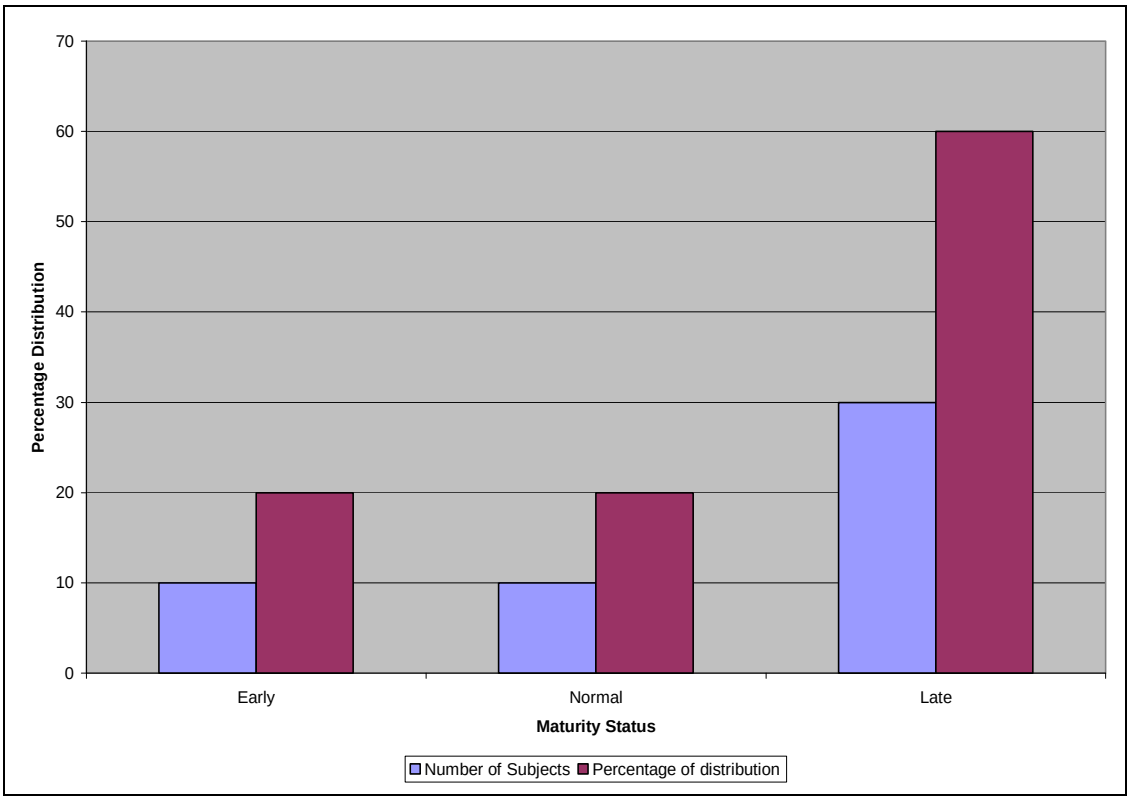

Fig 2

Table 2 and figure 2 has shown the distribution of number of male children and their percentage according to this maturity status for the children belonging to the chronological age of 13 years during their examination. It has been observed from the table that at the age of 13 years out of total 50 subjects only 10 (i.e. 20%) have been found to be normal. Whereas 30 subjects (i.e. 60%) are found to be late maturers and 10 (i.e. 20%) are observed as early maturers. From the above results it is appeared that 60% boys were lower in their maturity status as compared to their chronological age.

Conclusion

Above Table depicts the overall maturity status of male children belonging to the age groups of 12 and 13 years. It is clear from the above table that in the age group of 12 years 48% boys have been found to be late maturers followed by normal maturers with 34% and the lowest percentage of early maturers i.e. 18%.

In the age group of 13 years, percentage of late maturers has been increased to 60% followed by early and normal maturers both contain the same percentage (i.e. 20% each). Similarly percentage status of physiological development of the boys belonging to the other age groups up to the age of 15 years has been presented in the table 10.

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