

Survey of Anthropometric measurements of school students from Pune city and correlation of Anthropometric measurements with Leaping skill

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ABSTRACT

Motor development of school children usually occurs till the age of 10 and locomotor skill such as leaping skill and their development are also dependent on Anthropometric factors and many other factors. In this Research the researcher wants to study the correlation of Anthropometric measurements of the 5th Std students and their leaping skill. The main purpose of this study is to see if there is any correlation between Anthropometry measurements and Leaping skill. Researchers found that research on Anthropometry measurements of swimmers. In the research review, based on the information tools, the researcher got the information study, arm length, leg length, arm circumference, leg circumference, height, and weight of the 5th std students of Pune city. In the review of reference literature, information has been given in context based on research methods, observations, data collection tools, and statistical tools. In this present Research Researcher made a comparative study on Anthropometry Measurements and Leaping skill. Researchers have studied the body measurements of 5th Std students of Pune city. The Research has been Analysed. The data were analyzed using the SPSS tool. Hence the researcher concluded that is no correlation between Anthropometry measurements and Leaping skill.

Keywords : Anthropometric Measurements, Leaping skill, 5th Std students, correlation.

Introduction

Anthropometry is the science of obtaining systematic measurements of the human body. Anthropometry was first developed in the 19th century as a method employed by physical anthropologists for the study of human variation and evolution in both living and extinct populations. In particular, such anthropometric measurements have been used historically as a means to associate racial, cultural, and psychological attributes with physical properties. Specifically, anthropomorphic measurements involve the size (e.g., height, weight, surface area, and volume), structure (e.g., sitting vs. standing height, shoulder and hip width, arm/leg length, and neck circumference), and composition (e.g., percentage of body fat, water content, and lean body mass) of humans. (Mcdowell, Fryar, & Flegal, 2008)

The ancient civilizations of Rome, Greece, and Egypt primarily used anthropometric measurements for cultural purposes (e.g., artwork) to represent beauty, power, and other desirable attributes of the human form. Symmetry was particularly desirable, and units of measurement often consisted of the “width of a human hand” or the length of a human foot”.

Anthropometry is defined as the study of human body measurement in terms of body weight, height, circumference, skin fold thickness, and body size such as the width of bone as well as adipose tissue. The term anthropometry is derived from the Greek word “anthropo” which means “human” and “metron” which means “measure”. Anthropometry is the most important highly applicable, standardized, and non-invasive method to human biological differences. Anthropometric parameters and body composition are important indicators for the growth of an individual. These indicators depend on age, gender, nutrition, ethnicity, and lifestyle. Several authors have used the techniques of surface anthropometry for finding body composition. Since then surface anthropometry has been used very extensively as one of the most important tools for the study of body composition. (Salekar, 2022)

Therefore the techniques of surface anthropometry in the field of body composition have led to an accumulation of enormous information on the individual level. physical educators investigated that individuals of the same age will vary considerably in body size and shape, and individuals of the same height will also differ greatly in body weight. Moreover, if two subjects having the same height and same weight, may be treated normally but their body composition may be different and one of these two subjects may be considered overweight or obese. Thus, human body characteristics are so variable that two individuals can never be the same in their height, body weight, body size, and shape. There are various tools to evaluate the size, shape, and composition of the human body. Among them, BMI is an important

approach but it does not make any assessment of body composition, therefore a person who is physically active like a professional footballer or a weight lifter or wrestler possesses higher body weight due to the more weight of the muscles, maybe sometimes wrongly assessed as obese by this approach. Another limitation is, BMI cannot distinguish between body fat and fat-free mass. But it is very much useful for sedentary individuals as it gives warning indications when persons start exceeding normal limits. Another accurate and alternate method is Skin fold measurement. It is a low-cost and convenient method for assessing total body fat. In India, there is wide dispersion at an epidemiological level where we are facing challenges related to under-nutrition health problems, and in the present scenario, over-nutrition also starts showing its effect among affluent families. According to the recent literature, there is a decline in physical activity among college students due to the heavy workload of studies. (Roebuck & Casali, 2011)

Anthropometric estimations have shown a connection between actual characteristics, coordinated movements, and body structure. The evaluation of anthropometric factors and motor skills will provide more precise data on children's developmental processes. The purpose of the study was to ascertain whether or not a few anthropometric metrics are related to fundamental abilities. The concentrate just included fundamental development capacities, for example, locomotor and non-locomotor.

Methodology

The survey was conducted in different schools in Pune city for collecting data. The present research is a survey study. In this study, a survey research methodology was used to develop a profile of body composition and size from anthropometric measurements of 5Th Std students of Pune city. For the research, the researcher chose the non-probability sampling method and selected purposive sampling method. Students studying in standard 5th were taken for this research. A sample of 175 students was taken respectively. Schools were selected for convenience as many school management denied selecting students from their schools. After selecting the sample all the measurements were taken of the students and also their leaping skill. It took almost half a month to collect data from 175 students. Descriptive statistics were used for data analysis and Spearman rank order was used to test for correlation.

Tools of data collection : Weight, height, arm's length, Arm circumference, Leg length, Leg circumference

The procedure of data collection : A proper list was made to collect the data. A permission letter was taken from the college. Also, equipment permission was

taken from the Human resource lab. Measurements of students were taken by taking permission to measure the students by giving a letter of permission to the principal of the school.

Analysis and Interpretation of Data

For the present research, the researcher has studied the Anthropometric measurement and Leaping skill measurement of the 5th-class students in Pune city. For the research, 5th-class students of Pune city have been studied. A total of 175 students have been taken into account for the measurement. During the correlational study, height, weight, arm length, arm circumference, leg length, Leg circumference and Leaping skill tests were taken. For analysis and interpretation, the SPSS tool was used for descriptive statistics and correlation was used to interpret the data. Appropriate interpretations and conclusions from that analysis are given in Tables 1 and 2.

Table No. 1 : Descriptive Statistical Analysis Distribution of Anthropometric Measurements and Leaping Skill (n=175)

Test name	Mean	Standard deviation
Weight (cm)	35.52	9.24
Height (cm)	141.15	8.29
Arm length	63.78	5.84
Arm circumference	40.29	26.85
Leg length	60.18	28.96
Leg circumference	38.19	6.63
Leap jump	136.26	22.26

As shown in Table no 4.1 the Mean weight is 35.52 of 5th Std (SD +9.24). The mean Height is 141.15 of 5th Std of (SD +8.29). The mean Arm length is 63.78 of 5th Std (SD +5.84). The mean of Arm circumference is 40.29 of 5th Std (SD +26.85). The Mean Leg length is 60.18 of 5th Std (SD +28.96). The mean Leg circumference is 38.19 of 5Th Std (SD +6.63). The Mean of leap jump is 136.26 of 5th Std (SD +22.26).

From the above table no.2 the coefficient correlation between Weight and Leap jump of 5th Std is .013 means it is not significant at 0.05 level ($P>0.05$). Hence it is interpreted that there is no correlation between weight and Leap jump. The coefficient correlation between Height and Leap jump of 5th Std is .097 which is not significant at 0.05 level. ($p>0.05$). Hence it is interpreted that there is no correlation between height and Leap jump. the coefficient correlation between Arm

length and Leap jump of 5Th Std is .126 which is significant at 0.05 level. ($P<0.05$). Hence it is interpreted that there is no correlation between Arm length and Leap jump. The coefficient correlation between Arm circumference and Leap jump of 5th Std is .028 which is not significant at 0.05 level. ($P>0.05$). Hence it is interpreted that there is no correlation between Arm length and Leap jump. The coefficient correlation between Leg length and Leap jump of 5th std is .096 which is not significant at 0.05. ($P>0.05$). Hence it is interpreted that there is no correlation between Leg length and Leap jump. The coefficient correlation between Leg circumference and Leap jump of 5th std is .120 which is significant at 0.05 level. ($P<0.05$). Hence it is interpreted that there is no correlation between Leg circumference and Leap jump.

Conclusion :

The main objective of the research was to investigate the correlation between body measurements and the leaping skill of 5th-grade students in Pune city. Measurements of weight, height, arm length, arm circumference, leg length, foot circumference, and leaping skill from the place were taken of 5th-class students of Pune City. In this research, a correlational study was conducted between anthropometric measurements and the leaping skill. Descriptive statistics were used for data analysis and correlational analysis was performed using Spearman rank order to test for correlation. It is seen that there is no correlation between Anthropometric measurements and Leaping skill. Hence it is concluded that if the Anthropometric measurements are more or less it does not affect the performance of the Leaping skill.

Discussion :

The present research was done on 5th Std students of Pune city. To achieve this purpose total of one hundred and seventy-five students were selected from Pune city. Comparing this to my Research there is no Significance difference between Anthropometric measurements and Leaping skill. A research study was done on anthropometrical variables and gross motor skill performance among primary school boys and girls. To achieve the purpose of the study, a total of two hundred and forty children (boys ($n=120$) and girls ($n=120$)) were selected randomly as subjects from the schools of Kanyakumari District, Tamil Nadu, India. Age groups were divided

into 4 & 5 years, 6 & 7 years, 8 & 9 years, and 10 & 11 years. There is a significant difference between boys and girls on a throw for distance, kick for distance and jump for distance at the age of 6 & 7 years, 8 & 9 years, and 10 & 11 years. (Hepsiba Jeni, 2007) As the Above searcher has taken different Age groups and other researcher has taken only 5Th Std students from Pune city.

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