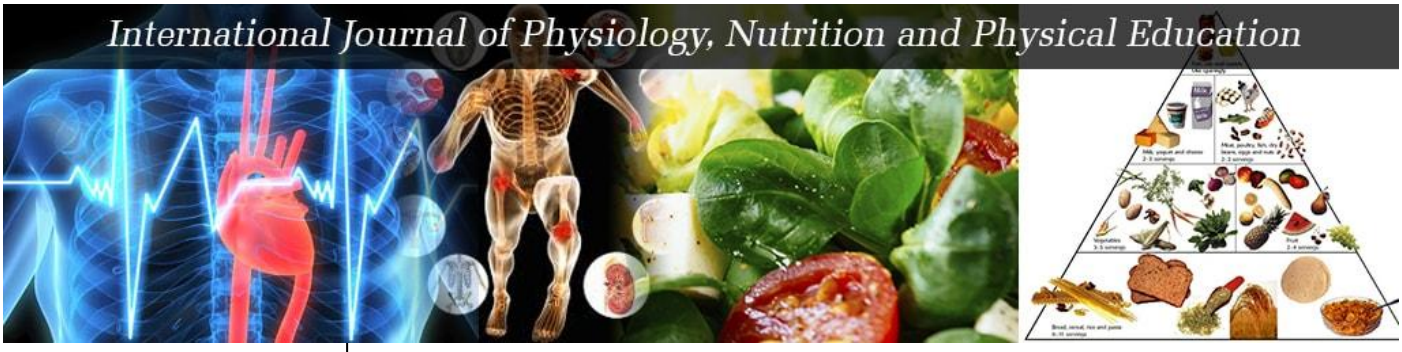

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Anthropometric parameters and motor abilities among school children's

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Abstract
Aim: The purpose of this study is was to evaluate the possible relationships between selected anthropometric parameters and motor abilities among the school children's.
Sample: The sample of the present research work was selected from Govt Boys School Mansa of Mansa district (Punjab) a sample of 40 students were taken from the age group of 10-14 years.
Tools: Height was measured by using Portable stadiometer to the nearest 0.5cm.
Leg Length: The straight distance between head of the femur and lateral malleolus of fibula. Leg length was measured by anthropometric rod in centimetres to the nearest 0.5cm.
Age: Age of the students was verified from the school record.
Weight: Weight was assessed to the nearest 0.1 kg using a certified electronic scale.
Foot length: It represents the straight distance directly from pternion to acropodion when the foot is stretched, sliding calliper was used for the measurement.
Standing Broad Jump: The athlete stands behind a line marked on the ground with feet slightly apart. A two foot take-off and landing is used, with swinging of the arms and bending of the knees to provide forward drive. The subject attempts to jump as far as possible, landing on both feet without falling backwards. Three attempts are allowed. Record the longest distance jumped, the best of three attempts. Steel tape was used to measure the distance and the same was recorded in centimetres to the nearest 0.5cm.
Statistical Analysis: To determine whether the relationship among the research variables exists or not, Pearson Product correlation method was applied.
Results: Results reveals that moderate positive correlation exist between leg length and standing broad jump. A weak positive correlation exists between height, weight and foot length. The correlation between age and standing broad jump is positive and is directly proportional.
Conclusion: Anthropometric measurements help in talent identification among children's.

Keywords: Standing broad jump, anthropometric rod, leg length, foot length

Introduction
In the world of sports there is neck to neck competition between the sports persons and the scientific methods took this competition to the new heights now the competition is between the scientists, every nation wants to prove that they have best technique and technology and wants to impress the whole world by excelling in sports. Due to tough competition a well planned program is chalked out so that best results can be obtained, for that preparation must be done from the early stage of life. Every individual is unique and has hidden potential in him to explore that potential at right stage is the first step towards success. Selection of right sports event according to body dimensions helps in achieving goal, so the right stage is the school age, there are many methods to access the hidden potential in human body but in our study we focus on certain anthropometric measurements and their relation with standing broad jump which further helps in predicting the jumping abilities of students. Anthropometry is the science of obtaining systematic measurements of the human body. Physical growth in children is measured by changes in body size and/or composition as well as physical profile. Physical activity is considered as a key factor for a healthy physical and mental development of children. Physical fitness may be conceived as the capacity to perform one's daily tasks without fatigue; motor fitness, also termed motor ability, refers to a person's performance abilities as affected by the factors of speed, agility, balance, coordination, and power

(Gallahue 2006) [5]. Motor abilities represent an integrated outcome of most bodily functions involved in physical activity and can be used to assess the effectiveness of physical education as well as measure the health-related fitness of schoolchildren, Simultaneous assessment of anthropometric parameters and motor abilities will provide more accurate information on the developmental process of children; however, it is not well known whether a relationship actually exists between motor abilities and anthropometric parameters in children or between different motor ability evaluation tests.
In the last decades, information about the relationships between body composition and physical fitness in children from developed countries has been published (Sollerhed *et al*. 2008; Linthorne *et al*. 2005; Muraki *et al*. 2005) [7, 3, 4]. In an era where overweight and obesity are increasing (Flegal *et al*. 2002) [1], we should focus on how these parameters affect total physical ability of children who do not train in a professional level. The aim of this investigation is to evaluate the possible relationships between selected anthropometric parameters and motor abilities, as well as the motor abilities themselves in 10-14-year-old children.

Aim of the Study: The purpose of this study is was to evaluate the possible relationships between selected anthropometric parameters and motor abilities among the school children's between age group of 10-14 years.

Methodology
Sample: The sample of the present research work was selected from Govt Boys School Mansa of Mansa district (Punjab) a sample of 40 students were taken from the age group of 10-14.

Statistical Analysis: To determine whether the relationship among the research variables exists or not, Pearson Product correlation method was applied.

Tools
Height: The height was recorded during inspiration using a Portable stadiometer (Charder HM-200P Portstad) to the nearest 0.01 m. The participant is asked to remove his/her shoes and heavy outer garments. To measure height, the participant should stand with his/her back to the height rule. The back of the head, back, buttocks, calves and heels should be touching the upright, feet together. The top of the external auditory meatus (ear canal) should be level with the inferior margin of the bony orbit (cheek bone). The position is aided by asking participant to hold the head in a position where he/she can look straight at a spot, head high, on the opposite wall. Place the triangle on the height rule and slide down to the head so that the hair (if present) is pressed flat.

Leg Length: The straight distance between head of the femur and lateral malleolus of fibula. Leg length was measured by anthropometric rod in centimetres to the nearest 0.5cm.

Age: Age of the students was verified from the school record.

Weight: Weight was assessed to the nearest 0.1 kg using a certified electronic scale (scale certified by weight and measure department).

Foot length: It represents the straight distance directly from pternion to acropodion when the foot is stretched.

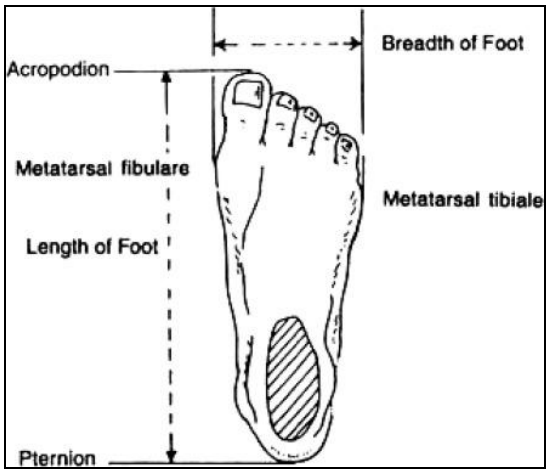

Fig 1

Subject position: The subject assumes a relaxed standing position with the feet comfortably apart and weight evenly distributed. The arms are hanging by the sides.

Equipment: Sliding calliper was used for measuring the length of the foot and the measurement was recorded to the nearest to 0.1mm.

Method: This is the distance from the Akropodion (the tip of the longest toe - which may be the first or second phalanx) to the Pternion (most posterior point on the calcaneus of the foot). Minimal pressure is applied to the large sliding calliper. It is more convenient for the measurer if the subject stands on the box during this measurement.

Standing Broad Jump
Aim: to measure the explosive power of the legs.

Equipment required: Tape measure to measure distance jumped and soft landing area preferred. The measured distance was recorded in centimetres to the nearest 0.5cm.

Procedure: The athlete stands behind a line marked on the ground with feet slightly apart. A two foot take-off and landing is used, with swinging of the arms and bending of the knees to provide forward drive. The subject attempts to jump as far as possible, landing on both feet without falling backwards. Three attempts are allowed.

Table 1: Correlation of Anthropometric measurements with Standing Broad Jump in the Age group of 10-14 years

Age 10-14 years					
leg length		**Broad Jump**			
Mean	$(X-M_x)^2$	Mean	$(X-M_y)^2$	$(X-M_x)(Y-M_y)$	R
0.8	0.156	1.498	0.947	0.216	0.5618
Height		Broad Jump			
Mean	$(X-M_x)^2$	Mean	$(X-M_y)^2$	$(X-M_x)(Y-M_y)$	R
1.42	0.433	1.498	0.947	0.183	0.2856
Age		Broad Jump			
Mean	$(X-M_x)^2$	Mean	$(X-M_y)^2$	$(X-M_x)(Y-M_y)$	R
11.95	32.065	1.498	0.947	2.921	0.53
Weight		Broad Jump			
Mean	$(X-M_x)^2$	Mean	$(X-M_y)^2$	$(X-M_x)(Y-M_y)$	R
33.58	1949.78	1.498	0.947	20.094	0.4676
Foot length		Broad Jump			
Mean	$(X-M_x)^2$	Mean	$(X-M_y)^2$	$(X-M_x)(Y-M_y)$	R
0.26	0.009	1.498	0.947	0.01	0.1105

Results

From the above table in the age group of 10-14 years the correlation between leg length and standing broad jump is positive showing the value of R-0.5618 having mean value of leg length 0.8 and 1.498 for standing broad jump, this indicates that with the increase of leg length the standing broad jump performance increases. Xavier Maria Raj (2017) [16] and M Hraski *et al*. (2015) [12] reported in their studies that leg length affects the performance in standing broad jump. A weak correlation exist between height having mean value of 1.42 and Standing Broad jump having mean value of 1.498 and the value of R is 0.2856 indicating weak positive correlation, the results indicates that performance in standing broad jump is not strongly affected by height of athletes. The results of Mishra and rathore (2016) [15] also supports the results of the study that broad jump is not affected by height. Correlation between Age and standing broad jump is moderate the value of R is 0.53 and mean value of age is 11.95 and mean value of standing broad jump is 1.498, which means there is a tendency for high X variable scores go with high Y variable scores (and vice versa). In case of weight and standing broad jump the correlation between them is technically a positive correlation value of R is 0.4676, having mean value of 33.58 of weight and 1.498 of standing broad jump. The results indicate that with the increase of weight the performance in standing broad jump does not increase in the same pattern. Investigation conducted by Nikolaidis Pantelis Theodoros *et al*. (2015) [13] also came to conclusion that overweight athletes did not perform better in jumping events. A weak positive correlation exist between foot length and standing broad jump showing value of R-0.1105 and the mean value of foot length is 0.26 and of standing broad jump is 1.498 indicating that foot length is not a strong attribute of standing broad jump. The results of Karmokar Proloy and Khatua Jayanta Kumar (2016) [14] also indicates that foot length had no impact on leg strength which directly associated with jumping abilities.

Discussion

The results of the study reveals that in age group of 10-14 years the correlation between leg length and standing broad jump shows a moderate positive correlation indicating students having longer leg length performs better in standing broad jump this is good indicator for the future selection of event. The results of height and standing broad jump shows a weak positive correlation revealing that height is not the deciding factor for the performance in standing broad jump, the reason may be growing stage of athletes having less developed muscular system and skeletal system. Age and standing broad jump has moderate positive correlation between 10-14 years, a strong relationship exists between the two which shows that age and standing broad jump are directly proportion to each other. In case of weight and its correlation with standing broad jump the results reveals that technically positive correlation exists but weak in nature indicating that bulky athletes shows lesser improvement in jumping. The correlation between foot length and standing broad jump do not show strong correlation the reason being the growth pattern of individual varies so at this stage no direct evidence come into light that foot length affects the performance in jumping. The performance in standing broad jump depends on many factors like leg muscle mass, length of lower leg, length of upper leg, dimension of foot, centre of gravity, acceleration abilities of limbs, approach angle, takeoff angle, landing technique, approaching speed, leg power, kinanthopometric measurements of body, body mass index and some other biomechanical factors etc. As the sample taken for the study is of growing age children's and the aim of our study is to identify the talent among children's, only five variables were studied so to find evidence of their impact on the performance of standing broad jump, determining these factors as indicator of performance is premature at this stage. Wider factors must be studies to find out the talent among the teenagers to help them to choose sportive event according to their body dimensions and capabilities.

Conclusion

The following conclusions were drawn from the present study.

Moderate positive correlations exist between leg length and standing broad jump.

A weak positive correlation exists between height and standing broad jump.

In case of age and standing broad jump positive correlations exist.

The correlation between weight and standing broad jump is positive in nature.

Weak positive correlation exists between foot length and standing broad jump.

Hence we came to conclusion that anthropometric measurements will help coaches and physical education teachers to guide the children's to select the sports event and this will also help them on training the individuals.

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