



*International Journal of  
Physical Education and  
Sports Sciences*

*Vol. VI, Issue No. II,  
January-2014, ISSN 2231-  
3745*

## REVIEW ARTICLE

# A STUDY OF ANTHROPOMETRIC PROFILE OF INTERCOLLEGIATE ATHLETES

AN  
INTERNATIONALLY  
INDEXED PEER  
REVIEWED &  
REFEREED JOURNAL

# A Study of Anthropometric Profile of Intercollegiate Athletes

**Dr. Susheel Kumar<sup>1</sup> Mrs. Savita<sup>2</sup> Mr. Ravi<sup>3</sup>**

<sup>1</sup>Assistant Professor, Visiting Faculty, Jiwaji University, Gwalior

<sup>2</sup>PRT Teacher, Coll. Samalkha (HR)

<sup>3</sup>Gandi Adarsh, Ursuline Convent Sr. Sec. School Greater Noida (U.P.)

## INTRODUCTION:-

Physical education and sports have emerged from a long historical background. It is a process that has taken place and still takes place in various informal and formal ways in very culture. From the time of primitive man to the present, either directly or indirectly, physical activity has played a vital part in the lives of all people. It is clear that the objectives of physical education have changed over the course of history from survival, to satisfy socio-nationalistic need, and more recently for individual and social betterment. Physical education has progressed in the twentieth century to a point where it is increasingly recognized as an important part of a culture, with several new trends in evidence.

Sports hold a prominent place in modern life. Millions of people participate in sports activities, watch and hear about them and spend billions of dollars actually on sports related activities and equipments. This has lead to the competitive element in sports, as now sportsman participate to win and achieve laurels for them as well as for their country contrary to earlier philosophy of participation in sports competition for participation's sake.

Today in the modern competitive sports, every sportsman is in a race to excel and competition has become a fundamental mode of human expression as competitive sports is one of the very important factors by which national and international recognition the very important factors by which national international recognition and prestige is gained. Athletics is the game of performing various types of physical movements and is considered today the most scientific and analytical in nature, it involves attention to every part of the body and the use of all abilities. The movements in athletes work fundamentally basically big muscle movements and they develop gait and graceful, rhythmic acceleration of the body and it is not

only impressive but highly beneficial for the cultivation of posture.

In athletics, body composition measures are widely used to prescribe desirable body weights, to optimize competitive performance, and to assess the effects of training ((Sinning, 1996). It is generally accepted that a lower relative body fat is desirable for successful competition in most of the sports. This is because additional body fats adds to the weight of the body without contributing to its force production or energy producing capabilities, which means a decrease in relative strength. It is obvious that an increased fat weight will be detrimental in sporting activities where the body is moved against gravity (e.g. high jump, pole vault, volleyball spiking action) or propelled horizontally (e.g. running). In running at any sub maximal speed, the oxygen requirement is increased with any increment in body weight that is, oxygen consumption is increased due to the greater energy demand required to initiate and sustain movement of a larger weight.

The measurement of the body (structure) and proportion of body is called anthropology i.e. concerned with the measurement of human body. This kind of measurement are commonly used is associated physical performance with body build.

## METHODOLOGY: -

For purpose of the study 60 male intercollegiate athletes of N.C.P.E. Dhoom, Manikpur, Dadri was selected as subjects at random process. The age ranged from 17 to 27 years.

### Selection of variables: -

#### Anthropometric variables

1. Standing height

2. Sitting height
3. Arm length
4. Leg length
5. Palm length
6. Feet length
7. Shoulder Width
8. Weight

#### Collection of data: -

The investigator had a meeting with the athletes in the presence of their respective coaches. The purpose of the study was clearly explained to them so that there was no ambiguity among the subjects regarding the efforts, which they had to put in for the successful completion of the investigation. The data was taken at their respective rooms allotted for accommodation. Moreover, for full cooperation, data was taken when they were not busy and had enough time to spare for testing. Necessary instruction was given on to the subjects before the administration of each test.

#### Criterion measures: -

1. Standing height measurement was recorded up to  $1/10^{\text{th}}$  of a centimeter.
2. Sitting height measurement was recorded up to  $1/10^{\text{th}}$  of a centimeter.
3. Arm length was measured with a steel measuring tape and scores was recorded to the  $1/10^{\text{th}}$  of a centimeter.
4. Leg length was measured with a steel tape and scores was recorded to the  $1/10^{\text{th}}$  of a centimeter.
5. Shoulder width was measured with a steel width was measured with steel tape and score was recorded up to  $1/10^{\text{th}}$  of a centimeter.
6. Palm length was measured with a steel tape and scores was recorded up to  $1/10^{\text{th}}$  of a centimeter.
7. Feet length was measured with a steel tape and scores was recorded to the  $1/10^{\text{th}}$  of a centimeter.
8. Weight was measured by weighing machine and recorded accurately in kilogram.

#### ADMINISTRATION OF TEST: -

**STANDING LENGTH: -** It was the maximum height of the individual when standing erect on a horizontal surface with his head and a face in F.H. (Frankfurt horizontal plane)

Equipment: -

Anthropometric rod

Method: -

The subject was asked to stand erect, bare footed on a plane horizontal surface against a wall, his heels, back of the shoulders and a head touching the wall. He was requested to stretch the body upward as much as possible without his heels leaving ground. The head and face was checked for its being in F.H. plane.

To get it easily the subject was asked to see toward an object in front of his approximately at a height of his eyes, then the investigator adjust the truncheon and infraorbitale points in a horizontal line. The anthropometric rod was kept in front of the subject and the cross bar of the anthropometric rod was adjusted so that its lower edge touches the highest point of the subjects head.

Score: -

The measurement was recorded up to  $1/10^{\text{th}}$  of a centimeter.

#### SITTING HEIGHT: -

Equipment:-

Steel measuring tape

Method: -

The subject was sitting stretch upward with the arms downward hanging position at an angle of  $90^{\circ}$  the back of the knee was touching the inner edge of the table. Measurement was taken from the vertex point of head to the sitting plane. Subject was asked to look forward & stretch his body upward crushing the hairs is important so that the tape was in contact with the vertex point of the head.

Score: -

The measurement was recorded up to  $1/10^{\text{th}}$  of a centimeter.

#### ARM LENGTH: -

Equipment: -

Steel measuring tape.

Method: -

The subject was asked to stand erect and the measurement was taken from the acromion process at the top centre of the shoulder to the tip of the middle finger.

Score: -

The measurement was recorded to the 1/10<sup>th</sup> of a centimeter.

#### **LEG LENGTH: -**

Equipment: -

Steel measuring tape.

Method: -

The subject was asked to stand to erect with feet together. The measurement taken from the outside edge of centre of the foot to the paper edge of the greater trochanter.

Score: -

The score was recorded to the 1/10<sup>th</sup> of a centimeter.

#### **PALM LENGTH: -**

Equipment: -

Steel measuring tape.

Method: - Measured from the tip of the third finger to the base of the thumb. (Most proximal carpal bone)

Score: -

The measurement was recorded to the 1/10<sup>th</sup> of a centimeter.

#### **FEET LENGTH: -**

Equipment: -

Steel measuring tape.

Method: -

Measured from the tip of the most distal toe to the most posterior portion of the heel.

Score: -

The measurement was recorded to the 1/10<sup>th</sup> of a centimeter.

#### **SHOULDER WIDTH: -**

Equipment: -

Steel measuring tape.

Method: -

The subject was asked to stand erect, and the measurement was taken from acromion points of both shoulders.

Score: -

The measurement was recorded to the 1/10<sup>th</sup> of a centimeter.

Equipment: -

Portable weighing machine.

Method: -

The subject stands erect on the platform of the weighing machine with equal weight on both feet. The portable weighing machine was repeatedly calibrated with the help of an accurate level balance. The zero error of the machine was checked both before asking the subject to selection and after the subjects get down.

Score: -

The weight was recorded accurate up to 0.5 kg.

#### **STATISTICAL TECHNIQUES: -**

To analysis the anthropometric data of intercollegiate athletes on their related anthropometric variables descriptive analysis was applied at 0.05 level of significance.

#### **RESULTS AND DISCUSSION: -**

The findings pertaining to the anthropometric profile of intercollegiate athletes of Noida college of physical education is presented in tabular form.

Table: 1

S.No.	Variables	Mean	Standard Deviation
1.	Standing height	1.67	3.09
2.	Sitting Height	87.02	6.89
3.	Arm Length	89.52	6.34
4.	Leg length	98.18	8.65
5.	Palm Length	20.08	3.20
6.	Feet length	24.09	3.50
7.	Shoulder Width	42.20	4.13
8.	Weight	64.38	3.20

Table 1 reveals that the meant standing height of intercollegiate athletes was 1.67 with standard deviation of 3.09. The mean sitting height of intercollegiate athletes was 87.20 with standard deviation of 6.89. The mean arm length of intercollegiate athletes was 89.52 with standard deviation of 6.34. The mean leg length of intercollegiate athletes was 98.18 with standard deviation of 8.65. The mechanism length of intercollegiate athletes was 20.08 with standard deviation of 3.20. The mean feet length of intercollegiate athletes was 24.09 with standard deviation of 3.50. The mean shoulder width of intercollegiate athletes was 42.20 with standard deviation of 4.13. The man body weight of intercollegiate athletes was 64.38 with standard deviation of 3.20.

### CONCLUSION: -

On the basis of findings following conclusion may be drawn: -

1. It was found that average standing height, sitting height, Arm length, Leg length, Palm length, feet length, shoulder width, and weight 1.82,87.02,89.52,1.10,20.08,24.09,42.20 and 64.38 respectively.
2. It was found that average standing height was ranging in between 1.80-1.95 of all athletes .
3. It was found that average, arm length was ranging in between 82.33 to 135.40 of all athletes.
4. It was found that average Leg length was ranging in between 1.05 to 1.25 of all athletes.
5. It was found that average palm length was ranging in between 19.05 to 25.00 of all athletes.
6. It was found that average shoulder width was ranging in between 42.50 to 47.50 of all athletes.

The intercollegiate athletes of Noida College of Physical education were having average anthropometric characteristics.

### REFERENCE: -

1. Barrow, Harold. M and McGee R, Man and Movement: principle of Physical Education New York: John Wiley Sons, 1977.
2. Russel F. Wells, "The relationship of Leg Sterngh/ Body Weight Ratio and Length of the Lower Limb Segment to the Vertical Jump", Completed Research in health, Physical Education and Recreation 5 (1963): 78.
3. Garry J. Berg "Relationship between selected body measurement and success in the standing Broad jump" Completed research in Health, Physical Education and Recreation 11 (1969): 233.
4. Hand March G. Robert, "The relationship between various Anthropometric and Physical Performance tests and Selected trunk Flexibility Criteria", Completed research in Health, Physical Education and Recreation 2 (1960): 59-60.
5. Ruth E Tennal, "Relationship of Pre and Post Puberty Anthropometric measurements and Physical Fitness tst Scores of American Negro and Caucasian Females as measured by AAHPER Physical Fitness Battery", Completed Research in Health, Physical Education and Recreation (1968): 73.
6. Dey, Tara, "Variation in selected Anthropometric and Physical Fitness Components of Offensive and Defensive Football Players", Unpublished Master's thesis, CCS University, Meerut, 2003.