**U Rameshkumar**
Ph.D. Research Scholar,
Department of Physical
Education, Annamalai
University, Chidambaram,
Tamilnadu, India

**Dr. V Jayanthi**
Professor, Research Supervisor,
Department of Physical
Education, Annamalai
University, Chidambaram,
Tamilnadu, India

# Comparison of height and weight among all India inter university male athletes

## U Rameshkumar and Dr. V Jayanthi

**Abstract**
The purpose of the study is to compare height and weight among All India Interuniversity Male Athletes. The present was conducted on 180 male university athletes which constitutes Sprinters (n = 36), Middle distance runners (n = 36), Long distance runners (n = 36), Jumpers (n = 36) and Throwers (n = 36). These players were selected from 77th All India Inter University Athletic organised by Anna University, Chennai at Coimbatore (Tamilnadu) in January 2017. The study was conducted only on male athletes of age between 18 to 25 years. The result of the study showed that height and weight of male athletes differ significantly. Throwers displayed greater height and weight than others. It is concluded that throwers showed greater level of height and weight than sprinters, middle distance runners, long distance runners, jumpers.

**Keywords:** Stadiometer, weighing machine, throwers, sprinters, jumpers

## Introduction
Athletes and coaches around the world show more interest in improving the sports performance of the athletes but fail to consider the nutritional status and body composition. Specific athletic event or game requires different anthropometric characteristics to maximize their sports performance. Today, understanding the athletes body composition and after that doling out a relating focused weight for those competitors is presently viewed as the basic piece of the complete administration process (Wilmore 1982) [4]. Anthropometric measurements such as height, weight, and skinfold thickness are the most practical and inexpensive methods to assess body composition of the athletes (American Diabetic Association 1987) [3].

Measuring anthropometry contribute to in depth understanding of physique and body composition, time to time quantification of anthropometry from childhood would easily guide the athlete to find his game or sport which is apt with reference to his physique and body composition allow to reach higher level of competition. Athletes winning gold in Olympics not only depend on their fitness but also on their physique and body composition. Athletes take part in international competitions is influenced by several decisive factors like physical, physiological and psychological abilities (Debnath, 1994) [1]. Measurements of height and weight play a vital role in athletics which are event specific that determines their sports performance. Therefore, the purpose of the study is to compare height and weight among All India Interuniversity Male Athletes.

## Methods
### Subjects
The present was conducted on 180 male university athletes which constitutes Sprinters (n = 36), Middle distance runners (n = 36), Long distance runners (n = 36), Jumpers (n = 36) and Throwers (n = 36). These players were selected from 77th All India Inter University Athletic organised by Anna University, Chennai at Coimbatore (Tamilnadu) in January 2017. The study was conducted only on male throwers of age between 18 to 25 years.

**Correspondence**
**U Rameshkumar**
Ph.D. Research Scholar,
Department of Physical
Education, Annamalai
University, Chidambaram,
Tamilnadu, India

**Variables**
**Height**
To measure the stature of the subject's stadiometer was used. The subjects were asked to stand erect on the platform of the stadiometer without shoes, by keeping the heels together, back and head touching the scale and the face looking straight. The height was recorded to the nearest centimetre.

**Weight**
To measure the weight of the players weighing machine was used. The subjects were instructed to stand on weighing machine with minimum cloth. The weighing machine used to measure body mass was placed in an area, which was smooth and even surface and with sufficient light, so that, the investigator is capable of properly recording the observation. The zero point of the weighing machine was checked often during the measurements. The weight of the subjects was recorded to the nearest kilogram.

**Statistical Techniques**
Statistical analyses were performed using SPSS version 16.0 for windows (SPSS Inc, Chicago, IL, USA). The data was presented as descriptive statistics such as mean, standard deviation. One Way Analysis of Variance (ANOVA) was employed to compare body composition between the athletes. Where 'F' values were found significant, Scheffe Ś Post-hoc test was applied to find out the direction and degree of difference. The level of significance was set at 0.05.

**Result**
**Height**
The data on height of the athletes was analysed and the results thus obtained was tabulated and given in Table 1.

**Table 1:** Means and standard deviations on height among athletes

| S | MD | LD | J | T | |
|---|---|---|---|---|---|
| M ± SD | M ± SD | M ± SD | M ± SD | M ± SD | **F** |
| 179.00 ± 1.15 | 178.00 ± 1.17 | 172.14 ± 2.36 | 178.92 ± 1.31 | 180.28 ± 1.73 | 140.92 ($p = 0.000$) |

The results show that height of elite male athletes differ significantly as $F (4, 175) = 140.92$, $p < 0.05$. Throwers displayed greater height than others.

**Table 2:** Scheffe Ś post hoc test on height

| Team | Teams to be compared | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|
| | | | **Lower Bound** | **Upper Bound** |
| S | MD | = 0.146 | -0.1849 | 2.184 |
| | LD | = 0.000* | 5.676 | 8.046 |
| | J | = 1.000 | -1.101 | 1.268 |
| | T | = 0.027* | -2.462 | -0.092 |
| MD | LD | = 0.000* | 4.676 | 7.046 |
| | J | = 0.219 | 4.676 | 7.046 |
| | T | = 0.000* | -3.462 | -1.092 |
| LD | J | = 0.000* | -7.962 | -5.592 |
| | T | = 0.000* | -9.323 | -6.954 |
| J | T | = 0.015* | -2.546 | -0.176 |

*Significant

Since the obtained $F$ value (140.92, $p = 0.000$) is significant post hoc test was applied. Scheffe Ś post hoc test revealed a significant difference on height between S – LD, S – T, MD – LD, MD – T, LD – J, LD – T and J – T $p < 0.05$ (Table 2). No other comparisons were significant (all $p$s > 0.05). The descriptive values on height were graphically depicted in Figure 1.
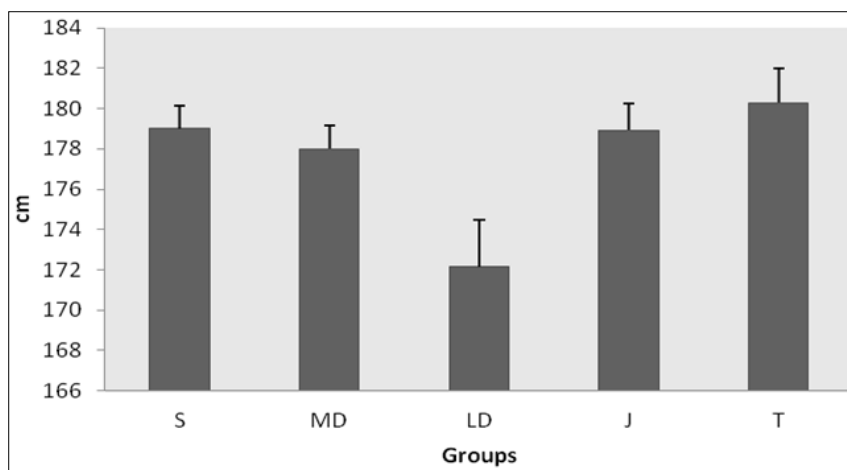


**Fig 1:** Graph shows height of elite athletes

**Body mass**
The data on body mass of the athletes was analysed and the results thus obtained was tabulated and given in Table 3.

**Table 3:** Means and standard deviations on body mass among athletes

| S | MD | LD | J | T | |
|---|---|---|---|---|---|
| M ± SD | M ± SD | M ± SD | M ± SD | M ± SD | F |
| 72.75 ± 1.48 | 70.02 ± 1.25 | 63.19 ± 2.09 | 70.94 ± 1.47 | 81.66 ± 2.89 | 423.39 ($p = 0.000$) |

The results show that body mass of elite male athletes differ significantly as $F$ (4, 175) = 423.39, $p < 0.05$. Throwers displayed greater body mass than others.

**Table 4:** Scheffe Ś post hoc test on body mass

| Team | Teams to be compared | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|
| | | | Lower Bound | Upper Bound |
| S | MD | = 0.000* | 1.302 | 4.142 |
| | LD | = 0.000* | 8.135 | 10.97 |
| | J | = 0.005* | 0.385 | 3.225 |
| | T | = 0.000* | -10.33 | -7.496 |
| MD | LD | = 0.000* | 5.413 | 8.253 |
| | J | = 0.404 | -2.336 | 0.503 |
| | T | = 0.000* | -13.05 | -10.21 |
| LD | J | = 0.000* | -9.170 | -6.330 |
| | T | = 0.000* | -19.89 | -17.05 |
| J | T | = 0.000* | -12.14 | -9.302 |

*Significant

Since the obtained $F$ value (423.39, $p = 0.000$) is significant post hoc test was applied. Scheffe Ś post hoc test revealed a significant difference on body mass between S – LD, S – T, MD – LD, MD – T, LD – J, LD – T and J – T $p < 0.05$ (Table 4). No other comparisons were significant (all $p$s > 0.05). The descriptive values on body mass were graphically depicted in Figure 2.



**Fig 2:** Graph shows body mass of elite athletes

**Discussion**
The present study displayed throwers had greater height and weight than other athletes. The present finding is in line with the finding of Malhotra et al. (1972) [2]. Malhotra and his colleague (1972) studied the functional capacity and body composition of the throwers, jumpers, sprinters, and middle and long distance runners. The track men and jumpers were found to have a higher lean body mass with less fat content than the throwers who were tall and heavily built. The middle and long distance runners had highest and the throwers, the lowest maximum oxygen intake capacity values in terms of body weight and lean body mass. Similarly, the trackmen had lower maximum heart rate than the other groups of athletes. The jumpers and throwers had stronger muscle power, however, the latter were strong in arm and shoulder muscle strength too.
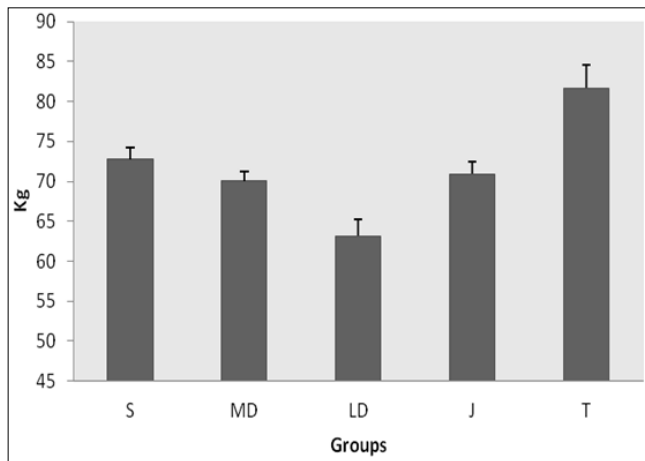
**Conclusion**
Throwers were tall and heavily built than other athletes, it is important to consider athletes stature and body mass while preparing for particular sport in which they are involved. It will also fuel athletes and coaches understanding toward body composition and its role in optimizing sports performance.

**References**
1. Debnath. Women's Performance & Sports, Friends Publication (India), 1994, 53, 58-60.
2. Malhotra MS, Joseph NT, Mathur DN, Gupta JS. Physiological assessment of Indian Hockey papers. Journals of Sports Medicine. 1973; 5:9.
3. American Dietetic Association. Nutrition for physical fitness and athletic performance for adults. I Am Diet Assoc. 1987; 87:933-39.
4. Wilmore JH. Body composition and athletic performance. In: Haskell W, Scala J, Whittam J, eds. Nutrition and Athletic Performance. California, USA: Bull Publishing, 1982, 158-75.