# COMPARATIVE STUDY ON ANTHROPOMETRIC MEASUREMENTS OF UNIVERSITY PLAYERS   IN OLYMPIC AND NON-OLYMPIC EVENTS

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***Abstract:*** The purpose of this research is to compare the anthropometric measurements of university players in Olympic and non-Olympic events. For this purpose, ninety six (96) male university players were selected randomly from two universities (Bangalore University Bengaluru and University of Mysore Mysore) who had their credit in participating in South Zone Interuniversity Tournaments on various games during the academic year 2018-19 in their respective games. The age of the subjects ranged from 18 to 25 years. Among the selected 96 subjects, 48 subjects were from Handball (n=24) and Volleyball (n=24) games recognized by International Olympic Committee considered Olympic Events and remaining 48 subjects were from Kabaddi (n=24) and Kho-Kho (n=24) games which are still not recognized by Committee and were considered Non-Olympic events. The anthropometric measurements namely standing height, body weight, arm length, leg length, foot length, calf girth and thigh girth were selected to know the status of anthropometric measurements between university players in Olympic and non Olympic events. The Independent 't' test was utilized to know the significant difference in the anthropometric measurements of university level players in Olympic and non-Olympic events. From the 't' test results, it was found significant difference in the foot length between university players in Olympic and Non-Olympic events. The players in Olympic events had a longer foot length than Non-Olympic Events and rest of the anthropometric characteristics namely standing height, body weight, arm length, leg length, calf girth and thigh girth are did not differ significantly.

***Index Terms*-** Anthropometric Measurements, University level players, Sports, Olympic Events

## 1.      INTRODUCTION

Sports in the modern era occupy a very prominent and important place in the life of people and also in every sphere of life. Sport consists of physical activity carried out with a purpose for competition, for self-enjoyment, to attain excellence, for the development of a skill, or more often, some combination of these. A high level of activity is common place in traditional subsistence societies. Physical and physiological characteristics of individuals, including skill performance and anthropometric variables, could be limiting factors when performing daily tasks.

Some of events are recognized as Olympics and some of them are still not included in the Olympics in that Cricket, Kabaddi, Netball, and Kho-Kho are the games.  Sports medicine professionals are often asked to comment on the anthropometric characteristics that have a say to the avoidance of injuries and to the in general success of these athletes. While professional, international, and national players have been studied comprehensively, there is petite information accessible on the university players of events which are accepted by the Olympics and some events which are not accepted by the Olympics.

Anthropometry is the science of attaining systematic measurements of the human body. Anthropometry is 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 mean to associate racial, cultural, and psychological attributes with physical properties. Particularly, anthropomorphic measurements involve the size, structure and composition of humans. The physical structure especially the standing height, arm & leg length, thigh & calf girth have definite and decisive advantage in many games and sports.

Many studies have been reported in the previous days regarding the contribution of anthropometric measurements to sports. Most of them have been conducted in the foreign population and only very few studies have been conducted in the Indian population. Therefore, the present investigation is to compare anthropometric measurements of university players of Olympic and

Non-Olympic events. In the present study, anthropometric measurements like standing height, body eight, arm length, leg length, foot length, calf girth and thigh girth are considered to compare these measurements between varied event players at University level.

**1.1  Statement of the Problem:** The present research is carried on topic entitled "Comparative Study on Anthropometric Measurements of University players in Olympic and Non-Olympic Events"

**1.2  Objective of the Study:** The objective of the study is to compare the anthropometric measurements of university players in Olympic and non-Olympic events.

**1.3  Significance of the Study:** The study may help to compare the anthropometric characteristics of university players in Olympic and Non-Olympic events and it may help to the coaches and physical education teachers to prepare individual training schedule to fitness of the players based on players of Olympic and Non-Olympic events.

**1.4  Hypothesis:** It was hypothesized that there is no significance difference in the Anthropometric Measurements of standing height, body weight, arm length, leg length, foot length, calf girth and thigh girth of players in Olympic and Non-Olympic events.

## II.  METHODOLOGY

The purpose of the study was to compare the selected anthropometric measurements of university players of Olympic and Non-Olympic events. For this purpose, ninety six (96) male university players were selected randomly from two universities (Bangalore University Bengaluru and University of Mysore Mysore) who had their credit in participating in South Zone Interuniversity Tournaments on various games during the academic year 2018-19 in their respective games. The age of the subjects were ranged from 18 to 25 years. Among the selected 96 subjects, 48 subjects were from Handball (n=24) and Volleyball (n=24) games recognized by International Olympic Committee considered Olympic Events and remaining 48 subjects were from Kabaddi (n=24) and Kho-Kho (n=24) games which are still not recognized by Committee considered Non-Olympic events. The anthropometric measurements namely standing height, body weight, arm length, leg length, foot length, calf girth and thigh girth were selected to know the status of anthropometric measurements between university players in Olympic and non Olympic events. The Independent 't' test was utilized to know the significant difference in the said anthropometric measurements of university level players in Olympic and non-Olympic events

## III.  DATA ANALYSIS

**Table-1:**Comparison of the selected Anthropometric Measurements of university level players in Olympic & non-Olympic events

| Anthropometric Measurements | Groups | N | Mean Scores | Standard Deviation | 't' value and Level of Sig. | Sig. value (P Value) |
|---|---|---|---|---|---|---|
| Standing Height | Olympic Events | 48 | 178.145 | 8.814 | 1.04$^{NS}$ | 0.299 |
|  | Non-Olympic Events | 48 | 176.604 | 5.147 |  |  |
| Body Weight | Olympic Events | 48 | 69.458 | 12.717 | 0.07$^{NS}$ | 0.942 |
|  | Non-Olympic Events | 48 | 69.625 | 9.422 |  |  |
| Arm Length | Olympic Events | 48 | 60.333 | 4.763 | 0.16$^{NS}$ | 0.874 |
|  | Non-Olympic Events | 48 | 60.208 | 2.600 |  |  |
| Leg Length | Olympic Events | 48 | 96.604 | 7.851 | 1.77$^{NS}$ | 0.081 |
|  | Non-Olympic Events | 48 | 94.458 | 2.931 |  |  |
| Foot Length | Olympic Events | 48 | 10.322 | 1.248 | 3.55* | 0.001 |
|  | Non-Olympic Events | 48 | 9.500 | 1.010 |  |  |
| Calf Girth | Olympic Events | 48 | 35.479 | 4.010 | 0.78$^{NS}$ | 0.440 |

| Anthropometric Measurements | Groups | N | Mean Scores | Standard Deviation | 't' value and Level of Sig. | Sig. value (P Value) |
|---|---|---|---|---|---|---|
| | Non-Olympic Events | 48 | 34.937 | 2.708 | | |
| Thigh Girth | Olympic Events | 48 | 55.062 | 3.811 | 1.24 [NS] | 0.219 |
| | Non-Olympic Events | 48 | 54.062 | 4.096 | | |

[NS]Not Significant; *Significant at 0.05 level (df=94, Table value=1.98

It is observed from the Table-2, the obtained 't' value of 3.55 related to foot length between university level players of Olympic and non-Olympic events which is significant as the obtained 't' value is greater than the 't' table value of 1.98 at 0.05 level. Hence, the stated hypothesis is rejected and in its place an alternate hypothesis has been accepted that is "there is a significant difference in the Foot Length of university players in Olympic and Non-Olympic events". The table also found that the obtained 't' values of 1.04, 0.07, 0.16, 1.77, 0.78 and 1.24 related to standing height, body weight, arm length, leg length, calf girth and thigh girth between university level players in Olympic and Non-Olympic events which are not significant as the obtained 't' values are less than the table value 1.98 at 0.05 level.

The table concludes that university players of Olympic events (Handball and Volleyball) had a longer foot length when compared with university players of Non-Olympic Events (Kho-Kho and Kabaddi) and rest of the anthropometric characteristics namely standing height, body weight, arm length, leg length, calf girth and thigh girth are did not differ significantly. The bar graph shows comparison of selected anthropometric measurements between university players in Olympic and Non-Olympic events.
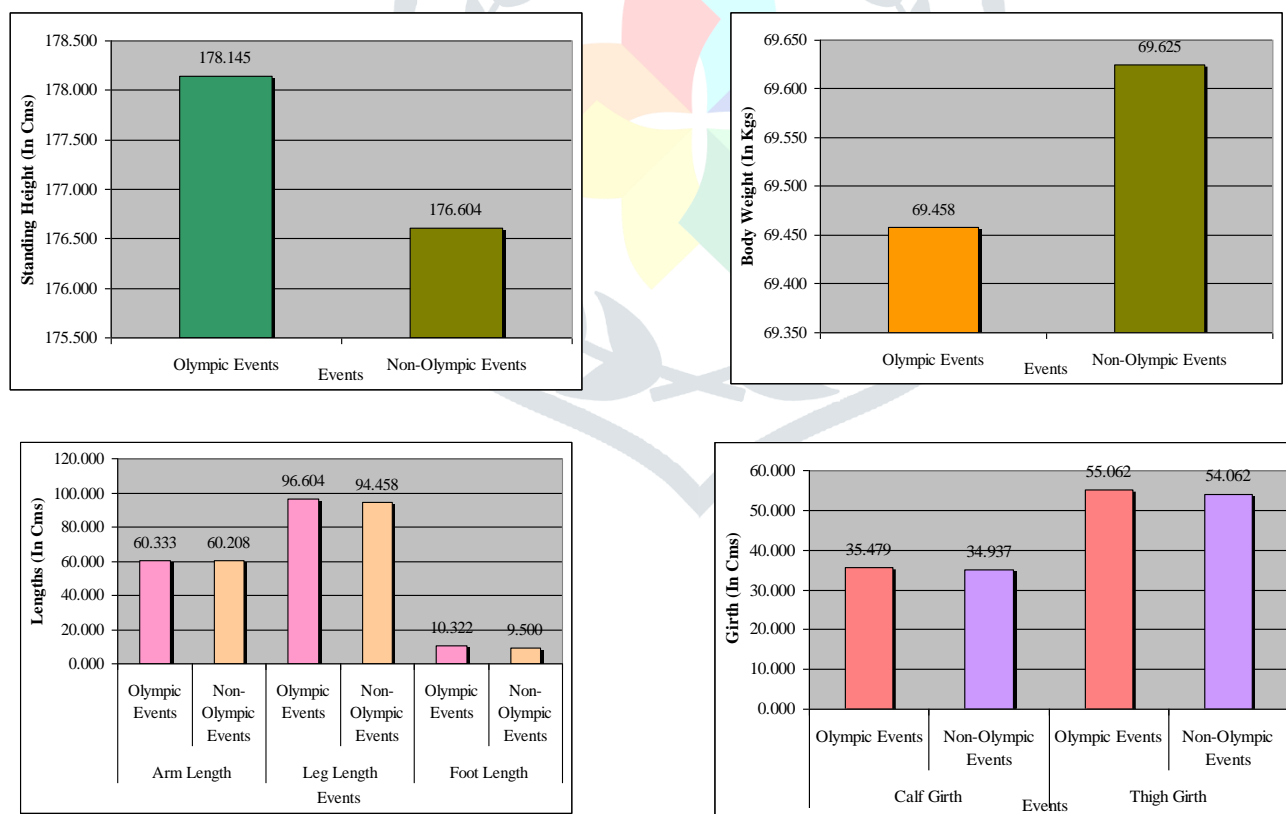


**Fig.1:** The bar graph shows comparison of selected anthropometric measurements between university players in Olympic and Non-Olympic events.

## 4. FINDINGS OF THE STUDY

From the 't' test analysis, it was found that

1.  There exists significant difference in the Foot Length between university level players of Olympic and Non-Olympic Events ('t'=3.55; P<0.05). The players in Olympic events had a longer foot length than the other counter part.

2.  There exists insignificant difference in the selected anthropometric measurements of standing height ('t'=1.04), body weight ('t'=0.07), arm length ('t'=0.16), leg length ('t'=1.77), calf girth  ('t'=0.78) and thigh girth ('t'=1.24) between University level players of Olympic and Non-Olympic Events

## V.　CONCLUSION

From the 't' test results, it was found significant difference in the foot length between university players in Olympic and Non-Olympic events. The players in Olympic events had a longer foot length than Non-Olympic Events and rest of the anthropometric characteristics namely standing height, body weight, arm length, leg length, calf girth and thigh girth are did not differ significantly.

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