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## A study of linear measurements among the Greco-Roman and freestyle male wrestlers

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### Abstract

The purpose of the study was to find out the difference of linear measurements among the Greco-Roman and Freestyle male wrestling players. The study was delimited to total 64 (32 Greco-Roman and 32 freestyle) male Wrestling players those who were participants of All India Inter-University Wrestling championship. 16 male players of different weight categories from each university (8 Greco-Roman and 8 Freestyle) were selected as subject from Chaudhary Devi Lal University Sirsa, Kurukshetra University, Kurukshetra, Chaudhary Ranbir Singh University, Jind and Maharishi Dayanand University, Rohtak. Total four linear measurements variables arm length, leg length, height, foot length were under taken for the study. Ruler was used to measure the arm length, leg length and foot length of the wrestling players. Stadiometer was used to measuring the height of the wrestling players. Independent t-test was used at 0.05 level of significant. Statistical calculation of data has shown that the male wrestlers of Greco-Roman have shown no significant difference in arm length, height, and foot length as compare to Freestyle male wrestlers. It also calculated that the male wrestlers of Greco-Roman have shown significant difference in leg length as compare to the leg length of male wrestlers of Free-Style.

**Keywords:** Linear measurements - Arm length, Leg length, Height, Foot length

### Introduction

Linear measures and motor abilities provide important information about normality of body size, health condition, and body shape (Munoz-Catol, 2007) [3]. The role of linear measurements became the challenge for researcher in order to get better results in wrestling. The present study is based on linear measurements among the Greco-Roman and Freestyle male wrestlers therefore entire discussion will be based on linear measurements.

The sports of wrestling has a strong tradition that precedes the first olympics festival in 776 B.C., when Zeus wrestled Kronas for the possession of the earth (Gallagher, 1951) [2]. Since then the sports of wrestling continues to grow in popularity because of the discipline and mental toughness it requires to be successful in the sport. To succeed in sport, players require the optimal combination of technical, tactical, physical and anthropometric characteristics. Indeed, many experts in the field such as coaches, managers and scientists believe that the success of this sport can be associated with anthropometric characteristics of players. Anthropometric measures and motor abilities provide important information about normality of body size, health condition, and body shape (Munoz-Catol, 2007) [3]. Scientists define anthropometric measurements as the study of human body measurements and its different parts and revealing its structural differences. Zawawi (2012) [4] pointed out that anthropometric measurements depend on calculating the amounts of external body structures (heights, widths, and circumferences). The importance of anthropometric measurements in physical education can be summarized as the important factor for selection process of players. Anthropometric measurements also contribute to the refining of athletes' physical skills from starting with the junior stage until the maximum level is reached. Therefore, anthropometric requirements came into seen as a decisive factor in almost sports. Additionally, Anthropometric measurements became very important in talent identification process for success in competitive sports. Thus, it is important to consider the body structure and physical requirements when selecting athletes for each sport.

That made the researcher eager to conduct this study, which aims to investigate the difference of linear measurements among the Greco-Roman and Freestyle male wrestlers in order to attain the optimum results and performance in wrestling.

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**Methods and Materials**

Sixty four wrestling male players age ranging from 19 to 28 years. The study was delimited to total 64 (32 Greco-Roman and 32 freestyle) male Wrestling players those who were participants of All India Inter-University Wrestling championship. 16 male players of different weight categories from each university (8 Greco-Roman and 8 Freestyle) were selected as subject from Chaudhary Devi Lal University Sirsa, Kurukshetra University, Kurukshetra, Chaudhary Ranbir Singh University, Jind and Maharishi Dayanand University, Rohtak. Four linear measurements (Arm length, Leg length, Height and Foot length) were selected as variables of the study. Ruler was used to measure the arm length, leg length and foot length of the wrestling players. Stadiometer was used to measuring the height of the wrestling players. Data was recorded in numerical form. Dimensions were taken only from the right side of the selected variable.

**Objectives of the study**

To compare the mean scores of arm length, leg length, height and foot length of Greco-Roman and Freestyle male wrestlers.

**Hypothesis of the study**

There exist no significant difference in the mean scores of arm length, leg length, height and foot length of Greco-Roman and Freestyle male wrestlers.

**Source of the data**

The source of the data for the present study were the participants of All India Inter- University Wrestling Championship held at Chaudhary Devi Lal University Sirsa, Haryana.

**Statistical Procedure**

The gathered data were duly analyzed through statistical procedure. For the propose to find out the difference of linear measurements among the Greco-Roman and Freestyle male wrestling players. The data was analyzed by using Independent t-test. The results were analyzed at 0.05 level of significance.

**Analysis and Interpretation**

The detail for the compare of mean value and S.D value of Greco- Roman and Freestyle male wrestlers were tabulated and the values of independendant t-test with various steps were also presented from table no-1:-

**Table 1:** A comparison of Linear Measurements among the Greco-Roman and Freestyle Male Wrestlers on Arm Length

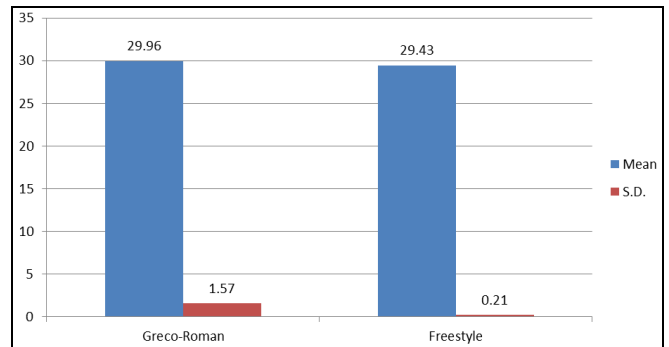
Wrestling Style	N	Mean	SD	SED	T-Ratio
Greco-Roman	32	29.96	1.57	0.27	1.541
Freestyle	32	29.43	1.18	0.21	

0.05 > 1.998, (degree of freedom 63)

From the above table it is clearly evident that the mean score (29.96 ± 1.57) of Greco-Roman male wrestlers is higher than the mean score (29.43 ± 1.18) of Freestyle male wrestlers on arm length. However the t-ratio is 1.541, which is not significant at 0.05 level of significance. It means that Greco -Roman male wrestlers has similar arm length than Freestyle male wrestlers.

It was hypothesized that there exist no significant difference in arm length among the Greco- Roman and Freestyle male wrestlers. The results of the study shows that there is not significance difference between Greco- Roman and Freestyle

male wrestlers on arm length. Hence, the null hypothesis is accepted.



**Fig 1:** Graphical Representation of Mean Scores and Standard Deviation of Greco-Roman and Freestyle Male Wrestlers on Arm Length

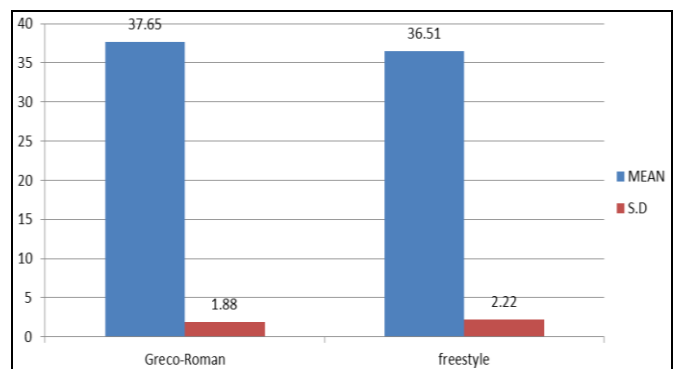
**Table 2:** A comparison of Linear Measurements Among the Greco-Roman and Freestyle Male Wrestlers on Leg Length

Wrestling Style	N	Mean	SD	SED	T-Ratio
Greco-Roman	32	37.65	1.88	0.33	2.210
Freestyle	32	36.51	2.22	0.39	

0.05 > 1.998, (degree of freedom 63)

From the above table it is clearly evident that the mean score (37.65 ± 1.88) of Greco-Roman male wrestlers is higher than the mean score (36.51 ± 2.22) of Freestyle male wrestlers on leg length. However the t-ratio is 2.210, which is significant at 0.05 level of significance. It means that Greco -Roman male wrestlers has longer leg length than Freestyle male wrestlers.

It was hypothesized that there exist no significant difference in leg length among the Greco- Roman and Freestyle male wrestlers. The results of the study shows that there is significance difference between Greco- Roman and Freestyle male wrestlers on leg length. Hence, the null hypothesis is rejected.



**Fig 2:** Graphical Representation of Mean Scores and Standard Deviation of Greco-Roman and Freestyle Male Wrestlers on Leg Length

**Table 3:** A comparison of Linear Measurements among the Greco-Roman and Freestyle Male Wrestlers on Height

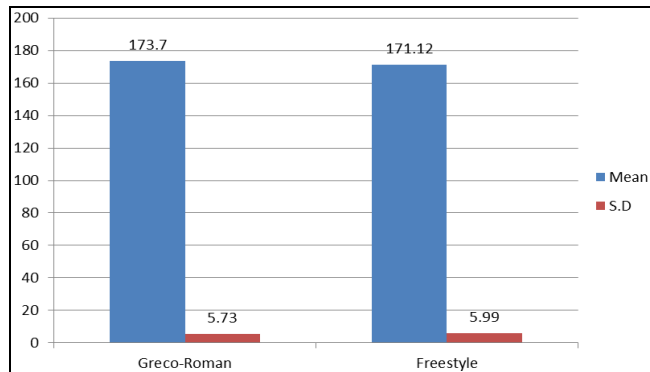
Wrestling Style	N	mean	SD	SED	T-Ratio
Greco-Roman	32	173.70	5.73	1.01	1.759
Freestyle	32	171.12	5.99	1.06	

0.05 > 1.998, (degree of freedom 63)

From the above table it is clearly evident that the mean score (173.70 ± 5.73) of Greco-Roman male wrestlers is higher than the mean score (171.12 ± 5.99) of Freestyle male wrestlers on

height. However the t-ratio is 1.759, which is not significant at 0.05 level of significance. It means that Greco-Roman male wrestlers has similar height than Freestyle male wrestlers.

It was hypothesized that there exist no significant difference in height among the Greco- Roman and Freestyle male wrestlers. The results of the study shows that there is not significance difference between Greco- Roman and Freestyle male wrestlers on height. Hence, the null hypothesis is accepted.



**Fig 3:** Graphical Representation of Mean Scores and Standard Deviation of Greco-Roman and Freestyle Male Wrestlers on Height

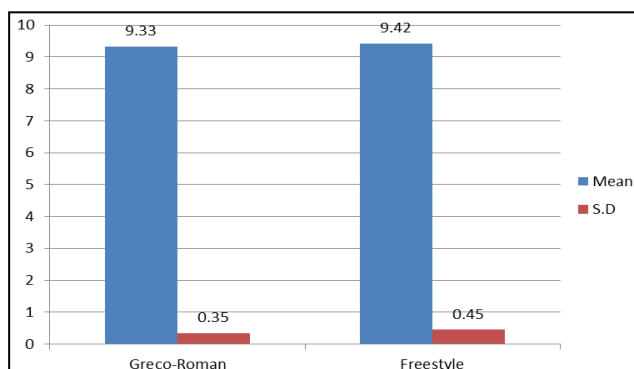
**Table 4:** A comparison of Linear Measurements among the Greco-Roman and Freestyle Male Wrestlers on Foot Length

Wrestling Style	N	Mean	SD	SED	T-Ratio
Greco-Roman	32	9.33	0.35	0.63	-.826
Freestyle	32	9.42	0.45	0.79	

0.05 > 1.998, (degree of freedom 63)

From the above table it is clearly evident that the mean score ( $9.33 \pm 0.35$ ) of Greco-Roman male wrestlers is higher than the mean score ( $9.42 \pm 0.45$ ) of Freestyle male wrestlers on foot length. However the t-ratio is -.826, which is not significant at 0.05 level of significance. It means that Greco-Roman male wrestlers has similar foot length than Freestyle male wrestlers.

It was hypothesized that there exist no significant difference in foot length among the Greco- Roman and Freestyle male wrestlers. The results of the study shows that there is not significance difference between Greco- Roman and Freestyle male wrestlers on foot length. Hence, the null hypothesis is accepted.



**Fig 4:** Graphical Representation of Mean Scores and Standard Deviation of Greco-Roman and Freestyle Male Wrestlers on Foot Length

**Conclusion**

The present investigation have shown that the Greco-Roman and Freestyle Male Wrestlers of All India Inter- University Wrestling Championship have statistically same score in arm length, height and foot length. The investigation have also shown that the Greco-Roman and Freestyle male Wrestlers of All India Inter- University Wrestling Championship have statistically differ score in leg length.

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