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Comparative study of anthropometric parameter between sprinters and hurdlers of national level athletes

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Abstract

The purpose of this study was to find out the comparison between anthropometric measurement and sprinters and hurdlers in national level athlete. In this study 20 male of sprinters and 20 male hurdlers in national level athletes were taken as a sample. Various types of test used for collection of data. Primarily the data was processed with descriptive statistics. For testing hypothesis the level of significance was set at 0.05. 40 male subjects belonging to two different sports activity as twenty from sprinters and twenty from hurdlers were selected from various parts in Pune city. The population for this study was selected from male national level sprinter and hurdler, aged between 18-20 years, in Pune city. The investigation collected the name list of sprinters and hurdlers separately. 40 subjects were selected through simple random sampling from various parts of Pune city. The ages of selected subjects were 18 to 20 year. The researcher was selected 20 national level sprinters and 20 national level hurdlers. Anthropometric measurements were considered as the variables for this study were:-Anthropometric measurements (Height, weight, leg length, arm length, thigh girth). For finding the significant difference between sprinters and hurdlers on selected anthropometric variables Independent 't' was used as statistical tool for this study. There was a no significant difference between anthropometric variable for weight of sprinters and hurdlers because calculated value (0.65) was less than tabulated value (2.093). (0.65<2.093) There was a no significant difference between anthropometric variable for height of sprinters and hurdlers because calculated value (.005) was less than tabulated value (2.093). (.005<2.093) There was a significant difference between anthropometric variable for arm length of sprinters and hurdlers because calculated value (5.03) was greater than tabulated value (2.093). (5.03>2.093) There was a no significant difference between anthropometric variable for leg length of sprinters and hurdlers because calculated value (-0.97) was less than tabulated value (2.093). (-0.97<2.093) There was a significant difference between anthropometric variable for thigh girth of sprinters and hurdlers because calculated value (2.69) was greater than tabulated value (2.093). (2.69>2.093).

Keywords: Anthropometric, sprinters, hurdlers, national level athletes

Introduction

Anthropometry is an important tool in the study and understanding of human biological variability, including, of course, morphological variation as universally applicable, non-invasive and inexpensive methods. Population variation in anthropometric dimensions that may be ascribed to genetic differences occurs primarily in proportions and fat patterning. According to the 2001 census of India, the national Muslim population, excluding the state of Jammu and Kashmir numbered was over 100 million and comprised approximately 12% of the national total. The Muslim community of India is collectively with Indonesia, Pakistan and Bangladesh comprised the four largest national Islamic populations with only few exceptions in more recent years. There has been mark paucity of data on anthropometry among Muslim females in India as well as to best of our knowledge; to date; no study has been reported on comparative study of anthropometric variable and adiposity indices among adult Hindu and Muslim females. The present investigation was therefore undertaken to investigate the pattern of anthropometric measurements and central adiposity in two communities of West Bengal.

Statement of the Problem

The statement of the problem was "comparative study of anthropometric parameter between sprinter and hurdler of national level athletes".

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Objective of the Study

The objectives of the study were as follows:

To assess the anthropometric measurement of selected sprinter and hurdles players.

To compare the selected anthropometric measurements between sprinter and hurdles player.

Hypothesis

After reviewing the literature and related research studies, it has been hypothesized that-

H1- It may be hypothesized that there was significant difference between sprinter and hurdles players on selected anthropometric measurements.

Delimitation

1. The study was delimited to state level sprinter and hurdles player
2. The study was delimited to age between 18 to 20 year.
3. The study was delimited to selected anthropometric measurements (weight, height, leg length, arm length, thigh).

Limitation

Interest of the players towards this test not known. No specific motivation technique was used during the test. The physical fitness level of the subject was unknown to the scholar.

Significance of the Study

1. The study may be helpful for the assessment of sprinter and hurdles players.
2. The study may be effective for understanding about the various components which may increase the running ability of sprinters.
3. The study may be effective for understanding about the various components which may increase the jumping ability of hurdles player.
4. This study may help the physical education teacher and coaches in planning the training programme of sprinters and hurdles.
5. Further it may help the athletes in understanding his own capabilities.

Design of the Study

Anthropometric measurements were considered as the variables for this study were:- Anthropometric measurements (Height, weight, leg length, arm length, thigh girth).

Statistical Analysis

Table 1: Descriptive statistic for weight of sprinters and hurdles

Group	N	Mean	Std. Deviation	T-test
Sprinters	20	64.45	11.03208	0.65
Hurdles	20	63	6.848357	

As shown in table no. 4.1, the comparison of mean for weight between sprinters and hurdles. Both contains same subject no.20. But mean of sprinters are 64.45 and the hurdles having the mean 63 and the standard deviation of sprinters is 11.03 and hurdles are 6.85. It shows that there was no significant difference found between anthropometric variables for weight of sprinters and hurdles. Because the calculated value (0.65) is less than the tabulated value (2.093).

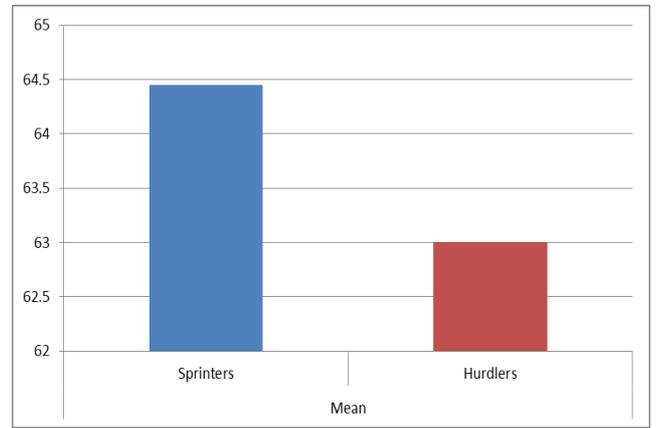


Fig 1: Mean for weight of sprinters and hurdles.

Table 2: Descriptive statistic for height of sprinters and hurdles.

Group	N	Mean	Std. Deviation	T-test
Sprinters	20	170.3	3.733631	.005
Hurdles	20	168.05	9.151366	

As shown in table no. 4.2, the comparison of mean for height between sprinters and hurdles was found. Both contains same subject no.20. But mean of sprinters is 170.3 and the hurdles have the mean 168.05 and the standard deviation of sprinters 3.73 and the hurdles standard deviation is 9.15. It shows that there was a no significant difference found between anthropometric variable for height of sprinters and hurdles, because (.005) was less than tabulated value (2.093).

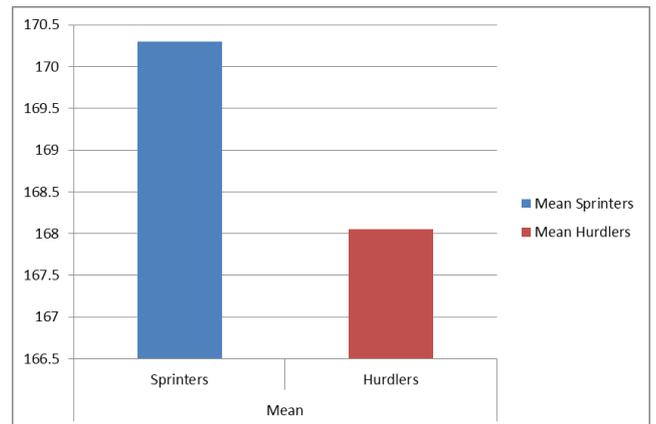


Fig 2: Mean for height of sprinters and hurdles

Table 3: Descriptive statistic for arm length of sprinters and hurdles.

Group	N	Mean	Std. Deviation	T-test
Sprinters	20	77.15	2.868362	5.03
Hurdles	20	75.55	4.341371	

As shown in table 4.3, the comparison of mean for arm length between sprinters and hurdles was found. Both contain same subject of no. 20. But mean of sprinters is 77.15 and the hurdles have the mean 75.55 and the standard deviation of sprinters is 2.89 and the hurdles standard deviation is 4.34. It shows that there was a significant difference found in between anthropometric variable for arm length of sprinters and hurdles, because (5.03) was better than tabulated value (2.093)

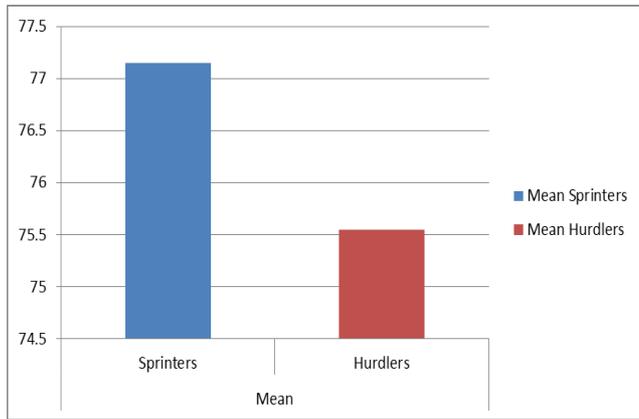


Fig 3: Mean for arm length of sprinters and hurdlers

Table 4: Descriptive statistic for Leg length of sprinters and hurdlers.

Group	N	Mean	Std. Deviation	T-test
Sprinters	20	102.9	3.657526	-0.97
Hurdlers	20	103.8	4.478839	

As shown in table no. 4.4, the comparison of mean for leg length between sprinters and hurdlers was found. Both contain same subject no. 20. But mean of sprinters is 102.9 and the hurdlers are mean 103.8 and the standard deviation of sprinters is 3.66 and the hurdlers standard deviation is 4.48. It shows that there was a no significant difference found in between anthropometric variable for leg length of sprinters and hurdlers (-0.97) because less than tabulated value (2.093).

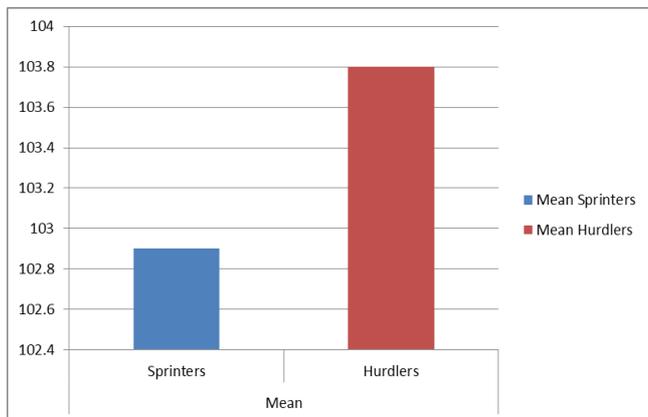


Fig 4: Mean for leg length of sprinters and hurdlers

Table 5: Descriptive statistics for Thigh girth of sprinters and hurdlers.

Group	N	Mean	Std. Deviation	T-test
Sprinters	20	51.9	3.672874	2.69
Hurdlers	20	51	2.774887	

As shown in table no.4.5, the comparison of mean for thigh girth between sprinters and hurdlers were found. Both contain same subject no. 20. But mean of sprinters is 51.9 and the mean of hurdlers was 51 and the standard deviation of sprinters is 3.67 and the hurdlers standard deviation is 2.77. It shows that there was a significant difference found in between anthropometric variable for thigh girth of sprinters and hurdlers, because (2.69) was greater than tabulated value (2.093).

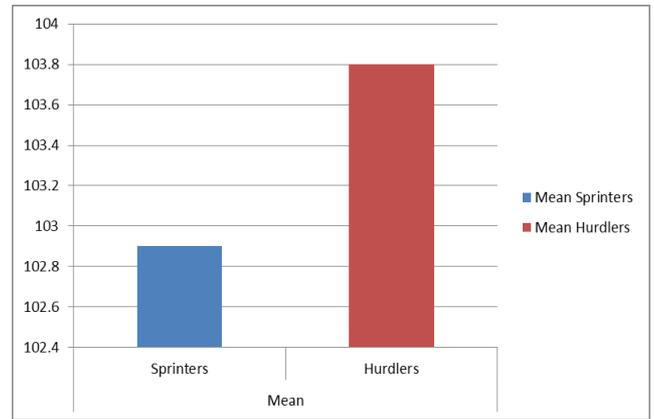


Fig 5: Mean for thigh girth of sprinters and hurdlers

Discussion of Findings

1. There was no significant difference found in between anthropometric variable for weight of sprinters and hurdlers because calculated value is (0.65) less than tabulated value (2.093). (0.65<2.093)
2. There was no significant difference found in between anthropometric variable for height of sprinters and hurdlers because calculated value is (.005) less than tabulated value (2.093). (.005<2.093)
3. There was significant difference found in between anthropometric variable for arm length of sprinters and hurdlers because calculated value is (5.03) getter than tabulated value (2.093). (5.03>2.093)
4. There was no significant difference found in between anthropometric variable for leg length of sprinters and hurdlers because calculated value is (-0.97) less than tabulated value (2.093). (-0.97<2.093)
5. There was significant difference found in between anthropometric variable for thigh girth of sprinters and hurdlers because calculated value is (2.69) greater than tabulated value (2.093). (2.69>2.093)
6. In this study all the hypothesis was rejected except in case of arm length and thigh girth hypothesis were accepted among the selected variables.

Conclusion

- Following conclusions were given on the basis of the result-
- It may be concluded that there was no significant difference found between anthropometric variables for weight of sprinters and hurdlers. Because the calculated value (0.65) is less than the tabulated value (2.093).
 - It may be concluded that there was a no significant difference found between anthropometric variable for height of sprinters and hurdlers, because (.005) was less than tabulated value (2.093).
 - It may be concluded that there was a significant difference found in between anthropometric variable for arm length of sprinters and hurdlers, because (5.03) was getter than tabulated value (2.093)
 - It may be concluded that there was a no significant difference found in between anthropometric variable for leg length of sprinters and hurdlers (-0.97) because less than tabulated value (2.093).
 - It may be concluded there was a significant difference found in between anthropometric variable for thigh girth of sprinters and hurdlers, because (2.69) was greater than tabulated value (2.093).

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