



ISSN: 2456-0057
IJPNPE 2021; 6(2): 215-217
© 2021 IJPNPE
www.journalofsports.com
Received: 10-05-2021
Accepted: 21-06-2021

Dr. LM Khandagale
Assistant Professor, Department:
Physical Education Degree
College of Physical Education,
Autonomous College, Amravati,
Maharashtra, India

Comparative study of selected anthropometric measurements and jumping ability of volleyball players of Kerala and Maharashtra states

Dr. LM Khandagale

Abstract

The main purpose of this study was to investigate the difference of selected Anthropometric Measurements and jumping ability of volleyball players of Kerala and Maharashtra states. For the purpose of this study 40 male volleyball players 20 from Kerala and 20 from Maharashtra, and the age was ranged from 18 to 25 years were purposively selected as the subject.

To measure selected Anthropometric i.e., calf girth, thigh girth, leg length steel tape was used and scores were recorded in centimeter. Foot arch, was testing with foot type and shape. Vertical jump test was used for jumping ability and score was recorded in centimeter.

To determine the significant difference, Independent 't' test was employed for each component separately; the level of significance was set at 0.05 for testing the hypothesis.

The finding of statistical analysis revealed that significant difference was observed in jumping ability but insignificant difference was observed in selected anthropometric measurements between the volleyball players of Kerala and Maharashtra states.

Keywords: Jumping ability, anthropometric measurements, calf girth, thigh girth, volleyball, leg length, foot arch

Introduction

Sports have become an important social and cultural activity of the modern world. In this, Volleyball is also one of them which is upgrading and has become the most popular sport in the decade. In Volleyball, technical and tactical skills, anthropometric characteristics and individual physical performance capacities are most important factors that contribute to the success of a team in competitions. Volleyball players require well developed muscular strength, power and endurance, speed, agility, and flexibility, and have a high level of jumping ability, fast reaction time and swift movements. Considerable demand is also placed on the neuromuscular system during sprints, jumps (blocking and spiking), and high intensity court movements that occur repeatedly during competition.

Significance of the study

1. The finding of the study would be helpful to know the jumping ability of Volleyball players.
2. The result might be helpful to the coaches for diagnostic purpose.
3. The study would help to know the status of Anthropometric Measurements and jumping ability of Volleyball players.

Hypotheses

1. It was hypothesized that there would be significant difference in jumping ability of male Volleyball players of Kerala and Maharashtra states.
2. It was further hypothesized that significant difference might be observed in Anthropometric measurements in between the volleyball players of Kerala and Maharashtra states.

Methodology

Total 40 male volleyball players were selected in this study. Out of which 20 players from

Corresponding Author:
Dr. LM Khandagale
Assistant Professor, Department:
Physical Education Degree
College of Physical Education,
Autonomous College, Amravati,
Maharashtra, India

Kerala state and 20 players from Maharashtra state, and there age was ranging from 18-25 years.

Criterion measures

1. Vertical jump was applied to measure the leg muscle power (explosive leg strength) and the measurement was recorded in centimeter.
2. Calf girth was measured by using steel tape and the score was recorded in centimeter.
3. Thigh girth was measured by using steel tape and the score was recorded in centimeter.
4. Leg strength was measured by using steel tape and the score was recorded in centimeter.
5. Foot arch was measured with foot type and shape.

Collection of Data

The data pertaining to the study were collected on the selected subjects by administering the above mentioned tests. Before collection of data the research scholar had explained the purpose of the study to the subjects so as to they could put their best.

Analysis of Data

The data pertaining to each of the selected variables were examined statistically by applying Independent ‘t’ test in order to test the hypothesis and the level of significance was set at .05.

Table 1: Description of Mean, SD and t-ratio for the Data on Explosive Leg Strength of Kerala and Maharashtra States Volleyball players.

| State | Mean | S.D. | M.D. | S.E. of M.D. | t-ratio |
|-------------|-------|------|-------|--------------|---------|
| Kerala | 60.8 | 8.48 | 11.05 | 2.87 | 3.85* |
| Maharashtra | 49.75 | 9.66 | | | |

*Significant level at 0.05
Tabulated t .05(38) =2.024

It is evident from the findings of above table that the calculated t- value of 3.85 is greater than the tabulated t- value of 2.024 at 0.05 level for the 38 degree of freedom, which indicates that statistically there is significant difference between the means of Explosive Leg Strength of Kerala and Maharashtra States volleyball players. From the mean value it is obvious that the volleyball players of Kerala possessed significantly greater explosive Leg Strength compared to the Maharashtra players. The difference of means has been shown graphically in fig.1.

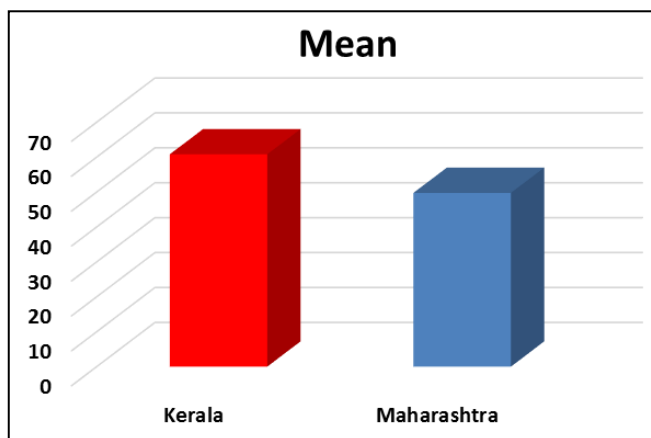


Fig 1: Graphical Representation of Explosive Leg Strength of Kerala and Maharashtra States Volleyball players.

Table 2: Description of Mean, SD and t-ratio for the Data on Calf Girth of Kerala and Maharashtra States Volleyball players.

| State | Mean | S.D. | M.D. | S.E. of M.D. | t-ratio |
|-------------|-------|-------|------|--------------|---------|
| Kerala | 33.53 | 2.607 | 0.21 | 0.76 | 0.27@ |
| Maharashtra | 33.32 | 2.24 | | | |

*Significant level at 0.05
Tabulated t .05(38) =2.024

The finding of table 2 reveals that there is no significant difference between the means of Kerala and Maharashtra states’ volleyball players in the variable of calf girth, because the calculated t-value of 0.27 is quite less than that of tabulated t- value of 2.024 needed to be significant at 0.05 levels for the 38 degree of freedom. The difference of means has been shown graphically in fig. 2.

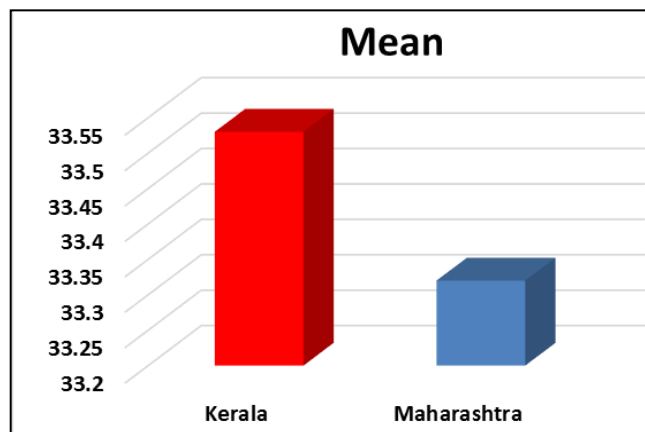


Fig 2: Graphical Representation of Calf Girth of Kerala and Maharashtra States Volleyball players.

Table 3: Description of Mean, SD and t-ratio for the Data on Thigh Girth of Kerala and Maharashtra States Volleyball players.

| State | Mean | S.D. | M.D. | S.E. of M.D. | t-ratio |
|-------------|-------|------|------|--------------|---------|
| Kerala | 50.34 | 5.25 | 2.07 | 1.73 | 1.19@ |
| Maharashtra | 48.27 | 5.75 | | | |

*Significant level at 0.05
Tabulated t .05(38) =2.024

The finding of table 2 reveals that there is no significant difference between the means of Kerala and Maharashtra states’ volleyball players in the variable of thigh girth, because the calculated t-value of 1.19 is quite less than that of tabulated t- value of 2.024 needed to be significant at 0.05 levels for the 38 degree of freedom. The difference of means has been shown graphically in fig. 3.

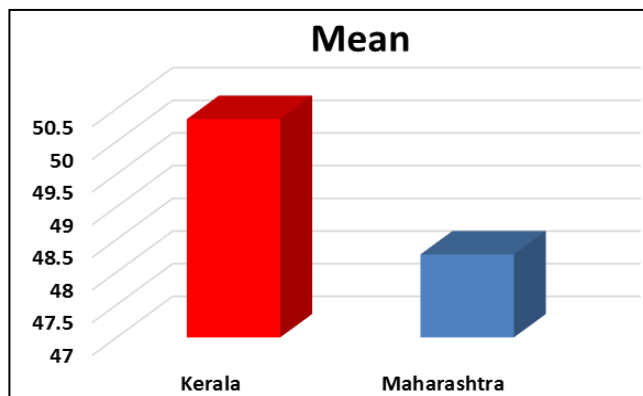


Fig 3: Graphical Representation of Thigh Girth of Kerala and Maharashtra States Volleyball players.

Table 4: Description of Mean, SD and t-ratio for the Data on Leg Length of Kerala and Maharashtra States Volleyball players.

| State | Mean | S.D. | M.D. | S.E. of M.D. | t-ratio |
|-------------|-------|------|------|--------------|---------|
| Kerala | 94.3 | 5.34 | 1.25 | 1.65 | 0.75@ |
| Maharashtra | 93.05 | 5.16 | | | |

*Significant level at 0.05
Tabulated t .05(38) =2.024

The finding of table 2 reveals that there is no significant difference between the means of Kerala and Maharashtra states' volleyball players in the variable of Leg Length, because the calculated t-value of 0.75 is quite less than that of tabulated t- value of 2.024 needed to be significant at 0.05 levels for the 38 degree of freedom. The difference of means has been shown graphically in fig. 4.

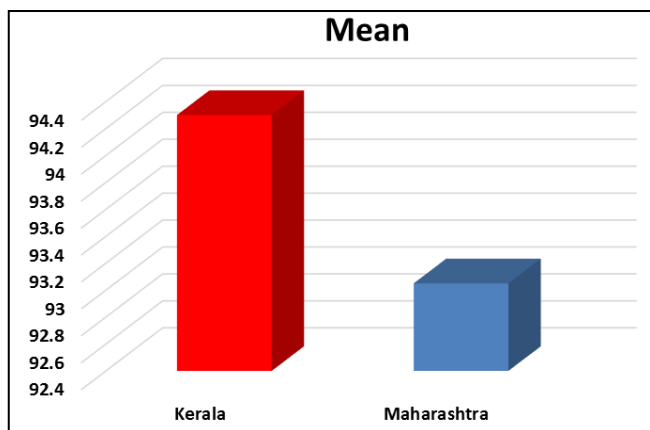


Fig 4: Graphical Representation of Leg length of Kerala and Maharashtra States Volleyball players.

Table 5: Description of Mean, SD and t-ratio for the Data on Foot Arch of Kerala and Maharashtra States Volleyball players.

| State | Mean | S.D. | M.D. | S.E. of M.D. | t-ratio |
|-------------|-------|-------|------|--------------|---------|
| Kerala | 72.6 | 20.31 | 4.95 | 6.36 | 0.77@ |
| Maharashtra | 67.65 | 19.95 | | | |

*Significant level at 0.05
Tabulated t .05(38) =2.024

The finding of table 2 reveals that there is no significant difference between the means of Kerala and Maharashtra states' volleyball players in the variable of Foot Arch, because the calculated t-value of 0.77 is quite less than that of tabulated t- value of 2.024 needed to be significant at 0.05 levels for the 38 degree of freedom. The difference of means has been shown graphically in fig. 5.

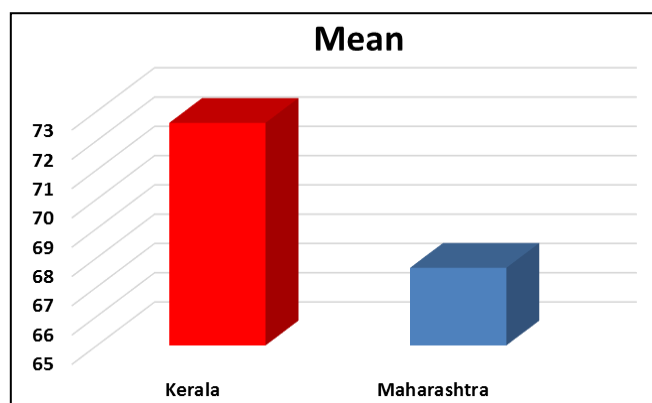


Fig 5: Graphical Representation of Foot Arch of Kerala and Maharashtra States Volleyball players.

Discussion on findings

The findings of table 1 revealed that there was significant difference in jumping ability (Explosive Leg Strength) between Kerala and Maharashtra States' volleyball players. According to the findings Kerala players have shown significantly greater jumping ability (Explosive Leg Strength) as compared to Maharashtra States' volleyball players. It may be due to high level of physical fitness of Kerala players the results reveals significant difference.

The finding of table 2, 3, 4, and 5 revealed that there was no significant difference in anthropometric measurement between the volleyball players of Kerala and Maharashtra states. As the game of volleyball is in need of a particular kind of body structure to perform better. Hence both the groups had similar anthropometric measurements.

Conclusions

Within the limitations of the present study and on the basis of findings, it is concluded that the volleyball players of Kerala possess significantly better jumping ability as compared to Maharashtra state's volleyball players and there was no significant difference in anthropometric measurement between the volleyball players of Kerala and Maharashtra states.

References

1. Bhola V. Relationship of Absolute leg Length, Relative Leg Length, Foot Length, Dynamic Power, Ankle Flexibility, and Agility to Jumping Ability in Volleyball using Three strides Rhythm”, Unpublished master Thesis, Jiwaji University, Gwalior 1984;26(4)5015.
2. Duncan MJ, Woodfield L, Nakeeby AL. Anthropometric And Physiological Characteristics of junior Elite Volleyball players, Sports medicine 2006;40(7):649.51;
3. Sotiropoulos K, Smilions I, Christou M, Spaias A, Douda H, Tokmakidis SP. Jumping Ability, Reactive Strength and Anthropometric Characteristics of Elite Junior Women volleyball players, Inquiries in Sports & Physical Education 2009;7:81-89.