

A Comparative Study of Humerus Biepic Condyle Diameter of High and Low Performance Volleyball Players

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Abstract

Fundamental skills of volleyball like servicing, passing, setting, smashing and blocking, requires a powerful hand with greater boney and muscular base which can be seen through assessing the width between the lateral and medial condyles of humerus The purpose of this research work was to compare the Humerous biepic condyle diameter of high and low performance Indian volleyball players. 50 subjects of each of high and low performance volleyball players' data was taken for analyzing the Humerous biepic condyle diameter difference. High and low performance volleyball players were selected from Senior national, All India inter-varsity, zone, State, North zone, Inter-varsity, District tournaments. Z-test analyses concluded the mean Humerous biepic condyle diameter, of high performance volleyball players to be significantly greater (4.49 %), than the mean Humerous biepic condyle diameter of low performance volleyball players.

Introduction

Fundamental skills of volleyball like servicing, passing, setting, smashing and blocking, requires a powerful hand with greater boney and muscular base which can be seen through assessing the width between the lateral and medial condyles of humerus The Competitive sports demand event specific physique and body composition to achieve the success. McArdle *et al.*(1999), pointed out that athlete generally have physique characteristics unique to their specific sports

The measurement of different body dimensions and ratios in between them are of great relevance for sports performance The purpose of this research work was to asses the difference in the Humerous biepic condyle diameter of high and low performance volleyball players

Selection of Subjects

High performance volleyball players were selected from;

- Senior national tournament held at "Choutala", Haryana in Nov. 2002
- All India inter-varsity championship finals held at "Ajmer" 17th to 22 Nov., 2002.
- East & Northeast zone championship held at "Agra" from 16th to 21 Nov., 2002.

Low performance volleyball players were selected from;

- State championship held at "Moradabad" in October, 2002.
- North zone championship held at "Gadhwal" Uttranchal University, October, 2002.
- Inter-varsity tournament held at "Ajmer" in Nov., 2002.
- District tournament Moradabad, 2002.

Collection of Data

The subject's right arm was raised forward to the horizontal and the forearm flexed to right angle at elbow. The distance between medial and lateral epicondyle of the humerus was measured in cms with the help of sliding caliper .

Statistical Procedure

Z- test was used to test the significant difference in Humerous biepic condyle diameter of high and low performance volleyball players at 0.05 level of significance.

Z- test Analyses of data

Z-Table

Humerous biepic condyle diameter

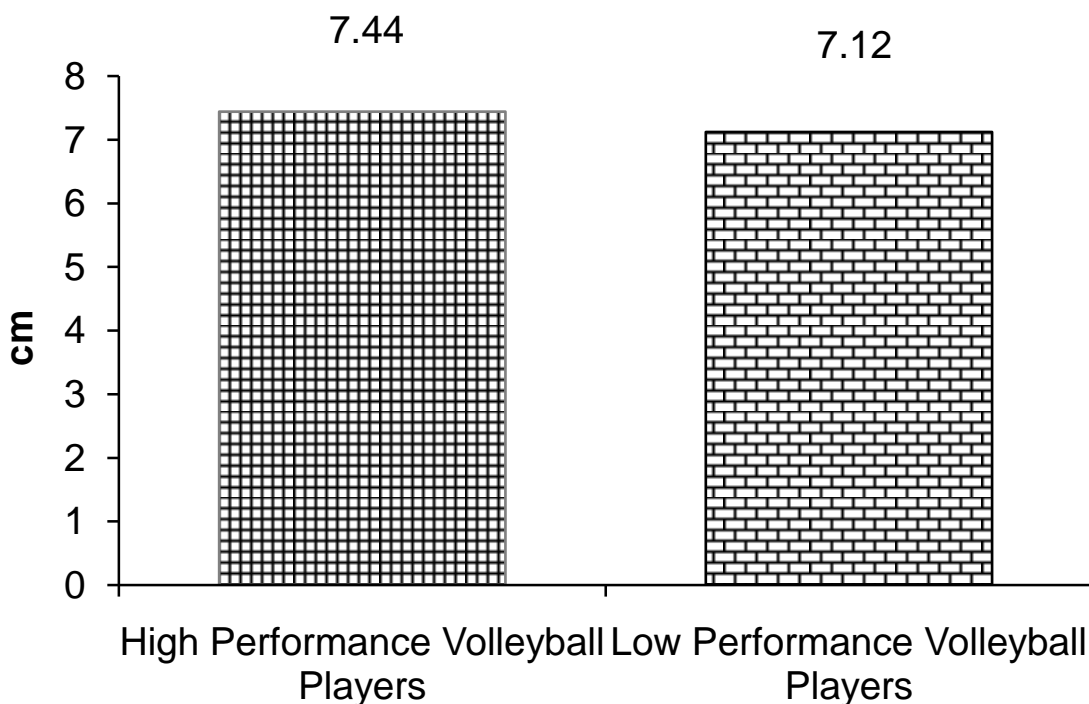
Humerous biepic condyle diameter	High-performance volleyball players	Low-performance volleyball players
Mean	7.44	7.12
Standard Deviation	0.50	0.35
Obtained value $ Z $	3.68*	
The mean of High performer is > than mean of Low performer $\bar{X}_1 > \bar{X}_2 = 4.49\%$		

* Significant of 0.05 level

** Z- value for one tail test to be significant at 0.05 level 1.64

Z-Table Shows significant obtained Z value for one tail test, which leads us to conclude that the mean Humerous biepic condyle of high performance volleyball players is significantly greater (4.49%) than the mean Humerous biepic condyle diameter of low performance volleyball players.

Fig.: The mean Humerus biepic condyle diameter of High and Low performance volleyball players.



Discussion & Findings

It is observed that mean Humerous biepic condyle diameter of High performance volleyball players is significantly 4.49 % greater than low performance volleyball players.

The wider Humerous biepic condyle diameter signifies strong elbow joint with bigger ligament and tendon base , which also provides greater muscular attachment. This provides greater strength, mobility and stability along with protection from injuries. These parameters enhances the spiking, blocking and other defensive techniques of high performance volleyball players.

Sodhi et al. (1990) also observed wider Humerous biepic condyle than the controls in a study on North Indian Junior volleyball players aged between 16 to 18 years. The results were based on the cross-sectional data of 90 volleyball players and 94 control subjects. The data were divided age-wise into three subgroups of each category. The results of the study revealed that the volleyballers in each age group were significantly taller and heavier than the controls. The volleyballers in each age group possessed considerably greater length of their trunk, broader shoulders and hips, wider humerus and femurs, greater size of hand span, larger chest, upper arm, thigh and calf circumference than the controls. **Sodhi and Sidhu.(1984)**, noted that the players in the Indian national volleyball team dominated other groups in all anthropometric measurements. They had greater musculo-skeletal tissue in the thigh relative to the upper arms and possessed wider knees relative to the elbows than players of lower standards however; the amount of body fat was least in them. **Mokha and Sidhu (1988)** took anthropometric measurements of Indian female volleyball players having International level of participation. They found that the volleyballers were taller and heavier than the controls. The taller stature of volleyball players was mainly due to the longer lower extremity because the mean values of the sitting height in both the groups were almost comparable. Upper extremities were also longer for volleyball players and they also possessed broader shoulders, wider knees and wrist.

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