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A COMPARISON OF SELECTED ANTHROPOMETRIC MEASURES BETWEEN STATE AND NATIONAL LEVEL MALE VOLLEYBALL PLAYERS

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ABSTRACT

Human bodies are widely divergent in their size shape and compositional characteristics. It would therefore seem that the full anthropometric description of human physique would require –the assessment of a great number of body, bodily dimensions. The purpose of study was to compare and investigate the selected anthropometric measures of state and national level male volleyball players. Forty three state and national levels (State level = 22, national level =21) male volleyball players who represented their respective district and state teams in respective competitions , Male players ranging between 19 to 25 years of age, All the participants were tested on selected six parameters of anthropometric measures i.e. Waist Circumference, Hip Circumference, Middle Upper arm Circumference, waist to hip ratio, waist to height ratio and Body composition. To assess the anthropometric parameters of state and national levels male volleyball players, means and standard deviations t-ratios were computed. To check t- Ratio, level of significant was set at .05 level. The results of study revealed the dissimilarity existed between state and national level male volleyball players in their waist circumference, middle upper arm circumference, WHR and WHtR and \Similarity in hip circumference and body composition It was also concluded that selected anthropometric characteristics had positive impact on the competition levels of the male volleyball players.

Key Words: Male, Volleyball players, state level, national level, anthropometric measures

1. INTRODUCTION

Games and sports are as old as human society and have achieved on universal following in the modern times. These have become integral part of educational process. Millions of people take part in sports activities for either recreational purpose or for health, strength and fitness and for displaying superiority over others in competition sports. Some competitive games and sports are taking shape of a profession with high skills, and with ample financial benefits linked with high degree of popularity. The study of sports sciences has become imperative to attain excellence in sports. All training and coaching programme today are scientific in nature. The sports scientists almost all over the world are exploring new methods and technique in various sports disciplines to accomplish what appears to be impossible.

Human bodies are widely divergent in their size shape and compositional characteristics. It would therefore seem that the full anthropometric description of human physique would require –the assessment of a great number of body, bodily dimensions. This interface is clearly seem to be supported in regard to part anthropometry practice many length, breadth, girths and skin fold widths of different types have been measured in order to describe the anthropometry orifices if human bodies.

In the order of human values conquest in field of sports hold a unique plane. It is the combination of success. victory, triumph and domination of mover other team mates and friends. The sublimity of competition is in the loser's acclaim for the winners. which along with the friends and shake acknowledge both defeat and triumph **(Rieckehoff, 1977)**

Anthropometry is the measurement of body size and proportions. The measurements include body weight, height, circumference, skin fold thickness and bony widths and lengths **(Heyward, 2006).**Anthropometric measurements are widely used to assess and predict performance in various sports. Anthropometric measurements and morphological characteristics play an important role in determining the success of a sportsperson **(Wilmore & Costill, 1999; Keogh, 1999).** Volleyball belongs to sport activities in which anthropometric characteristics of its participants influence the level of sport performance. It was established that volleyball players compared to most other athletes have distinctive anthrop-morphological characteristics **(Ercolessi, 1999; Jankovic et al., 1995; Ugarkovic, 2004).**

Sidhu, Grewal and Verma (1984) showed that players disagree in physique and body composition consistent with the field positions, within which the players specialize. **Ozkan (1984)** discovered a mean height and weight for male high school football game players. **Dey and Dey (1987)** complete that defensive players in soccer have considerably higher leg length, thigh girth, height, weight and limb Index than those at offensive players. **Amusa (1979)** complete that the expertise is that the best single predictor of playing ability. Weight and height are thought of sensible predictor's of playing- ability. **Hebbelink (1985)** found that male Olympic athletes in seven sports winners were heavier and taller and had bigger sitting height leg length, shoulder and hip breadth and forearm and thigh girths than most different sportsmen. **Adhikari (1986)** indicated that anthropometrical variables particularly weight, standing height, sitting height, foot length, fore leg length, leg length, calf girth, trunk length, have distinct potential for achieving higher level of skills in football game. **Bhatnagar(1986)** determined that athletes and volleyball players of province area unit heavier and taller than the athletes and volleyball players of Madhya Pradesh. **Bose & Banerjee (1987)** indicated the important distinction between national champions and faculty footballers in their morphological profile.

important variations were additionally determined in morphological profile among the champion teams.

Anthropometrics measurements were central considerations of the fist section of the scientific era of measurements, that are began within the 1860's current interest in anthropometrics measurements focus in 3 areas, girth measures, physique and body composition. The assess of such measures embody classification, prediction of growth patterns and prediction of success in motor activities similarly as assessment of ability **(Philips and Harnok, 1979)**

Today, sports became a vicinity and parcel of our culture. it's being influenced and will influence all our social establishments together with education, economics, art, politics, law, mass-communication and even international diplomacy **(Lay revivalist and Kenyon, 1978).**

3. METHODOLOGY

3.1 Sample:

Forty three state and national levels (State level = 22, national level =21) male volleyball players who represented their respective district and state teams in respective competitions , Male players ranging between 19 to 25 years of age,

3.2 Administration of Tests:

All the participants were tested on selected six parameters of anthropometric measures i.e. Waist Circumference, Hip Circumference, Middle Upper arm Circumference, waist to hip ratio, waist to height ratio and Body composition. The testing implements are mentioned as below:

3.2. 1. Anthropometric Parameters

S.No.	Selected variables	Measurement tools/Formula
1	Waist Circumference (Cm.)	Measuring Tape
2	Hip Circumference (Cm.)	Measuring Tape
3	Mid-Upper Arm Circumference(Cm)	Measuring Tape
4	Waist to Hip Ratio (WHR)	Measuring Tape, Waist girth/ Hip girth
5	Waist to Height Ratio (WHtR)	Waist girth/ Height.
6	Body composition	Sum of Triceps and Sub-scapular Skin-folds

3.3 Statistical Techniques:

In order to evaluate the selected anthropometric measures of state and national levels male volleyball players, means and standard deviations t-ratios were computed. To check t-Ratio, level of significant was set at .05 level. The Statistical Package of Social Science (SPSS-16.0) was used for the purpose of analysis of collected data.

3. RESULTS

To assess the selected anthropometric measures of state and national levels male volleyball players,, means and standard deviations were computed and data pertaining to this has been presented in Table 1.

TABLE 1
DESCRIPTIVE STATISTICS OF ANTHROPOMTRIC MESURES OF STATE AND NATIONAL LEVEL MALE VOLLEYBALL PLAYERS

S. N0.	Anthropometric Parameters	Descriptive Statistics	State level (N=22)	National Level (N=21)
1	Waist Circumference (Cm.)	M SD	78.14 11.83	67.29 19.02
2	Hip Circumference (Cm.)	M SD	175.05 131.03	75.95 20.12
3	Middle Upper Arm Circumference (Cm.)	M SD	23.73 3.60	20.38 5.46
4	Waist to Hip Ratio (WHR)	M SD	0.85 0.16	1.09 0.52
5	Waist to Height Ratio (WHtR)	M SD	0.42 0.09	0.48 0.05
6	Body Composition	M SD	26.41 7.99	26.86 7.67

Mean score of anthropometric measures of state and national level male volleyball players has been depicted in figure 1 to 6.

Figure 1

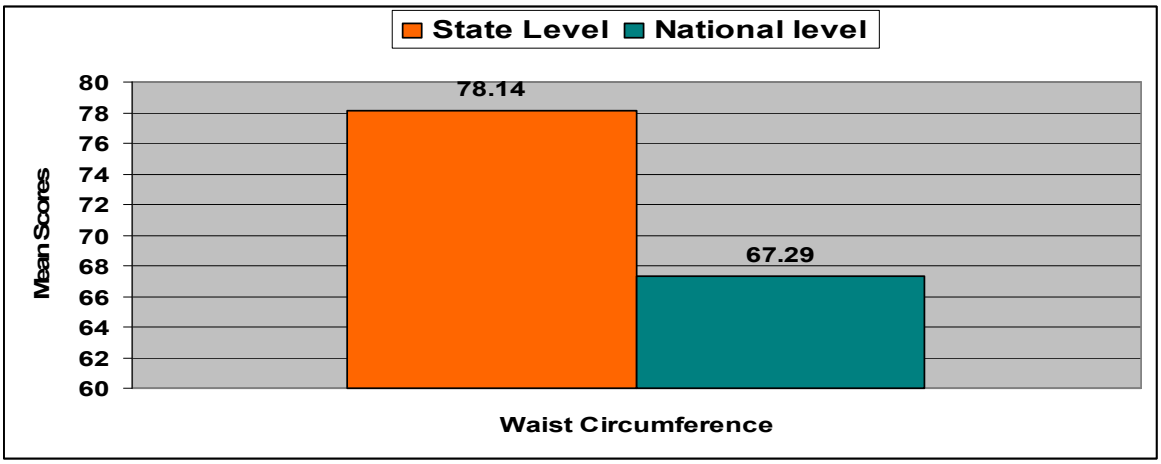

Figure 2

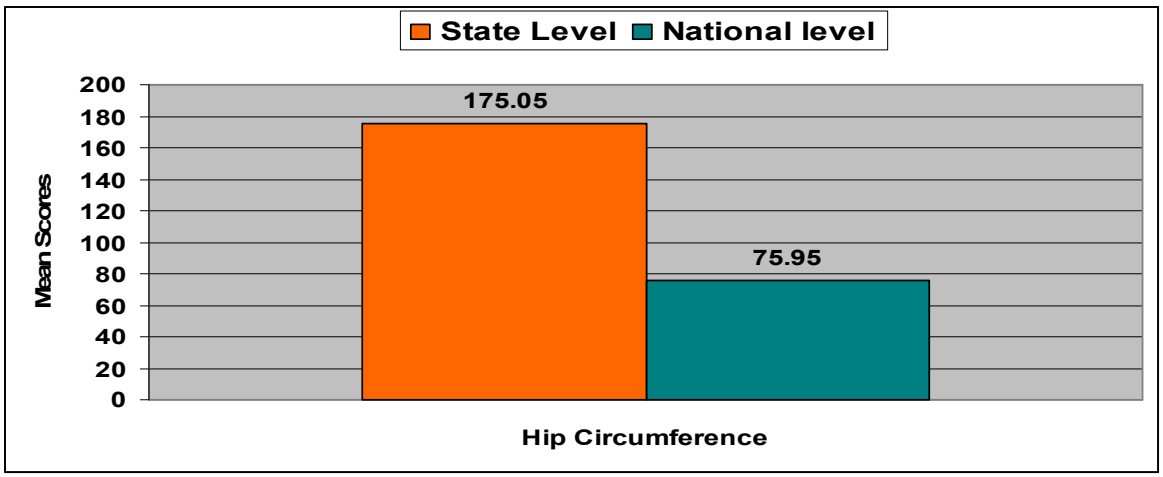

Figure 3

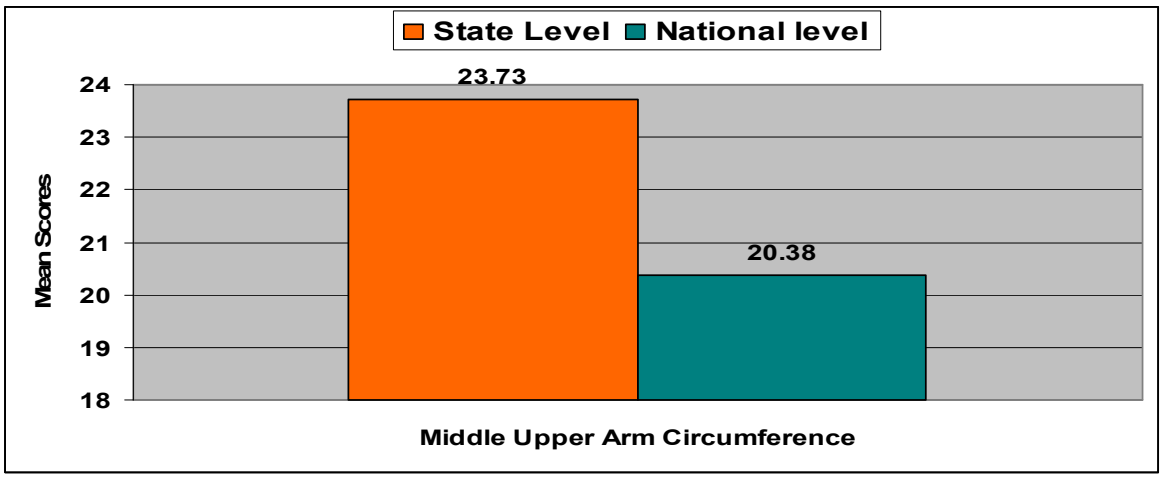

Figure 4

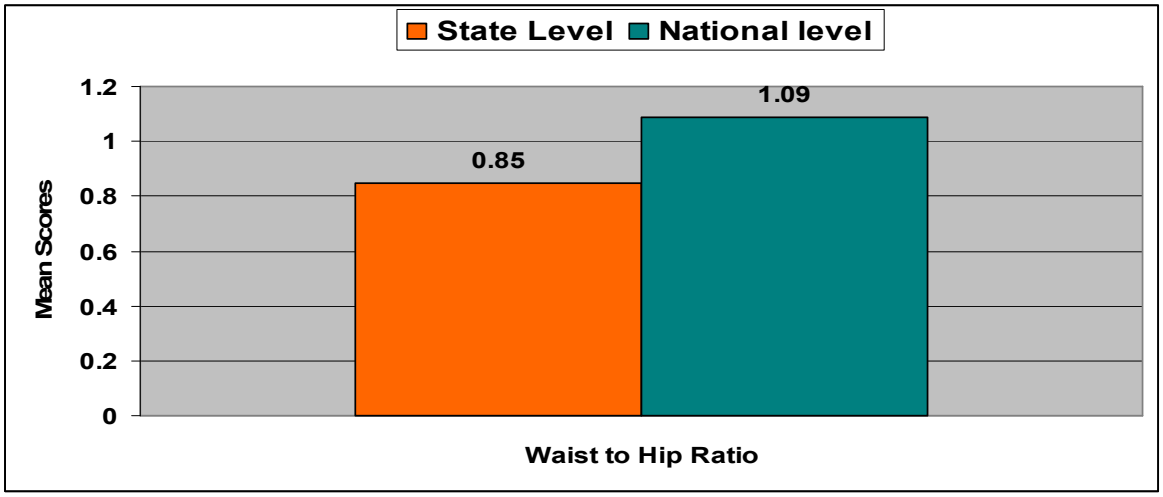

Figure 5

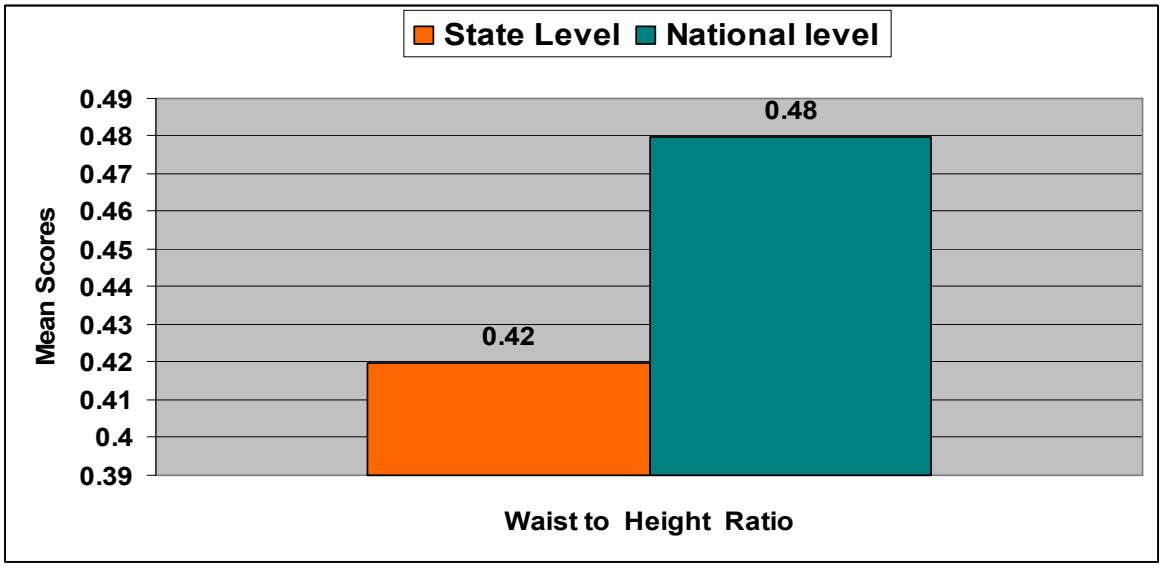

Figure 6

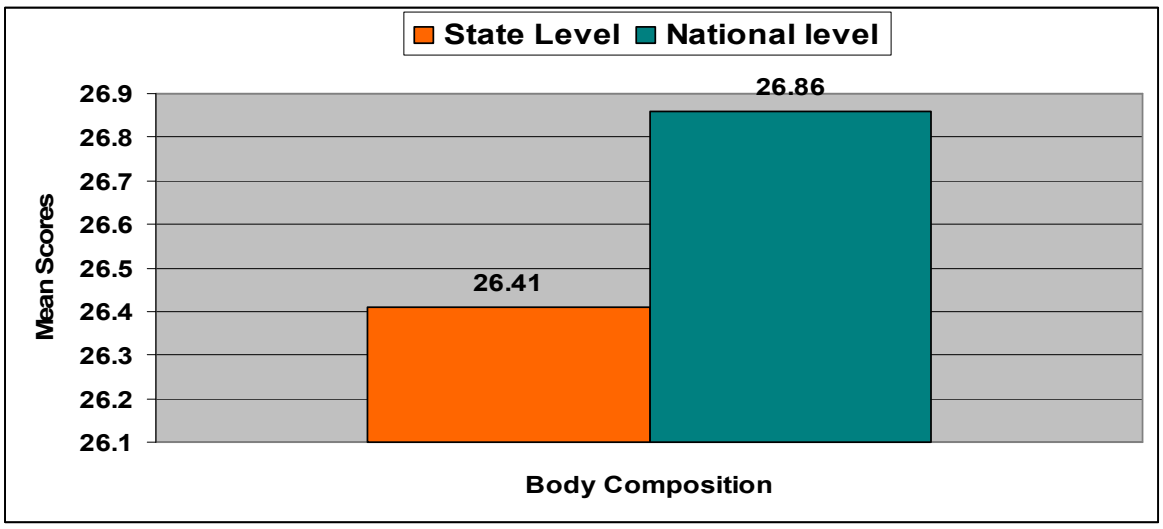

TABLE 2
SIGNIFICANCE OF DIFFERENCE BETWEEN STATE AND NATIONAL LEVEL MALE VOLLEYBALL PLAYERS IN THEIR MEAN SCORES ON ANTHROPOMETRIC MEASURES

S. No.	Anthropometric Measures	Levels	N	Mean	M.D.	□ D.M.	t-ratio
1	Waist Circumference (Cm.)	State National	22 21	78.14 67.29	10.85	4.81	2.26*
2	Hip Circumference (Cm.)	State National	22 21	117.05 75.95	41.09	28.93	1.42
3	Middle Upper Arm Circumference (Cm.)	State National	22 21	23.73 20.38	3.34	1.40	2.38*
4	Waist to Hip Ratio (WHR)	State National	22 21	0.85 1.09	0.25	0.12	2.12*
5	Waist to Height Ratio (WHtR)	State National	22 21	0.41 0.48	0.07	0.02	2.99*
6	Body Composition	State National	22 21	26.41 26.86	0.45	2.39	0.19

*Significant at .05 level
t.05 (41) =2.02

Table 2 indicates that the statistically significance of difference were found between state and national level male volleyball players in their waist circumference, middle upper arm circumference, WHR and WHtR, as the obtained t –values of 2.26, 2.38, 2.12 and 2.99 respectively were higher than the required value of t.05 (41) = 2.02. But the significant

differences were not observed between state and national level male volleyball players in their hip circumference and body composition, as the obtained t –values of 1.42 and 0.19 respectively were lesser than the required value of t.05 (41) = 2.02.

4. DISCUSSION

In the present study the anthropometric measures of the volleyball players have been evaluated of state and national level male volleyball players. The investigation indicated the significant differences between state and national level male volleyball players in anthropometric measures i.e. waist circumference, middle upper arm circumference, WHR and WHtR . But state and national level male volleyball players did not differ in hip circumference and body composition. The state level male volleyball players had significantly greater amount of waist circumference, hip circumference and middle upper arm circumference than national level male volleyball players. Where as national level male volleyball players had greater amount of waist to hip ratio, waist to height ration and body composition than their counter parts. The findings of the present study are in partially supported by **Gaurav and Singh (2014).** It is concluded that various anthropometric characteristics had clear impact on the competition level of the volleyball players

5. CONCLUSIONS

1. Dissimilarity existed between state and national level male volleyball players in their waist circumference, middle upper arm circumference, WHR and WHtR.
2. Similarity was observed between state and national level male volleyball players in their hip circumference and body composition
3. Various anthropometric characteristics had positive impact on the competition levels of the male volleyball players

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