



ISSN: 2456-4419

Impact Factor: (RJIF): 5.18

Yoga 2019; 4(1): 670-672

© 2019 Yoga

www.theyogicjournal.com

Received: 09-11-2018

Accepted: 13-12-2018

Dr. Thingnam Nandalal Singh

Associate Professor,

Department of Physical

Education, Panjab University,

Chandigarh, Punjab, India

Body composition among state level male football, volleyball and handball players of Manipur

Dr. Thingnam Nandalal Singh

Abstract

The objective of the study was to compare the body composition (percentage of body fat, lean body mass and total body fat) among state level male football, volleyball and handball players of Manipur. It was hypothesized that there might be no significant difference among state level football, volleyball and handball players on the variable of body composition (percentage of body fat, lean body mass and total body fat). A group of one hundred and fifty (N=150) male players (football=50, volleyball=50 and handball=50) were selected for this study. The age of the subjects were ranged from 17 to 25 years. Body composition was assessed by taking the skinfold measurement at four sites namely biceps, triceps, subscapular and suprailiac (Durnin JVGA Womersley J. 1974). To compare the mean differences among state level male football, volleyball and handball players, Analysis of Variance (ANOVA) test was computed with the help of SPSS Software. The level of significance chosen was .05. The results showed that there were significant differences obtained on the variables of percentage of body fat and lean body mass (LBM) among state level football, volleyball and handball players of Manipur.

Keywords: Body composition, lean body mass, total body fat and percentage of body fat

Introduction

Body composition makes an important contribution to an individual's level of physical fitness, performance, particularly in such activities that require one to carry one's body weight over distance, will be facilitated by a large proportion of active tissue (muscle) in relation to a small proportion of inactive tissue (fat). In athletes, body composition measures are widely used to recommend desirable body weights, to optimize competitive performance, and to assess the effects of training (Sinning, 1996) [9]. Studies of body composition in certain sports indicated that the athletes who were very lean but heavy because of well built musculature were superior in performance in certain competitive sports such as football, weight fitting and shot-put (Bullen, 1971) [4]. It has been observed that apart from other factors the performance of a sportsman in any sport and game is influenced by various specific characteristics of body composition, physique, psychological traits and physiological functions which help him to attain better performance (Cureton, 1951; Astrand, 1956; Bouchard and Lortie, 1984) [6, 1, 3]. Hirata (1966) [8] suggested that a country with people whose general physique, body builds and body composition was limited to the characteristics of champions in certain events should better concentrate on these events.

The science of body composition is an important morpho-physiological characteristic. The proportions of these components are different in male and females. Such sex differences exist even when the amount of fat, muscle and body is expressed as percentage of body weight. The body composition studies have been conducted very extensively on the athletes. The examination of fat and skinfold at selected sites is most important in them. It has been found that the athletes who were lean or less fatty but heavy because of the well-developed musculature were superior in performance in certain competitive sports (Carter & Yuhasz, 1984) [5].

Method and Producer

The purpose of the study was to compare body composition among state level male football, volleyball and handball players of Manipur (India). The present study was conducted on 150

Correspondence

Dr. Thingnam Nandalal Singh

Associate Professor

Department of Physical

Education, Panjab University,

Chandigarh, Punjab, India

Male state players (football=50, volleyball=50 and handball=50). The ages of the subjects ranged from 17 to 25 years. Body composition (percentage of body fat, total body fat and lean body mass) was assessed by taking the skinfold measurement at four sites namely biceps, triceps, subscapular and suprailiac (Durnin JVGA Womersley J. 1974) [7]. The Lange Skinfold Caliper was used to assess the body fat. To compare the mean differences among state level male football, volleyball and handball players on percentage of body fat, total body fat and lean body mass, analysis of variance (ANOVA) was employed with the help of SPSS software. The level of significance was set at.05 level of confidence.

Results of the Study

Findings pertaining to percentage of body fat, total body fat and lean body mass state level male football, volleyball and handball players, which were subjected to F-test, have been presented in the following tables. It is evident from Table-1 that there is no significant difference existed among state level football, volleyball and handball players since the value of F obtained at.05 level was 0.939 whereas, the value needed to be significant was 3.06 for 2 and 147 degrees of freedom at.05 level.

Table 1: Percentage of body fat among state level football, volleyball and handball players

Sources of Variation	Sum of Squares	df	Mean Square	F
Between Groups	70.242	2	35.121	5.550*
Within Groups	930.154	147	6.328	
Total	1000.395	149		

*Significant at.05 level,
F_{.05} (2,147) = 3.06

It is evident from Table 1 that there were significant differences found among state level players of football, volleyball and handball since the value of F obtained at.05 level was 5.550 whereas, the value needed to be significant was 3.06 for 2 and 147 degrees of freedom at.05 level. To find out the paired mean differences were F test is significant the Scheffe’s post hoc test was employed and the data pertaining to this is presented in Table 2.

Table 2: Significant differences between the paired means of percentage of body fat among state level football, volleyball and handball players

Groups			Mean Difference (MD)
Football	Volleyball	Handball	
17.74	18.05	16.47	0.31
17.74			1.27*
	18.05	16.47	1.58*

*Significant at.05 level
I_{.05} (2,147) = 0.61

It is evident from the above Table-2 that there were significant differences existed between football and handball players and volleyball and handball players since the value obtained of critical difference (I) were 1.27 and 1.58 respectively. But no significant differences was obtained between football and volleyball since the value obtained was 0.31 whereas, the value of critical difference (I) needed to be significant was 0.61 for 2 and 147 degrees of freedom, at.05 level. The comparison of total body fat among state level football, volleyball and handball players is presented in Table 3.

Table 3: Total body fat among state level football, volleyball and handball players

Sources of Variation	Sum of Squares	df	Mean Square	F
Between Groups	6.20	2	3.10	0.824
Within Groups	553.14	147	3.76	
Total	559.34	149		

*Significant at.05 level,
F_{.05} (2,147) = 3.06

It is evident from Table-3 that there were no significant difference existed among state level players of football, volleyball and handball players since the value of F obtained at.05 level was 0.824 whereas, the value needed to be significant was 3.06 for 2 and 147 degrees of freedom at.05 level. The comparison of lean body mass (LBM) among state level football, volleyball and handball players is presented in Table-4.

Table 4: Lean body mass (LBM) among state level football, volleyball and handball players

Sources of Variation	Sum of Squares	df	Mean Square	F
Between Groups	222.46	2	111.23	4.103*
Within Groups	3984.67	147	27.10	
Total	4207.13	149		

*Significant at.05 level,
F_{.05} (2,147) = 3.06

It is evident from Table 4 that there were significant differences found among State level players of football, volleyball and handball since the value of F obtained at.05 level was 4.103 whereas, the value needed to be significant was 3.06 for 2 and 147 degrees of freedom at.05 level. To find out the paired mean differences were F test is significant the Scheffe’s post hoc test was employed and the data pertaining to this is presented in Table 5.

Table 5: Significant differences between the paired means of lean body mass among state level football, volleyball and handball players

Groups			Mean Difference (MD)
Football	Volleyball	Handball	
55.44	52.47		2.94*
55.44		53.76	1.68
	52.74	53.76	1.28

*Significant at.05 level
I_{.05} (2,147) = 2.66

It is evident from the above Table 5 significant difference existed between football and volleyball players since the value obtained of critical difference (I) was 2.94. But not significant differences were obtained between football and handball & volleyball and handball since the value obtained were 1.68 and 1.28 respectively whereas, the value of critical difference (I) needed to be significant was 2.66 for 2 and 147 degrees of freedom, at.05 level.

Discussion of Findings

There were significant differences obtained on body composition (percentage of body fat and lean body mass) among state level football, volleyball and handball players. Further significant differences were obtained between football & handball players and football & volleyball players on percentage of body fat whereas significant differences were obtained between football and volleyball players on lean body mass. The reason that could be associated with such

difference is that sports of football and handball have more endurance dominated in comparison to the sport of volleyball which is more anaerobic dominated.

Conclusions

In the light of the findings and limitations of the present study the following conclusions were drawn:

- Significant differences were obtained on Percentage of body fat, lean body mass among state level male football, volleyball and handball players of Manipur.
- No significant difference was obtained on total body fat among state level male football, volleyball and handball players of Manipur.

References

1. Astrand PO. Human Physical Fitness with Special Reference to Sex and Age. *Physiology*, Rev. 1956; 39(3):307.
2. Barrow HM, Mc Gee R. Practical Approach to Measurement in Physical Education. London: Lea & Febiger, 1979.
3. Bouchard C, Lortie C. Heredity and Endurance Performance. *Sports Medicine*. 1984; 1:38-64.
4. Bullen BA. Over Weight in Encyclopedia. New York: Macmillan Company, 1971.
5. Cater JEL, Yuhasz MS. Skinfolds and Body Composition of Olympic Athletes. In: *Physical Structure of Athletes*. Carter, J.E.L. ed. Part II. S. Krger, Basel, 1984.
6. Cureton TKJ. Physical Fitness of Champion Athletes. Urbana: University of Illinois Press, 1951.
7. Durnin JVGA, Womersley J. Body Fat Assessed from the Total Body Density and its Estimation from Skinfold Thickness: Measurements On 481 Men And Women Aged From 16 To 72 Years. *British Journal of Nutrition*. 1974; 32:77-97.
8. Hirata Kin Itsu. Physique and age of Tokyo Olympic champions. *Journal of Sports Medicine*. 1966; 6:207.
9. Sinning WE. Body Composition in Athletes. In: *Human Body Composition*. Human Kinetics. Roche A.F., Heymsfield S.B, Lohman T.G. (Eds.), Champaign, IL, 1996.
10. Stepnick J. Somatotype in Relation of Physical Performance, Sports and Body Postures, In: *Kinanthropometry III*, Ed. T. Reilly, J Walkins and J. Borns. Spon: London, 1986.