Body Composition: An Analysis between the Volleyballer and Thang-Ta Practitioner of Kashmir Valley

Bilal Ahmad
Research Scholar Mewar University Rajasthan, India

Abstract

The objective of the present study was to analyse and differentiates the body composition between Volley ballers and thang-ta practitioners of Kashmir valley. On the view, the significance of the underlying variables like, Age, Height Weight, BMI, Kaj, Kcal,%fat, FM, FFM and TBW, were studied with the help of Body Composition Analyser(TBF-300, Tanita, Japan). Altogether 40 volleyballers and 40 thang-ta practitioners of Kashmir valley were randomly selected for the present investigation by using Tanita body composition analyzer, which is based on bioelectrical impedance analysis method for a better understanding of body composition variables among the volleyballers and Thang -Ta practitioners. The results of the present study reveals that age, height, BMI, FM, FFM and TBW variables were significant at p=0.05 probability level of significance. The presence of this pattern of significance is also observed between two groups' e.i., Thang-Ta practitioners and Volleyballers. Based on the results, it can be concluded that both the study population have the similar body composition on BMR in Kaj& kcal. But the % of fat was having less by Thang-Ta practitioners than the volleyballers. The body composition of volleyballers and Thang-Ta practitioners of Kashmir valley was less value on % fat and BMR then the standardized recommended body fat for men athletes. Therefore, to have an optimal body composition is important for their fitness as well as to enhance their performance with the view to be prospective players.

KEYWORDS: Body composition, BMI, Fat%, FM, FFM, TBW.

1. INTRODUCTION

In studies of the effects of physical conditioning and athletic training, analysis of body composition is frequently employed. Most commonly, relatively simple procedures are utilized such as anthropometrically determined breadths; widths; and circumferences; skin folds; body typing; underwater weighing; or more recently, body impedance analysis. Unfortunately, these methods are quite descriptive and for the most fail to provide information about the more basic components of body composition, for example, water, protein, bone mineral, and fat. There are methods for assessing their basic components but for the most part the equipment and methods for doing as remain laboratory and clinical procedures that are difficult to utilize on a large scale. A brief discussion of the recent history of body composition is presented, followed by consideration of techniques likely to supply the "criterion" information required to validate simpler methods with widespread utility (McCloy, 1987).

In physical fitness, body composition is used to describe the percentages of fat, bone, water and muscle in human bodies. Because muscular tissue takes up less space in our body than fat tissue, our body composition, as well as our weight, determines leanness. Body composition is the body's relative amount of fat to fat- free mass. Those with composition are typically healthier, move more easily and efficiently, and in general, feel better than those with less-than- ideal body composition. If you can achieve a better body composition goes a long way toward improving your quality of life and overall wellness.

Body composition is divided into two separate types of mass: fat- free mass which is comprised of all of the body's non-fat tissues and body fat. Fat- free mass includes bone, water, muscle, and tissues. Body fat is literally fat located within the body. Some fat is necessary for overall health; it helps protect internal organs, provides energy and regulates hormones that perform various functions in body regulation. However, when someone is overweight or obese, they have an excessive accumulation of body fat. Body fat includes essential fats, such as lipids, and nonessential body fats; these fats make up around five percent of total body weight for men, and up to 12 percent for women. Nonessential fat is found mainly within fat cells and adipose tissue, below the skin and surrounding major organs. The amount of nonessential fat stored in the body is variable among individuals on factors such as age, gender, and diet. Excess nonessential fat can normally be attributed to consuming more food energy than what is burned through metabolic functions and activity.

Body fat percentage is the percentage of total body weight that is comprised of fat. Decreasing your body fat percentage, if it is too high, isn't just about improving your appearance. A high percentage of body fat can have a negative effect on your overall well-being: Excess fat has been linked to numerous health problems such as increased risk for diseases such as cancer, diabetes and heart disease. Having excess fat, specifically surrounding the internal organs, can damage your health and contribute to serious medical conditions such as liver disease.

Body Mass Index (BMI) is a commonly-used method of measuring body fat. While BMI does not measure body fat directly, it helps to assess health risks related to body mass. Ways to assess your body composition, and body fat percentage, more directly include measurement with calipers and tests such as underwater body fat test, the Body Pod, DEXA Scan, and Bioelectrical Impedance. Weighing on a regular bathroom scale does not truly assess the body composition, because a regular scale cannot tell the difference between how much of the total weight is comprised of water, fat, or muscle.

METHODS AND MATERIALS

Study Design and Area

The present study was a cross sectional study carried out at Govt. college of Physical Education Ganderbal in the year of 2016.

Subjects

Eighty players i.e. 40 Volleyball players from district Srinagar and 40 Thang-Ta players from Anantnag District of valley Kashmir were selected for the study. Age of the volleyballers and Thang-Ta practitioners were in the range of 11-19 years and 15-19 yr. respectively.

Identification of Variables

Body weight and various other body composition variables like body fat % , body fat mass (FM), fat free mass (FFM), body mass index (BMI), and total body water (TBW) were studied with help of Body Composition Analyzer (TBF-300,Tanita, Japan). Height was measured using an anthropometry set to the nearest 0.5cm and age was recorded from their identity card issued by the respective institutes.

2.4 Procedure

The players were instructed to report on the appointed day at Govt. College of physical education Ganderrbal after a sound night's sleep free from any physical exertion on the day of the test and three hours after a light breakfast. The height and age of the players recorded, and they were made to relax for half an hour and were asked to empty their bladder before recording the body composition parameters in the institute. Body composition parameters recorded were fat %, body fat mass, fat free

mass and total body water. Body Composition Analyzer was used to record the above parameters. Then they were asked to stand on the footpad of the instrument with minimum clothing and barefoot. The fat percentage recording will be displayed on the display panel and a paper with all recorded parameters comes out automatically from the left upper corner of the instrument.

Statistical Analysis

Descriptive statistics like mean, variance and correlations was employed and compared between body composition parameters and age, height, weight of the subjects were calculated. SPSS 17 for Windows Evaluation Version, Software was used in analyzing the data.

RESULTS

Table 1: Body composition parameters mean, SD and *r* values of the study subjects

Parameters	volleyball (N=40)		Thang-Ta (N=40)		*r* values
	Mean	SD	Mean	SD	
Fat (%)	10.25	4.53	9.49	3.85	+0.03
FM (kg)	6.31	2.83	4.94	2.12	+0.08
FFM (kg)	54.76	4.62	46.82	5.84	-0.05
TBW (kg)	40.08	3.38	34.02	4.47	-0.02
BMI (kg./m2)	21.58	1.22	20.39	2.33	+0.06

Table 1 shows the Mean, SD and r values of the Body Composition parameters of the study subjects. The Thang-Ta practitioners (mean 9.49 ± 3.85) were having less fat than the volleyballers (mean 10.25 ± 4.53) with the value of r = +0.03. The Thang-Ta practitioners (mean 4.94 ± 2.12) were having less fat mass than the volleyballers (mean 6.31 ± 2.8.) which was statistically significant (p<0.05)with the correlation value of +0.03.volleyballers were having more FFM, TBW and BMI than Thang-Ta practitioners with the significance at (p<0.05) whereas r values were -0.05, -0.02 and +0.06 respectively.

Table 2: Body parameters mean, SD and *r* values of the study subjects

Parameters	Football (N=40)		Thang-Ta (N=40)		*r* values
	Mean	SD	Mean	SD	
Age	19.1	2.30	16.7	1.5	+0.10
Height	167.9	4.41	159.37	6.86	-0.05
Weight	60.92	5.00	51.76	6.30	+0.00

Table 2 shows the body parameters mean, variance and r values of the volleyballers and Thang-Ta practitioners of this study. The Thang-Ta practitioners (mean 16.7± 1.5) were found to be younger in age than the Footballers (mean 19.1 ± 2.3) with the value of r = +0.10. Whereas height and weight also less than volleyballers with statistically significant (p<0.05) with the correlation value of -0.05 and +0.00 respectively.

4. DISCUSSION

Eighty players consisting of 40 volleyballers and 40 Thang-Ta practitioners were studied. Volley ballers were older, heavier and taller than Thang-Ta counterparts. The BMI of the volley balls were in the range of 19-24 kg./m2 (mean 21.58±1.2 kg./m2) whereas in Thang-Ta practitioners, it was in the range of 17.1-25.9 kg./m2 (mean 20.39±2.33 kg./m2). The differences in age, height, weight, BMI, fat mass, fat free

mass and total body water were statistically significant at($p<0.05$) level of significance. The body compositions are important morphophysiological characteristics. The proportions of these components are different in volleyballer and Thang-Ta practitioner of Kashmir valley. Such sports differences exist even when the amount of fat, muscle and bone are expressed as percentage of body weight. It is not known how much of this difference in body fat is biologic or how much is related to behavioural factors. More than likely, hormonal differences play an important role (Suresh, 2004). Several techniques have been designed for the assessment of body composition in human. However, there is no single method available that meet the stringent criteria set for an ideal method (Garrow, 1982). Though the underwater weighing (densitometry) method is identified as the "gold standard" technique, many newer methods from very simple to sophisticate have been developed for the estimation of body composition in human (WHO, 2003). Lukaski (1987) has reviewed the merits and demerits of these methods. Despite certain limitations in each of this method, the bioelectrical impedance analysis (BIA) technique is a non-invasive, relatively easy and reliable method (Abu, McCutcheon, Reddy,
Pearman, Hunter, & Weinsier, 1988) and there is increasing interest in the use of the BIA technique in the study of human body composition (Richard, Chumlea, & Alex, 1989).In the present study, the volleyballers were taller and heavier than the Thang-Ta practitioners of Kashmir valley. Again, the Thang-Ta practitioners were having less fat % and body fat mass than the volleyballers; whereas the volleyballers are having more fat free mass and total body water than the Thang-Ta practitioners. These findings are comparable with the deference between are reference to determining the desired fat % for men and women athletes by Shaver (Shaver, 1982)..

5. CONCLUSIONS

In the present study on body composition of the volleyballer and thang-ta practitioner, fat %, BMI, TBW were lesser to that of an athlete. To have an optimal body composition is important for both the volleyballers and thang-ta practitioners not only to enhance their performance but also to lead to a healthy living.

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