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Nutritional status of intercollege and interuniversity male volleyball players

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Abstract

The purpose of the study was to assess the nutritional status of intercollegiate and interuniversity male volleyball players. The subjects for the study were 48 male intercollegiate and 48 male interuniversity volleyball players. The information about nutritional intake was obtained with the help of a self-structured questionnaire which was personally administered by the research scholar to the subjects. From the data furnished by the subjects' amount of macro nutrients consumed during 24 hours was calculated as per the procedure mentioned in the book entitled Nutritive Value of the Indian Foods published by National Institute of Nutrition, Hyderabad. For each of the macro nutrient that is proteins, fats and carbohydrates, means, standard deviation, skewness and kurtosis were computed. The analysis of data reveals that the status of the interuniversity level male volleyball players is better than intercollegiate male volleyball players. The analysis of data further showed that in the case of interuniversity level a male volleyball player the consumptions of all the three macro nutrients i.e. was significantly higher as compared to intercollegiate male volleyball players. The t-values obtained were 5.99 for protein, 3.71 for fat and 5.27 for carbohydrate.

Keywords: Nutritional status, intercollegiate and interuniversity level male volleyball players

Introduction

Nutrition plays a very important role in attaining high level of achievements in sports. Nutritional status has a direct bearing on the level of physical performance. Hence, physical fitness and training are very much dependent on nutritional status of sports personnel. Nutrition is an important complement of any physical fitness program. The main dietary goal for active supplement information from nutritionists/dietitians and individuals is to obtain adequate nutrition to optimize health and fitness or sports performance.

Nutrition is an important component of any physical fitness program. The main dietary goal for active individuals is to obtain adequate nutrition to optimize health and fitness or sports performance. This is not only important to help to improve performance but also to promote healthy dietary practices in the long term. So, a reasonable strength and condition program and a well balance diet must be presented as a sensible alternative to a riskier, shortcut mindset. Sports nutrition is a specialization within the field of nutrition that partners closely with the study of the human body and exercise science. Sports nutrition can be defined as the application of nutrition knowledge to a practical daily eating plan focused on providing the fuel for physical activity, facilitating the repair and rebuilding process following hard physical work, and optimizing athletic performance in competitive events, while also promoting overall health and wellness. The area of sports nutrition is often thought to be reserved for only "athletes," which insinuates the inclusion of only those individuals who are performing at the elite level. In this text, the term athlete refers to any individual who is regularly active, ranging from the fitness enthusiast to the competitive amateur or professional. Differences may exist in specific nutrient needs along this designated spectrum of athletes, creating the exciting challenge of individualizing sports nutrition plans.

Protein

Amino acids are the building blocks of proteins, constructed by carbon, hydrogen, oxygen, and nitrogen molecules. Amino acids can be made within the body (nonessential) or required from dietary sources (essential). Proteins are involved in the development, growth, and repair of

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muscle and other bodily tissues and are therefore critical for recovery from intense physical training. Proteins ensure the body stays healthy and continues working efficiently by aiding in many bodily processes. Protein can also be used for energy, providing 4 calories per gram; however, it is not used efficiently and therefore is not a source of energy preferred by the body. Proteins are found in a variety of foods including grains and vegetables, but are mainly concentrated in the milk/alternative as well as meat and beans/alternative (soy products, nuts, seeds, beans, and other no animal products) group.

Fat

Fats consist of oils and fat-like substances found in foods such as cholesterol and phospholipids. Fats are commonly referred to as lipids. With 9 calories per gram, fats are a concentrated source of energy. Fat is primarily used as a fuel at rest and during low to-moderate intensity exercise. Fats are also involved in providing structure to cell membranes, aiding in the production of hormones, lining of nerves for proper functioning, and facilitating the absorption of fat-soluble vitamins. Fats are concentrated in butter, margarines, salad dressings, and oils, but are also found in meats, dairy products, nuts, seeds, olives, avocados, and some grain products.

Carbohydrate

Carbohydrates are compounds constructed by carbon, hydrogen, and oxygen molecules. Carbohydrates are converted into glucose in the body, providing the main source of fuel (4 calories per gram of carbohydrate) for all physical activity. Carbohydrates are found in a wide variety of foods including grains, fruits, and vegetables, as well as in the milk/alternative (soy, rice, nut, or other nondairy products) group.

Methodology

Selection of subjects

The subjects for the study were ninety-six male volleyball players and their break up is given in table.

Table 1: Break up of Subjects

Performance Level	Round Played	Number of Subjects
Intercollegiate Level	Semi Final	48 (Top four teams)
Interuniversity Level	Semi Final	48 (Top four teams)

Data Collection

A self-structured schedule was designed so as to gather precise information on food consumption pattern of sports persons through 24 hour dietary recall method. The intake of nutrients viz, protein, fat and carbohydrate was computed using the procedure mentioned in the book entitled Nutritive Value of the Indian Foods published by National Institute of Nutrition, Hyderabad. Besides, special dietary practices followed by sports person were also included along with basic dietary habits.

Statistical procedure

The following statistical measures were computed:

1. Mean
2. Median
3. Standard Deviation
4. Skewness
5. Kurtosis
6. t-ratio

Table 2: Status of Intercollegiate and Interuniversity male Volleyball player with respect to Protein, Fat and Carbohydrate

Variables	Intercollege N=48				Interuniversity N=48			
	Mean	SD	Skewness	Kurtosis	Mean	SD	Skewness	Kurtosis
Protein	481.75	175	-56.66	0.66	708.30	195	708.3	1.95
Fat	627.54	298	-77.71	0.23	863.41	324	94.45	0.22
Carbohydrate	1723.75	600	162.86	0.31	2478.05	687	-42.86	0.27

Table 1 clearly shows that the means of intake of proteins, fats and carbohydrates in terms of their quantity was much higher with respect to interuniversity male volleyball players. The analysis of data further shows that in the case of intercollegiate volleyball players mean is less than median with respects to

proteins and fats and mean is higher than the median in the case of carbohydrate. In the case interuniversity male volleyball players' means are the higher than the median in the case of proteins and fats where as in the case of carbohydrates mean is less than the median.

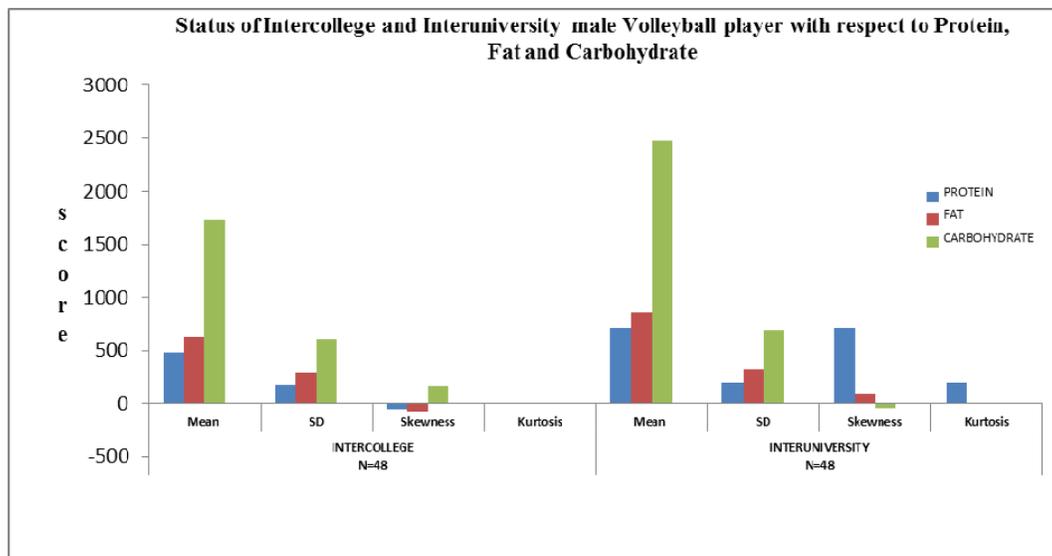


Table 3: Significance of difference in the means of Protein in respect of Intercollegiate and Interuniversity male Volleyball Players

Group	Mean	SD	Mean Diff.	Standard Error	t-ratio
Intercollegiate	481.75	175			
			226.55	37.81	5.99*
Interuniversity	708.30	195			

* Significant at 0.05 level

 $t_{0.05}(94) = 1.98$

The analysis of data in Table 2 clearly reveals that a mean difference of 226.55 in the favor of interuniversity male volleyball players with respect to Protein consumption is statically significant at 0.05 level of confidence. The t-value of 5.99 is higher than the table value of 1.98 with 94 degrees of freedom.

Table 4: Significance of difference in the means of fat in respect of Intercollegiate and Interuniversity Male Volleyball Players

Group	Mean	SD	Mean Diff.	Standard Error	t-ratio
Intercollegiate	627.54	298			
			235.87	63.53	3.71*
Interuniversity	863.41	324			

* Significant at 0.05 level

 $t_{0.05}(94) = 1.98$

From the above table with regard to consumption of fat it is evident that a difference of 235.87 between Intercollegiate and Interuniversity male volleyball players is statistically significant at 0.05 level of confidence. The t-value of 3.71 is higher than the table value of 1.98 with 94 degrees of freedom.

Table 5: Significance of difference in the means of Carbohydrate in respect of Intercollegiate and Interuniversity Male Volleyball Players

Group	Mean	SD	Mean Diff.	Standard Error	t-ratio
Intercollegiate	1783.75	600			
			694.3	131.65	5.27*
Interuniversity	2478.05	687			

* Significant at 0.05 level

 $t_{0.05}(94) = 1.98$

From table 4 it is clear that a difference of 694.3 in the consumption of carbohydrate by Intercollegiate and Interuniversity male volleyball player is statistically significant at 0.05 level of confidence. The t-value of 5.27 is higher than the table value of 1.98 with 94 degrees of freedom.

Discussion of findings

The data indicated in the above tables shows that the amount of the three macro nutrients i.e. proteins, fats, carbohydrates consumed by the interuniversity male volleyball players is significantly higher than the amount of these nutrients consumed by the intercollegiate male volleyball players. This could be justified by the facts that the competition at the interuniversity level is much more strenuous as compared to intercollegiate level competition and also the training session of the interuniversity male volleyball players are not only much more strenuous but also of comparatively of longer duration. This justifies that interuniversity male volleyball players require higher energy as compared to intercollegiate male volleyball players so that they could train more effectively as well as perform well in the interuniversity volleyball matches where each set may be more contesting and may last for a comparatively longer duration. Findings of the present study are in consonance with the results arrived at by Gamage and De Silva (2014).

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