



International Journal of Physical Education, Sports and Health

P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (ISRA): 5.38
IJPESH 2016; 3(4): 24-27
© 2016 IJPESH
www.kheljournal.com
Received: 08-05-2016
Accepted: 09-06-2016

Sushmita Kumari
Research Scholar, Manav
Rachna International
University, Faridabad, Haryana,
India.

Barkha Bhatnagar
Associate Professor, Manav
Rachna International
University, Faridabad, Haryana,
India.

AK Uppal
Ex. V.C. Jiwaji University,
Gwalior, Madhya Pradesh, India.

Nutritional status body mass index and achievement motivation of intercollege and interuniversity male volleyball players

Sushmita Kumari, Barkha Bhatnagar and AK Uppal

Abstract

The purpose of the study was to ascertain the assessment of nutritional status, body mass index and achievement motivation of intercollegiate (N=48) and interuniversity (N=48) level male volleyball players. Number of calories consumed was calculated as per the procedure mentioned in the book entitled Nutritive Value of the Indian Foods published by National Institute of Nutrition, Hyderabad. Achievement Motivation was computed using the Achievement Motivation Scale prepared and standardized by M. L. Kamlesh. The analysis of data using mean difference method (t-ratio) shows that the nutritional intake in terms of calories as well as achievement motivation score of the interuniversity level male volleyball players is significantly higher as compared to intercollegiate male volleyball players. The t-values obtained were 5.30 with respect to calories consumed and 2.85 in the case of achievement motivation. Both these values were higher than the table value of 1.98 with 94 degrees of freedom. With respect to body mass index t t-value of 1.24 reveals that the male volleyball players of interuniversity and intercollegiate level do not significantly differ from each other in body- mass index.

Keywords: Nutritional Status, Body mass Index, Achievement Motivation

1. Introduction

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. Young sports person have more nutritional needs because they are in the process of active growth and development. Optimal sports performance results from a combination of factors including training, body composition, and nutrition.

Nutrition plays a very important role in attaining high level of achievements in sports (Kreider *et al.* 2009) [8]. Nutritional status has a direct bearing on the level of physical performance, that's why sports nutrition is considered as an integral part of sports medicine (Kerksick *et al.* 2008) [9]. Hence, physical fitness and training are very much dependent on nutritional status of sports persons (Rodriguez *et al.* 2009) [10]. Nutritional supplements are widely used by athletes for the enhancement of performance in international competitions (Buford *et al.* 2007; Harger-Domitrovich *et al.* 2007; Willoughby *et al.* 2007; Dalbo *et al.* 2008; Holm *et al.* 2008; Wilson *et al.* 2008; Jeuken drup *et al.* 2009; Hoffman *et al.* 2009) [2, 13, 14, 5, 15, 17, 16]. In spite of deep interest and effort in research related to maximal performance, the dietary regime to support such achievements requires a high level of knowledge (Aubertin-Leheudre *et al.* 2007; Storer *et al.* 2008) [12].

Body weight is the most widely used and sensitive and simplest reproducible anthropometric measurement for the evaluation of nutritional status of individuals. It indicates the body mass and is a composite of all body constituents like water, mineral, fat, protein and bone. It reflects more recent nutrition as compared to height. Height is affected only by long term nutritional deprivation.

In games and sports, psychological and physiological factors play an important role in determining the performance level (Grange & Kerr, 2010; Schilling & Hyashi, 2001). Numerous studies have demonstrated the impact of psychological factors on sports performance (Crespo, 2002). Achievement motivation has been one of those factors under consideration. Taylor (1994) treated motivation as the base of a pyramid towards success in sports.

Correspondence

Sushmita Kumari
Research Scholar, Manav
Rachna International
University, Faridabad, Haryana,
India.

Other important factors in this area include ‘goal orientation’. There are many studies conducted in the respect of achievement motivation and its effect on performance. Studies suggest that achievement motivation is most significant predictor of performance and essential to participate in a competition (Huschle, et.al. 2008; Carey, et. al. 2000) [7, 3]. Several motivation theories in the academic area have been adopted in the quest for greater understanding of achievement motivation in sport (Ames, 1984, 1992; Dweck, 1986; Nicholls, 1989) [1, 4]. Motivation is an essential element of human personality. It directs a person’s activity and makes it more or less dynamic. Without the desire to succeed other psychological features and abilities do not provide nearly so much influence on performance. Achievement motivation influences other factors affecting performance in sport like: physical preparation, technique, tactics and even life style.

Methodology

Selection of subjects

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

Dietary Survey

Dietary survey was conducted to gather information regarding dietary habits through 24 hours dietary recall method. The athletes were provided with a food and activity questionnaire along with verbal and written instructions for its completion. Information provided focused on average portion for common foods (bread, rice, cereals) and a guide to universal household measures (for example, teaspoon, tablespoon, cup) to improve the estimation of daily intake. The questionnaire included the following headings; meal, food/beverage description, quantity, food type to facilitate accurate analysis.

Variables

i) Nutritional status

In order to compute nutritional status the total amount of proteins, fats and carbohydrates consumed within 24 hours were converted into total calories by multiplying proteins and carbohydrate in grams by 4 and multiplying fats in grams multiplied by 9.

ii) BMI

Two anthropometric characteristics i.e. height in meters and weight in kilograms were recorded and using the following formula, BMI of the subjects was computed.
 $BMI = \text{Weight}/\text{Height}^2$

iii) Achievement Motivation

Achievement Motivation Questionnaire developed and standardized by M.L. Kamlesh was used (1990). This questionnaire has 20 statements. Questions 1a, 2b, 3a, 4a, 5b, 6b,7b, 8b, 9a, 10a, 11a, 12a, 13a, 14b, 15b,16a, 17a, 18a, 19b and 20a were correct answers and for each of them two marks were awarded. Each wrong answer was scored as zero.

Raw/Mean Score	Classification
0 - 24	Low
24 - 30	Moderate
30 above	High

Statistical procedure

The data collected was analyzed computing means, standard deviations, standard error of difference between means and t-ratio for each of the variables selected in the study. The data is presented in the following tables.

Table 1: Significance of difference in the means of total calories consumed in respect of Intercollegiate and Interuniversity Male Volleyball Players

Group	Mean	SD	Mean Diff.	Standard Error	t-ratio
Intercollegiate	2893.03	1070.0			
			1156.73	217.9	5.30*
Interuniversity	4049.76	1065.0			

* Significant at 0.05 level
 $t_{0.05} (94) = 1.98$

From table 1 it is evident that a mean difference of 1156.73 in the means of total calories consumed by intercollegiate and interuniversity male volleyball players within 24 hours is statistically significant at 0.05 level of confidence. The t-value of 5.30 is higher than the table value of 1.98 with 94 degrees of freedom.

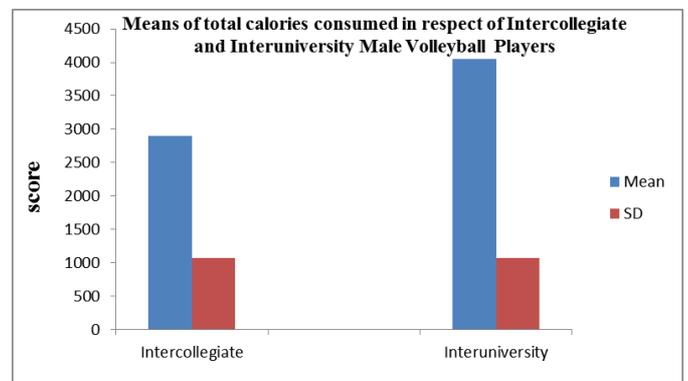


Table 2: Significance of difference in the means of body-mass index in respect of Intercollegiate and Interuniversity Male Volleyball Players

Group	Mean	SD	Mean Diff.	Standard Error	t-ratio
Intercollegiate	22.32	2.50			
			0.62	0.5	1.24*
Interuniversity	23.94	2.41			

* Not Significant at 0.05 level
 $t_{0.05} (94) = 1.98$

From above table it is evident that the male all india interuniversity and intercollegiate level volleyball player do not significantly differ in respect of body mass index. The obtained t-value of 1.24 which is less than the table value of 1.98 with 94 degrees of freedom.

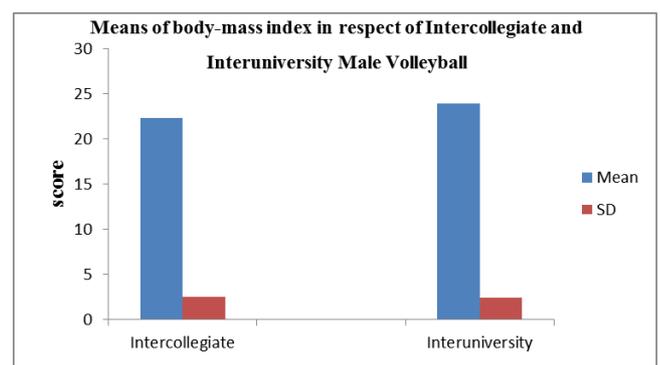


Table 3: Significance of difference in the means of Achievement Motivation in respect of Intercollegiate and Interuniversity Male Volleyball Players

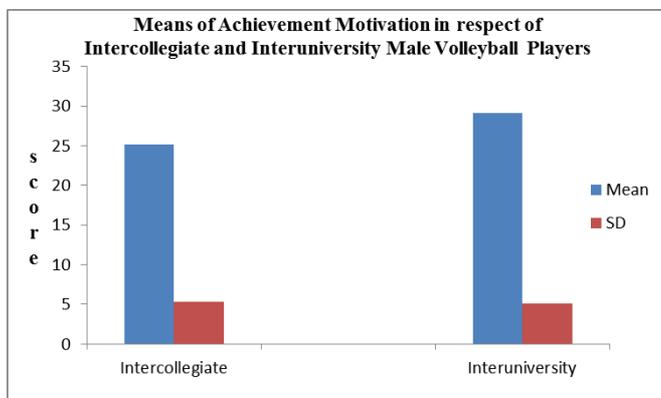
Group	Mean	SD	Mean Diff.	Standard Error	t-ratio
Intercollegiate	25.12	5.28			
			4.04	1.42	2.85
Interuniversity	29.16	5.16			

* Significant at 0.05 level

$t_{0.05(94)} = 1.98$

The statistical analysis of data in the above table shows that a difference between the means of achievement motivation of intercollegiate and interuniversity level volleyball players is significant at 0.05 levels. The t-value of 2.85 is more than the table value of 1.98 with the 94 degrees of freedom.

The means of intercollegiate and interuniversity levels male volleyball players in respect of achievement motivation are graphically presented in figure....



Discussion of Findings

The analysis of data pertaining to difference between interuniversity and intercollegiate male volleyball players with respect to total calories consumed within 24 hours shows that the total calories consumed by the interuniversity male volleyball players were significantly higher than the calories consumed by the intercollegiate male volleyball players. This could be explained by the fact that the competition at the interuniversity level is of a much higher standard 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. The analysis of data further showed that the interuniversity and intercollegiate male volleyball players did not significantly differ in body-mass index. No significant difference between the two groups of male volleyball players could be due to the fact that volleyball players at different levels of performance are generally of ecto-mesomorph body type i.e. they are tall as well as possess a body weight which they can overcome while executing jumps to smash a ball or jump to execute skills of blocking. Findings of the present study are in consonance with the results arrived at by Gamage and De Silva (2014) and Koley and Sharma (2013) [11]

From the analysis of data it is evident that the interuniversity level volleyball players have significantly better achievement

motivation as compared to intercollegiate level volleyball players. Achievement motivation can be described as the need for success or the attainment of excellence. Those who have high achievement motivation are able to satisfy their needs through different means and are driven towards success due to both internal and external reasons. One of the characteristic of achievement motivate person is that he/she appears to be more concerned about his personal achievement. Highly achievement motivated individual constantly seeks improvement and looks for the ways of doing things in a better way. It is an accepted fact that the players of the interuniversity level, in view of their better performance, are more concerned about their personal achievement and possibly they have risen to higher level of performance as a result of hard work. In this regard interuniversity level players might have resorted to adoption of different means and methods in order to excel. The methods adopted and the hard training done by interuniversity level volleyball players probably have helped them in satisfying their need to excel in performance. The reason for higher achievement motivation in interuniversity level male volleyball players as compared to intercollegiate level male volleyball players could be attributed to the above factors.

References

1. Ames C. Competitiveness versus cooperative reward structure: the influence of individual and group performance factors on achievement attributions and affect, In R. Ames & C Ames (Ed.), Research on motivation in education: Student motivation New York: Academic press, 1984, 177-207.
2. Buford TW, Kreider RB, Stout JR, Greenwood M, Campbell B *et al.* International Society of Sports Nutrition position stand: Creatine supplementation and exercise Journal of International Society of Sports Nutrition. 2007; 4:6. doi: 10.1186/1550-2783-4-6.
3. Carey Carl E. Jr. Academic achievement motivation in African American college football Players, An investigation of educational expectations and values. Ph.D., The University of North Carolina at Chapel Hill, 2000; 144:AAT 996856
4. Dweck CS. Motivational process affecting learning, American psychologist. 1986; 41:1040-1048.
5. Dalbo VJ, Roberts MD, Stout JR, Kerksick CM. Putting to rest the myth of creatine supplementation leading to muscle cramps and dehydration, British Journal of Sports Medicine. 2008; 42(7):567-573.
6. Daneshvar P, Hariri M, Ghiasvand R, Askari G, Darvishi L, Iraj B *et al.* Dietary behaviors and nutritional assessment of young male isfahani wrestlers, Int J Prev Med. 2013; 4(Suppl 1):S48-52.
7. Huschle, Katie S, MS. Academic and athletic achievement motivation of collegiate female basketball players, Southwest Minnesota State University 2008; 69:AAT 1455893.
8. Kreider R, Leutholtz B, Katch F, Katch V. Exercise and Sport Nutrition, Santa Barbara: Fitness Technologies Press, 2009.
9. Kerksick C, Harvey T, Stout J, Campbell B, Wilborn C *et al.* International Society of Sports Nutrition position stand: Nutrient timing, Journal of International Society of Sports Nutrition. 2008; 5:17. doi: 10.1186/1550-2783-5-17.
10. Rodriguez NR, Di Marco NM, Langley S. American College of Sports Medicine position stand: Nutrition and

- athletic performance, *Medical Science Sports Exercise*, 2009; 41(3):709-731
11. Shyamal Koley, Mehak Sharma. Assessment of Nutritional Practices of Indian Female Athletes, *Anthropologist*, 2013; 15(3):323-327.
 12. Storer TW, Woodhouse L, Magliano L, Singh AB, Dzekov C *et al.* Changes in muscle mass, muscle strength, and power but not physical function are related to testosterone dose in healthy older men, *Journal of American Geriatrics Society*. 2008; 56(11):1991-1999.
 13. Harger-Domitrovich SG, McClaughry AE, Gaskill SE, Ruby BC. Exogenous carbohydrate spares muscle glycogen in men and women during 10 h of exercise, *Journal of Medical Sciences and Sports Exercise*. 2007; 39(12):2171-2179.
 14. Willoughby DS, Stout JR, Wilborn CD. Effects of resistance training and protein plus amino acid supplementation on muscle anabolism, mass, and strength, *Amino Acids*. 2007; 32(4):467-477.
 15. Wilson GJ, Wilson JM, Manninen AH. Effects of beta-hydroxy-beta-methylbutyrate (HMB) on exercise performance and body composition across varying levels of age, sex, and training experience: A review, 2008. *Nutr Metab (Lond)* 5, doi: 10.1186/1743-7075-5-1.
 16. Hoffman JR, Ratamess NA, Tranchina CP, Rashti SL, Kang J *et al.* Effect of protein-supplement timing on strength, power, and body-composition changes in resistance-trained men, *International Journal of Sport Nutrition and Exercise Metabolism*. 2009; 19(2):172-185.
 17. Jeukendrup AE, Currell K, Clarke J, Cole J, Blannin AK. Effect of beverage glucose and sodium content on fluid delivery, *Nutr Metab (Lond)*, 2009; 6:9. doi: 10.1186/1743-7075-6-9.
 18. Jonnalagadda SS, Rosenbloom CA, Skinner R. Dietary practices, attitudes, and physiological status of collegiate freshman football players, *J Strength Cond Res*. 2001. 2001; 15:507-13. [PubMed]