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Comparison of body mass index and dietary habits among athletes and non-athletes

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Abstract

The present study was designed to compare the body mass index and dietary habits among male athletes of different level and non athletes. Total one hundred twenty (N=120) samples were selected. 30 inter-universities, 30 from inter-college, 30 international sportsmen and 30 non athletes selected to act as subjects for the present study, with the age ranging between 17-25 years. Dietary habits of athletes and non athletes were assessed by using Dietary habits questionnaire based on the USDA's current My Plate. On the other hand body mass index of athletes and non athletes was measured by Quetelet Index Formula. The data obtained after scoring the questionnaires filled up by the subjects to analysis on computer through statistical package for social science (SPSS) version 16.0. The differences in the mean of each group for selected variable were tested for the significance of difference by One-way Analysis of variance (ANOVA). In all the analyses, the 5% critical level ($p < 0.05$) was considered to indicate statistical significance. Results of the study explicated statistically that there was significant and insignificant difference in dietary habits and body mass index.

Keywords: Body mass index, dietary habits, athletes and non athletes

Introduction

Great nourishment is central for good well-being and the anticipation, treatment and administration of sickness. Access to a reasonable and sound eating routine is a key prerequisite over the life course and over the globe. The connection between sustenance, nourishment and well-being, be that as it may, is mind boggling, dynamic, and multi-faceted and exceedingly influenced by organic and additionally natural, financial, social and behavioral variables. (Packhan, 1979) [6] Nutrition is an important complement of any physical fitness program. Good nutrition is not only important to help improve performance but also to promote healthy dietary practices in the long-term Modern routine has a direct association with increasing body weight which, currently, is a global health problem (Janssen, *et al.*, 2005) [2]. Body Mass Index (BMI) is the ratio of weight to height measured in kilograms/metres². Normal weight is defined as a BMI of 20 - 24.9, overweight as between 25 and 29.9 and obesity as greater or equal to 30 (Palmer, 2003) [5]. The BMI cut points were derived from the relationship between body fat percentage (%BF), BMI, and associated disease risk. Body composition and body mass contribute among other factors to optimal exercise and performance, body mass can influence an athlete's speed, endurance, and power, whereas body composition can affect strength and agility (Massuça & Frago 2011) [4].

Body mass index

Body mass index is frequently used as a surrogate for body fat content (Gray & Fujioka 1991) [1]. The most widely used is Quetelet's index, better known as body mass index (BMI), which is body weight (kg) divided by height squared (m²). The body mass index depends not only on the fat content but also on skeletal mass (Keys *et al.* 1971) [3],

Dietary habits

Dietary habits are the habitual decisions an individual or culture makes when choosing what food to eat. The word diet often implies the use of specific intake of nutrition for health or weight management reasons.

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Methodology

The presented study was conducted with the purpose to compare the dietary habits and body mass index among male athletes of different levels and non athletes, with the age ranging between 17-25 years. Total one hundred twenty (N=120) samples were selected. 30 inter-university, 30 from inter-college, 30 international sportsmen and 30 non athletes were selected to act as subjects for the present study. The following variables were selected for the present study.

- 1) Dietary habits
- 2) Body mass index

Dietary habits were assessed by using Dietary habits questionnaire based on the USDA’s current My Plate. On the other hand body mass index of athletes and non athletes was measured by Quetelet Index Formula.

Body mass index

Table 1: Mean and Standard Deviation Results With Regard to Body Mass Index Among Male Sedentary, Inter Collegiate, And Inter University & International Players.

| Group | Mean | Std. Deviation | Std. Error |
|------------------|-------|----------------|------------|
| Sedentary people | 26.64 | 3.51 | .641 |
| Inter collegiate | 26.64 | 1.48 | .271 |
| Inter university | 23.72 | 1.45 | .264 |
| Inter national | 23.72 | 1.45 | .264 |
| Total | 24.59 | 2.456 | .224 |

Table 4.1 shows the Mean and SD values of Body mass index of male sedentary people, inter collegiate, inter university, international were 26.64 ± 3.512 , 24.31 ± 1.486 , $23.72 \pm$

1.450 , 23.72 ± 1.450 respectively. The attained “F” ratio 12.351(.000) was found statistically significant, ($P<.05$) .05 level of significant.

Table 1 (A): Analysis of Variance (ANOVA) Results With Regard to Body Mass Index among Male Sedentary People, Inter Collegiate, and Inter University & International Players

| Sources of variable | Sum of Squares | DF | Mean Square | F |
|---------------------|----------------|-----|-------------|--------|
| Between Groups | 173.77 | 3 | 57.92 | 12.351 |
| Within Groups | 544.02 | 116 | 4.69 | |
| Total | 717.80 | 119 | | |

*Significant at .05 level of confidence

It is the evidence from table 4.19(a) that the result of Analysis of Variance(ANOVA) among four group with regard to the body mass index were found to be statistically significant ($P<0.05$). Since the obtained “F” ratio 12.351(.000) was

found statistically significant. The result of post -hoc have been presented in table 4.1(b) at the 0.05 level *. The mean difference is significant.

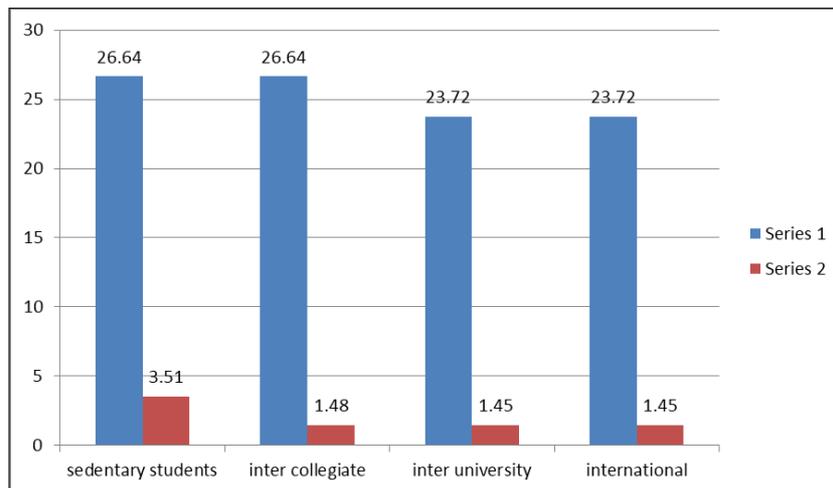


Fig 1: Graphical representation of mean scores with regard to body mass index among male sedentary people, Inter collegiate, Inter University, and International

Dietary habits

Table 2: Mean and Standard deviation results with regard to Dietary habits among male sedentary, inter collegiate, and inter university & international players.

| Group | Mean | Std. Deviation | Std. Error |
|------------------|-------|----------------|------------|
| Sedentary people | 43.33 | 19.75 | 3.60 |
| Inter collegiate | 44.10 | 13.65 | 2.49 |
| Inter university | 66.73 | 15.12 | 2.76 |
| Inter national | 85.23 | 11.08 | 2.02 |
| Total | 59.85 | 23.06 | 2.10 |

Table 2 shows the Mean and SD values of dietary habits of male sedentary people, inter collegiate, inter university, international were 43.33 ± 19.75 , 44.10 ± 13.65 , $66.73 \pm$

15.12 , 85.23 ± 11.08 respectively. The achieved “F” ratio $52.24 (.000)$ was found statistically significant, ($P < .05$) .05 level of significant.

Table 2(a): Analysis of variance (ANOVA) results with regard to Dietary habits among male sedentary people, inter collegiate, and inter university & international players.

| Anova | | | | |
|----------------|----------------|-----|-------------|-------|
| | Sum of Squares | DF | Mean Square | F |
| Between Groups | 36376.70 | 3 | 12125.56 | 52.24 |
| Within Groups | 26920.60 | 116 | 232.07 | |
| Total | 63297.30 | 119 | | |

*Significant at .05 level of confidence

It is the evidence from table 4.3(a) that the result of Analysis of Variance (ANOVA) among four group with regard to the Dietary habits were found to be statistically significant

($P < 0.05$). Since the obtained “F” ratio $52.24 (.000)$ was found statistically significant.

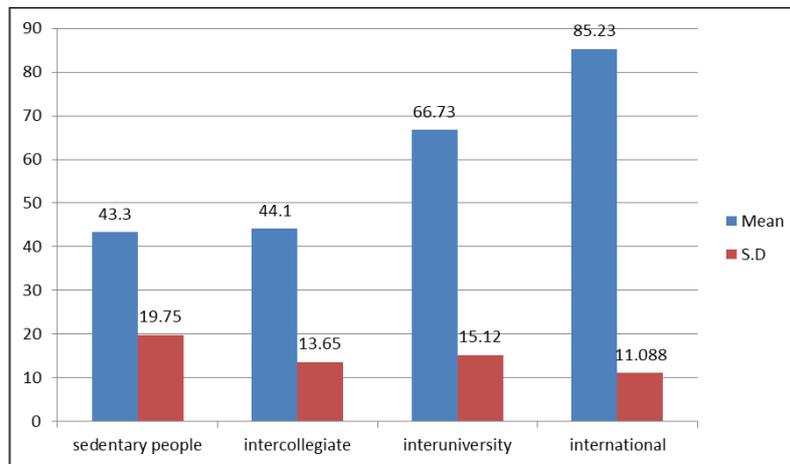


Fig 2: Graphical representation of mean scores with regard to dietary habits among male sedentary people, Inter collegiate, Inter University, and International.

Discussion of the findings

The present results also indicates that the significant and insignificant differences among athletes of different disciplines who played at different levels and male university non athletes with regard to Body mass index, Dietary habits.

Body mass index: While comparing the mean values of athletes and non athletes it has been noticed that athletes had better condition with regard to Body mass index. Even though non athletes and an athlete (active person) may have the same height but weight and fat to fat free mass ratios may be very changed. The main cause of underweight, overweight or obesity is not having good diet and most intake of fast food and less physical activity. So this is the main cause of higher Body mass index in sedentary people as comparative to athletes. Found significant difference on Body mass index among differences population of athletes and non-athletes of both genders

Dietary habits

The results of the study indicate that there was insignificant difference between sedentary university students and intercollegiate but significant difference among inter-university, international and sedentary students for their dietary habits. This shows that sedentary students and intercollegiate are more prone to unbalanced diet due to lack of nutritional knowledge. The main cause of poor dietary habits in Athletes of intercollegiate is that they just came from school and enrolled in college so the level of education is not

so high in intercollegiate students and the sedentary university students are not so aware about the harmful effects of poor diet on their health. Nutrition through the Life Cycle supported this study.

Conclusion of the study

On the basis of findings of present study, the following conclusions were drawn.

- 1) Based on the findings of this study, the following conclusions were drawn to conclude, It is evident that the results of Analysis of Variance (ANOVA) among non athletes and athletes (intercollegiate, inter-university and international) with regard to Body mass index were found to be statistically significant ($P > 0.05$). Since the obtained “F” ratio $12.351(.000)$ was found statistically significant.
- 2) Based on the findings of this study, the following conclusions were drawn to conclude, It is evident that the results of Analysis of Variance (ANOVA) among non athletes and athletes (intercollegiate, inter-university and international) with regard to Dietary habits were found to be statistically significant ($P > 0.05$). Since the obtained “F” ratio $52.24 (.000)$ was found statistically significant.

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