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An analysis of routine dietary intake and eating habits of college students

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Abstract

The objective of this study was to assessment of the dietary intake and eating habits of college students or athletes and compared their total calories intake and macronutrients intake like Carbohydrates, Protein and Fats to the other group of the participants or athletes from the college and calculating number of calories including macronutrients like protein, carbohydrates, and fats that consume in seven days by the Participants of college. Monitor the dietary consumption and nutrient intake by college athletes and improved their dietary intake and their status of eating habits.

Participants: Total data were obtained from the 24 participants from two groups from the Delhi Pharmaceuticals Science and Research University and Academy of Sports Science Research and Management, Delhi.

Procedure: Participants filled the Nutritional Profiling questionnaire through online mode up to Seven days. Participants or athletes also reported their 24 hours dietary recall within seven days through online mode.

Results: *t* test indicates the calories, carbohydrates, protein, and fats intake were significant error type 1 would be too high. The p-value of calories, carbohydrates, protein, and fats that 0.73, 0.6743, 0.6738, and 0.6737 respectively and the larger the p-value the more it supports H₀. the mean proportion of total calories coming from Carbohydrates, Protein, and Fats was 55.4%, 17.6%, and 26.4% respectively, and the Calories intake of the group B participants was 1928 ± 476 kcal and the mean proportion of total calories coming from Carbohydrates, Protein, and Fats was 55.7%, 17.6%, and 26.4% respectively. The total number of sample (N-24) in which 98% participants had good hydration status on a regular basis. 78% of the participants (N- 24) evaluated their diet as “good,” with 22% stating their diet was “fair,” or “poor.”

Conclusions: The effective nutrition profiling of dietary consumption are very important to improve dietary intake and eating habits of college students and athletes

Keywords: Diet, Eating habits and College students

Introduction

The dietary intake pattern or eating habits by the individuals or collage athletes, this approach has often resulted in conflicting findings and to examining eating habits for 24 ×7 days, with the help of dietary patterns or food calorie chart by ICMR. NIN, Hyderabad, that better capture the interaction of nutrients and bioactive compounds within the whole diet. Butler, N., & RD. (2020) ^[2] However, people consume combinations of foods as meals and snacks rather than as individual foods and nutrients. Macronutrients can be further split into energy macronutrients (that provide energy), and macronutrients that do not provide energy. Shiel, W. C. (2018) ^[12] Nutritionally, polysaccharides are favored over monosaccharide because they are more complex and therefore take longer to break down and be absorbed into the bloodstream; this means that they do not cause major spikes in blood sugar levels, which are linked to heart and vascular diseases.

Selection of Subject

The researcher has selected 24 college students and further divided into two groups A & B as per semester from ASSRM and DPSRU for nutritional assessment or dietary intake for seven days. The average age of the participant was selected from 19 to 22 years. All the participants had been randomly selected by a simple random method from the heterogeneous population.

Selection of Variables

Based on literary evidence, correspondence with the expert and researcher understanding and keeping feasibility criterion in mind, the selected variables were as follows: - The study was

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selected following variables for the Nutritional Assessment or Dietary intake of each participant.

- Total Calories Intake
- Protein Intake
- Carbohydrates Intake
- Fats Intake

Selection of Tests or Questionnaire

For collecting the data for the study, researcher has used HPL SAI Nutritional Profiling Questionnaire. Further to prepare an online format of questionnaire for assessing the nutritional profiling and day-wise dietary recall within seven days in which participants filled their daily dietary intake according to their routine (like breakfast, lunch, dinner etc), after that the researcher would calculate calories with the help of dietary guidelines which were created by ICMR. To calculate the calories including protein, carbohydrates, and fats that taken by the athletes or Participants as per the dietary guidelines of ICMR. NIN, Hyderabad. For participation in the study an online consent form was given to the participants for their confirmation.

Criterion Measures

The criterion measures of the study for the dietary intake were HPL SAI Nutritional Profiling Questionnaire that fills by the participants according to their routine consumption of food. The questionnaire was used to measure to their daily dietary consumption and macronutrients consumed by the participants or athletes.

Administration of Test

This descriptive study utilizing a convenience sample of college participants or athletes was conducted online in a university campus that is situated in Delhi. For the purpose of study the researcher had selected 24 college students from the college and then further bifurcated into two groups for comparison as per their dietary consumption. Before conducting the assessment through online mode, the participant firstly filled the consent form through online mode that was sent through social media. After then filling the consent form, the participant is ready to fill the Nutritional Profiling Assessment questionnaire through

online mode. There are eight questionnaires (according to day 1 to 7) prepared for nutritional assessment of the participants. After all, questions filled by the participants, they have submitted their responses through online mode. Same procedure was followed by the other questionnaire.

Result, Analysis and Discussion for the Study

After collected data or responses by the participants and calculated the average of their calories and macronutrients intake was taken during the assessment and then compared with the both groups A & B with the help of t-test was used.

Calories and macronutrients Intakes

Table 1. Reported Calories and Macronutrients Intakes of Group A

N	Participants	Average Calories Intake	Average Carbs Intake	Average Protein Intake	Average Fats Intake
1	A 1	1861.5	1039.0	328.1	492.2
2	A 2	2873.2	1585.4	500.7	751.0
3	A 3	1960.7	1071.0	338.2	507.3
4	A 4	1311.7	714.8	225.7	338.6
5	A 5	1323.5	744.3	235.0	352.6
6	A 6	1719.2	956.0	301.9	452.8
7	A 7	1627.3	909.0	287.1	430.6
8	A 8	1919.5	1069.4	337.7	506.3
9	A 9	1626.8	919.0	290.2	435.6
10	A 10	2047.0	1132.9	357.7	536.6
11	A 11	1869.0	1040.9	328.7	493.0
12	A 12	2239.5	1195.9	377.6	566.5
Mean Score ± SD		1864.9 ± 419.51	1031.5 ± 226.31	325.7 ± 71.8	488.6 ± 103.4

Results based on the proper dietary assessment like calories, carbohydrates, protein, and fats during the 07 days regular analysis of the group A (n-12).

The nutritional analysis of dietary intake of Group A indicated that the Calories intake of the group A participants was 1864.9 ± 419.51 kcal, and average calories intake of carbohydrates was 1031.5 ± 226.31, average intake of protein was 325.7 ± 71.8 and average intake of fats was 488.6 ± 103.4 respectively.

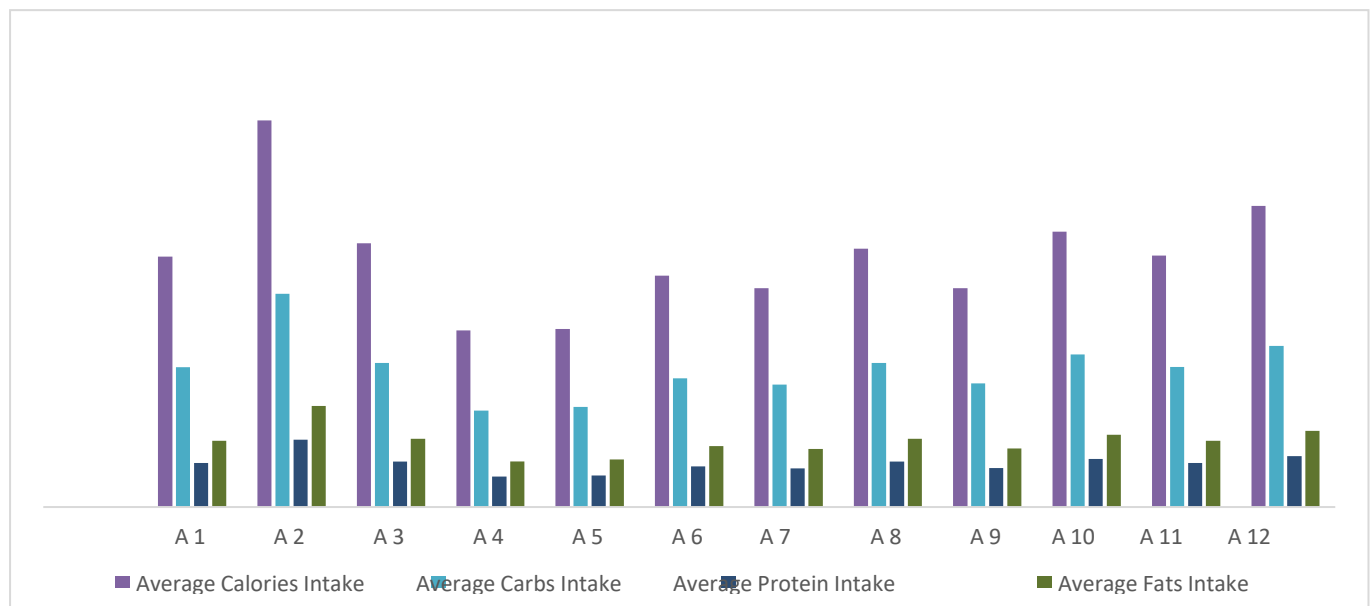


Fig 1: Graphical Representation of Calories and Macronutrients Intake of Group A

Table 2: Reported Calories and Macronutrients Intake of Group B

N	Participants	Average Calories Intake	Average Carbs Intake	Average Protein Intake	Average Fats Intake
1	B 1	1632.2	925.7	292.3	438.5
2	B 2	1768.8	997.9	315.1	472.7
3	B 3	1667.3	914.0	288.8	433.3
4	B 4	2032.3	1128.2	356.3	534.4
5	B 5	1855.0	1041.6	328.9	493.4
6	B 6	1877.5	1036.7	327.4	491.1
7	B 7	1941.0	1085.3	342.7	514.1
8	B 8	1522.2	837.6	264.5	396.8
9	B 9	1715.2	935.6	295.5	443.2
10	B 10	1748.7	971.5	306.8	460.2
11	B 11	3357.8	1884.5	595.1	892.7
12	B 12	2027.5	1139.4	359.8	539.7
Mean Score ± SD		1928.8 ± 476.36	1074.8 ± 270.62	339.4 ± 85.45	509.2 ± 128.18

Results based on the proper dietary assessment like calories, carbohydrates, protein, and fats during the 7 days regular analysis of the group A (n-12).

The nutritional analysis of dietary intake of Group A indicated that the Calories intake of the group A participants was 1928.8 ± 476.36 kcal, and average calories intake of

carbohydrates was 1074± 270.62, average intake of protein was 339.4 ±85.45 and average intake of fats was 509.2 ± 128.18 respectively.

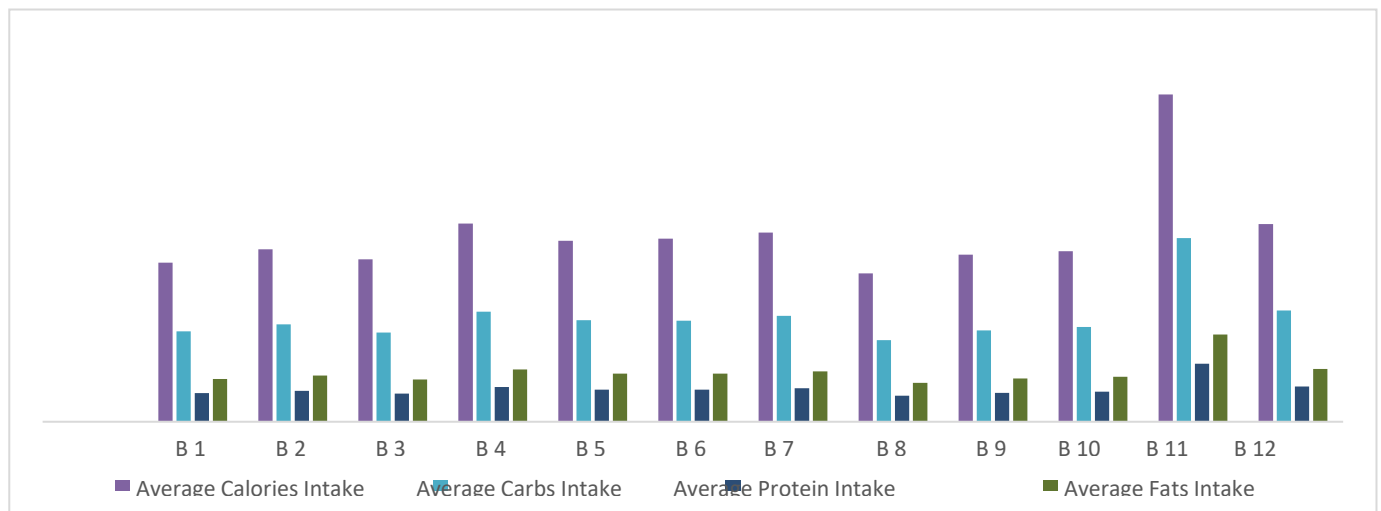


Fig 2. Graphical Representation of Calories and Macronutrients Intake of Group B

Table 3: Mean Proportion and Standard Deviation of Dietary Intake by each Groups (n-24; Group A-12, Group B-12)

Statistical Measurement	Calories Intake		Macronutrients Intake					
			Carbohydrates		Protein		Fats	
Groups	A	B	A	B	A	B	A	B
Mean	1864.9	1928.8	1031.5	1074.8	325.7	339.4	448.6	509.2
Standard Deviation	419.51	476.36	226.31	270.62	71.8	85.45	103.4	128.18
t- Ratio	0.6743		0.6738		0.6737		0.7306	

Results based on N= 24 (participants with complete dietary data).

T test using the group A & B means and the minimum value of total calories intake and macronutrients that were carbohydrates, protein, and Fats.

The nutritional analysis of the dietary intake by each group indicated the mean proportion of the calories intake of group A is lower than the mean proportion of group B and standard deviation of Group A also lower than Group B. The above table 3 show the mean of macronutrients such as Carbohydrate’s consumption of Group A is less than Group B and Standard Deviation also less, Protein consumption of Group A is less than Group B and Standard Deviation also less, and fats consumption of Group A is less than Group B

and Standard Deviation also less. Overall dietary consumption of Group B is more than Group A.

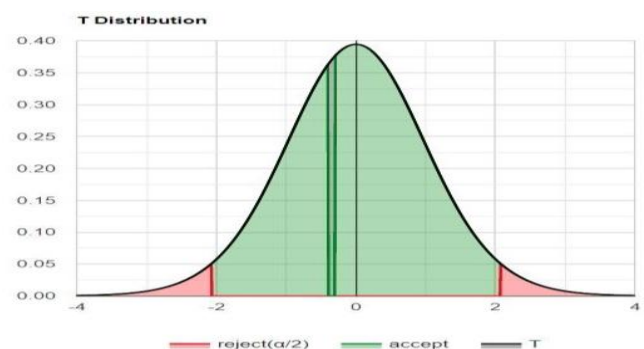


Fig 3: Graphical representation of t-distribution of Calories

Discussion of the study

The main purpose of the study was to examine the dietary intake and eating habits pattern in a sample of college participants of semester 06 & 04 from the DPSRU University (randomly selected from the university) and have compared them on the basis of their current dietary intake.

The selected sample further divided into two groups that were Group A & B as per semester 6 & 7 respectively. The nutritional analysis of dietary data indicates that the nutritional analysis of the dietary intake by each group indicated the mean proportion of the calories intake of group A is lower than the mean proportion of group B and standard deviation of Group A also lower than Group B. The above table 3 show the mean of macronutrients such as Carbohydrate's consumption of Group A is less than Group B and Standard Deviation also less, Protein consumption of Group A is less than Group B and Standard Deviation also less, and fats consumption of Group A is less than Group B and Standard Deviation also less. Overall dietary consumption of Group B is more than Group A.

Our finding indicates the total calories intake by the participants of two sample t-test (pooled variance), using T distribution (DF=22.0000) (two-tailed) (validation). Since $p\text{-value} > 0.05$, H_0 is accepted. The average of Average calories intake of Group A's population is considered to be equal to the average of the Average of Calories intake of Group B's population. In other words, the difference between the average of the Average Calories intake of the Group-A and Average Calories intake of Group-B population is not big enough to be statistically significant. The $p\text{-value}$ equals 0.73063. This means that if we would reject H_0 , the chance of type I error (rejecting a correct H_0) would be too high: 0.7307 (73.07%). The larger the $p\text{-value}$ the more it supports H_0 . The proportion of calories from carbohydrates, protein and fats reported in our study so the carbohydrates result after the applied statistics two sample t-test (pooled variance), using t distribution (DF=22.0000) (two-tailed) (validation). Since $p\text{-value} > 0.05$, H_0 is accepted. The average of Average Carbs intake of Group A's population is considered to be equal to the average of the Average of Carbs intake of Group B's population. In other words, the difference between the average of the Average Carbs intake of the Group-A and Average Carbs intake of Group-B population is not big enough to be statistically significant.

Nearly all participants in our sample failed to meet estimated calories needs. Our findings are alarming because 88% participants in our sample reported intakes of less than 1800 kcal/day, which represents the amount of the calories that is required for college students who is at a low to moderate physical activity level and some of the not any type of physical activity at any condition. Calorie's consumption of less than 2000 kcal/day has been identified as "low calories intake" and it cannot support the high physical nutrition demands of college students. The college participants or athletes in our sample consumed largest proportion of their calories in the lunch and dinner time, thus spending most of the day in energy deficit. Many participants consumed very little or no fluids during the day, most of the preferred water over the recommended beverages containing carbohydrates and electrolytes. The most of the college students are physically fit and some of the regular performed physical activity like yoga.

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