

# Assessment of Dietary Intake and Food Consumption among Medical Students of Preclinical Year in Government Medical College of North India

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## Abstract

### Introduction:

Healthy balanced diet is a cornerstone for physical as well as mental well-being. Medical Curriculum is considered one of the toughest curriculums of the World requiring interplay of time, money, mental ability and physical strength. Proper diet thus becomes crucial in determining the academic, personal and social performance of medical students. The dietary intake varies with the cultural domains of individuals and is dependent on several factors like ethnicity, economic status, religion, customs, taboos, etc. The dietary intake of students when compared against Balanced diet for age, sex and physical activity gives a commendable observation of pattern of diet in them. The amount and nature of physical activity also plays a important role in determining the adequacy of amount and quality of food eaten by students.

### Methodology:

This was a cross sectional study. 100 undergraduate medical students were enrolled for the purpose of the study. The dietary assessment was done using 24 hour dietary recall methodology by which 3 day diet was recorded. The diet was compared against Balanced diet for calorie intake, Macronutrients and important micronutrient intake. The nutrient deficiency was assessed by clinical examination of medical students. The data collected was entered in SPSS version 23 and analyzed using descriptive statistics.

### Results:

Among 100 students 65 were girls and 35 were boys. Energy deficit was present in all participants. 3% of the males and 5% of the females were overweight, while 2% of males and 4% of the females were underweight. Average portions of fruits and vegetable intake was 1-3. Calcium deficit was found among 71.4% males and 69.2% females. 14.8% of the girls were having iron deficit diet.

### Conclusion:

The current study reveals inadequate intake of fruits, vegetables and energy among undergraduate medical students. Dietary recommendations can be put into action by supervising mess, canteens inside college. Academicians should inculcate importance of diet actively in curriculum.

### Key words:

Dietary assessment, undergraduate medical students, 24 hour dietary recall, food consumption, balanced diet.

## Introduction

The importance of diet in shaping physical and mental health cannot be overstated. Medical curriculum is considered one of the toughest curriculums of the World requiring interplay of time, money, mental ability and physical strength [1]. Proper diet thus becomes crucial in determining the academic, personal and social performance of medical students. The dietary intake varies with the cultural domains of individuals and is dependent on several factors like ethnicity, economic

status, religion, customs, taboos, etc [2]. As, students in medical college have different backgrounds, their dietary intake usually tends to differ. Also, the place of stay, and place of eating plays a crucial role in determining the food they eat. The dietary intake of students when compared against Balanced diet for age, sex and physical activity gives a commendable observation of pattern of diet in them. The amount and nature of physical activity also plays an important role in determining the adequacy of amount and quality of food eaten by students [3]. The growing incidence of obesity, stress eating behavior, fast food inclination and meal skipping behavior has also triggered the importance of such type of studies for policy implications at the institutional level .

The balanced diet recommendations for adult male and female are followed as per National Institute of Nutrition guidelines. The adult male recommendations are for daily 2320 Kcal, 60 gm protein, 600 mg Calcium, 17 mg Iron

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and adult female recommendations are for 1900 Kcal, 55 gm protein, 600 gm Calcium and 21 gm Iron [5].

Assessing the dietary intake of the student in medical college is done as a part of curriculum in the community medicine department of Government Doon Medical which provides us the overall knowledge of students regarding their eating habits. Thus, for this study the systematic collection from the student of their daily diet was done and was assessed for the deficit in their meals as compared to the balanced diet. Their nutritional deficit was assessed to bring any change needed in college canteen and provide them knowledge so that they take necessary steps in individual level as well.

There is lack of such studies and this study will bridge the knowledge gap in this area of medical science. Also, the medical students are future doctors who are going to advocate for adapting the healthy lifestyle by having the balanced diet in the community. Thus, this study is of utmost importance especially in medical colleges.

### Objectives

1. To assess dietary intake of medical students of Government Doon Medical College, Dehradun.
2. To find any nutrient deficiency as compared to Balanced diet recommendations.

### Methodology

This was a cross sectional study. 100 undergraduate medical students were enrolled for the purpose of the study from 2<sup>nd</sup> year MBBS. The dietary assessment was done using 24 hour dietary recall methodology. Dietary intake of 3 days was recorded and means dietary intake was calculated. The students were asked to exclude fast and feast days for dietary intake calculation to balance any outliers. The diet was compared against deficiency was assessed by clinical examination of medical students. The data collected was entered in SPSS version 23 and analyzed using descriptive statistics. The data was segregated and compared on basis of gender of participants. The categorical data was expressed in proportions and percentages and quantitative data was expressed in mean and standard deviation (S.D.). T-test and chi-square tests were applied to compare quantitative and categorical data of both groups. p-value<0.05 was considered statistically significant.

### Results

In current study, among 100 participants 35 were males and 65 were females. (Table 1)

The mean BMI of males was 21.74 and females was 21.85 while the mean weight of males was 67.43 kg while that of females was 55.33 kg. Age was similar in both groups. Energy intake was 1976.18 Kcal in males and 1690 Kcal in females showing significant difference (p-value =0.00). Similarly, mean protein intake among males was 65.83 while that among females was 58.68gm per day. Mean calcium and iron intake was 451.39 and 22.62 mg among boys and 494.69 and 20.83 mg among girls. (Table 1)

**Table 1:** Anthropometric and dietary profile of study participants

Parameter	Male Mean (S.D.)	Female Mean (S.D.)	p-value
BMI	21.75(3.86)	21.29(2.8)	0.49
Weight	67.43(19.52)	55.33(9.22)	0.00
Age	20.14(0.88)	20.08(0.51)	0.66
Energy intake	1976.18(256.04)	1690.07(141.97)	0.00
Protein	65.83(13.23)	58.68(5.18)	0.00
Calcium	451.39(198.93)	494.69(108.18)	0.16
Iron	22.62(4.54)	20.83(4.79)	0.48

**Table 2:** Distribution of study participants according to energy, protein, calcium and iron intake

Parameter	Male No.(%)	Female No.(%)	P-value
Energy deficit	35(100)	65(100)	-
Energy excess	0	0	-
Protein deficit	15(42.8)	20(30.8)	0.22
Protein excess	20(57.1)	45(69.2)	-
Calcium deficit	25(71.4)	45(69.2)	0.4
Calcium excess	10(28.6)	20(30.8)	-
Iron deficit	10(28.6)	20(30.8)	0.4
Iron excess	25(71.4)	45(69.2)	-

All of the study participants had inadequate energy intake, protein deficit was found among 15 boys and 20 girls while calcium deficit was found among 25 boys and 45 girls. Similarly, iron deficit was found among 10 boys and 20 girls. The proportion of study participants taking energy, protein, calcium or iron in excess or less across both groups was similar. (Table 2)

**Table 3:** Profile of excessive or insufficient energy, protein, calcium and iron intake among study participants

Parameter (%)	Male Mean (S.D.)	Female Mean (S.D.)	P-value
Energy deficit	11.8 (10.8)	10.9 (7.33)	0.62
Energy excess	0	0	-
Protein deficit	6.8 (5)	3.4 (0.9)	0.00
Protein excess	23.5 (14.8)	12.5 (8.3)	0.00
Calcium deficit	40.4 (23.3)	25.1 (13.4)	0.00
Calcium excess	14.5 (8.8)	5.4 (2.9)	0.00
Iron deficit	19.2 (5.9)	20.6 (14.8)	0.59
Iron excess	30.5 (17.8)	10.7 (5)	0.00

There was statistically significant variation found between mean protein deficit, mean protein excess, mean

calcium deficit, mean calcium excess and mean iron excess among males and females (p-value <0.05). (Table 3)

The portion intake of fruits and vegetable varied from 1-3 servings per day. Similarly, green leafy vegetable intake was negligible among both boys and girls. In current study 3% of the males and 5% of the females were overweight, while 2% of males and 4% of the females were underweight as per BMI cutoff for South Asian population.

## Discussion

The old age saying “we are what we eat” truly justifies the connection of food with culture of human beings. Dietary pattern assessment is further necessarily important among medicos because they are future doctors and will counsel their patients for the same, also the stress of medical education makes it imperative for a proper balanced diet intake. The current study surfaced energy deficit, insufficient intake of fruits and vegetables among all study participants. Previous studies done on undergraduate medical students by Vibhute NA et al in 2018 have revealed daily fruit and vegetables consumption was only 1-2 portions and 18% of the students were underweight [6] similar to this study where fruits and vegetable consumption was found to be 1-3 portions per day. Mendhe H et al in 2015 found that calorie intake per capita per day among male medical students was 2493 K Calories and among female medical students was 2359 K Calories as compared to 1976.18 Kcal in males and 1690 Kcal in females from current study [7].

There was gross deficit of green leafy vegetables intake and fruits intake. Milk and milk products intake was also inadequate leading to calcium deficit among around 70% of the participants. The students who were day scholars were only having adequate intake of fruits and vegetables. The energy deficit was present among all study participants.

## Conclusion

Proper dietary intake is crucial for overall development including academic goals. The current study reveals inadequate intake of fruits, vegetables and energy among undergraduate medical students. Since, most of the medical students are hostelers, dietary recommendations can be put into action by supervising mess, canteens inside college Academicians should inculcate importance of diet actively in curriculum.

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