

# Dietary habits and exercise practices among the students of a Saudi Teachers' Training College

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## ABSTRACT

**الأهداف:** تقييم العادات الغذائية وممارسة الرياضة بين طلاب كلية المعلمين للبنين في مدينة أبها بمنطقة عسير بالمملكة العربية السعودية.

**الطريقة:** أجريت دراسة مقطعية على طلاب كلية المعلمين بأبها خلال العام الأكاديمي 2005م / 2006م. تم استخلاص العينة باستخدام الطريقة العشوائية المنتظمة وجمعت المعلومات باستخدام إستبيانات يتم تعبئتها عن طريق المشاركين.

**النتائج:** تم الحصول على عدد (456) استبياناً من مجموع (500) تم توزيعها حيث بلغت نسبة الاستجابة (91.2%)، منهم (10%) يعانون من أمراض عضوية، و(4.6%) لديهم معضلات نفسية على التوالي، فيما نصف العينة تتجاوز كتلة أجسامهم ( $25\text{kg}/\text{m}^2$ ). أظهرت الدراسة بأن أكثر من (14%) لا يمارسون الرياضة بينما (69.30%) يمارسونها مرتين في الشهر فقط. نصف الطلاب يتناولون وجبة الغداء والعشاء بانتظام، و(76.1%) منهم يتناولون وجبات إضافية بعد وجبة الغداء. الذين يضيفون الملح على الوجبات (55.5%)، بينما (91.4%) يضيفون الزيت، و(85.3%) يشاهدون التلفاز أثناء تناول الوجبات. وجبة الإفطار كانت من أكثر الوجبات تجاهلاً. أكثر من (11.4%) لا يتناولون الخضروات، و(28.9%) لا يتناولون الأسماك على الإطلاق. يتم تناول المشروبات الغازية من قبل (85%) من الطلاب.

**خاتمة:** تظهر هذه النتائج أن هناك حاجة ماسة وعاجلة لتقييم العقبات لإتباع العادات الصحية ومن ثم تعميم برامج لتحسينها.

**Objectives:** To assess the dietary habits and exercise practices among Saudi male students of a Teacher's Training College.

**Methods:** A cross-sectional study was conducted during the academic year 2005/2006 in Abha, Aseer Region, Kingdom of Saudi Arabia. The study sample was drawn using the systematic random sampling technique. A self-administered questionnaire was used for data collection.

**Results:** Out of a total sample of 500 students, 456 questionnaires were returned giving a response rate of 91.2%. Approximately 10% of the students reported some type of organic disease, while psychiatric disorders were reported by 4.6% of the students. Nearly half of the students had a body mass index of more than  $25\text{ kg}/\text{m}^2$ . Practice of exercise was not prevalent in 14% of the students, while 69.3% were engaged in exercise only twice per month. Half of the students ate lunch and dinner, while snacks after lunch was taken by 76.1% of them. Addition of salt (55.5%), consumption of ghee (91.4%), and watching television while eating (85.3%) was noted among the students. Breakfast was the most commonly missed meal. Approximately 11.4% students did not take vegetable and 28.9% did not take fish at all while softdrinks were consumed by more than 85% of the students ranging from 1-4 times to more than 7 times per week.

**Conclusion:** There is an urgent need to assess barriers to the healthy life style and to design an effective intervention program to improve the lifestyle of the future teachers.

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Nutrition and exercise are a cornerstone that affects and defines the health and development of all people across the entire lifespan.<sup>1</sup> Unhealthy diet and physical inactivity related diseases, including cardiovascular diseases, cancer, and stroke are consistently among the top 3 leading causes of death worldwide.<sup>2</sup> Currently, 47% of the Eastern Mediterranean Region is facing the problem of non-communicable diseases, which are

expected to rise to 60% by the year 2020.<sup>1</sup> To save most of the lives from chronic diseases, policy makers, health care providers, and researchers should focus their efforts on helping people to maintain a healthy weight, diet, and exercise.<sup>3</sup> Globally, scientific evidence indicates that college students are not following the nutrition and exercise guidelines designed to reduce the risk of chronic diseases, still consuming diets high in fat, sodium, and sugar, and low in fruits and vegetables.<sup>4-7</sup> These poor eating habits of adolescents raise concern about the implications on their future health, which may result from frequent snacking, excessive dieting, and consumption of calorie dense but nutrient poor snacks and meals, being provided by the fast food restaurants.<sup>8</sup> Despite the recognized benefits of exercise, health surveys conducted on the college students, indicate that only 35% have a regular schedule of physical activity.<sup>9</sup> However, college students are at a time and place in their lives when their behavior is conducive to change, if they make positive changes in dietary habits and exercise practices these changes could persist into adulthood.<sup>10,11</sup> The World Health Organization reports indicate that developing countries, start to suffer from the double burden-of under and over nutrition.<sup>12</sup> Saudi Arabia is witnessing a rapid development and a clear epidemiological transition where chronic diseases are emerging.<sup>13</sup> The Saudi population is young, the age group younger than 30 years contributes approximately 60% of the total population.<sup>13</sup> Overweight and obesity among male students range from 21-41%.<sup>14</sup> Knowledge of healthy diets among the school students is inadequate.<sup>15</sup> To improve the nutritional status of a community, a comprehensive epidemiological study of nutritional disorders is not only desirable but needed, covering the various sections of the populations living in different regions. Such a detailed study will provide the background to establish the priorities, to plan food policies, and to design community nutrition programs and the nutrition education. An analysis of dietary habits and exercise practices would be useful in detecting prevalent habits and practices and in designing suitable preventive programs. The aim of this study was to investigate the dietary habits and exercise practices among Saudi male students of the Teacher's Training College, Abha, Aseer Region, Saudi Arabia.

**Methods.** A cross sectional study was conducted during the academic year 2005/2006 among Saudi male students of the Teachers Training College in Abha educational area, which covers Abha, Khamis Mushyt, and Ahad Rufaida towns of Aseer Region, Southwest of Saudi Arabia, and has a total population of one million. The College admits Saudi male students after their graduation from secondary schools, and

trains them to teach primary schools students in all subjects. It is one of the 20 Teachers' Colleges in the Kingdom of Saudi Arabia. It has a total strength of 2,298 student trainees in its 12 departments. Study subjects were selected through the School Health Unit in Abha. A systematic random sampling technique was used to select departments and classes. Prior to the commencement of the study, the approval of the Local Ethics Committee was obtained. The permission of the instructor was obtained to enter the class. Prior to the administration of the questionnaire, the purpose of the study was explained to the participants. All students attending the selected classes were included. They were clearly informed that they could choose not to participate. Subjects were assured of anonymity and confidentiality. Data were collected using a structured self-administered questionnaire, which was piloted prior to its use. The questionnaire had 27 questions divisible into 3 parts. The first section dealt with the socio-demographic data, the second with their current health conditions, while the third section was devoted to dietary habits and exercise practices. The questionnaire took approximately 10-15 minutes to complete after which the weight and height of each student were recorded by one of the medically qualified supervisors (General Practitioners). Body mass index (BMI) was used as an indicator for obesity (BMI equals or less than 18.5kg/m<sup>2</sup> = underweight; BMI = 19.5-24.9 kg/m<sup>2</sup> = normal weight; BMI 25.0 - 29kg/m<sup>2</sup>= overweight and BMI equals or more than 30kg/m<sup>2</sup>=obese). Those who did not complete the questionnaire were excluded from the analysis.

Statistical analysis was carried out using the Statistical Package for Social Sciences (SPSS) version 14 for windows. Frequencies were used as descriptors of the student's population. Statistical tests were carried out at the 5% level of probability significance.

**Results.** Out of 500 questionnaires, 456 were returned giving a response rate of (91.2%). No reason was found to exclude any of them. Table 1 shows that, approximately two-thirds of the students were aged 21-25 years, around two-thirds of them ranked more than 5th-10th amongst their brothers/sisters, most of their families (96.5%) exceeded 5 members and had a good economic status (91.5%). Illiteracy rate among mothers (62.9%) was higher than those of fathers (20%). Most (75.5%) mothers had their principal occupation as "housewives" while most (28.5%) fathers were reported to be working in the government sector. There was no statistical significant relationship between students' characteristics and dietary habits ( $p \leq 5\%$ ).

Table 2 displays that more than 10% and around 5% of the students had organic and psychiatric disorders.

**Table 1** - Characteristics of the students of a Teachers Training College (n=456).

Item	n	(%)
<i>Age</i>		
17 - 20	106	(23.2)
21 - 25	281	(61.6)
> 25	69	(15.1)
<i>Rank among brothers/sisters</i>		
1 - 4	172	(37.7)
5 -10	279	(61.2)
>10	5	(1.1)
<i>No. of family members</i>		
<5	16	(3.5)
5-10	221	(48.5)
>10	219	(48)
<i>Economic status</i>		
Good	417	(91.5)
Fair	39	(8.6)
<i>Educational status of father</i>		
Illiterate	91	(20)
Primary	128	(28.1)
Intermediate	78	(17.1)
Secondary	56	(12.3)
Higher education	103	(22.6)
<i>Educational status of mother</i>		
Illiterate	287	(62.9)
Primary	113	(24.8)
Intermediate	23	(5.0)
Secondary	17	(3.7)
Higher education	16	(3.5)
<i>Occupational status of father</i>		
Retired	102	(22.4)
Military or police	91	(20.0)
Government services	130	(28.5)
Private business	86	(18.9)
<i>Occupational status of mother</i>		
Housewives	344	(75.4)
Government services	89	(19.5)
47 fathers and 23 mothers were excluded while analyzing for occupation		

**Table 2** - Health status of students of a Teachers Training College, (n=456).

Status	n	(%)
<i>Organic disease(s)</i>		
Yes	48	(10.5)
No	392	(86)
Not stated	16	(3.5)
<i>Psychiatric disease(s)</i>		
Yes	21	(4.6)
No	420	(92.1)
Not stated	15	(3.3)
<i>Body mass index</i>		
<18.5	47	(10.3)
18.5-24.9	189	(41.5)
>25	220	(48.3)
<i>Exercise</i>		
Don't do at all	64	(14.0)
Less than twice per month	316	(69.3)
3-6 times per week	34	(7.5)
Daily	42	(9.2)
<b>Total</b>	<b>456</b>	<b>100.0</b>

Around half of the participants had BMI more than 25 while (10.3%) were underweight. Nearly (70%) of the students were participating in exercise less than twice per month while (14%) were not engaged in any type of exercise at all. Table 3 shows frequencies of the main meals and snacks during the week preceding the visit to the college. Approximately one third of the participants had daily breakfast while (48%) and (50%) of them had daily lunch and dinner. Approximately one-third had snacks after breakfast, three-quarters after lunch, and around half of the students had snacks after dinner. Table 4 depicts that addition of salt (55.5%), consumption of ghee (91.4%) and watching T.V. while eating (85.3%) were common habits amongst the students. Educational characteristics of fathers and mothers of the participants and the dietary habits and cooking practices were statistically analyzed using chi-square test, which showed no statistically significant relation. Table 5 shows the frequencies of eating different types of food during the week preceding to the enquiry by the researcher. Around 28.9% of the students did not eat fish at all, while 65% consumed vegetables less than 5 times per week. Around 11.4% of them did not take vegetables, while 10.1% of the students did not take fruits or drink juices at all. Around 85% drank soft drinks, ranging from 1-4 times to more than 7 times per week.

**Discussion.** The purpose of this study was to assess the dietary habits and exercise practices of students of the Teachers' Training College Abha, Kingdom of Saudi Arabia. The results indicated that most of the students do not follow a healthy lifestyle. Around half of the students have a BMI placing them as overweight, and around one-fifth as underweight, hence, only 41% of them have normal body weight.<sup>16</sup> In close agreement with the present study, Silliman et al<sup>17</sup> reported that 40% of male college students were overweight or obese. However, the height and weight were comparable with this study. In contrast, Abolfotouh et al,<sup>18</sup> in a study from Alexandria (Egypt) reported that 25.3% of their subjects were overweight or at risk of becoming overweight, while Haberman and Luffey<sup>19</sup> reported that 8% were overweight. It is also evident from the present study that many students do not meet with the minimum recommended intake of fruits or vegetables, which is in conformity with the observations of Georgiou et al,<sup>8</sup> and Silliman et al.<sup>17</sup> Thirty-three percent of the study population consumed breakfast less than 3 times per week, which was comparable with other studies.<sup>17,20</sup> At least three-quarters of the students had a snack 1-3 times per day, which was in close agreement with an international study conducted by Silliman et al.<sup>17</sup>

Forty-two percent of students reported drinking

**Table 3** - Frequency of meals consumed during the week preceding the visit by the students of the Teachers Training College, (n=456).

Eating habits	None	2-3 times	4-6 times	>7 times	Daily
<i>A. Main meals per week:</i>					
Breakfast	13 (2.9)	152 (33.3)	111 (24.3)	32 (7.0)	148 (32.5)
Lunch	11 (2.4)	136 (29.8)	62 (13.6)	30 (6.5)	217 (47.6)
Dinner	5 (1.2)	116 (24.4)	61 (13.3)	46 (10.0)	228 (50.0)
<i>B. Snacks habits</i>					
After breakfast			153 (33.6)		
After lunch			347 (76.1)		
After dinner			214 (46.9)		

**Table 4** - Dietary habits of students of Teachers Training College, (n=456).

Characteristics	n	(%)	In relation to educational status of father	In relation to educational status of mother
<i>Adding salt</i>				
Yes	253	(55.5)	$X^2 = 12.22$ df = 10	$X^2 = 12.103$ df = 10
No	174	(38.2)		
Not stated	29	(6.4)		
<i>Using oil (unsaturated fat) in cooking</i>				
Yes	313	(68.6)	$X^2 = 11.48$ df = 10	$X^2 = 14.062$ df = 10
No	117	(25.7)		
Not stated	26	(5.7)		
<i>Using ghee (saturated fat) in cooking</i>				
Yes	417	(91.4)	$X^2 = 34.73$ df = 45	$X^2 = 55.39$ df = 45
No	24	(5.3)		
Not stated	15	(3.3)		
<i>Watching TV while eating</i>				
Yes	389	(85.3)	$X^2 = 9.012$ df = 10	$X^2 = 15.379$ df = 10
No	57	(12.5)		
Not stated	10	(2.2)		
<b>Total</b>	<b>456</b>	<b>100.0</b>		

df - degree of freedom

**Table 5** - Frequency and type of food consumed weekly by the students of Teachers Training College, (n=456).

Types of Food	0	1-4 times	5-7 times	>7	Not stated
			n (%)		
Fast food	125 (27.4)	254 (55.7)	22 (4.8)	6 (1.3)	49 (10.7)
Meat	18 (3.9)	338 (74.1)	62 (13.6)	11 (2.4)	33 (7.2)
Chicken	14 (3.1)	185 (40.6)	189 (41.5)	33 (7.2)	35 (7.7)
Fish	132 (28.9)	260 (57)	16 (3.5)	4 (0.9)	44 (9.6)
Vegetable	52 (11.4)	288 (63.2)	76 (16.7)	13 (2.9)	27 (5.9)
Fruits	46 (10.1)	297 (65.1)	69 (15.1)	17 (3.7)	27 (5.9)
Dates	49 (10.7)	225 (49.3)	109 (23.9)	45 (9.9)	28 (6.1)
Sweets	97 (21.3)	255 (55.9)	46 (10.1)	18 (3.9)	40 (8.8)
Milk	23 (5.0)	246 (53.9)	138 (30.3)	32 (7.0)	27 (5.9)
Bread	8 (1.8)	146 (32.0)	200 (43.9)	72 (15.8)	30 (6.6)
Rice	8 (1.8)	135 (29.6)	242 (53.1)	46 (10.1)	25 (5.5)
Juices	46 (10.1)	292 (64.0)	68 (14.9)	22 (4.8)	28 (6.1)
Soft drinks	42 (9.2)	192 (42.0)	122 (26.8)	79 (17.3)	21 (4.6)

soda (soft drinks) more than 4 times per week, which could increase their caloric intake significantly and could be responsible for overweight, and may lead to the development of metabolic syndrome, which is substantiated by a study conducted by Dhingra et al.<sup>21</sup>

A review of the literature revealed that only a small percentage of college students consumed the recommended number of servings of fruits and vegetables.<sup>7,8,17</sup> In the present study, 11.4% of the participants never ate vegetables, 10% fruits, or 10% juices while approximately 65% of them stated that they consumed vegetable, fruit or juices less than once per day. Some authors<sup>22,23</sup> attributed this to “irregular work hours,” “willpower,” “lack of time,” “lack of money,” or “taste preference.” These findings are a cause of concern because scientific research suggests that fruits and vegetable consumption may be protective against most of the cancers and cardiovascular diseases.<sup>24,25</sup>

Around 70% of the students were exercising less than twice per month, while 14% were not engaged in any exercise at all. Many studies conducted in the Kingdom of Saudi Arabia on the prevalence of physical activity and inactivity among the Saudi population covering various segments have reported that the prevalence of inactivity increases with increasing age and it ranges between 48.4-96.1%. These striking findings reveal the sedentary nature of the Saudi population with the fast changing life styles.<sup>14,26-28</sup> This decline in physical activity has been reported during adolescence and young adulthood.<sup>6,29,30</sup> Pinto and Marcus<sup>9</sup> reported that 46% of young adults on college campuses were inactive or active irregularly, and only 35% had a regular schedule of physical activity. Siliman et al<sup>17</sup> reported that 84% of college students in their study were doing enough exercise. The barriers to exercise were studied by some researchers and attributed to “lack of time,” “lack of motivation,” or “lack of willpower.”<sup>17,29,31</sup>

The current study suggests that there is much room for improvement in the diet and the exercise practices of this college population. Unlike the majority of previous studies, physicians measured weight and height in this study, which increases the objectivity of the measurement. However, this study had some limitations; it was conducted on male students of a single College in Aseer Region, which does not help to define gender specific diet and exercise practices. Despite these limitations, the fact remains that our results reflect the state of these disorderly habits and practices among adolescents. Health advocates should take advantage of the opportunity that exists for building a foundation of a lifelong healthy diet and exercise practices among college students, thereby reducing their future risk of chronic diseases.

The present study investigates the dietary habits, and

poor exercise practices among the students of a teachers training college. The challenges ahead include the need to develop research to define knowledge and attitude of college students towards healthy lifestyle and barriers to do so. National intervention programs to promote diet and exercise practices among college students are badly needed.

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