RELATIONSHIP BETWEEN FOOD INTAKE AND BODY MASS INDEX AND LIPID PROFILE FOR SOME DORMITORY STUDENTS AT MINUF- CITY MINUFIA UNIVERSITY
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ABSTRACT

In the present study, body mass index (BMI), serum lipid profile, e.g., total cholesterol (TC), triglycerids (TGs), high density lipoproteins cholesterol (HDL-C), and low density lipoproteins cholesterol (LDL-C) were determined in serum of some university students lived in Minuf dormitory students. Minufiya university in order to evaluate the relationship between the above mentioned components and their food intake. The students either male or female were divided into two groups A and B. The results revealed that the average age for the sample under study was (21.0 ± 1.91, 20.64 ± 1.69 years) for males group A, B and (20.80 ± 2.30, 20.92 ± 2.40 years) for females group A, B respectively. The mean height was (173.11±8.05, 173.82±8.34 cm) and (160.30±5.85, 158.85±5.23 cm) for both male and female group A, B respectively. Which was about 97.80, 96.20% and 97.74, 96.86% of standard. The results indicated also that the average weight of males and females group A, B representing 112.01, 130.93% and 118.97, 143.64% of standard. The mean of energy intakes for male recorded 4074.89 ± 304.20, 4287.11 ± 483.13 kcal and while it was 2788.29 ± 513.47, 3290.73 ± 394.31 kcal for female students group A, B respectively. Energy intakes for all groups were higher compared with (RDA, 1989). With respect to biochemical measurements of serum (TC), (TG) and (LDL-C) were highly increased in females than those males, while HDL-C were higher in males than females. The results exhibited that female students may be subjected to the risk of atherosclerotic and coronary heart diseases (CHD) because of high values of serum TC, TG and LDL-C than male students. The study recommended that the dietary modification and balance of diets must be taken into consideration. Regarding obese reduction of their energy intake with simultaneous promotion of physical activities and avoidance of sedentary life must be taken place for improving nutrition and health status of both male and female students.

INTRODUCTION

Youth are one of the important groups in society. Young youth is the first stage of adulthood as it comes after adolescence. They are characterized by years of stress, activity, vitality and fulfillment. These are years of building one’s career and establishing one’s own home (Abd-El Hady, 1997). Because of the period of education is considered critical the evaluation of diet in young youth is significant. in the development of desirable life style habits of importance for future health (Steptoe et al., 2002).

Although most students know that excessive consumption of fat, sugar and salt increases one’s risk for specific health problems, such as heart disease and high blood pressure, most students cannot choose between
common foods on the basis of their fat, sugar, salt or fiber content. The eating habits of many students appear to include frequent consumption of fried foods as well as snacks that are high in salt and sugar. Surveys revealed that the food habits of students are often not similar to their knowledge about nutrition (Anon, 1989).

Nutritional assessment is used to define nutritional status at a particular time; evaluate the adequacy of recent nutritional intake and avoid of malnutrition (Splett, 1991 and Weimann et al., 1997).

Nutritional assessment passes through many sources such as anthropometric, clinical, biochemical and dietary data (Rolfes and De Bruyne, 1990). From anthropometric measurements, height (H) reflects past nutrition, however, mid upper arm circumference (AC), weight (W), body mass index (BMI) and triceps skin fold thickness (TSF) reflect percent nutritional status. Also, nutritional status was evaluated on the basis of body mass index which is one of several relations between height and weight (Lifshutz et al., 1991; Jeszka et al., 2000 and El-Sayed, 2002).

Biochemical studies facilitate early detections of nutritional deficiency before appearance of malnutrition symptoms (Lifshutz et al., 1991). Determination of lipids and lipid fractions eg., total cholesterol (TC), triglycerides (TG), high and low density lipoproteins cholesterol (HDL-C and LDL-C) give an indication about nutritional syndromes and abnormalities indicators for nutritional status (Fields, 1998 and Kratz et al., 2002).

The aim of the present work was to study the relationship between the food intake and body mass index (BMI), some of biochemical analysis and nutrients intake for some dormitory students living at Minuf city dormitory, Faculty of Electronic Engineering - Minufiya University as indicators of nutritional status of the students.

MATERIALS AND METHODS

MATERIALS:

Subjects:

The study was conducted on 66 male and 23 female students (were chosen as over weight and obese persons) who studying in Faculty of Electronic Engineering, aged from 18-24 years and lived at Minuf Dormitory, Minufiya University.

Sources of kits:

Kits of total cholesterol (TC), triglycerides (TG) and high density lipoprotein cholesterol (HDL-C), Spin react, S.A. Ctra company, Santa Cloma, Spain, were obtained from Mecca medical company at shlabi street, Minuf- Minufiya.

METHODS:

1- Anthropometric measurements.

Body weight was measured to nearest 0.1 kg using a calibrated scale (no shoes). Height was recorded to the nearest centimeter. Body mass index (BMI) was calculated using the standard formula: weight (kg) / Height (m)^2 (Gibson, 1990).
2- Food intake:

Twenty four hours recall method was applied for a week to estimate mean food intakes. Analysis of the nutrients in the consumed food was carried out by using computerized data bank of composition (computer diet Analysis program of Ready to Eat Food – Original 1, Copyright 1995, Faculty of Home Economics, Minufya University). The adequacy of diets evaluated with regard to Dietary Reference Intake (Anon, 2002). for some macro nutrients, vitamins and minerals, while for certain other nutrients by Anon, (1989).

3- Biochemical Analysis:

After collecting the blood samples from the fasted students; the fresh blood samples were left to co-agulate, centrifuged at 3000 rpm /20 min / 37°C for obtaining serum which directly analyzed. Serum total cholesterol (TC) was determined according to (Fossatti and Prencipe, 1982). Serum high density lipoproteins cholesterol (HDL-C) was determined according to Lopez-virella et al. (1977). And serum low density lipoproteins cholesterol (LDL-C) were calculated according to Friedewald et al., (1972). by the following equation :-

\[
\text{LDL-C (mg/dl)} = \text{T.C- (T.G/5)} - \text{HDL-C}
\]

4- Statistical analysis:--

Statistical analysis was calculated to introduce means (M) and standard deviation (S.D) by using SPSS statistical program (Johnston,1995).

RESULTS AND DISCUSSION

1- Anthropometric measurements

Data in table (1) show the distribution of BMI for both sexes studied subjects .The prevalence of overweight , defined as BMI (25 to 29.9 kg/m2) ,was 36.91% among males and 16.39 % among females .Meanwhile, 7.38% of males and 21.31% of females were suffering from obesity , they have BMI from 30 to30 kg /m2 according to finding of (Anon,1998). These results indicated that the highest percent for overweight was noticed in males while females recorded the highest percent for obesity .These increases may be attributed to the bad nutritional behavior since their childhood especially whose parents have low nutritional awareness or illiterate or living in rural areas .

Sreyen et al . (2000) mentioned that The prevalence of overweight (BMI 25) was relatively high in urban (27.7%) and rural women (22.9%). Anthropometric measurements were taken in Minuf city dormitory by searcher

Table (1): Distribution of studied subjects according to body mass index (BMI) classification.

<table>
<thead>
<tr>
<th>BMI Classification*</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>%</td>
</tr>
<tr>
<td>overweight (25 -29.9kg/m2)</td>
<td>55</td>
<td>36.91</td>
</tr>
<tr>
<td>Obesity (30 -39.9kg/m2)</td>
<td>11</td>
<td>7.38</td>
</tr>
</tbody>
</table>

* National Institutes of Health, National Heart, Lung, and Blood Institutes, 1998

Table (2) shows mean and standard deviation of body weight, body height and body mass index (BMI) of males and females students. Values as
percent of standard (Anon, 1989) are also presented. The mean of weight for
group A and B for males and females were more than standard (112.01 and
130.93, 118.97 and 143.64%) respectively. These results agree with those of
Kalarzyk et al. (2005) who mentioned that overweight and obesity among
men was 13.4% VS 5.8%.

Table (2): Comparison between mean ± SD of anthropometric
measurements as percentage of standard for male and
female students.

<table>
<thead>
<tr>
<th>Items</th>
<th>Males</th>
<th></th>
<th>Females</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Group A</td>
<td>%St*</td>
<td>Group B</td>
<td>%St*</td>
</tr>
<tr>
<td>Age (year)</td>
<td>21.0±1.91</td>
<td>20.64±1.69</td>
<td>20.80±2.30</td>
<td>20.92±2.40</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>80.65±7.85</td>
<td>112.01</td>
<td>94.27±8.08</td>
<td>130.93</td>
</tr>
<tr>
<td>Height (cm)</td>
<td>173.11±6.05</td>
<td>97.80</td>
<td>173.82±6.34</td>
<td>98.20</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>27.03±1.26</td>
<td>31.15±0.96</td>
<td>27.20±1.14</td>
<td>32.70±1.77</td>
</tr>
</tbody>
</table>

Mean ± Standard A-Overweight B-Obesity
* compared with RDA (1989).

with regard to height, heights of males and females students (A and
B groups) were less than standard group (97.80, 98.20 and 97.74, 96.86%),
respectively. This could be it attributed to some hereditary factors or to bad
nutrition in the childhood stage. The highest in mean weights in male and
female students consequences of the increased in amount of energy intake
was consumed by students also physical activity in females less than in
males. These results are in harmony with those findings of Header et al.
(2006), who mentioned that overweight and obesity among females were
more than males.

2- Biochemical measurements:

Table (3) shows the means and standard deviations (SD) of lipid
fractions of studied students. Serum total cholesterol (T.C) and triglycerides
(T.G) seems to be increased in both groups A and B in males and females
more than normal values. On the other hand, high density lipoproteins
cholesterol (HDL-C), increased in males group (A and B) than normal values,
but decrease in females group (A and B) was found compared with normal
values. Respect to low density lipoproteins cholesterol (LDL-C) were highly
increased in females group (A and B) than males group (A and B) and
decreased in both males and females than normal values.

Table (3): Serum lipid profile of male and female students.

<table>
<thead>
<tr>
<th>Items</th>
<th>Normal Values</th>
<th>Group A</th>
<th>Group B</th>
<th>Normal Values</th>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-C (mg/dl)</td>
<td>&lt;200</td>
<td>207.44±1.42</td>
<td>224.77±3.82</td>
<td>&lt;200</td>
<td>226.62±1.78</td>
<td>234.96±1.89</td>
</tr>
<tr>
<td>T-G (mg/dl)</td>
<td>&lt;250</td>
<td>318.11±7.24</td>
<td>459.81±90.70</td>
<td>&lt;250</td>
<td>393.42±2.64</td>
<td>442.07±2.18</td>
</tr>
<tr>
<td>HDL-C (mg/dl)</td>
<td>&gt;55</td>
<td>67.57±1.28</td>
<td>77.46±4.23</td>
<td>&gt;55</td>
<td>38.57±1.28</td>
<td>53.73±1.93</td>
</tr>
<tr>
<td>LDL-C (mg/dl)</td>
<td>150</td>
<td>76.24±1.51</td>
<td>60.80±1.56</td>
<td>150</td>
<td>159.16±1.41</td>
<td>92.81±0.49</td>
</tr>
</tbody>
</table>

A-Overweight B-Obesity
* Fossatti and Prencipe, 1992; Lopez-virella et al. 1977 and Friedewald et al., 1972."

Screening of young hypercholesterolemics is important because they
are highly susceptible atherosclerotic disease (Nakao et al., 2001). Also,
Rabelo et al. (1999) reported that increased levels of total cholesterol (T-C),
LDL-C and T.G is a high prevalence of risk factors for atherosclerosis. Thus revealed that females students were subjected to the risk of atherosclerotic and coronary heart diseases (CHD) than males students because they characterized by high values of TC, TG and LDL-C.

3- Nutrients intake:

Table (4) shows the comparison between the daily intake of macronutrients for males and females students group A and B. The average daily calorie intake represents 140.5 and 147.8 % of RDA for males group A and B and 126.7 and 149.6 % of RDA for females group A and B. This result disagree with Header et al. (2006) Who indicated that the average daily calorie intake represents 92.2% and 100.1% of RDA for male and female students. Also, Noor EL-deen et al. (1996) found that energy intake derived from food as a cause of obesity due to the highest amount of energy intake by females causes and consequences of obesity.

The average daily protein consumption within the investigated students was high for both males group A and B (246.4 and 245.0 %) and females group A and B (205.7 and 247.6 % of RDA) among the male and female students respectively. However it is observed that, the consumption of plant protein is more than animal protein, this may be due to that plant proteins are relatively cheap and can be kept or stored for a long time, while animal proteins require special storage facilities. This result agree with Header et al. (2006) who found that protein intake for males were higher than females and increased than RDA. Also, El-khalifa et al. (2000) found that protein intake in males was higher than females and their protein consumption came mostly from cereals and legumes.

With regard to carbohydrate, fiber and fat, it could be noticed that mean intake of carbohydrate, fiber and fat of male students group A and B was higher compared with female students group A and B while, cholesterol level within female students group B was higher than male students group A and B and female students group A

\[473.80\pm77.20, 465.67\pm82.82 \text{ and } 376.96 \pm103.37, 503.69\pm132.34\]

respectively.

Table (5) presents the comparison between mean daily as micronutrients intake of vitamin A was lower than Anon, (2002). Among all students vitamin A was 68.1, 69.9, 64.6, 85.7% of DRI for male group A and B and female group A and B students respectively. This results possibly due to low intake of fresh vegetables and fruits as well as daily products. Consumption of vitamin C, B1, B2, B6 and B12 by male students were higher compared with female students. With respect to Niacin was higher than Anon, (2002) for all group students.

On the other hand, minerals daily intake, especially calcium, was lower than that recommended by Anon, (2002) for all students group and this due to the decrease amount of dairy products intake ,in this respect, Lancaster et al.(2004) mentioned that most of calcium in the diet came from dairy products (milk, yoghurt and cheese), and this is in accordance with results presented in Table(4 and 5). Consumption of phosphorus increased for males than females (311.8, 311.3% and 226.0, 251.3% of RDA).
Table (4): Comparison between mean daily intake of macro-nutrients for male and female students.

<table>
<thead>
<tr>
<th>Items</th>
<th>Group A</th>
<th>% of RDA*</th>
<th>Group B</th>
<th>% of RDA*</th>
<th>Group A</th>
<th>% of RDA*</th>
<th>Group B</th>
<th>% of RDA*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories (kcal)</td>
<td>4074.89±3042</td>
<td>140.5</td>
<td>4287.11±483.13</td>
<td>147.8</td>
<td>2788.29±513.47</td>
<td>149.6</td>
<td>3290.73±381</td>
<td>149.6</td>
</tr>
<tr>
<td>Protein A (g)</td>
<td>60.03±16.41</td>
<td>58.78±13.54</td>
<td>63±9.43</td>
<td>55.62±8.32</td>
<td>58.27±8.35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protein P (g)</td>
<td>82.90±8.32</td>
<td>83.32±9.24</td>
<td>84.67±5.47</td>
<td>126.7</td>
<td>113.89±13.55</td>
<td>247.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T-protein (g)</td>
<td>142.94±17.26</td>
<td>142.10±19.06</td>
<td>141.39±23.34</td>
<td>48.20±10.60</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Fat A (g)</td>
<td>50.99±5.92</td>
<td>63.43±10.63</td>
<td>137.19±20.66</td>
<td>205.7</td>
<td>153.81±13.95</td>
<td>27.01±9.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fat P (g)</td>
<td>60.49±12.13</td>
<td>73.76±11.27</td>
<td>64.77±61.07</td>
<td>41.0±16.75.72</td>
<td>471.60±55.29</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total fat (g)</td>
<td>111.49±14.43</td>
<td>137.19±20.66</td>
<td>86.05±20.94</td>
<td>205.7</td>
<td>153.81±13.95</td>
<td>27.01±9.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbohydrate (g)</td>
<td>629.57±50.43</td>
<td>148.8</td>
<td>427±1.71</td>
<td>234.5±0.57</td>
<td>270.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber (g)</td>
<td>39.04±6.49</td>
<td>40.38±6.91</td>
<td>21.68±4.66</td>
<td>48.20±10.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cholesterol (mg/dl)</td>
<td>473.8±77.20</td>
<td>465.67±82.82</td>
<td>376.9±103.37</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>


Table (5): Comparison between mean daily intake of micro-nutrients for male and female students.

<table>
<thead>
<tr>
<th>Items</th>
<th>Group A</th>
<th>% of DRI*</th>
<th>Group B</th>
<th>% of DRI*</th>
<th>Group A</th>
<th>% of DRI*</th>
<th>Group B</th>
<th>% of DRI*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vitamins</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitamin A (µg)</td>
<td>690.81±101.03</td>
<td>68.1</td>
<td>699.22±84.68</td>
<td>69.9</td>
<td>517.08±80.36</td>
<td>64.6</td>
<td>685.45±78.71</td>
<td>85.7</td>
</tr>
<tr>
<td>Vitamin C (mg)</td>
<td>65.55±45.12</td>
<td>109.3</td>
<td>95.26±42.59</td>
<td>158.8</td>
<td>15.8±4.62</td>
<td>26.4</td>
<td>190.83±98.25</td>
<td>90.83</td>
</tr>
<tr>
<td>Vitamin B1 (mg)</td>
<td>2.27±0.22</td>
<td>189.2</td>
<td>2.34±0.26</td>
<td>195.0</td>
<td>1.58±0.23</td>
<td>141.8</td>
<td>1.74±0.23</td>
<td>158.2</td>
</tr>
<tr>
<td>Vitamin B2 (mg)</td>
<td>4.33±0.55</td>
<td>333.1</td>
<td>4.35±1.29</td>
<td>334.6</td>
<td>3.02±0.48</td>
<td>274.5</td>
<td>2.97±0.57</td>
<td>270.0</td>
</tr>
<tr>
<td>Niacin (mg)</td>
<td>29.25±3.54</td>
<td>182.8</td>
<td>31.48±4.04</td>
<td>196.6</td>
<td>21.89±2.42</td>
<td>156.3</td>
<td>26.55±2.93</td>
<td>189.6</td>
</tr>
<tr>
<td>Vitamin B6 (mg)</td>
<td>2.94±0.606</td>
<td>226.2</td>
<td>2.62±0.50</td>
<td>201.5</td>
<td>2.04±0.33</td>
<td>156.9</td>
<td>2.24±0.35</td>
<td>172.3</td>
</tr>
<tr>
<td>Vitamin B12 (µg)</td>
<td>3.57±1.98</td>
<td>148.8</td>
<td>4.27±1.71</td>
<td>177.9</td>
<td>2.33±0.40</td>
<td>97.1</td>
<td>3.02±0.94</td>
<td>125.8</td>
</tr>
<tr>
<td>Calcium (mg)</td>
<td>174.99±39.23</td>
<td>17.5</td>
<td>147.39±93.66</td>
<td>14.7</td>
<td>674.15±58.57</td>
<td>67.4</td>
<td>940.63±29.36</td>
<td>94.1</td>
</tr>
<tr>
<td>Phosphorus (mg)</td>
<td>2182.88±516.53</td>
<td>311.8</td>
<td>2178.39±596.41</td>
<td>311.3</td>
<td>1582.33±196.40</td>
<td>226.0</td>
<td>1759.9±188.38</td>
<td>251.3</td>
</tr>
<tr>
<td>Iron A (mg)</td>
<td>27.18±3.06</td>
<td>7.35±2.44</td>
<td>20.43±2.92</td>
<td>277.8</td>
<td>18.17±2.65</td>
<td>32.2</td>
<td>13.63±2.26</td>
<td>146.1</td>
</tr>
<tr>
<td>Iron B (mg)</td>
<td>19.77±2.76</td>
<td>269.4</td>
<td>20.43±2.92</td>
<td>277.8</td>
<td>18.17±2.65</td>
<td>32.2</td>
<td>13.63±2.26</td>
<td>146.1</td>
</tr>
<tr>
<td>Total Iron (mg)</td>
<td>46.94±3.34</td>
<td>154.1</td>
<td>27.78±3.50</td>
<td>153.1</td>
<td>15.86±3.68</td>
<td>153.1</td>
<td>15.86±3.68</td>
<td>153.1</td>
</tr>
<tr>
<td>Zinc (mg)</td>
<td>23.12±2.24</td>
<td>22.96±2.72</td>
<td></td>
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</tr>
</tbody>
</table>

Mean ± Standard A-Overweight B-Obesity * DRI (2002)
Also, dietary intake of iron and zinc compared with that of RDA is higher in males than females (269.4, 277.88% and 121.1, 146.1%) and (154.1, 153.1% and 132.2, 146.7%). These results are agreed with those of Griffin et al. (2004), who mentioned that increase the zinc intake is due to consumption of foods containing relatively high amounts of zinc such as beef, shellfish, meat, poultry, and legumes. Also, Iron intake was more than the RDA which this may be due to consumption foods rich in iron. Dollman (1986) reported that the best dietary sources of iron are meats, dried legumes and fruits and enriched cereal products.

CONCLUSION
Eighty nine students of the Minufiya University, 66 male and 23 female aged 18-24 years were put forwarded to examine their dietary intake, anthropometric measurements and serum lipid profile. From results in this study, it could be concluded that female students may be subjected to the risk of atherosclerotic and coronary heart diseases (CHD) because of a high values of serum TC, TG and LDL-C than male students.

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العلاقة بين المأخوذ الغذائي و مؤثر كتلة الجسم ومستوى بعض لبيدات الدم

للمجموعة من طلاب المدينة الجامعية بمدينة منوف جامعة المنوفية

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في هذه الدراسة تم دراسة التقييم الغذائي عن طريق قياس مؤشر كتلة الجسم (BMI) و بعض ا لبدائل الكبيرة في مصل الدم مثل الكولسترول الكلي (T.C) والجليسريدات الثلاثية (LDL-C) والليبروتيونات عالية الكثافة (HDL-C) وتلك في Mصل الدم الخاص بطلبة كلية الطب الجامعية بالمدينة المنوفية وذلك بهدف تقييم العلاقة بين القياسات المذكورة سابقاً والمأخوذ الغذائي. تم اختيار الطلاب سنوات ذكورة أو إناث. وكل الطلاب ذكور أو إناث تم تجميعهم إلى مجموعتين أ، ب. أشارت النتائج المحققة على أن متوسط عمر المجموعة بلغ (21 ± 1,99 سنة) للدراسة مجموعة أ، ب (40 ± 0,92 سنة) للإثنان مجموعة أ، ب بالنسبة لقياسات الجسم. كان متوسط الطول (173 ± 11,6 سم) للإثنان مجموعة أ، ب حيث تمثل (97,7 %)، و من الطول المثالي بالنسبة للقهوة والطباشير على التوالي. أما نتائج الوزن فكانت نسبة مئوية (11,01، 0 %، 12 - 13، 5 %، 14 - 15، 0 %) من الوزن المثالي، وكانت الوزن المثالي، وكانت الوزن المثالي. وأدوات مذكورة في الوزن أ، ب (28، 4%، 28، 5%، 27، 6%، 28، 5%). للإثنان مجموعة أ، ب على التوالي، وأوصيت التحاليل الخاصة بديم ردا، كأكبر من الاحتياجات الغذائية الورشتي بما في ذلك LDLC-C، T.C، T.G، LDL-C، T.G. تمت التحقيق المثالي من الإثنان. الذكور، و كأن نسبة الدهون الدموية في الذكور (HDL-C) في الذكور نسب المثالية. وعلى ضوء هذه النتائج وجد أن إثنان الجامعية أكثر عرضة لأمراض تصلب الشرايين والقلب. وفق الذكور نظرها لارتفاع قيم الكولسترول الكلي، T.C، الجليسريدات الثلاثية (LDL-C) والليبروتيونات عالية الكثافة (HDL-C) في سيرم الدم. لذلك توصي الدراسة بضرورة التقييم الغذائي مع مراقبة النباتات في الذكور من السعرات والعناصر الغذائية للطلاب زائدًا الوزن وقليلًا المأخوذ من الطاقة. وتشجيع النشاط الحركي وتجنب الحياة السالفة للتحسين الحالة الغذائية والصحية لهذه الطلاب.