

# Assessment of the Adolescents' Nutritional Status through Anthropometric Measurements in Al- Najaf Al-Ashraf Governorate

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## الخلاصة:

**الهدف:** هدف الدراسة هو تحديد حالة التغذية للمراهقين في محافظة النجف الاشرف من خلال المقاييس الجسمانية ( تحت الجلد و متوسط محيط اعلى الذراع و متوسط محيط عضلات الذراع). **المنهجية:** أجريت دراسة وصفية في محافظة النجف الاشرف المراهقين من عمر (10-19) بالتعاون مع مديرية تربية محافظة النجف للفترة من الاول من كانون الاول 2011 ولغاية الاول من شهر حزيران 2012. شملت العينة طلبة المدارس الابتدائية والمتوسطة والاعدادية (1330) ذكور وإناث وكانت العينة عشوائية من تلك المدارس بتقسيم النجف إلى ثلاث أفضية ( وكل قضاء تقسم الى حضر وريف .  
ملئ البيانات الذاتي كطريقة لجمع العينة باستخدام استبانة مكونة من جزأين يتضمن الخصاص الديموغرافية ويحتوي (12) تضمن استبانة المقاييس الجسمانية والتي ملأت من قبل الباحث .

حدد صدقها من خلال مجموعة مكونة من 15 خبير. تم وصف وتحليل البيانات باستخدام أساليب الإحصاء الوصفي والاستدلالي. **النتائج:** أظهر نتائج الدراسة أن هنالك ارتباط كبير بمقياس نسبة الشحوم تحت الجلد و كانت نسبة التأثير في الذكور 22.5% أما فيما يتعلق في بمقياس متوسط محيط اعلى الذراع كانت نسبة التأثير في الذكور 51.1% وفيما يتعلق بمقياس متوسط محيط عضلات الذ كانت نسبة التأثير في الذكور 67% و 75.9% وقد أظهرت الدراسة ان هناك تأثير كبير بين الحالة التغذوية والمراهقين لكلا الجنسين. **التوصيات:** أوصت الدراسة إلى الاهتمام بالمراهقين من الناحية الغذائية والتأكيد على الغذاء النوعي وليس الكمي تفعيل دور الصحة المدرسية واعطاء الاهمية للريف بشكل اوسع عمل جولات صحية تفقدية للمراهقين تهتم بالجانب الغذائي ومتابعتهم بشكل دوري عمل دورات صحية تغذوية للوالدين في المدارس بمساعدة ذوي الاختصاص في مجال التغذية والصحة العامة عمل بوسترات توضيحية تبين اهمية التغذية والغذاء في مرحلة المراهقة.

## Abstract

**Objective(s):** The objective of the study is to determine the nutritional status of adolescents through anthropometric measurements (Body Mass Index, triceps skin fold thickness, mid-upper arm circumference and mid-arm muscle circumference) in Al- Najaf governorate. **Methodology:** descriptive study was conducted in the governorate of Najaf on adolescents aged (10-19), in collaboration with the Directorate of Education in the governorate of Najaf for the period from December 1<sup>st</sup> 2011 to June 1<sup>st</sup> 2012. The sample included students of primary schools, intermediate schools and secondary schools (1330 students) males and females and the sample at random selected from those schools, in Najaf, the division into three districts ( Najaf, Kufa, and Manadhera) and all divided into urban and rural areas. The information was collected through self-fill data as a way to collect the sample using a questionnaire composed of two parts, Part I, including demographic characteristics and contains (12) Items and the second part, which included anthropometric measurements that filled by the researcher. Select the stability of the questionnaire during the study and select the pilot study through a group of 15 experts. Been described and analyzed the data using methods of descriptive statistics and inferential. **Results:** The results showed that there was a significant correlation scale, the proportion of fat under the skin and the ratio of the effect in males 22.5% and females 16.4%, while with regard to the scale of the vicinity of the average upper arm was Ceuta effect in males 51.1% and females 41.2%, with respect to scale ocean Average arm muscles influencing the proportion of 67% in males and females 75.9%, the study showed that there is a significant impact between nutritional status and adolescents of both sex. **Conclusion:** The vast majority of students were at age group (14 – 15 and 16 - 17) years; also Education Levels in Secondary schools; and in Family type in Nuclear family rather than extended family, also Socio-Economic Status in Middle status. The majority of Body Mass Index in obese was male, while the majority of overweight was female. The large subject of study in Triceps Skin fold Thickness the lower than range in male, but above normal range in female. In the both genders, the Mid-Upper Arm Circumference was lower than normal range in great subject of the study. In both genders, the Mid-Arm Muscle Circumference was lower than normal range in great subject of the study. **Recommendations:** The study recommended to pay attention to adolescents in terms of food and the emphasis on food quality, not quantity, activating the role of school health and give importance to the countryside more broadly, the work of rounds of health inspection for teenagers interested in aspect and food follow a regular basis, work sessions of the healthy nutrition of the parents in the schools with the assistance of specialists in the field of nutrition and public health, the work of explanatory posters showing the importance of nutrition and food in adolescence.

**Keyword:** Assessment , Nutritional Status, Adolescents, Anthropometric Measurements

## INTRODUCTION

Good nutrition is essential for survival, physical growth, mental development, performance, productivity, health and well-being across the entire life span from the earliest stages of fetal development, at birth, and through infancy, childhood, adolescence and on into adulthood. Chronic malnutrition in earlier years is responsible for widespread stunting and to adverse health and social consequences throughout the life span. This is best prevented in childhood but actions to improve access to food could benefit adolescents as well <sup>(1)</sup>.

Anemia is one of the key nutritional problems in adolescent girls. Preventing too-early pregnancy and improving the nutritional status of girls before they enter pregnancy could reduce maternal and infant mortality, and contribute to breaking the cycle of intergenerational malnutrition. This will involve improving access to nutritious food, to micronutrient supplementation and in many places to preventing infections as well. Adolescence is a timely period to shape healthy eating and exercise habits, which can contribute to physical and psychological benefits during the adolescent period and to reducing the likelihood of nutrition-related chronic diseases in adulthood. Promoting healthy lifestyles is also crucial to halting the rapidly progressing obesity epidemic <sup>(2)</sup>.

A large proportion of the world's population (more than 1.75 billion) is young, age between 10 and 24 years. Adolescents (age 10 to 19 years) have specific health and development needs, and many face challenges that hinder their well-being, including poverty, a lack of access to health information and services, and unsafe environments. Interventions that address their needs can save lives and foster a new generation of productive adults who can help their communities' progress. This fact file explores topics of concern to adolescents and strategies to improve their health across the globe <sup>(3)</sup>.

Adolescents with special health care needs are at risk for nutrition-related health problems. This population is defined as those (children/adolescents) who have or are at increased risk for a chronic physical, developmental, behavioral, or emotional condition and who require health and related services of a type or amount beyond that required by children generally. This broad definition includes children with or at risk for physical and developmental disabilities, and chronic medical conditions <sup>(4)</sup>.

Nutritional Status :is attention to good nutrition worth the effort? Yes, evidence shows that the effort is justified. Extra nutrients and calories are used for fetal growth, as well as for the changes the mother's body undergoes to accommodate the fetus. Her uterus and breasts grow, the placenta develops, her total blood volume increases, the heart and kidneys work harder, and stores of body fat increase. Although it is difficult to predict what degree of poor nutrition will affect each pregnancy, a daily diet containing only 1000 kcal has been shown to greatly restrict fetal growth and development. Increased maternal and infant death rates seen in famine-stricken areas of Africa provide further evidence. Genetic background can explain little of the observed differences in birth weight between developed and developing countries. Both environmental factors and nutritional factors are important. The worse the nutritional conditions of the mother at the beginning of pregnancy, the more valuable a healthy prenatal diet and/or use of prenatal supplements are in improving the course and outcome of her pregnancy <sup>(5)</sup>.

Adolescent Health :Given the young population of the Arab countries, adolescents are critical as the foundation of the future. Adolescence is a period of rapid change when intellectual abilities are stimulated while cognitive and affective faculties are nurtured. During

these formative years, adolescents are influenced by parents, teachers, peer groups, health care providers, the media and the religious and cultural norms in their communities. The health behaviors of adolescents, such as eating habits, use of tobacco and other substances are crucial to the health and disease patterns that will be observed when this population reaches the adulthood. The Arabic countries have predominantly younger structure; Educational Media Reviews Online (EMRO) is emphasizing the importance of caring for this critical group through developing an education package for parents of adolescents, teachers, and adolescents themselves. This important tool is considered as a very valuable one in raising the community awareness about the main issues and concerns for adolescent health <sup>(6)</sup>.

**Anthropometric Measurements: Background :** Anthropometry is the study of the measurement of the human body in terms of the dimensions of bone, muscle, and adipose (fat) tissue. The word “anthropometry” is derived from the Greek word “anthropo” meaning “human” and the Greek word “Merton” meaning, “measure” <sup>(7)</sup>. Anthropometry literally means (human measurement). It includes measuring overall body mass (particularly growth, fat reserves, and somatic protein stores) and evaluation of related laboratory values. Growth charts that plot height, weight, and head growth are used for children up to age 18. By adulthood, growth has stabilized, and ratio measurements of body mass are used <sup>(8)</sup>.

## **METHODOLOGY**

**Aim of the study:** To determine the adolescents’ nutritional status through the use of anthropometric measurements that includes Body Mass Index, Skin Fold Thickness, Mid-Arm Muscle Circumference and Mid-Upper-Arm Circumference with the gender. Design of the Study: A Descriptive Study. The settings of the study include (36) schools, from (710) total schools in governorate ;( 12) primary schools, (12) intermediate schools, and (12) secondary schools, which are distributed in (3) Districts, urban (18) schools and rural (18) schools in Al-Najaf Governorate, (12) schools from each district, these schools are randomly selected for both sex, The Sample of the Study is multi stage sample of (1330) study subjects, it is selected throughout the use of probability sampling, and the sample of study is divided into two stages which include: The Sample of the Study: First stage: schools selection by (stratified – cluster sample), Second stage: students’ selection by (disproportional stratified sample) show table 1.

**Instruments :** The measures of nutritional status of adolescents include anthropometric measurements (TSFT, MUAC, MAMC, and BMI) tools which was conducted to identify potential items for the study instrument, and another tools to measure the socio-economic data sheet, the consisted of (12) items, which included age, date of birth, gender, marital status, level of education for parent, employment status for parent and other items used for estimating of socioeconomic status.

**Data collection :** The collection of data is performed by use of well prepared, and by means of self-report technique with the objective which were individually interviewed in the schools. The investigator met the students at the classroom, to clarify the study and optimal their agreement to participation in the study and they were interviewed in a similar way, in another place, by the same questionnaire for all those subjects who were included in the study sample. The data collection process has been performed from February 4th 2012 until the March 30th 2012.

**Data Analysis:** The data were analyzed through the use of statistical package for social sciences (SPSS) version 16 through descriptive and inferential statistical analyses.

## RESULTS:

**Table 1 Distribution of the Observed frequency, percent, and Cumulative percent of demographical characteristics variables with comparison significant.**

Demographical Characteristics	Groups	Frequency	Percent	Cumulative	C.S.
Sector	Najaf	440	33.1	33.1	$\chi^2 = 0.042$ P=0.979 NS
	Kufa	446	33.5	66.6	
	Manadher	444	33.4	100	
Age Groups	10 - 11	237	17.8	17.8	$\chi^2 = 15.88$ P=0.069 NS
	12 - 13	272	20.5	38.3	
	14 - 15	286	21.5	59.8	
	16 - 17	283	21.3	81.1	
	18 - 19	252	18.9	100	
Gender	Male	640	48.1	48.1	Binomial P=0.179 NS
	Female	690	51.9	100	
Residency	Urban	636	47.8	47.8	Binomial P=0.118 NS
	Rural	694	52.2	100	
Education Levels	Primary	417	31.4	31.4	$\chi^2 = 3.728$ P=0.155 NS
	Intermedi	439	33	64.4	
	Secondary	474	35.6	100	
Family type	Nuclear	1049	78.9	78.9	Binomial P=0.000 HS
	Extend	281	21.1	100	

**HS: Highly Significant at P<0.01; NS: Non-Significant at P>0.05. C.S: Comparative Significant. P-value:**

The table (1) shows No-Significant in the sectors, age group, gender, residency, and education levels, and while in the family type present HS. These results may be affected by the way in which are selected and stratified-cluster sample is selected.

**Table 2. Distribution of the Observed frequency, percents and Cumulative percents of Socio-Economic Status with comparison significant**

Socio-Economic Status	Frequency	Percent	Cumulative Percent	C.S.P-value
High	155	11.7	11.7	$\chi^2 = 1673.4$ P=0.000 HS
Middle	1143	85.9	97.6	
Low	32	2.4	100	

**HS: Highly Significant at P<0.01; NS: Non-Significant at P>0.05. C.S: Comparative Significant. P-value: probability Value.**

The table (2) presents the levels of the socio-economic status which indicate that the majority in middle socio-economic status, and accounted for (85.9%), and there is that Highly Significant at (P=0.000).

**Table 3. Correlation between Body Mass Index and Gender.**

BMI	Groups	Frequency	Percent	Cumulative Percent	C.S. <sup>(*)</sup>
					P-value
Male	Sever under nutrition	0	0	0	Z=-0.002
	Under nutrition	10	1.6	1.6	
	Normal weight	475	74.2	75.8	
	Over weight	83	13	88.8	
	Obese	72	11.3	100	
	Total	640	100	-	
$\bar{x} \pm S.D.$		21.544	$\bar{s} \pm 7.641$		P=0.999
Female	Sever under nutrition	2	0.3	0.3	NS
	Under nutrition	14	2	2.3	
	Normal weight	496	71.9	74.2	
	Over weight	123	17.8	92	
	Obese	55	8	100	
	Total	690	100	-	
$\bar{x} \pm S.D.$		21.500	$\bar{s} \pm 4.383$		

(\*)Mann-Whitney U-test, HS: Highly Significant at P<0.01. NS: Non-Significant at P>0.05. C.S: Comparative Significant. P-value: probability Value.

The table (3) shows that the majority of the males in the study sample are within the normal level and accounts for (74.2%). Relative to females, the study results indicate that the majority of them is with the normal level and accounts for (71.9%), This table also shows that there is no-significant relationship between the body mass index and the gender at P-value more than (0.05)

**Table 4. Correlation between Triceps Skin Fold Thickness (mm) and Gender**

Gender	TSFT - Percentile				C.S. <sup>(*)</sup> P-value
	Percentile	Frequency	Percent	Cumulative Percent	
Male	< 5	28	4.4	4.4	Z= -5.199
	5	25	3.9	8.3	
	10	64	10	18.3	
	25	113	17.7	35.9	
	50	144	22.5	58.4	
	75	99	15.5	73.9	
	90	74	11.6	85.5	
	95	30	4.7	90.2	
Total		640	100	100	
$\bar{x} \pm S.D.$		12.67	$\bar{s} \pm 8.35$		P=0.000
Female	< 5	27	3.9	3.9	HS
	5	28	4.1	8	
	10	36	5.2	13.2	
	25	100	14.5	27.7	
	50	113	16.4	44.1	
	75	117	17	61	
	90	96	13.9	74.9	
	95	65	9.4	84.3	
Total		690	100	100	
$\bar{x} \pm S.D.$		21.16	$\bar{s} \pm 10.29$		

(\*) Mann-Whitney U-test. HS: Highly Significant at  $P < 0.01$ ; NS: Non-Significant at  $P > 0.05$ . C.S: Comparative Significant-value: probability Value.

The table(4) shows that males, in the study sample the 50<sup>th</sup> Percentile are the largest accounted for (22.5%) and female in the study sample the biggest in 75<sup>th</sup> Percentile accounted for (17%), and there is Highly Significant relationship between the Triceps Skin Fold Thickness and the gender at P-value of ( $P=0.000$ ).

**Table 5. Correlation between Mid-Upper-Arm Circumference and Gender**

MUAC - Percentile					C.S. (*) P-value
Gender	Percentile	Frequency	Percent	Cumulative Percent	
Male	< 5	28	4.37	51.1	Z= -25.147 P=0.001 HS
	5	87	13.6	74.1	
	10	60	9.4	60.5	
	25	327	51.1	51.1	
	50	71	11	89.5	
	75	42	6.6	96.1	
	90	14	2.2	98.3	
	95	5	0.8	99.1	
Total	> 95	6	0.9	100	
$\bar{x} \pm S.D.$		22.70 $\bar{x}$ 4.58			
Female	< 5	35	5	41.2	
	5	112	16.2	57.4	
	10	121	17.5	74.9	
	25	284	41.2	41.2	
	50	67	9.7	89.7	
	75	46	6.7	96.4	
	90	18	2.6	99	
	95	4	0.6	99.6	
Total	> 95	3	0.5	100	
$\bar{x} \pm S.D.$		21.65 $\bar{x}$ 3.35			

(\*) Mann-Whitney U-test. HS: Highly Significant at  $P < 0.01$ ; NS: Non-Significant at  $P > 0.05$ . C.S: Comparative Significant. P-value: probability Value.

The table (5) shows that males in <25<sup>th</sup> Percentile is largely accounted for (51.1%) and female the biggest in <25<sup>th</sup> Percentile is accounted for (41.2%), and there is highly significant relationship between the mid-upper-arm circumference and the gender at P-value of ( $P=0.001$ ).

**Table 6: Correlation between Mid-Arm Muscle Circumferences and Gender**

MAMC - Percentile					C.S. (*) P-value
Gender	Percentile	Frequency	Percent	Cumulative Percent	
Male	< 5	45	7	74.1	Z=-3.635 P=0.000 HS
	5	56	8.8	94.4	
	10	74	11.6	85.6	
	25	429	67	67	
	50	28	4.4	98.8	
	75	4	0.6	99.4	
	90	2	0.3	99.7	
	95	0	0	99.7	
	> 95	2	0.3	100	
Total		640	100	-	
$\bar{x} \pm S.D.$		19.071 $\bar{T}$ 8.411			
Female	< 5	35	5.1	95.2	
	5	45	6.5	82.5	
	10	53	7.7	90.1	
	25	524	75.9	75.9	
	50	19	2.8	98	
	75	8	1.2	99.1	
	90	4	0.6	99.7	
	95	2	0.3	100	
	> 95	0	0	100	
Total		690	100	-	
$\bar{x} \pm S.D.$		15.489 $\bar{T}$ 7.753			

The table (6) shows that males in <25<sup>th</sup> Percentile is largely accounted for (67%) and female are higher in <25<sup>th</sup> Percentile in accounted for (75.9%), and there is highly significant relationship between the mid-arm muscle circumference and the gender at P-value of (P=0.000)

## DISCUSSION

The table (3) shows the study subject majority of the male in the study sample were within the normal weight and the account for (74.2%), the sever Underweight is accounted for (0%), too Underweight accounted for (1.6%), and Overweight accounted for (13%), a final point obese accounted for (11.3%).

Relative to females, the results indicate that the majority of them are also with the normal weight and they account for (71.9%) the sever underweight is accounted for (0.3%), too underweight accounted for (2%), and overweight accounted for (17.8%), a final point obese accounted for (8%). This table also shows that there is no-Significant relationship between the body mass index and the gender at P-value more than (0.05).

The BMI at P85 and P95 curves were much higher for Saudi boys than the NHANES reference curves at all age groups, with the gap being wider for P95 curves, The BMI at P50 was similar for Saudi boys compared to the NHANES reference at all the age groups <sup>(9)</sup>.

The higher BMI observed in females adolescents could be due to the onset of puberty in the females<sup>(10)</sup>.

A study conducted in Gaza showed that the nutritional Indicators among the male adolescents were highly significant in comparison with the female adolescents except for overweight where no significant difference was observed. On another hand, the results showed that the indicators among both sexes were significantly associated with different age groups<sup>(11)</sup>.

Another study which revealed that overweight and obesity during adolescence, body mass increases in both sexes, male adolescents need to increase their skeletal muscle while female fat deposition will continue throughout puberty, and female adults ultimately will have more body fat than male adults<sup>(12)</sup>.

The results of table (4) shows male in the study sample the 50th Percentile is largest accounted for (22.5%), then the <5th Percentile is accounted for(4.4%), then the 5th Percentile is accounted (3.4%), and the 10th Percentile is accounted for(10%), and the 25th Percentile is accounted for(17.7%), and the 75th Percentile is accounted for(15.5%), and the 90th Percentile is accounted for (11.6%), then the 95th Percentile is accounted for(4.7%), finally the >95th Percentile is accounted for(9.8%).

Females the biggest in 50th Percentile are accounted for (16.4%), then the <5th Percentile is accounted for(3.9%), then the 5th Percentile is accounted (4.1%), and the 10th Percentile is accounted for(5.2%), and the 25th Percentile is accounted for(14.5%), and the 75th Percentile is accounted for(17%), and the 90th Percentile is accounted for (13.9%), then the 95th Percentile is accounted for(9.4%), finally the >95th Percentile is accounted for(15.7%). and there is highly significant relationship between the triceps skin fold thickness and the gender at P-value of (P=0.000).

A previous study indicates that differences in fat and muscle areas are associated with prenatal and postnatal growth differences<sup>(13)</sup>.

Another study indicates that differences in fat and muscle areas are associated with prenatal and postnatal growth differences, For these reasons, it is recommended that assessment of nutritional status during growth and adulthood be made with reference to fat and muscle areas, Now that hand calculators are readily available, the calculations of fat and muscle area are easily performed. They can also be obtained by interpolation from published nomograms<sup>(14)</sup>.

In adolescents, skinfold thickness is more highly correlated with measures of total body fat than is BMI<sup>(15)</sup>.

Other investigators have found that BMI to be more closely related to select risk factors than skinfold thickness for adolescents between ages 10 and 19 years and percentage body fat estimated from skinfold thickness in adolescents<sup>(16)</sup>.

The results of table (5) shows in male the <5th Percentile is accounted for (4.37%), then the 5th Percentile is accounted for(13.6%), and the 10th Percentile is accounted for(9.4%), and the 25th Percentile is largest accounted for(51.1%), and the 50th Percentile is accounted for(11%),and the 75th Percentile is accounted for(6.6%), and the 90th Percentile is accounted for (2.2%), then the 95th Percentile is accounted for(0.8%), finally the >95th Percentile is accounted for(0.9%).

In the same table, the females has biggest in <5th percentile accounted for (41.2%), then the 5th Percentile is accounted for(5%), and the 10th Percentile is accounted for(16.2%), and the 25th percentile is accounted for(17.5%), and the 50th Percentile is accounted for(9.7%), and the 75th percentile is accounted for(6.7%), and the 90th percentile is accounted for (2.6%), then the 95th percentile is accounted for(0.6%), finally the >95th Percentile is accounted for(0.4%). and there is highly significant relationship between the mid-upper-arm circumference and the gender at P-value of (P=0.001).

A study was conducted in the United Arab Emirates showed that the proportion of adolescents who were measured mid-upper arm circumference had the largest proportion was between 10th Percentile and 25th Percentile, and the proportion of males is greater than females<sup>(17)</sup>.



Another previous study in Saudi showed that the increase in BMI could be related to increase in triceps skin fold thickness and decrease in muscle mass over time even for those adolescents showing average body mass index<sup>(18)</sup>.

The results of table (6) shows in male the <5th percentile is accounted for (7%), then the 5th percentile is accounted for(8.8%), and the 10th percentile is accounted for(11.6%), and the 25th percentile is largest accounted for(67%), and the 50th percentile is accounted for(4.4%), and the 75th percentile is accounted for(0.6%), and the 90th percentile is accounted for (0.3%), then the 95th percentile is accounted for(0%), finally the >95th percentile is accounted for(0.3%).

In the same table the female in <5th percentile accounted for (5.1%), then the 5th Percentile is accounted for(6.5%), and the 10th Percentile is accounted for(7.7%), and the 25th percentile is the biggest accounted for(75.9%), and the 50th Percentile is accounted for(2.8%), and the 75th percentile is accounted for(1.2%), and the 90th percentile is accounted for (0.6%), then the 95th percentile is accounted for(0.3%), finally the >95th percentile is accounted for(0%). and there is highly significant relationship between the mid-arm muscle circumference and the gender at P-value of (P=0.000).

A study, was conducted in Kuwait, showed that the proportion of adolescents who were measured mid-arm circumference had where the largest proportion was between 25th percentile and 50th percentile and also the ratio between the largest females more than males<sup>(19)</sup>.

Another study, was conducted in Saudi ,showed that increase in BMI could be related to increase in triceps skin fold thickness and decrease in mid-arm muscle mass over time even for those adolescents showing average body mass index<sup>(20)</sup>.

## **CONCLUSION:**

The vast majority of students were at age group (14 – 15 and 16 - 17) years; also Education Levels in Secondary schools; and in Family type in Nuclear family rather than extended family, also Socio-Economic Status in Middle status. The majority of Body Mass Index in obese was male, while the majority of overweight was female. The large subject of study in Triceps Skin fold Thickness the lower than range in male, but above normal range in female. In the both genders, the Mid-Upper Arm Circumference was lower than normal range in great subject of the study. In both genders, the Mid-Arm Muscle Circumference was lower than normal range in great subject of the study.

## **RECOMMENDATIONS:**

The study was recommended: Attention to adolescents in terms of food and the emphasis on food quality, not quantity. Activating the role of school health and give importance to the wider countryside. The work of examination tours of adolescent health care aspect of food and follow a regular basis. Emphasis on the three meals (breakfast, lunch and dinner) and an especially breakfast. Worked as an explanatory poster showing the importance of nutrition and food in adolescence. Worked as a healthy nutrition courses for parents in schools with the assistance of specialists in nutrition and public health. The involvement of teaching staff in the provision of advice on food and make a special quota. Interest in physical activities, especially for obese and overweight. Give advice and guidelines for the nutritional health obese wishing to decrease their weight and health programs as appropriate, and not by refraining from food to lose weight and to clarify the negative aspects of this work is faulty.

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