ISSN: 2583-3499 (Online)
Volume 3, Issue 2, Jun 2023

Original Research Article

Assessment of Nutritional Status and Body Composition of Young adults (20-30 yrs.) going to various Gyms of Ajmer City

Dharam Singh[1], Ritu Mathur[2]

Department of Food Science & Nutrition

Maharshi Dayanand Saraswati University, Ajmer

Abstract

The present study was conducted as an assessment of Nutritional Status and Body Composition of young adults (20-30 years) going to various gyms of Ajmer city. A total number of 60 subjects were chosen (30 gym going and 30 non-gym going). The subjects were healthy and willing to participate in the study.

An assessment of BMI revealed that majority of non-gym going subjects were normal (70%) and gym going was above normal (53.33%). The mean value of BMI was 25.31 kg/m2 for gym going and 22.69 kg/m2 for non-gym going.

Weight of majority (83.33%) of gym going subjects was above normal. The mean value of weight for gym going was 74.88 kg and non-gym going was 68.5 kg.

In assessment of body composition parameters, total body fat per cent showed that majority of subjects were classified as above normal (86.67% gym going and 90% non-gym going). Although total fat content in both the categories was on a higher side but gym goers showed lesser fat percentage than non gym goers.

Mean value of the visceral fat rate were found 9.18 for gym going, while it was 6.74 for non-gym going.

The mean value of skeletal muscles percent was found to be 31.73 while it was 32.72 for non gym goers, so there was no significant difference between the two. Similarly no significant difference was found in subcutaneous fat of gym going and non-gym going subjects. Mean value of BMR for gym going subjects and non-gym going subjects was found 1671.90 and 1583.30 respectively.

Keywords

Gym goers, non gym goers, exercise, body fat, muscle mass, skeletal muscles

Introduction

Good health and fitness of the body is of prime concern of all times. Physically fit and healthy people are the main resources for the progress of any nation. Optimum health is very important from the viewpoint of living life at its fullest. Being physically active is essential to be fit in every spectrum of life. (Kumar and Venkatesh, 2015).

Physical fitness is of utmost importance for disease prevention and overall nation's development (Moon, 2013).

Physical fitness is seen in terms of proper body composition like bone density, nutritional level, fat percentage, lean body mass etc. Physical exercise is associated with decreased weight and optimum body composition that is helpful in prevention of degenerative diseases (Can et al., 2014; Garber et al, 2011; Haskell et al, 2007).

Body composition can also be divided as 1. Fat free mass that mainly includes muscles, bones and water and 2. Fat mass that takes into account all types of fats in the body like subcutaneous, storage and essential fats. Information about the fat percentage of the body is an indicator of the health status of any person. Miller (2006) documented the level of fat percentage in adult males between the age group of 30-39 years to be 12 - 22%, while the same age group of females should have 16 - 26% of the fat. As per Heyward and Stolarczyk (1996), fat percentage > 25 in males and > 32 in females is associated with health risk for many degenerative diseases.

Physical activity for optimum health has been recommended by many reputed organizations (Center for Disease Control and Prevention (CDC), the American College of Sport Medicine (ACSM) and the World Health Organization (WHO). Physical activity, exercise and sports are used as interchangeable concepts (Haskell et al., 2007).

Physical activity is defined as "body movements that result in energy expenditure resulting from contraction of skeletal muscles". As per Caspersen et al. (1985), exercise is defined as "Regular and planned activities that take into account some of the physical fitness elements (aerobic fitness, muscular fitness, body composition, etc.) for a target".

Regularly planned exercise can precipitate drastic makeover of the body. Aerobic exercises are associated with improved insulin sensitivity with prevention of cardiovascular diseases and hypertension also (Garber et al, 2011; Haskell et al, 2007; Lucotti et al., 2011). On the other hand, body's strength and muscle mass can be increased remarkably by resistance exercises. These are known to improve body composition as well as sports performances (Kraemer et al., 2002).

Repeated planned exercise can bring desired health benefits when it is performed for certain duration daily or for a prescribed time period. The World Health Organization (2010) has recommended regular physical activity is mandatory for optimum health. It may be done as moderate activity for 5 days per week for 30 minutes or intense aerobic exercise for 20 min 3 days / week accompanied with strength exercises twice a week.

The body mass index (BMI) is a widely used indicator to measure body composition on the basis of heights and weights. BMI increases as weight increases but sometimes it may give false results as its not necessary that increase in weight is due to adiposity always, it may also be due to larger muscle mass or high bone density (Lee et al., 1995; CDC, 2005).

Composition of individual tissues

Tissue composition involves water, proteins, lipids, carbohydrates and some additional organic and inorganic compounds that are extracted from the tissues by hot water treatment. Nutrition status of a person remarkably influences his / her tissue composition; e.g. a poorly nourished person may show < 1% liver glycogen, while the same may show glycogen content of liver as high as 7-8 % with proper diet. Same trend can be shown for glycogen content of the muscles also. Similar changes can be seen in the body fat, protein, minerals, vitamin and water content based on the diet of a person (Irazusta et al., 2006).

Many pathological conditions also change the body composition of a person. Different pathological conditions may affect amount of keratin in the epidermal skin, collagen in cartilage, minerals in bones and teeth, phospholipids, cholesterol and glycolipids status of the brain and nerve tissue, levels of glycogen in liver, haemoglobin in RBC, amount of fat in adipose tissues, status of hormone secretion from endocrine glands and level of myosin in muscles.

Body composition can be determined by chemical analysis. It has been revealed in many studies that fat is the most variable component, while water is the major part of the human body.

Our health is directly linked to our body composition. Jose et al. (2020) has reported that normal fat composition of the body is associated with prevention of many degenerative diseases, while excess fat is a risk factor for cardiovascular disease and many types of cancers.

Body composition Digital analyzer

The OMRON HBF-510 Full Body Sensor Body Composition Monitor and Scale. The Full Body Sensor Body Composition Monitor and Scale is easy to use. The monitor calculates the estimated values for body fat percentage, skeletal muscle percentage and visceral fat level using the BI (Bioelectrical Impedance) Method. The monitor also calculates the BMI (Body Mass Index) as well as weight. Push the power switch on, select your Personal Profile Number, and step onto the measurement platform.

Body Fat

Body fat is essential as a dense energy source and protection of internal organs. Types of body fat are as following -

1. Essential fat that is found in small amounts and
2. Stored fat which is stored as adipose tissues.

While excess body fat may lead to degenerative diseases, too little fat can lead to deficiency of fat soluble vitamins, essential fatty acids and damage to internal organs. Fat distribution all over the body is also different in men and women.

Visceral Fat

Visceral fat is one form of stored fat that is seen in the abdomen and as a covering layer of the vital organs. It is different from subcutaneous fat that is found underneath the skin. Visceral fat can be evaluated through Magnetic Resonance Imaging (MRI). Excess visceral fat causes increased levels of fat in the bloodstream, which may lead to heart ailments and type 2 diabetes. The body composition analyser can track visceral fat in your body. Based on all the available information it gives you a range between 1 and 59. A

rating between 1 and 12 indicates that you have a healthy level of visceral fat. A rating between 13 and 59 indicates that you have an excessive level of visceral fat.

Subcutaneous fat

Subcutaneous fat is found just beneath the skin. Some amount of subcutaneous fat is good as it protects our skin and helps in formation of vitamin D in the presence of sunlight but excess subcutaneous fat can also lead to serious health problems. Healthy diet and exercise is the key to keep this fat under desired levels.

https://tanita.eu/understanding-your-measurements/visceral-fat

Skeletal muscle

Skeletal muscle is the part that moves at the time of workout to increase muscle mass. Skeletal muscles are attached to the bones and develop in pairs i.e. muscle to move the bone to and fro. Body's energy requirements are increased with an increase in skeletal muscle mass as it will increase the energy expenditure of the body. It also helps in prevention of "rebound" weight gain.

Skeletal Muscle Percentage		**Classification**
Male	Female	
5.0 to 32.8%	5.0 to 25.8%	- (Low)
32.9 to 35.97	25.9 to 37.9%	0 (Normal)
35.8 to 37.3%	28.0 to 29.0%	+ (High)
37.4 to 60.0%	29.1 to 60.0%	++ (Very High)

Table 1: Skeletal Muscle Classification

https://omronhealthcare.com/wp-content/uploads/hbf-510w-instruction-manual.pdf

https://www.healthifyme.com/blog/subcutaneous-fat-causes-risks-and-ways-to-reduce-it/

https://my.clevelandclinic.org/health/diseases/23968-subcutaneous-fat

Basal metabolic rate (BMR)

The basal metabolic rate (BMR) is the minimum amount of energy needed at rest to carry out certain mandatory functions of the body effectively. These involve normal functioning of the respiratory and circulatory system, nervous system, kidneys, liver and many other organs.

Higher BMR is associated with decreased body fat. It becomes very tough to lose weight on a lower BMR.

Objectives

- To assess the nutritional status of subjects going to gyms & not going to gyms by using Anthropometry
- To assess the nutritional status of subjects going to gyms & not going to gyms by using Body Composition Digital Analyzer OMRON HBF-510
- To compare the body composition and nutritional status of subjects going & not going to gyms

Research Methodology

The study has been divided into different phases:

- Assessment of nutritional status of subjects going to gyms & not going to gyms by using Anthropometry
- Assessment the nutritional status of subjects going to gyms & not going to gyms by using Body Composition Digital Analyzer OMRON HBF-510
- Comparison of the body composition and nutritional status of subjects going & not going to gyms

Selection of samples

Subjects were included in the study using purposive sampling technique. The subjects will be divided into two groups -

Group A: Gym going subjects

Group B: Non-Gym going subjects

Methodology

A self design questionnaire was formulated to get information regarding the age, height, weight, food habits, lifestyle and disease specific information for the assessment of nutritional profile of the subjects by Anthropometry & body analyzer was used.

Selection of Area and Sample

The samples were from Ajmer. The age group of males was (20 - 30 years). A total of 60 subjects were studied in which 30 are gymnasium subjects and 30 are non gymnasium subjects.

Period of the study

The data was collected in the months of Oct - Nov 2022.

Development of tools and collection of data

A questionnaire was developed to collect the Information from the subject.

Information was obtained in the following domains

1. General information
2. Socio - Economic status
3. Information about the nutritional status
    i. Anthropometric measurement
    ii. Body composition by digital analyzer

1. General information of subject

The males included in the study were interviewed about the general information such as family type, age, religion, food habit, etc.

a. Age: 20-30 years

The age of each sample was ascertained by their date of birth.

b. Type of family

The type of family refers to the family, being nuclear or joint. A nuclear family in this context consisted of a mother, father, brother or sister while a joint family meant a family consisting of several nuclear families living under the same roof and cooking food together and related by blood relationship. The numbers of families were recorded.

c. Religion

All the samples were accessed for the religion to which they belong.

d. Type of food habits

Food habits of all the samples accessed as vegetarian / ova - vegetarian / non - vegetarian

2. Socio - Economic status of Subject

Per capita income, educational and occupational status of the head of the family was collected.

a. Income

The total income of the family was estimated by accessing the income of the earning members of the family and the income from other sources like house - rent, interest, dairy, agriculture, etc. The monthly per capita income of the family was then calculated by dividing the total income, by the number of the family members.

b. Education and Occupation

Education and occupational status of the head of the family was recorded.

c. Information about the nutritional status of subject

3. Information about the nutritional status

i. Anthropometric measurement

The growth and stature of an individual depends grossly on the individual dietary intake. There are various methods for accessing the nutritional status. No single method for accessing the nutritional status is perfect and complete. If used in carefully planned and locally relevant combination they can provide the full information. Anthropometry is concerned with the measurement of the variation of the physical dimensions.

ii. Body composition by digital analyzer

Weight

Measurement of body weight is a common anthropometric measurement.

Technique

Weight of the subjects was determined using Body Composition Digital analyzer

Height

Height is another important anthropometric measurement usually related to weight.

Weight and height are related by various ratios and correlations of these indicate the amount of subcutaneous fat present in the body. Height is a linear measurement made up of the sun of four components - log, pelvis, spine and skull. Height is less fluctuating parameter.

Technique

The height was measured by using a narrow flexible, non-stretchable tape. Care was taken to see that the floor area was even and not rough. The subject was asked to remove her shoes and stand with the center of her back touching the scale with her feet parallel and heels touching the ground. Buttocks, shoulders and back of the head touched the wall. The head was held comfortably erect. The arms should be hanging at the sides in the natural manner. A wooden scale was gently lowered, crushing the hair and making contact with the top of the head.

Body Mass Index (BMI)

BMI has the best correlation between height and weight (Bray 1978, Black et at, 1983) according to Srilakshmi (1996).

BMI less than 20kg / m^2 indicate that the person is normal And BMI more than 25 kg / m^2 indicated over weight.

BMI of subject was calculated by using the formula -

BMI = Weight (kg) / Height (m^2)

BMI	Considered
Below 18.5	Underweight
18.5 to 24.9	Healthy weight
25.0 to 29.9	Overweight
30 or higher	Obesity
40 or higher	Class 3 Obesity

Table 2: Classification of BMI

https://www.cdc.gov/obesity/basics/adult-defining.html#

Body Composition

Body composition is used to describe the fat percentage, fat mass, fat free mass, total body fat percentage, total body fat kg, muscle mass, visceral fat rating in human bodies.

Technique

Body composition of the subject was using body composition digital analyzer OMRON HBF-510.

Analysis of the data

The data was calculated in percentages, whenever needed, the mean and the standard deviation values of different parameters were also calculated.

Results and Discussion

The present study was conducted to assess the nutritional status of young adults in the age group of 20-30 years from Ajmer.

ISSN: 2583-3499 (Online)
Volume 3, Issue 2, Jun 2023

The sample size was 60 i.e. 30 were gymnasium persons & 30 non gymnasium persons were chosen for study. There were no specific criteria for selecting a particular subject.

The results of the variables studied on subject are discussed under are following section:

- **General information**
- **Nutritional status**
  a. Anthropometry variables
  b. Body composition

- **General Information**

  Age: The selected subject were form the age group of 20-30 years

  .

  Family Type: The subjects mostly belonged to nuclear families

  Religion: The subjects were mostly 93.34 % Hindu

  Food Habit: On the basis of eating habits subject were divided into vegetarian (66.66%) Non vegetarian (26.66 %), ova vegetarian (6.68 %)

S. No.	Detail	Number of subjects	Percentage of subjects
1	Age (20-30 years)	30	100%
2	Religion Hindu Muslim Sikh	 27 2 1	 90% 6.66% 3.33%
3	Education PGD PG Graduate	4 7 19	13.33% 23.33% 63.33%
4	Eating habit Veg. Non-Veg.	17 13	53.33% 43.33%
5	Type of family Joint Nuclear	 17 13	 56.67% 43.33%

6	Family history Diabetes Heart disease Thyroid None	1 1 - 28	3.33% 3.33% - 93.33%

Table no. 3: Classification of subjects on the basis of general information going to gyms

S. No.	**Detail**	**Number of subjects**	**Percentage of subjects**
1	Age (20-30 years)	30	100%
2	Religion Hindu Muslim Sikh	26 - 4	86.67%% - 13.33%
3	Education PGD PG Graduate	7 1 22	23.33% 3.33% 73.33%
4	Eating habit Veg. Non-Veg.	13 17	43.33% 56.67%
5	Type of family Joint Nuclear	14 16	46.67% 53.33%
6	Family history Diabetes Heart disease Thyroid None	1 2 1 26	3.33% 6.67% 3.33% 86.66%

Table no. 4: Classification of subjects on the basis of general information of not going to gyms

- **Nutritional status**

a. Anthropometric Measurements of the subject

Anthropometry is the process of measuring various dimensions of the body. Physical dimensions of the body are more influenced by nutrition than the genetic background or

other biological factors. In the present study assessment of nutritional status of gym going and non gym going (20-30) years done using anthropometry.

	Range	Mean	S.D.
Weight (kg)	53.3-97.2	74.88	±11.24
Height (cm)	156-183	171.76	±6.59

Table: 5 Anthropometric measurements of the subjects going to gyms

The weight of the subjects in (20-30) age group of gym going boys range between 53.3-97.2 kg with mean values of 74.88 with ± 11.24 SD. Height of the subjects in age group 20-30 years range between 156-183 cm with mean values of 171.76 with ±6.59 SD.

	Range	Mean	Standard Deviation
Weight (kg)	51-99	68.5	±13.98
Height (cm)	156-183	173	±6.31

Table: 6: Anthropometric measurement of the subjects not going to gyms

The weight of the subjects in (20-30) age group of non- gym going boys range between 51-99 kg with mean values of 68.5 with±13.98 SD. Height of the subjects in age group 20-30 years range between 156-183 cm with mean values of 173 with ±6.31 SD.

Mean value of BMI for non gymnasium subjects fell in between normal BMI range i.e. 22.69 than for gymnasium subjects i.e. 25.31, so it indicates that non gym going subjects had healthy weight in comparison to gym going.

b. Body Composition Parameters of the subjects

The analysis of various body composition parameters showed that the percent of gymnasium and non gymnasium subjects body fat, visceral fat, skeletal muscles, subcutaneous fat and BMR gymnasium and non gymnasium subjects.

S. No.	Parameter	Range	Mean	Standard Deviation
1	BMI	17.5-36.2	25.31	±3.58
2	Body fat	9.8-37.2	26.01	±5.75
3	Visceral fat	1.5-22	9.18	±3.89
4	Skeletal Muscle	25.9-39.4	31.73	±2.74
5	Subcutaneous fat	6.8-27.1	18.28	±4.31
6	BMR	1347-2004	1671.90	±167.62

Table 7: Body composition parameters of the subjects going to gyms

Body mass index of the subjects range between 17.5-36.2 kg / m^2 and mean values 25.31 with ±3.58 SD. Body fat for boys between age of 20-30 years boys was found to 9.8-37.2% with mean values of 26.01 & ± 5.75. Visceral fat of boys going to gym was found to between 25.9-39.4 % with the mean value of 9.18 & ±3.89. Skeletal muscles of boys going to gym were found range between 6.8-27.1 with the mean values of 31.73 & ±2.74. Subcutaneous fat values range between 6.8-27.1 with mean values of 18.28 & ± 4.31. The BMR was range between 1347-2004 with the mean values 1671.90 & SD value ±167.62.

ISSN: 2583-3499 (Online)
Volume 3, Issue 2, Jun 2023

S. No.	Parameter	Range	Mean	Standard Deviation
1	BMI	17.6-35.7	22.69	±4.09
2	Body fat	12-34.5	25.26	±5.72
3	Visceral fat	1.5-15	6.74	±3.39
4	Skeletal Muscle	28.9-38.5	32.72	±2.06
5	Subcutaneous fat	1.8-33.7	17.87	±4.98
6	BMR	1250-2009	1583.30	±219.59

Table 8: Body composition parameters of the subjects not going to gyms

Body mass index of the subjects range between 17.6-35.7 kg / m^2 and mean values 22.69 with ±4.09 SD.Body fat for boys between age of 20-30 years boys was found to 9.8-37.2% with mean values of 26.01 & ± 5.75. Visceral fat of boys going to gym was found to between 25.9-39.4 % with the mean value of 9.18 & ±3.89. Skeletal muscles of boys going to gym were found range between 6.8-27.1 with the mean values of 31.73 & ±2.74. Subcutaneous fat values range between 6.8-27.1 with mean values of 18.28 & ± 4.31. The BMR was range between 1347-2004 with the mean values 1671.90 & SD value ±167.62.

ISSN: 2583-3499 (Online)
Volume 3, Issue 2, Jun 2023

Weight	Gym goers		Non-Gym goers	
	No. of subjects	%	No. of subjects	%
Below Normal	5	16.67%	16	53.33%
Normal (65)	0	0	0	0
Above Normal	25	83.33%	14	46.67%

Table no.9: Classification of samples as per weight (kg)

The compared results revealed that gymnasium males had a 16.67% weight less than 65 kg and 83.33% of the subjects weighed more than 65 kg.

The compared results revealed that non-gymnasium males had a 53.33% weight less than 65 kg and 46.67% of the subjects weighed more than 65 kg.

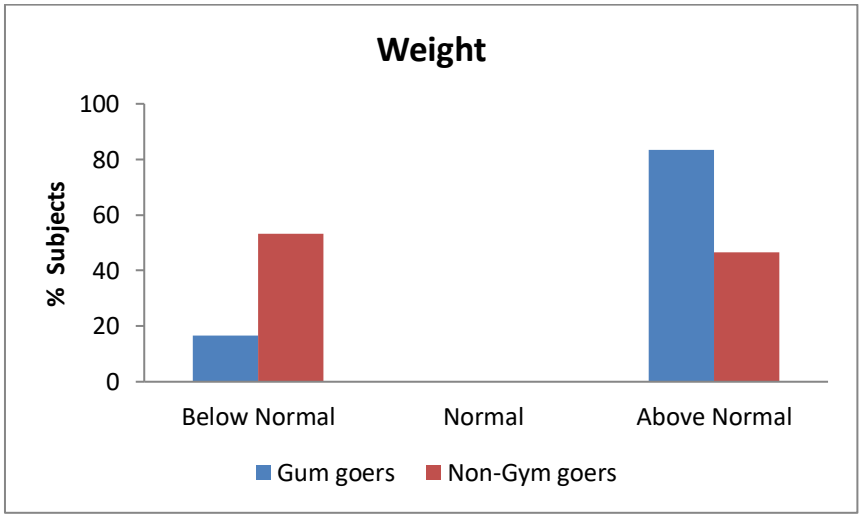

Figure 1: Percentage of Classification of samples as per weight (kg)

ISSN: 2583-3499 (Online)
Volume 3, Issue 2, Jun 2023

BMI	Gym goers		Non-Gym goers	
	No. of subjects	**%**	**No.of subjects**	**%**
Below normal (>18.5)	1	3.33%	2	6.67%
Normal (18.5-24.9)	13	43.33%	21	70%
Above normal (<24.9)	9	53.33%	7	23.33%
TOTAL	**30**	**100%**	**30**	**100%**

Table no. 10: Classification of samples as per Body Mass Index (BMI)

When the gym going subjects were classified into various categories of BMI, it was seen that 13 subjects (43.33%) fell in the “Normal” category. 1 subjects (3.33%)fell in the “Underweight” category and 16 subjects (53.33%) fell in the “Overweight” category

When the non- gym going subjects were classified into various categories of BMI, it was seen that 21 subjects (70%) fell in the “Normal” category. 2 subjects (6.67%) fell in the “Underweight” category and 7 subjects (23.33%) fell in the “Overweight” category .

ISSN: 2583-3499 (Online)
Volume 3, Issue 2, Jun 2023

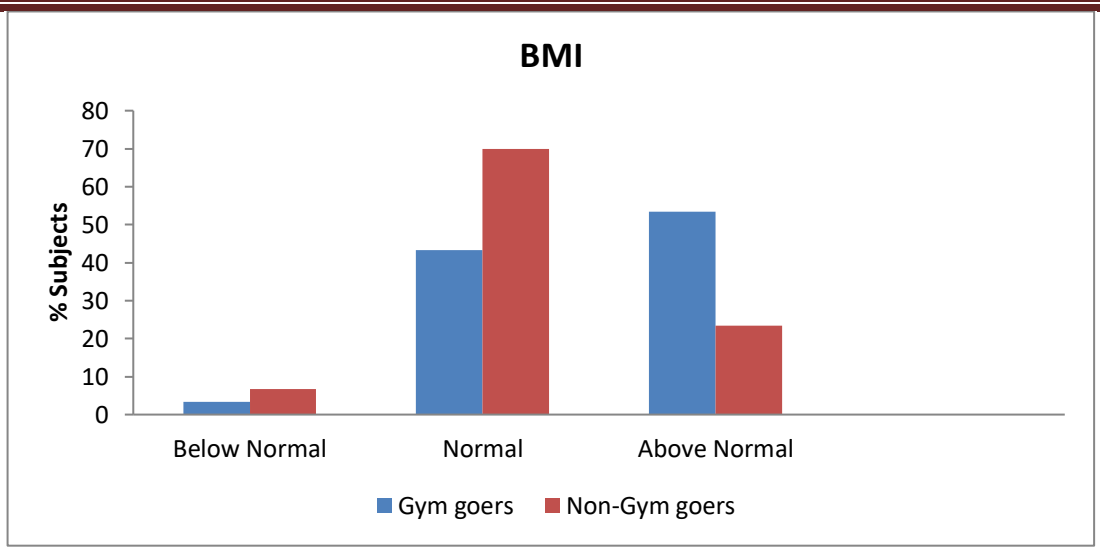

Figure no. 2: % Classification of samples as per Body Mass Index (BMI)

Visceral fat	Gym goers		Non-gym goers	
	No.	%	No.	%
Below normal (>2)	1	3.33%	1	3.33%
Normal (2-9)	13	43.33%	21	70%
High (9-14)	13	43.33%	5	16%
Very High (<14)	3	10%	3	10%

Table 11: Classification of samples as per visceral fat %

When the gym going subjects were classified into various categories of Visceral fat, it was seen that 1 subjects (33.33%) fell in the “Below Normal” category; 13 subjects (43.33%)fell in the “Normal” category and 13 subjects (43.33%) fell in the “high” category and 3 subjects were fell in the “very high”.

ISSN: 2583-3499 (Online)
Volume 3, Issue 2, Jun 2023

When the non- gym going subjects were classified into various categories of Visceral fat, it was seen that 1 subjects (33.33%) fell in the “Below Normal” category; 21 subjects (70%)fell in the “Normal” category and 5 subjects (16%) fell in the “high” category and 3 subjects (10%) were fell in the “very high”.

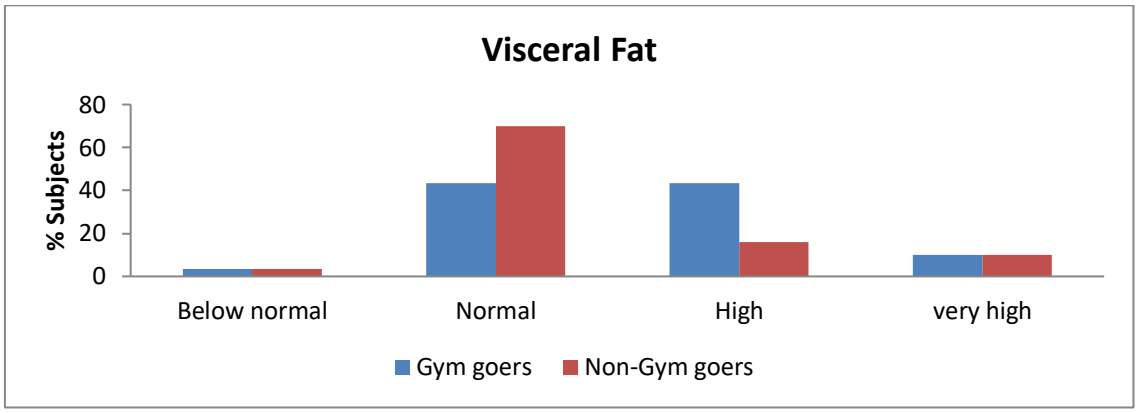

Figure no.3: % of Classification of samples as per visceral fat %

Subcutaneous fat	Gym goers		Non-Gym goers	
	No.	%	No.	%
Below normal (>6)	0	0	0	0
Normal (6-15)	5	16.67%	5	16.67%
Above Normal (<15)	25	83.33%	25	83.33%

Table no.12 Classification of samples as per subcutaneous fat %

When the gym going subjects were classified into various categories of Subcutaneous fat, it was seen that 5 subjects (16.67%) fell in the “Normal” category. 25 subjects (83.33%) fell in the “above normal” category.

ISSN: 2583-3499 (Online)
Volume 3, Issue 2, Jun 2023

When the non-gym going subjects were classified into various categories of Subcutaneous fat, it was seen that 5 subjects (16.67%) fell in the “Normal” category. 25 subjects (83.33%) fell in the “above normal” category.

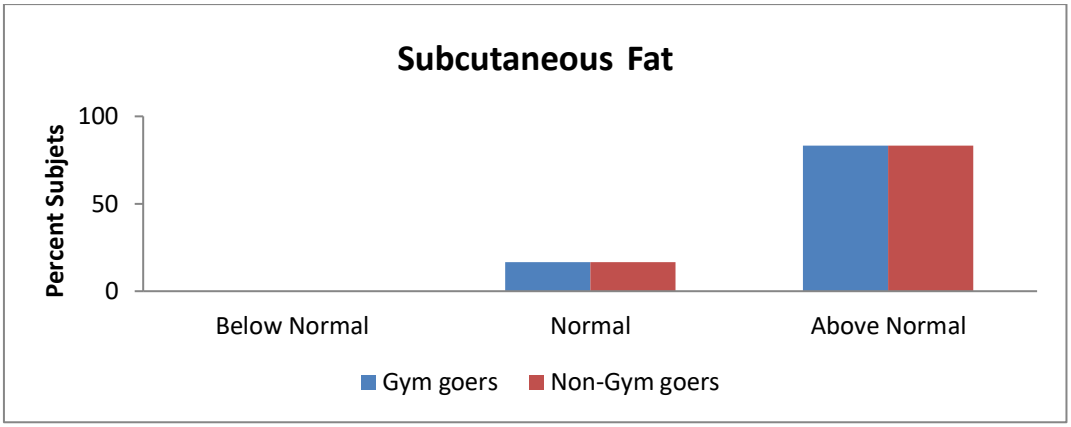

Figure no. 4 Percentage of Classification of samples as per subcutaneous fat %

Total body fat	Gym goers		Non-Gym goers	
	No.	%	No.	%
Below normal (>8)	0	0	0	0
Normal (8-19.9)	4	13.33%	3	10%
Above normal (<19.9)	26	86.67%	27	90%

Table 13: Classification of samples as per Total body fat %

When the gym going subjects were classified into various categories of Subcutaneous fat, it was seen that 4 subjects (13.33%) fell in the “Normal” category. 26 subjects (86.67%) fell in the “above normal” category.

When the non-gym going subjects were classified into various categories of Subcutaneous fat, it was seen that 3 subjects (10%) fell in the “Normal” category. 27 subjects (90%) fell in the “above normal” category.

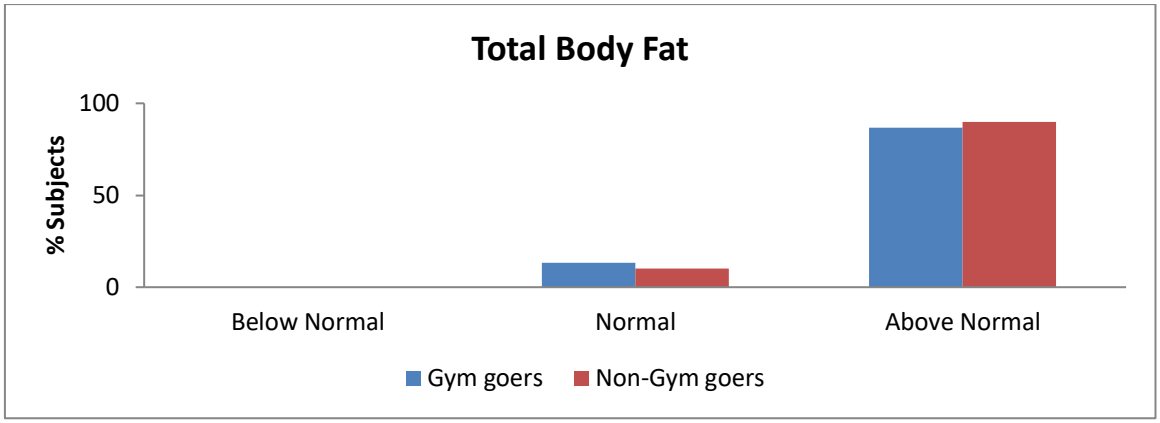

Figure no. 5: Percentage of Classification of samples as per Total body fat %

Skeletal muscle	Gym goers		Non-Gym goers	
	No.	%	No.	%
Below normal (>33)	22	73.33%	13	43.33%
Normal (33-39.3)	7	23.33%	17	56.67%
Above normal (<39.3)	1	3.33%	0	00%

Table 14: Classification of samples as per skeletal muscles

When the gym going subjects were classified into various categories of BMI, it was seen that 7 subjects (23.33%) fell in the “Normal” category. 22 subjects (73.33%) fell in the “below normal” category and 1 subjects (3.33%) fell in the “above normal” category

When the non- gym going subjects were classified into various categories of BMI, it was seen that 17 subjects (56.67%) fell in the “Normal” category. 13 subjects (43.33%) fell in the “below normal” category and 0 subjects (00%) fell in the “above normal” category.

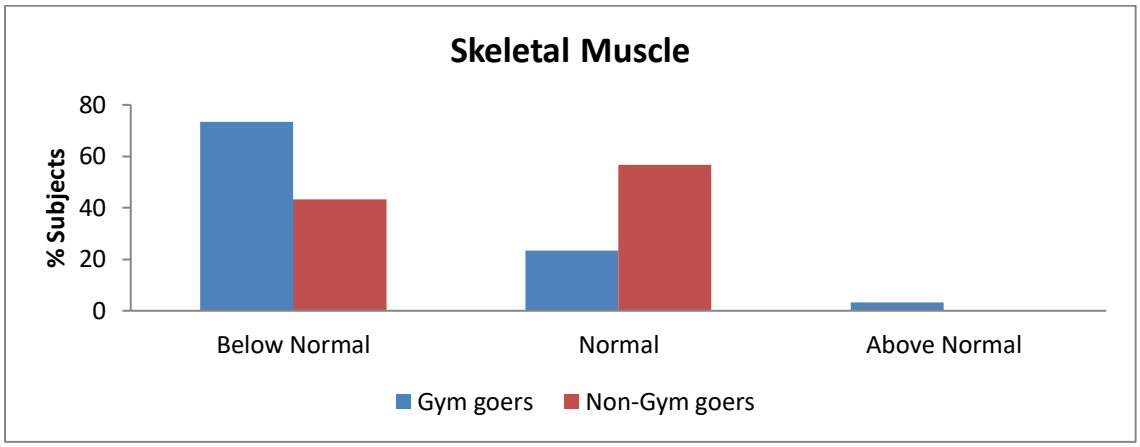

Figure 6: % Classification of samples as per skeletal muscles

Conclusion

Present study attempted at finding out the nutritional status of 20–30 year males going to various gym or non gym by using body composition digital analyzer OMRON HBF-510. A group of 60 subjects were taken in total for the study. Questionnaire method was used to collect the detailed information about the subjects. As far as the religion profile of the samples was concerned, in gymnasium samples, most of them were Hindu (90 %), Muslim (6.66%) and Sikh (3.33%) and in case of non gymnasium 86.67% were Hindu and Sikh were 13.33%.

Regarding the food habit of gym going subjects majority were vegetarian (53.33%), 43.33 % were non-vegetarian and in non-gym going subjects were vegetarian (43.33%) and non-vegetarian (56.67%).

In gymnasium subjects, most of them belonged to joint family 56.67% and rest of them belong to nuclear family (43.33%). In non-gymnasium most of subjects belonged to nuclear family (53.33%) and rest of them join family (46.67%).

Anthropometry data shows that body mass index of gym going subjects were below normal in 3.33 % subjects, normal 43.33 % and above normal 53.33 % and non-gym going subjects were below normal 6.67 %, normal 70 %, above normal 23.33 %.

Above percentage data of BMI shows that non-gym going males better results than gym going males.

When the body composition of the subject was assessed, the fat percentages of gym going subjects were 13.33% boys had normal, 86.67 % boys had above normal fat percent. The fat percentage of non-gym going subjects were 10% boys had normal, 90% boys had above normal fat percent.

Similarly when the subcutaneous fat was assessed, both gym and non-gym going were show 16.67% normal, 83.33% above the normal.

Range of visceral fat was assessed for gym going subjects were 3.33% had less than normal, 43.33% are normal, 43.33% high and 10% are very high. And for non-gym going subjects were 3.33% below normal, 70% normal, 16% high, and 10% very high.

When the skeletal muscles of the subject were assessed, the percentage of gym going subjects was 73.33% had below, 23.33% had normal, and 3.33% had above normal fat percent. The percentage of non-gym going subjects were 43.33% had below normal, 56.67 % had normal percentage.

Hence, from the above data studies results concluded that gym going males showed better results as compare to non gym going subjects in terms of total fat and BMI. Gym going subjects showed moderately lesser fat content and higher BMI than non gym goers. It may be attributed to the fact that gym goers had higher lean body mass because of exercise that led to lower fat mass and higher BMI as their muscle mass and bone density was higher than non gym goers.

References

Kumar, M. Manoj & Venkatesh, C. (2015). Construction of norms for health related physical fitness for 6 – 8 years college men students. European Academic Research 3(5), http://eprints.uni-mysore.ac.in/id/eprint/4025

Moon, J.R. (2013). Body composition in athletes and sports nutrition: an examination of the bio impedance analysis technique. Eur J Clin Nutr, 67 Suppl 1: S54-9.

Haskell, W.L., Lee, I.M., Pate, R.R., Powell, K.E., Blair, S.N., Franklin, B.A. & Bauman A. (2007). Physical activity and public health: updated recommendation for adults from the American College of Sports Medicine and the American Heart Association. Med Sci Sports Exerc, 39(8), 1423-1434.

Garber, C.E., Blissmer, B., Deschenes, M.R., Franklin, B.A., Lamonte, M.J., Lee, I.M. & Swain, D.P. (2011). American College of Sports Medicine position stand. Quantity and quality of exercise for developing and maintaining cardio respiratory, musculoskeletal, and neuromotor fitness in apparently healthy adults: guidance for prescribing exercise. Med Sci Sports Exerc, 43(7), 1334-1359.

Can, S., Arslan, E. & Ersöz, G. (2014). Current Perspectives on Physical Activity Ankara Univ Spor Bil Fak, 12(1):1-10

Miller, D.K. (2006). Measurement by the physical educator why and how. Chapter 14: Anthropometry and body composition, p.195. 5. Education. Mc Graw Hill publications

Heyward, V.H. & Stolarczyk, LM. (1996). Applied body composition assessment. Human kinetics, p. 43-55

Caspersen, C.J., Powell, K.E. & Christenson, G.M. (1985). Physical activity, exercise, and physical fitness: definitions and distinctions for health-related research. Public Health Rep, 100(2), 126-131

Lucotti, P., Monti, L.D., Setola, E., Galluccio, E., Gatti, R., Bosi, E. & Piatti, P. (2011). Aerobic and resistance training effects compared to aerobic training alone in obese type 2 diabetic patients on diet treatment. Diabetes Res Clin Pract, 94(3), 395-403.

Kraemer, W.J., Ratamess, N.A. & French, D.N. (2002). Resistance training for health and performance. Curr Sports Med Rep, 1(3), 165-171

World Health Organization (WHO). Global recommendations on physical activity for health. Geneva; Switzerland: World Health Organization, 2010

Lee, I. M., Hsieh C. C. & Paffenbarger, R. S. (1995). Jr. Exercise intensity and longevity in men. The Harvard Alumni Health Study. J. Am. Med. Assoc. 273:1179–1184

Irazusta, A., Gil, S., Fatima, R., Gondra, J. & Gil, J. (2006). School of Nursing, Instituto Médico Basurto, University of the Basque Country, Bilbao, Bizkaia, Spain Biol Res Nurs. 7 (3):175-86

José Carlos Fernández-García, IsmaelGálvez-Fernández, Pere Mercadé-Melé & JuanGavala-González (2020). Longitudinal Study of Body Composition and Energy Expenditure in Overweight or Obese Young Adults Scientific Reports, 10:5305

CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC) (2005). Adult participation in recommended levels of physical activity: United States, 2001 and 2003. MMWR 54:1208–1212

https://tanita.eu/understanding-your-measurements/visceral-fat

https://omronhealthcare.com/wp-content/uploads/hbf-510w-instruction-manual.pdf

https://www.healthifyme.com/blog/subcutaneous-fat-causes-risks-and-ways-to-reduce-it/

https://my.clevelandclinic.org/health/diseases/23968-subcutaneous-fat

https://www.cdc.gov/obesity/basics/adult-defining.html#