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Relationship of some Physiological and Biochemical Variables with Physical Composition as Health Indicators to Raise Awareness of the Seriousness of Obesity for Women

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ABSTRACT

The purpose of the study was to determine the relationship of some physiological and biochemical variables with physical composition as health indicators to raise awareness of the seriousness of obesity for women. A total of 120 women (aged 20-50 years) were participated in this study. The present study showed a positive correlation was proved between between physiological variables and physical composition. Also, a significant relationship was detected between fitness score and physiological makers. Body compositions are among the main major indicators for the primary detection of the participants' state of health. The present study contribute to helping women reach an normal physical state by discovering the relationship between physical structure and certain physiological and morphological variables in the context of avoiding obesity.

Keywords: Body composition, physical activity level, conditioning, physiological markers

INTRODUCTION

The World Health Organization (WHO) inits2016 update cited facts about overweight and obesity: in 2014, more than 1.9 billion overweight adults aged 18 and over were obese. About 13% of the world's adults in general (11% of men and 15% of women) are obese. The form of overweight and obesity, once considered a problem of high-income countries, is now on the rise in low- and middle-income countries, particularly in urban settings. In Africa, the number of overweight or obese children almost doubled from 5.4 million in 1990 to 10.6 million in 2014. In 2014, nearly half of overweight or obese children under 5 years of age lived in Asia("Obesity and overweight", 2019)

Obesity has become a serious health concern in the Libyan context because obesity poses a significant risk to serious diet-related fatal diseases that lead to disability and premature death, which may be attributed to a significant increase in obesity rates in the Libyan adult population aged 20-74. (Altajori et al., 2019; Lemamsha et al., 2018).Moreover, obesity causes many psychological, social and economic effects, leading to increased morbidity, mortality and economic losses, and the highest annual mortality rate in the Middle East and North Africa region. (Altajori et al., 2019)، Obesity more than doubled, from a prevalence of almost 12.6% in 1984 to 30.5% in 2009. The direct costs directly associated with the costs spent on the treatment of obesity-related illnesses in Libya in 2012 were estimated at 1.3 billion Libyan dinars per year (approximately

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£638 million), which accounted for 50-65% of Libya's total health care budget.

Similarly, determining a mass free of fat and muscle mass, fat mass, and bone intake and quality is an ongoing topic of interest and study in the multidisciplinary areas of sports and health sciences. It is necessary to infer the type of body and its general condition in order to obtain the appropriate strength of the type of work practiced by the individual, as many studies of the body, morphological and hormonal neurosis have confirmed the metabolism of the muscle and its direct effect in acute and chronic adjustment during the performance of the muscular function of different organs of the body.

BMI is widely used to evaluate the body and BMI is used ≥30kg/m^2 to determine the level of obesity (Quetelet, 2008) Despite its limited accuracy in estimating body fat and therefore, it is preferable to use modern techniques in measuring body composition (Oreopoulos, 2011). Preliminary results of body composition research confirmed the low percentages of fat levels in the body composition of athletes and reported overall body fat tend to be greater among female athletes compared to athletes (Lukaski, 1997). Wilmore (1983) has advised "The range of body ghee by sex for sport can be a single component of an athlete's physiological profile, and can be used by athletes with elite comparison supplications to customize training and dietary recommendations". Women have about twice as much body fat as men because ovarian hormone physiology favors fat deposition: higher levels of testosterone in men prefer to increase muscle and bone mass.(Bangsbo, 2003). It is recognized that the high percentage of body fat (fat tissue mass relative to total body weight) affects motor performance and sports and causes serious chronic diseases and may be associated with death (Ortega et al., 2016).

Obesity, Overweight and its Physiological Effects

A situation known since ancient times; obesity has grown from being the exception to a global public health challenge. A recent study revealed that between 1980 and 2013, rates of overweight and obesity worldwide increased by 28% in adults and 47% in children. As of 2013, 2.1 billion people were overweight and obese, compared to 857 million in 1980. The United States is home to about 13% of the world's 671 million obese people (Marie et al., 2014). Associated diseases associated with overweight lead to a health burden that has a significant economic impact (Wang et al., 2011). Obesity is associated with conditions such as type 2 diabetes (T2DM), chronic kidney disease.(Eckardt et al., 2013; Y. U. Kang et al., 2014)، depression.(Fabricatore et al., 2011), stroke (Kernan et al., 2013), Coronary artery disease(CAD) (Yusuf et al., 2005). These accompanying diseases, in addition to the type and invasion of the surgery, are associated with the occurrence and severity of postoperative complications(Buchwald et al., 2004; Guh et al., 2009).

Excess weight is also associated with conditions that in and of itself increase the likelihood of need for surgery and anesthesia: malignant tumors - especially cervix, endometriosis, colorectal and gallbladder cancer (Guh et al., 2009)؛ In the spine.(Aspden, 2011). Back pain(Mangwani et al., 2010)؛ Incontinence (Swenson et al., 2017) And gallstones.(Erlinger, 2000). These conditions are the result of both physiological changes as well as inflammatory changes associated with obesity.

In type 2 diabetes, the pancreas secretes insulin, but the body's cells are unable to respond to it. The causes are complex, including lifestyle factors. This type of diabetes is often associated with obesity and is a growing problem in rich societies. The disease can be controlled by a healthy diet, regular exercise and daily blood sugar monitoring.(Parker, 2019).

As for the concept of physiological fitness as the fitness and efficiency of the work of all its organs, therefore this term includes in addition to the six components recently agreed (flexibility, body composition, muscle strength, endurance, anaerobic abilities, aerobic abilities) some biological indicators associated with The health status of the individual, which is affected by the level of physical activity such as blood pressure, blood lipo-fats (and lipoproteins) as well as glucose tolerance.

Obesity is a condition of increased fatty tissue mass (Gray, 1989). Any increase in body weight exceeds as a result of excessive fat accumulation. Or triglyglate, since the storage of other energy (such as glycogen carbohydrates or protein in the liver and muscles) is unlikely to exceed the required limits. Although structural steroids can increase lean body mass and therefore body mass, this has only been described in those already malnourished (Ferreira et al., 1998).

Much has been learned in the past decade regarding the regulation of obesity in relation to the molecular

regulation of appetite that affects energy balance, especially as the positive energy balance disturbs the metabolism of fat and glucose. Fatty tissue is a tissue entity that, through enlargement and enlargement, can vary greatly between individuals, more than any other tissue. However, it is misleading to think of it as a single entity, where there are subtypes of fatty tissue (such as visceral and subcutaneous) that seem to have different effects on health (Björntorp, 1991). Fatty tissue is not just tissues for storing tri-glycerin, it also acts as endocrine organs, releasing many chemical messengers (fat) that communicate and affect other tissues. (Kershaw & Flier, 2004).

Obesity plays a key role in cellular metabolic imbalance that explains insulin resistance in type 2 diabetes. Excess lipo-cells secrete many cytokines that contribute to vascular dysfunction in high blood pressure and blood lipid dysfunction, as evidenced by hypercholesterolemia. These conditions ultimately contribute to atherosclerosis, and when associated with obesity and/or diabetes and insulin resistance, they form meta-syndrome.

New knowledge about fatty liver and its association with infections, as well as the effect of visceral lipids on gastroesophageal reflux, gallstone diseases and bowel cancer, make the liver and gut at risk of obesity and the physiology of obesity, or excess obesity, and diseases Accompaniment (Berg & Scherer, 2005; BUGIANESI, 2005; Lau et al., 2005; Michael W. Rajala, 2003).

Therefore, it is useful to know the relationship between physical structure and physiological changes and determine obesity levels to find smallpox solutions to women's health problems as obesity negatively affects these motor activities because it increases the cost of the total body mass movement.(Völgyi et al., 2008).

The importance of research is to identify the relationship between the physical structure and some physiological changes of women. The development of an initial database of careful research to spread awareness and knowledge of the members of the sample and their likes and to researchers and shed light on the ideal physical composition of women and the importance of measuring the league to detect obesity and identify its causes for finding solutions to it.

The research aims to identify the values of women's physical structure and its relationship to physiological variables.

Research Terms

Physiological variables

Are changes in human body functions such as (heart rate, breathing, blood pressure, temperature) (Draper & Hodgson, 2008).

Biochemical variables

Sometimes called biochemistry variables, are the study of changes in chemical processes within and in relation to living organisms (Etchells, 1975).

Body composition

This so-called body components of fat, muscles, bones, fluids, minerals, etc., usually divide the body's components into a mental and non-mental mass, including muscles, bones, minerals, connective tissues and cartilage.(Solanki et al., 2015).

Body mass index

This measurement is used to estimate obesity levels, body mass index is defined as body mass divided by the body height square, and is expressed globally in units of kg/m^2 (دبع احاتفـلا و سيس, 2003).

Bioelectrical impedance analysis

Is a commonly used method to estimate body structure, especially body fat and muscle mass(Mialich et al., 2014).

Obesity

is a medical condition in which excess body fat accumulates to the extent that it may have a negative impact on health(Vieiraa et al., 2018)

High-density cholesterol HDL

One of the lipoprotein compounds in the blood plasma, containing less fat and more protein than low-density cholesterol, and a concentration in blood plasma ranges from 35-40 milligrams per 100cm^3 plasma(نايمد, 2001).

Table 1: Shows the basic data of the study sample by BMI category

BMI categories	Age year	Height cm	Body mass kg	BMI kg/m^2	Fitness score point
Thin	35.6	161.2	57.4	22.22	65.7
Normal	32.14	160.14	68.64	26.87	63.95
Overweight	35.38	160.41	81.76	31.94	60.57
Obese	36.42	162.1	95.61	37.59	55.32
Obese 2	33.65	159.4	114.9	49.81	49.35

Three glycerides.T.G

One of the metabolites with a concentration of 30-170 mg per 100 cm^3 (دمايان, 2001)

High-density cholesterolLDL

One of the lipoprotein compounds found in the blood plasma contains less protein and a high fat content compared to high density cholesterol, and the concentration in blood plasma ranges from 160-190 milligrams per 100cm^3 plasma (LeMond et al., 2015).

C-Reactive protein (CRP)

It is the ring protein (ring-shaped), which is found in the blood plasma, whose circulating concentrations are high in response to inflammation. For most forms of tissue injury, infection and inflammation, CRP serum values are widely measured in clinical practice as an objective indicator of disease activity(Thompson et al., 1999)

Research method

The descriptive method was used in this study.

Research sample

The random class research sample was selected from 120 women who practiced physical activity and they were 20 -50 years old.

Table 2: Shows the basic data of the study sample

Statistics	Age year	Height cm	Body mass kg	BMI kg/m^2	Fitness score point
Mean	34.78	160.69	86.43	34.32	58.39
Median	35	160	86	33.05	59
Sd	9.38	4.89	18.95	7.95	8.03

Table 1 and Figure 1, the description of the sample members according to the BMI classification approved by the World Health Organization

It is clearly illustrated

1. **For the age variable:** the average age of the research sample was 34.78 years ±9.38 years and the highest value was 56 years while the value was less than 20 years (Table 2 and 3).
2. **For the length variable:** the average total length of the research sample was 160.69 cm ±4.89 cm and was higher than 173 cm while the value was 150 cm lower.
3. **For body mass variable:** The average body mass of the sample members was 86.43 kg ±18.95 kg and was higher at 160.00 kg while the lowest value was 49.00 kg.
4. **For BMI variable:** The average BMI of the sample personnel was 34.64 kg/m2 ±7.95 kg/m^2 and reached the highest value of 59.10 kg/m2 while the lowest value was 19.70 kg/m^2.
5. **For the fitness variable:** The average fitness score for the sample members was 58.39 degrees ±8.03 degrees and reached the highest value of 76.00 degrees while the lowest value was 42 degrees.

Anthropometric Measurements and Measurement of Body Composition Analysis

It consists of weight-height measurement and the use of the InBody 720 (Biospace Co., Ltd.; The united states of The United States of The United.

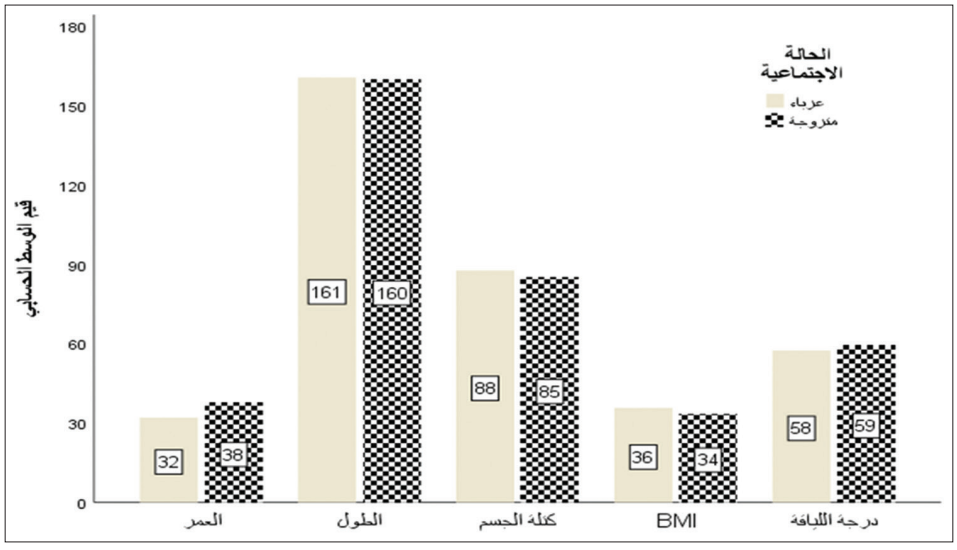

Figure 1: Illustrate the mean of variables

Physiological Measurements

It is the measurement of hemoglobin cholesterol (HDL) cholesterol (HDL) cholesterol (LDL density): triglycerides: systolic and diastolic blood pressure, blood components and vitamin D (Table 4).

Statistical Means

The Statistical Package for the Social Sciences (IBM©SPSS© version 25, 64 Bit edition (SPSS Inc., Chicago, IL (was used to analyze the data statistically and the alpha factor for moral indication will be prepared in advance at $p<0.05$.

RESULTS

The relationship of some physiological and biochemical variables to the physical structure as health indicators to raise awareness of the danger of obesity for women has been put in the form of tables and forms and were as follows:

Shown from Table 5:

1. For BMI variable: The average BMI for all sample members was 34.32 kg/m^2 ±7.95. the highest value was 59.10 kg/m^2 and the lowest value was 19.70 kg/m^2.
2. For body fat mass variable: The average body fat mass for all members of the sample was 40.05 kg ±13.74.
3. For the body fat ratio variable: the average body fat content for all members of the sample was 45.44% ±6.98.
4. For the visceral fat area variable: the average body fat content for all members of the sample was 125.87 cm^2 ±.30.24.
5. For the obesity variable: The average degree of obesity for all sample members was 125.87 degrees ±.30.24. It was the lowest value of 91.00 degrees and the highest value of 406.00 degrees.
6. For the skeletal muscle mass variable: the average skeletal muscle mass for all sample members was 25.93 kg ±.5.43. The lowest value was 18.40 kg and the highest value was 58.06 kg.
7. For the fitness variable: The average fitness score for allmembers of the sample was 58.39DG ±8.03.03.

Table 3: Shows distribution the components of the physical composition by BMI for the study sample members n=120

%	العدد	BMI
8.3	10	نحيف
18.3	22	عادي
30.8	37	وزن زائد
25.8	31	سمنة
16.7	20	سمنة مفرطة
100.0	120	المجموع

It is clear from Table 6 the correlation between physiological variables and the variables of physical composition were as follows:

For **pulse variable:** There are statistically positive correlations with both: weight T = 363. and body fat mass t = 346. The body fat ratio is t = 280. And the area of fat t = 286. The degree of obesity t = 365. The skeletal muscle mass t = 254. The Mass Index T = 363. All are moral functions at 0.01 <P.

A statistically negative correlation relationship with the degree of fitness t = -272. It is a statistical function at 0.01 <P.

Table 4: Shows basic variables and components of body composition by BMI

BMI year		Age year	Height	Weight kg	BMI kg/m^2	fat mass	Fat % %	Visceral fat score	Obesity degree score	Skeletal muscle mass kg	Fitness score
Thin 10	M	35.6	161.2	57.4	22.22	19.72	34.01	75.55	104.1	20.36	65.7
	s	11.02	6.18	4.6	2	3.57	4.28	18.24	9.77	1.68	6.33
Normal 22	M	32.14	160.14	68.64	26.87	27.5	39.76	101.45	128.73	22.56	63.95
	s	7.24	2.82	4.71	1.52	3.5	3.56	21.85	11.72	1.96	4.63
Overweight 37	M	35.38	160.41	81.76	31.94	36.58	44.45	124.08	147.62	24.89	60.57
	s	8.94	5.45	7.1	1.47	4.06	2.54	17.55	8.37	2.35	4.84
Obese 30	M	36.42	162.1	95.61	37.59	47.42	49.94	143.52	172.23	28.34	55.32
	s	10.74	3.92	7.4	1.19	6.08	3.71	16.5	10.91	5.56	7.98
Obese 2 20	M	33.65	159.4	114.9	47.86	59.02	52.25	153.87	207.15	30.65	49.35
	s	9.33	6.05	13.77	4.75	13.52	7.68	25.84	64.42	7.41	6.43

Table 5: Shows the components of the physical composition of N=120

	BMI kg/m²	Fat mass kg	Fat %	Visceral fat cm²	Obesity degree score	Skeletal muscle mass kg	Fitness score
Mean	34.32	40.05	45.44	125.87	156.81	25.93	58.39
Sd	7.95	13.74	6.98	30.24	40.48	5.43	8.03
Lowest	19.7	14.5	20.5	44.8	91	18.4	42
Hieghset	59.1	86.2	57.5	243.1	406	58.06	76

Table 6: Shows a matrix of correlation between the components of the physical terp and the physiological variables of the study sample

Physiological variables	Weight	Fat mass	Fat %	Visceral fat	Obesity degree	Skeletal muscle mass	Fitness score	BMI
Pulse	0.363**	0.346**	0.280**	0.286**	0.365**	0.254**	-0.272-**	0.422**
Hb	0.450**	0.461**	0.451**	0.440**	0.406**	0.320**	-0.277-**	0.525**
FBS	0.731**	0.718**	0.653**	0.612**	0.528**	0.480**	-0.488-**	0.803**
TC	0.746**	0.708**	0.649**	0.645**	0.610**	0.481**	-0.553-**	0.821**
HDL	-0.618-**	**-0.585-	-0.558-**	-0.494-**	-0.446-**	-0.423-**	0.323**	-0.694-**
LDL	0.785**	0.755**	0.607**	0.592**	0.633**	0.457**	-0.564-**	0.806**
TG	0.876**	0.825**	0.684**	0.663**	0.709**	0.595**	-0.626-**	0.919**
CRP	0.244**	0.217*	00.18	00.16	0.205*	00.12	-0.238-**	0.213*
SYS	0.406**	0.361**	0.301**	0.250**	0.307**	0.245**	-0.231-*	0.452**
DIA	0.382**	0.368**	0.322**	0.190*	0.282**	00.08	-0.346-**	0.385**
T3	0.263**	0.216*	00.13	0.238**	0.409**	0.249**	-0.196-*	0.268**
T4	0.239**	00.07	00.05	0.347**	0.411**	0.349**	-0.202-*	0.279**
Vit_D	-0.689-**	-0.691-**	-0.622-**	-0.496-**	-0.511-**	-0.445-**	0.464**	-0.751-**

*significant at 0.05 ** significant at 0.01

1. For the **hemoglobin variable:** There are statistically positive correlations with both weight = 450. and body fat mass t = 461. The body fat ratio is t = 451. And the area of fat t = 440. The degree of obesity t = 406. The skeletal muscle mass t = 320. The Mass Index T = 525. It is a statistical function at 0.01 <P.
   A statistically negative correlation relationship with the degree of fitness t = -277. It is a statistical function at 0.01 <P.
2. Ratio **of blood sugar** change to fasting **FBS:** There are statistically positive correlations with both weight = 731. and body fat mass t = 718. The body fat ratio is t = 653. And the area of fat t = 612. The degree of obesity t = 528. The skeletal muscle mass t = 480. The Mass Index t = 803. It is a statistical function at 0.01 <P.
   A statistically negative correlation relationship with the degree of fitness t = -488. It is a statistical function at 0.01 <P.
3. Cholesterol variable **ratio:** There are statistically positive correlations with both weight = 746. and body fat mass t = 708. The body fat ratio is t = 649. And the area of fat t = 645. The degree of obesity t = 610. The skeletal muscle mass t = 481. The Mass Index T = 821. It is a statistical function at 0.01 <P.
   A statistically negative correlation relationship with the degree of fitness t = -553. It is a statistical function at 0.01 <P.
4. HdL **ratio:** There are statistically negative correlations with both: weight t = -618. and body fat mass t = -585. The body fat ratio is t = -558. And the area of fat t = -494. The degree of obesity t = -446. The skeletal muscle mass t = -423. The Mass Index T = -694. All function is statistically at 0.01 <P.
   A statistically positive correlation with the degree of fitness t = 323. It is a statistical function at 0.01 <P.
5. LDL **ratio:** There are statistically positive correlations with both weight t = 785. and body fat mass t = 755. The body fat ratio is t = 607. And the area of fat t = 592. The degree of obesity t = 633. The skeletal muscle mass t = 457. The Mass Index T = 806. It is a statistical function at 0.01 <P.

A statistically negative correlation relationship with the degree of fitness t = -564. It is a statistical function at 0.01 <P.

6. Ratio of **Trig triglyceride variable:** There are statistically positive correlations with both: weight t = 876. and body fat mass t = 825. The body fat ratio is t = 684. And the area of fat t = 663. The degree of obesity t = 709. The skeletal muscle mass t = 595. The Mass Index T = 919. It is a statistical function at 0.01 <P.
   A statistically negative correlation relationship with the degree of fitness t = -626. It is a statistical function at 0.01 <P.

Ratio of **CRP:** There are statistically positive correlations with the weight variable T = 244. The degree of obesity t = 205. The skeletal muscle mass t = 595. The Mass Index T = 213. It is a statistical function at 0.01 <P.

A statistically negative correlation relationship with the degree of fitness t = -238. It is a statistical function at 0.01 <P.

There are also statistically non-Significant associations with variables in body fat and gut fat area 0.05> The government's support.

For systolic blood pressure variable **SYS:** There are statistically positive correlation synoun relationships with both weight t = 406. and body fat mass t = 361. The body fat ratio is t = 301. And the area of fat t = 250. The degree of obesity t = 307. The skeletal muscle mass t = 245. The Mass Index T = 452. It is a statistical function at 0.01 <P.

A statistically negative correlation relationship with the degree of fitness t = -231. It is a statistical function at 0.01 <P.

For dia dia **dia,** there are statistically positive correlations with both weight t = 382. and body fat mass t = 368. The body fat ratio is t = 322. The degree of obesity t = 282. The Mass Index T = 385. It is a statistical function at 0.01 <P.And there is also a statistically positive correlation relationship function and the areaof fat of the gut t = 190, which is a statistical function at 0.05 <P.

A statistically negative correlation relationship with the degree of fitness t = -346. It is a statistical function at 0.01 <P. There are also statistically non-Significant associations with variable and skeletal muscle mass 0.05 > The government's support

T3 trio-dothironin: There are statistically positive correlations with both weight t = 263. body fat mass t = 216 and area of gut fat t = 238. and degree of obesity t = 409. The Mass Index T = 268. It is a statistical function at 0.01 <P. and there is also a statistically positive correlation relationship function and the area of fat of the gut t = 190, which is a statistical function at 0.05 <P.

A statistically negative correlation relationship with a fitness score of T = - 196 is a statistical function at 0.05 <P. There are also statistically non-function association relationships with a body fat ratio variable of 0.05 > The government's support

Thyroxine T4**:** There are statistically positive correlation suppraved correlations with both weight t = 239. The Mass Index T = 279. It is a statistical function at 0.01 <P. and there is also a statistically positive correlation relationship function and the area of fat of the gut t = 190, which is a statistical function at 0.05 <P.

A statistically negative correlation relationship with a fitness score of T = -202. It is a statistical function at 0.05 <P.There are also statistically non-Significant associations with variable, body fat mass and body fat ratio of 0.05 > The government's support

Vitamin D: There are statistically negative correlation relationships with both weight t = - 689. and body fat mass t = -691. The body fat ratio is t = -622. And the area of fat t = -469. The degree of obesity t = -511. The skeletal muscle mass t = -445. The Mass Index T = -751. It is a statistical function at 0.01 <P.

A statistically positive correlation with a fitness score of 0.464

DISCUSSION

The first step was to conduct clinical physiological measurements to identify the functional characteristics of a mass index category and its impact on the results. They were informed of the conditions for implementing the selection of analysis of physical composition, through electro-bio resistance, and the detection of fat ratio according to the study sample (n=120), in order to determine the characteristics of

physical inactivity, the main factors of accumulated fatty tissue and decreased muscle mass. In addition, the sample of the study was compiled according to the Classification of the World Health Organization for Obesity (WHO,2018)after using advanced devices to determine the physical composition and classification of obesity through electro vitalised resistance, body mass index, total water accumulation, inside and outside the cell, as well as skeletal muscle mass, body fat mass, body fat ratio, area of infirmity, obesity and fitness. The results were noted that the percentages of the body mass index in the sample of the study by categories: skinny 10% and normal 22%, plus weight 37%, fat31% and hyper glyginable 20%.

Shows that there are statistically function correlation relationships at the level of 0.01 and 0.05, and this is the variables of the physical composition according to the classification of the mass index (BMI) (thin - normal - overweight - fat - excessive glycemic) with physiological variables and the results were in the following order: MERGEFORMAT.

Relationship of Blood Variables to Physical Structure

Pulse: There are positive correlations statistically Significant at 0.01 <P.with: weight, body fat mass, body fat percentage, gut fat area, degree of obesity, skeletal muscle mass and mass index.

Hemoglobin: There are statistically positive correlation relationships at 0.01 <P with both weight, body fat mass, body fat percentage, gut fat area, degree of obesity, skeletal muscle mass and mass index.

Fasting Blood Sugar FBS: There are positivecorrelation relationships statistically Significant at 0.01 <P with both weight, body fat mass, fat percentage, area of infirmity fat, obesity, skeletal muscle mass and mass index.

Cholesterol: There are positive correlations statistically Significant at 0.01 <P.with both weight, body fat mass, body fat percentage, area of infirmity fat, degree of obesity, skeletal muscle mass and mass index.

HDL: There are statistically negative correlation relationships at0.01 <P with both: weight, body fat mass, body fat percentage, gut fat area, obesity, skeletal muscle mass, mass index, all statistically significant.

LDL cholesterol: There are positive correlations statistically 0.01 <P with weight, body fat mass, body fat percentage, gut fat area, degree of obesity, skeletal muscle mass and mass index.

Triglycerides TG: There are positive correlations statistically function 0.01 <P with: weight, body fat mass, body fat percentage, area of infirmity, degree of obesity, skeletal muscle mass and mass index

CrP: There are positive correlation relationships statistically Significant at 0.01 <P.with variable weight, body fat mass, degree of obesity, skeletal muscle mass and mass index.

Systolic blood pressure SYS: There are positivecorrelations statistically with both weight, body fat mass, body fat percentage, area of infirmity, obesity, skeletal muscle mass and mass index, which is a statistical function at 0.01 <P.

Dia: There are positive correlation relationships statistically function at0.01 <P.with both weight, body fat mass, body fat ratio, obesity, mass index, and at 0.05 <P.,with astatistically negative function relationship at 0.01 <P.with fitness and at 0.05 <Pwith variable andmuscle mass.

Tri-iodothironin T3:There are statistically positive correlation relationships at 0.01 <P.with both weight, body fat mass, area of infirmity fat, obesity and mass index.

Thyroxine T4:There are positivecorrelation relationships statistically function at 0.01 <P with both weight, area of incarceration fat, obesity, mass index and at 0.05 <P.with the area of gut fat

A statistically negative correlation relationship with the degree of fitness t = -272. It is a statistical function at 0.01<P. which means that the higher the degree of fitness, the lower the heart rate is rest, which is consistent with (S. J. Kang et al., 2016) Which confirmed that exercise has beneficial effects on heart rate rest, fitness, and atherosclerosis of patients with metabolic syndrome which are risk factors for metabolic syndrome (weight,% body fat, waist circumference, systolic blood pressure, diastolic blood pressure, diastolic blood pressure, HDL) where it has improved significantly due to exercise: resting heart rate has decreased significantly; The maximum oxygen consumption, muscle strength and muscle endurance

has increased dramatically; The pulse wave velocity measurement also declined briefly.

This is consistent with most studies that have reported that anyone with weight gain/obesity and central (abdominal) obesity has been inversely associated with anemia. (Gozkaman et al., 2015),determine the relationship between different levels of hemoglobin (Hb)and body mass index and the relationship was positive lye and hemoglobin where the value of r = 0.199 and the level of indication P = 0.017, therefore it advises obese patients to consider the negative effects on the quality of life, exercise and follow-up of heart disease and blood vessels of anemia when planning changes in the lifestyle of obesity.

Vitamin D Vit D: There are statistically negative correlation relationships at 0.01 <P with both weight, body fat mass, body fat percentage, gut fat area, obesity, skeletal muscle mass, mass index, and a statistically positive correlation relationship with a function of 0.01 <P with fitness score.

CONCLUSIONS

In the light of the results of the research and analysis of statistical data obtained through measurements of physical composition and the results of the answers to the living method and analysis of biochemical and physiological variables, where the researcher reached the following conclusions:

1. The existence of a statistically function correlation between physiological variables and physical composition according to the classification of the mass index for the study sample.
2. This study helps to develop an initial database to thoroughly research the characteristics of sex and the nature of their exercise.
3. This study helps to identify the relationship between physical structure and certain morphological physiological changes and anthropometric measurements of women.
4. This study highlights the ideal physical makeup of women by comparing functional measurements to the type of relationship to predict the level of health fitness. T
5. This study helps spread awareness and knowledge to sample members and their likes and researchers.
6. This study contributes to helping women to reach physical health and fitness by finding out the relationship between physical structure and some physiological and morphological variables and anthropological measurements.
7. Educate women on the importance of measuring the league to detect obesity and identify its causes for solutions.
8. Know the values of women's physical components and determine the level of obesity for women.

Recommendations

In light of the findings, the researcher makes the following recommendations:

1. Encourage women to perform periodic physiological measurements and functional adequacy.
2. Rely ing on the use of physical composition analysis programs that rely on scientific foundations to develop physical and physiological abilities and improve the composition of their bodies.
3. Specific controls require women to maintain their weight and educate them on optimal, healthy nutrition and the amount of food available to maintain their weight and health.
4. Benefit from the results of the study, which has to do with physical composition and its relationship to physiological efficiency and the development of the physical aspects of women.
5. Conducting complementary studies of this study that take other physiological and psychological aspects of women in other cities, villages and regions.
6. Conduct similar studies on other categories of women and girls (at different age stages) as well as in other variables.
7. Interest in the refinement of trainers in gyms and sports courses through scientific courses and seminars in the field of physical composition analysis and nutrition physiology of sports.
8. Public awareness programmes, including exercise and diet education, are widely needed to address the growing burden of fats.

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