

## Studying the Body Shapes of Obese Iraqi Women

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### Abstract

The research has several goals and objectives that it seeks to achieve, and they can be clarified as follows:

- 1- Determining the body shapes of obese Iraqi women.
- 2- Finding a standard specification for the body of an obese Iraqi woman for the category 18-55 years.

The research sample community included a number of (100) women, students and affiliates of the University of Baghdad and Obesity Research Center, College of Medicine, Al-Kindi College of Medicine, and the sample was intentional. The two researchers used the following statistical methods:

- 1- Percentage. 2- Range. 3- Arithmetic mean. 4- Standard deviation. 5- Variance.(Al-Munazel, 2010, p. 55-p69).

The two researchers came up with several results, including:

- 1- Through the statistical data of the sample, we can describe the obese Iraqi women's body within the two shapes (pear), which is the obesity of the abdomen and buttocks, and the shape of the (inverted triangle), which is the obesity of the shoulder and chest.
- 2- Despite the body's obesity in category (4), it is regular and consistent, because obesity is evenly distributed over the body regions.
- 3- It is possible to adopt the sample categories of the research results as a standard specification that can be approved by the Central Organization for Standardization and Quality Control.

**Keywords;** body shape and obese body.

### Chapter One

#### Research problem:

Fashion has a great place and interest in most cultures and civilizations of countries around the world, and the appearance of a person is closely related to his personality, because appearance often reflects the personality of his owner. Clothes are also used to hide and avoid body defects by following appropriate methods such as optical illusion in covering some defects in the body. (Al-Janabi, 2006, p- 1,2,3)

Hence the problem of the current research in:-

- 1- Helping obese women to identify their body shapes.
- 2- What are the difficulties that (obese) women's bodies face in finding suitable clothes?

#### Importance of Research

Wearing clothes is a general art like the rest of the other arts, but it is also an art specific to the person himself, and given the importance of clothes in social, psychological and cultural terms, the whole world has become responsive to this aspect and shapes his life according to it, and the educated person is always keen to be on a level of awareness The cultural in order to acquire from fashion what suits his body style as well as his environment and culture, as they are consistent with the spirit of the age in which he lives. (Al-Samman, 1997, p.7, p. 23).

Hence the importance of the current research in determining the specifications of the body shape of the obese Iraqi woman.

#### Research Objectives

The current research aims to:

- 1- Determining the body shapes of obese Iraqi women.
- 2- Finding a standard specification for the body of an obese Iraqi woman for the category 18-55 years.

#### Research Limitation

Objective limits: The study is determined by the asymmetrical obese female bodies at the age of 18-55 years.

Spatial limits: Baghdad, University of Baghdad / Colleges of Education and Science for Girls, Al-Kindi College of Medicine / Obesity Treatment Center, Sports Activity Center / University of Baghdad, and the National Sports Activity Centers, University of Technology, Al-Nidhal Professional Preparatory School.

Time limits: the academic year 2021/2022 AD.

### **Definition of Terms**

The research contains several vocabulary that the two researchers consider necessary to explain to the reader in some detail, as follows:

1- Mathw (1978) defined it as: "the science that studies the measurements of the human body and its parts to show structural differences." (Mathew, 1978, p73).

Ghanem (2002) defined it as: "a quantitative determination of the different dimensions of the body to infer the body type and its general condition." (Ghanim, 2002, p. 2) The researcher agrees with Ghanem with its procedural definition because it is the closest to the current study.

The female body Womom Figure was defined by Warden (1969) as "the body shape of a full-grown size that was determined on the basis of body shape, not age, based on measurements of chest, waist, hip, mid-back and overall length". (Worden, 1969, p2).

The researcher agrees with Warden and her procedural definition closest to the current study.

### **Defining a Fat Body**

Mazahira (2008) defined it as: "The increase in body weight by 20% or more than the ideal weight." (Mazahra, 2008, p. 72).

**The procedural definition of the researcher:** The obese body is an inconsistent or uneven mixture of the three primary components (muscle, bone, fat) in various parts of the body, especially the woman's body, which is represented by an obese woman with narrow shoulders, a prominent abdomen, a wide waist, or broad hips.

### **Texture: (posture)**

Fouad (2011) defined it, "It is the mechanical relationship between the various bodily, muscular, nervous and vital systems of the body.

### **Procedural Definition of the Researcher**

Posture "is the presence of organs or systems of the body (motor system) in a regular or harmonious state with each other, which helps the body to carry out muscular and physiological activities with high efficiency and with less effort."

### **Bodytype**

It is a quantitative determination of the three basic components (fat, meat, and bone) that determine the external body shape of a person and is expressed by three consecutive numbers, the first number of which refers to the component of obesity or (obesity), the second refers to the muscular component, and the third refers to being thin. (Karpvich, 1971, p295).

The two researchers agree with the following definition in their procedural definition (the general shape of the body determined by the agreed upon set of standard measurements), (Al-Ramli, et al., 1977, p. 71).

## **Chapter Two**

### **Theoretical Framework & Previous Studies**

#### **The Concept of Anthropometric Measurements:**

The anthropometric measurements indicate the physical dimensions, which is one of the research methods in describing the human being and indicates the mass of the human body and its parts in an appropriate manner (Hussain, 1998, p. [www.eh.wikipedia.org/Athropometry](http://www.eh.wikipedia.org/Athropometry)) Body measurements are also understood as a quantitative determination of the different dimensions of the body in order to infer the body type and its general condition. All scholars agreed on the definition of anthropometric measurements as (the science that studies the measurement of the parts of the human body from the outside), (Verducci, 1980, p13).

Some scientists and researchers mentioned in their studies of anthropometric measurements to know the relative measurements of people who live in different societies. Accordingly, anthropometric measurements have great merit in providing us with the scientific bases and concepts that contribute fundamentally and effectively to the knowledge and achievement of the purposes of measurement operations, (Hassanin, 1987, p. 43).

#### **Bodytype**

The concept of anthropometric measurements includes basic terms, which are as follows:

1- Body size: a term that refers to weight, length, width, and circumference, as if we say small, medium and large sizes, long and short, or light and heavy. (Radwan, 1997, p. 20, 32, 35).

2- Body weight: Weight is the most measured physical variable in studies and scientific research, as it is a kinetic measurement of the total size of the body, which can be used as one of the measures of physical development as well as obesity and cases of malnutrition, (Radwan, 1997, p. 90).

3- The form of the body: the form in the language is: (the way), it is said: This form is required, that is, this way.

Or it is a class or class of people who share the same general characteristics, even if they differ from each other in the degree to which they possess these characteristics. (Rajah, 1967, p. 442).

It is an attempt to evaluate the internal biological structure of the individual through the physical structure (Rateb, 1999, p. 138).

#### **Body Mass Index (BMI):**

It is sometimes called the Quetelet's index, after the Belgian mathematician Adolphe Quetelet, who was the first to refer to it, and BMI is the product of body weight in kilograms divided by the square of height in meters (Al-Hazaa, 2005, p. On the square of the length Palang (Al-Qaddoumi, et al., 2007, p. 398).

An individual can calculate his body mass index by dividing his height in meters by the square of his weight in kilograms as in the following equation:  $BMI = \frac{\text{weight}}{(\text{height} \times \text{height})}$  (<https://Mawdoo3.com>) and the equation can be written in the following formula (Charls, 2009, p. 297)

Weight (kg)

Body mass index (BMI) =  $\frac{\text{Weight (kg)}}{\text{length (m)} \times \text{length (m)}}$

BMI is generally used to classify individuals on the basis of obesity and overweight, and to determine the risks resulting from obesity because of its relationship to diseases, as well as to monitor changes in body fat, and despite the wide use of BMI, but there are some drawbacks and disadvantages to it as an indicator Obesity and the reason is that it does not take into account the composition of the muscular body weight as well as the factors of age, race, body structure and pattern and the effect of the relationship between it and the percentage of body fat (Vivian, et al., 2004, p. 76).

In general, the individual's weight is normal if the body mass index ranges between 18.5 to 24.9, and in the case of the individual's body mass index ranges between 25 to 29.9, the individual's weight is above the required rate, and in If it is less than 18.5, then his weight is below the required level, but if the body mass index is more than 30, this means that the individual is obese (<https://Mawdoo3.com>) (and the World Health Organization (W.H.O) approves) (1998) on the body mass index (BMI) in classifying individuals on the basis of obesity and according to criteria, as shown in Table (2). (Al-Hazaa, B. T., p. 6).

#### **A Brief History of Body Patterns:**

The study of body patterns is important as it helps determine the shape and pattern of the body, which facilitates the process of drawing the basic template suitable for the specific body pattern (Mohammed et al., 2009, p. 146). The division of body patterns began in the year 400 BC. The first to start dividing body patterns was the Greek physician Hippocrates Hippocrates, where he divided the bodies into two types:

A - Short, Thick

B - Long, Thin

Then he divided the people according to the hormones in the blood of the individual, which in his opinion depends on the four elements of nature (air, earth, fire, water), which are as follows:

A- bloody B- melancholic C- biliary D- lymphatic. (Hassanin, 1998, p. 8).

Then Hull followed him in the year (1797 AD), where Hull divided the types of bodies into:

A- Abdominal B- Muscular C- Thoracic (long chest, slender) D- Nervous (cephalic).

In 1820, Sheldon divided physiques by dividing 400 university students by the Kretschmer method, and found: 7% of the type are skinny, 12% are athletic and muscular, 9% are fat or lumpy, and 72% of the students had to be placed in a different group.

Sheldon tried to record the shapes of the body by taking three photographs for each individual who was stripped of his clothes from the front, side and back and matched the negative films to the three pictures and came up with three basic shapes, which are as follows: (Hassanin, 2003, p. 84 p. 85)

#### **Primary Shapes:**

1- Endomorphy

The digestive system prevails (takes the largest space in the body) the body, characterized by looseness and roundness of the body and a lot of fat in different areas (the known fat accumulation areas), large and rounded head, short and thick neck, and the continued growth of breasts as a result of fatty deposition, fully round buttocks, and loose skin And soft, heavy and short legs, narrow shoulders, wide pelvis, pear-shaped and very slow reaction.

2- Mesomorphy

Solid in its external appearance, the bones are large and thick, the muscles are developing, the facial bones are prominent, the neck is long and strong, the shoulders are broad, the shoulder muscles are visible and strong, the collar bones are visible, with large hands, the length of the finger, and lumpy muscles in the trunk area, the waist is thin, the pelvis is narrow, the buttocks are heavy and strong, the build is solid and firm.

3- Ectomorphy slim figure

The thinnest face with the emergence of the nose, with a thin and lean body structure, the bones are small and prominent, the head is rather large with a long and thin neck, the chest is long and narrow with rounded shoulders and a noticeable length in the arms and legs are long and thin, and the skin appears if it was directly above the bone except from some few muscles And it has a high reaction speed and a unit in movements (Scheldon, 1970, p8).

1- The most important secondary form of Sheldon is;

#### Gynandromorphy

This pattern includes the occupation of the physical structure of features usually associated with the opposite sex. Those who obtain high degrees in this type of males have a soft body, a wide pelvis and a broad sacrum, in addition to other female features, including long eyelashes and small facial features, and this pattern is known as ( Possessing a physical structure characterized by characteristics usually associated with the opposite sex).

#### Darts Concept:

The penny is a triangular fold of cloth that is used to make the flat cloth fit with the protrusion of the body. Chest, (scapula bone), abdomen, buttocks. (Nora Macdonald: 1997:281) It is also a way to remove the excess that takes the form of a triangle and this leads to the formation of certain shapes on the edges of the grooves. (Bane, Allyne: 1974:136).

Types of Al-Ghabnat (pennies):

Gabnats are divided into several types, including:

#### A- Basic Darts

It is the one used by the mold designer when drawing the basic template and the resulting from it, such as the chest grooves, the waist grooves, the plate bone grooves for the upper part, and the basic template (Al-Sayyid, 1995, p. 45) (Saleem, 2008, p. 319).

#### B - Functional tuning defects: (Fitting Functional Darts)

They are the indentations that define and draw towards the fuller part of the body protrusion and are located within the circle of the center of the protrusion.

#### Obesity;

Obesity contributes to heart disease, blood pressure, arteriosclerosis, kidney and liver disease, and diabetes. Obesity also obscures muscle work, thus showing fatigue and lethargy on humans. (Mahjoub, 1990, p. 55).

The important aspect of obesity is the relationship of body shape and size with clothes, texture here plays a "key" role in arranging clothes and their elegance and how to choose them. An elegant woman who is interested in elegance always appears in a good appearance and her clothes look elegant, while an obese woman suffers from her physical defects concentrated in the following places (Chest, abdomen, buttocks) and resorts to avoiding and concealing the defects of her body and not highlighting the filled areas. (Al Kubaisi, 2020, p. 3). Obesity can also be diagnosed either by simply looking, and scientific methods were found to know obesity by calculating the body mass index (BMI), which was previously mentioned in body measurements Anthropometrics (WaddenT.A&Foster,G.b,2002,p444)

The percentage of obesity (overweight): 10-30% in total. In men, it is 20-30%, while in women it is about 30-50% (Hassan, 2009, p. 441)

Causes of obesity:

There are many overlapping causes that lead to weight gain and obesity, as follows:

1- Genetic causes 2- Hormonal disorders 3- Environmental and family causes 3- Frequency of pregnancy and childbirth 4- Age and gender 5- Psychological factors 6- Social factors 7- Physiological factors.

Studies of the obese body

Study (Rasha Ali Saleh) / Master's Thesis / Iraq / University of Baghdad, College of Education for Girls, 2020.

Study title: Using the (3dsMAX) technique to adjust the standard mold and tailor it to the hip direction of the large woman's body.

### Chapter Three

#### Research Methodology and Procedures

-The Approaches & the Procedures Research

This chapter includes the procedures followed by the researcher to achieve the objectives of the research, which are as follows:

#### First: Research Methodology

Choosing the correct method to solve the problem depends mainly on the nature of that problem in order to reach the truth and reveal it. In her study, the researcher followed the following research method:

#### Descriptive Analytical Method:

This approach is based on describing a phenomenon in order to reach the causes of this phenomenon and the factors that control it, and to draw conclusions for generalization. The descriptive approach includes more

than one method, including the survey method and the case study method. These methods require the experience and effort of the researcher, and the results obtained should be interpreted with all care, the analytical approach helps to achieve more accurate results at the end of the research through the work of fragmentation, division and evaluation of the problem, and deepening the interpretation in the sense that the foundations of the analytical method complement the procedures of the descriptive approach or other scientific approaches. The two researchers made a comparison between the model that was made without modifications with the model on which the modifications were made to make it suitable for obese Iraqi women.

**Second: Research Population**

The current research community included (100) female students and affiliates, which were mentioned previously in the field visits carried out by the two researchers. Table (1) represents the distribution of the sample according to each place, which is as follows;

No.	Sample Location	Seq.
35	University of Baghdad/College of Education for Women (female and workers) College of Science for Women (female and workers) Deanship of the College of Education for Women (student affairs unit).	1
22	University of Baghdad / Obesity Research Center (Al-Kindi College of Medicine)	2
7	University of Baghdad Sports Activity Center	3
3	University of Technology (Reception)	4
4	Al Nidal Vocational Secondary School	5
15	External Centers for Slimming	6
14	Women's Medical Clinics	7
100	Total	8

Table (1) Distribution of the sample by location

**Third: Research Sample**

The sample selection was based on the intentional method as a basis for selection, as the research sample consisted of (100) women.

Fourth: Research tools and procedural steps:

The success of the research in achieving its goals depends on many factors, the most important of which is the right and appropriate choice in obtaining data, so choosing the appropriate tools is an essential factor in the research.

In order to obtain correct and reliable data to reach the desired goal of the research, the research tools included:

- 1Data collection form for recording the body measurements of female students.
- 2Measuring the weight.
- 3Statistical means.

**Procedural Steps:**

**Data collection:**

**First:** Determining the physical measurements of the sample, depending on the circumferences and lengths approved globally in the classification.

**Second:** Extracting the sample specifications through statistical means (mean, standard deviation, variance, upper bound, lower bound, and range).

**1-Bust circumference**

It is the rotation that surrounds the upper part of the chest and is measured by passing the measuring tape over the two chest points in the front part and over the shoulder blade in the back part, provided that the arm is hanging (or perpendicular to the ground) and the measuring tape is horizontally parallel to the ground and is flat without pulling Or folds or kinks when measuring. (Al-Ashqar, p. 1) (Najjar et al., 1970, p. 58). Picture (1) illustrates this;



Picture (1) body circumference (chest)

### 1-Waist circumference

It is the narrowest area in the body and it is measured by passing a measuring tape around the narrowest or most accurate area of the body, and this is done after placing a belt or a light or rubber band around the waist to determine the exact place to take the measurement provided that the rope is slightly tightened on the waist line and the measuring tape is placed parallel to the ground must be taken into account when taking the measurement that the body is straight and while inhaling.

(Gartland, 1884, p23), (bishop, E.B: 1957, p38) There is another source that says that it is measured between the hip circumference area and the lower ribs while leaving the abdomen relaxed. (EN13402-1:2010,p2).

Picture (2) shows this;



Picture (2) Waist circumference -1

### 2-Hip circumference

It is also called the circumference of the widest or thickest (largest circumference) area of the body and is measured by passing the measuring tape around the widest area and continuing to move the measuring tape up and down until we reach the largest measurement provided that the tape measure is parallel to the ground, taking care that it is loose and there is no fold or twist, and it should be loose, and the body should be straight. It can also be measured after going down from the waist line, a distance of about (18-23) cm, which is approximately (7-10) inches. (Brian:2005,p47) (Guide to modern clothing:1973,p243). Picture (3) illustrates this;



Picture (3) hip circumference

### Medical Scale:

It is a scale used to measure weight and height at the same time. It is a scale with a ruler-like arm attached to it. It is used to determine the length in centimeters.

Extract sample specifications:

After obtaining the corporeal measurements and body weight, and after statistical treatment to the categories of the researched sample, the arithmetic averages and the standard deviation of the corporeal measurements of the investigated sample were extracted for the purpose of arriving at the average volumes of corporeal measurements that will be formulated in the form of categories

Table (2) shows the specifications of the sample in general.

Table (2) Specifications of the sample in general (averages, standard deviations, variance, minimum, upper limit, range and number).

No.	range	upper bound	lower bound	variance	standard deviation	mean	Specifications
100	39	142	103	74.303	8.620	120.60	Chest circumference
100	57	152	95	82.073	9.059	111.74	Waist circumference
100	41	150	109	102.454	10.122	129.03	Hip circumference
100	18	52	34	13.764	3.710	42.56	Neck circumference
100	19	31	12	6.241	2.498	15.96	Shoulder line
100	26	44	18	11.422	3.380	23.85	Basque Line
100	32	55	23	26.686	5.166	39.98	Front waist length
100	16	54	38	10.090	3.176	44.03	Back waist length
100	32	62	30	53.032	7.282	48.41	Chest Length
100	18	58	40	15.263	3.907	47.01	Back length
100	21	50	29	16.152	4.019	34.50	Chest height
100	24	39	15	13.067	3.615	23.06	Chest distance
100	24	53	29	21.505	4.637	42.36	Show Issued
100	19	57	38	17.875	4.228	46.06	Back width
100	26	55	29	14.573	3.817	45.75	Back shoulder width
100	80	98	18	116.490	10.793	33.43	Side line
100	58	85	27	148.600	12.190	54.69	Jordan pit depth
100	19	69	50	14.829	3.851	60.83	Sleeve length
100	15	50	35	9.604	3.099	43.54	Bottom length of arm
100	24	54	30	21.121	4.596	41.51	humerus circumference
100	23	41	18	12.897	3.591	32.18	Annex perimeter
100	10	24	14	3.563	1.888	19.18	Wrist circumference
100	23	35	12	16.412	4.051	17.55	Quantum Height
100	11	39	28	6.684	2.585	33.32	Elbow height
100	59	138	79	56.231	7.499	100.46	Skirt Length
100	30	162	132	34.766	5.896	146.04	Dress Length in Front
100	44	164	120	38.006	6.165	144.71	Back Full Length Dress
100	31	50	19	33.493	5.787	34.11	Chest depth
100	15	33	18	5.764	2.401	21.44	Front shoulder intersection
100	13	32	19	5.373	2.318	23.02	Back shoulder cross
100	28	48	20	24.066	4.906	27.57	Intersection of the chest
100	22	43	21	22.977	4.793	26.95	Intersection of the back
100	22	45	23	15.456	3.931	34.83	Chest arch
100	19	45	26	16.516	4.064	33.64	Front Waist
100	18	42	24	13.422	3.664	29.35	Back Waist Arch
100	20	46	26	18.351	4.284	36.05	Abdominal arc in front
100	27	46	19	19.637	4.431	32.14	Abdominal arc in the back
100	17	44	27	15.640	3.955	34.58	Front hip arch
100	13	42	29	7.728	2.780	35.36	Rear hip arch
100	63	133	70	200.735	14.168	100.35	Weight
100	.25	1.80	1.55	.002	.04566	1.6286	Length
100	21.66	50.06	28.40	31.190	5.58484	37.8934	Body mass

Table (2) Specifications of the sample in general (averages, standard deviations, variance, minimum, upper limit, range and number).Below is an explanation of the specifications of each of these categories:

A- Table (3) shows the specifications of the sample of the first model (the first category), which numbered (34).

No.	range	upper bound	lower bound	variance	standard deviation	mean	Specifications
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No.	range	upper bound	lower bound	variance	standard deviation	mean	Specifications
34	11	121	110	7.502	2.739	113.79	chest circumference
34	21	116	95	25.744	5.074	105.79	waistline
34	28	137	109	49.031	7.002	123.38	hip circumference
34	14	48	34	10.607	3.257	42.62	neck circumference
34	19	31	12	9.258	3.043	15.12	shoulder line
34	11	29	18	4.713	2.171	22.88	Basque line
34	11	45	34	10.499	3.240	37.53	front center length
34	9	47	38	7.077	2.660	42.12	Back center length
34	19	62	43	18.917	4.349	50.15	chest length
34	10	51	41	9.644	3.106	45.85	back length
34	12	42	30	7.583	2.754	33.41	chest height
34	11	28	17	10.128	3.183	22.59	The distance between the tops of the chest
34	11	46	35	9.473	3.078	40.26	View issued
34	9	49	40	3.651	1.911	43.47	back view
34	17	46	29	9.198	3.033	43.12	Shoulder width in the back
34	22	46	24	56.204	7.497	34.91	side line
34	34	66	32	79.591	8.921	55.50	Jordan pit depth
34	15	65	50	11.527	3.395	59.56	Sleeve Length
34	15	50	35	9.017	3.003	44.21	arm length from bottom
34	14	44	30	7.198	2.683	38.88	humeral circumference
34	16	34	18	8.250	2.872	30.85	circumference of the elbow
34	5	20	15	1.166	1.080	18.47	wrist circumference
34	22	34	12	21.105	4.594	16.53	sleeve top height
34	9	38	29	3.484	1.867	32.97	elbow height
34	44	138	94	53.413	7.308	102.74	skirt length
34	20	154	134	24.246	4.924	144.24	Dress length in front
34	23	150	127	35.363	5.947	142.97	The full length of the dress from the back
34	17	36	19	14.796	3.847	31.15	chest depth
34	6	24	18	3.665	1.914	20.18	We cross the shoulder in the front
34	13	32	19	8.739	2.956	22.56	Shoulder cross back
34	27	48	21	23.269	4.824	27.06	chest intersection
34	14	35	21	9.955	3.155	24.50	back cross
34	15	38	23	15.591	3.949	33.50	chest arch
34	19	45	26	23.295	4.826	33.09	Foss waist in front
34	10	35	25	7.886	2.808	28.41	Back waist arch
34	17	43	26	11.865	3.444	34.12	Abdominal arc in front
34	20	39	19	17.619	4.198	29.68	Abdominal arc in the back
34	11	40	29	9.320	3.053	34.21	Hip arch in front
34	10	39	29	6.019	2.453	33.74	Hip arch in the back
34	30	100	70	36.411	6.034	86.21	height
34	.25	1.80	1.55	.003	.05379	1.6482	weight
34	5.89	34.29	28.40	1.998	1.41340	31.7185	body mass

Table (3) Specifications of the first model sample  
 It had the following characteristics:

1. Narrow shoulders and there is a big difference between the shoulder area and the abdominal area.
2. The belly is large, like a ball.
3. The waist line area is close to the chest area due to the large abdomen that pushed the waist line up.
4. The body shape in this category resembles a pear.
5. The presence of fleshy lumps in the flank area, which gave a much curved shape to the side line.



6. There are also fleshy lumps in the neck area from the back
7. The presence of fleshy lumps in the back in the scapula area.
8. The hip circumference is small compared to the abdominal area, i.e. the hip is much smaller than the waist area. Picture (4) illustrates this



Picture (4) Category (1)

B. Table (4) shows the sample specifications for the second model (the second category), which numbered (32).

No.	range	upper bound	lower bound	variance	standard deviation	mean	Specifications
32	32	135	103	65.790	8.111	120.38	chest circumference
32	35	130	95	55.112	7.424	110.72	waistline
32	33	142	109	72.177	8.496	125.63	hip circumference
32	14	48	34	15.016	3.875	41.38	neck circumference
32	8	20	12	4.733	2.176	16.09	shoulder line
32	10	28	18	7.160	2.676	23.53	Basque line
32	26	49	23	28.120	5.303	38.59	front center length
32	14	54	40	11.226	3.350	45.25	Back center length
32	23	58	35	56.609	7.524	48.31	chest length
32	18	58	40	22.194	4.711	48.25	back length
32	21	50	29	31.548	5.617	34.75	chest height
32	24	39	15	18.725	4.327	22.72	The distance between the tops of the chest
32	21	50	29	33.254	5.767	42.31	View issued
32	16	54	38	18.351	4.284	47.19	back view
32	12	53	41	11.725	3.424	45.78	Shoulder width in the back
32	29	49	20	82.773	9.098	34.53	side line
32	40	67	27	139.636	11.817	52.91	Jordan pit depth
32	15	68	53	15.125	3.889	60.31	Sleeve Length
32	11	46	35	9.544	3.089	42.06	arm length from bottom
32	15	50	35	20.516	4.529	40.75	humeral circumference
32	20	41	21	17.072	4.132	31.66	circumference of the elbow
32	7	21	14	4.386	2.094	18.47	wrist circumference
32	13	25	12	11.491	3.390	18.16	sleeve top height
32	11	39	28	8.544	2.923	33.19	elbow height
32	11	103	92	8.435	2.904	99.13	skirt length
32	10	149	139	8.306	2.882	145.13	Dress length in front
32	15	150	135	12.184	3.491	144.41	The full length of the dress from the back
32	24	50	26	42.516	6.520	37.25	chest depth
32	5	24	19	2.402	1.550	21.72	We cross the shoulder in the front
32	6	25	19	3.480	1.865	23.06	Shoulder cross back
32	18	38	20	34.047	5.835	27.22	chest intersection
32	13	34	21	11.383	3.374	27.69	back cross

No.	range	upper bound	lower bound	variance	standard deviation	mean	Specifications
32	14	40	26	13.314	3.649	35.09	chest arch
32	16	44	28	12.383	3.519	33.94	Foss waist in front
32	13	37	24	11.354	3.370	29.47	Back waist arch
32	14	44	30	17.814	4.221	36.84	Abdominal arc in front
32	14	39	25	7.867	2.805	33.06	Abdominal arc in the back
32	14	42	28	14.512	3.809	34.56	Hip arch in front
32	7	39	32	2.943	1.715	35.34	Hip arch in the back
32	24	109	85	47.871	6.919	98.50	height
32	.10	1.65	1.55	.001	.03172	1.6153	weight
32	4.88	40.04	35.16	2.611	1.61573	37.7048	body mass

Table (4) Specifications of the second model sample

It represented the following characteristics:

1. The abdomen is very full.
2. The chest area is much larger than the abdominal area.
3. The shape of the body here resembles an inverted triangle.
4. The hip area is narrow compared to the abdominal area.
5. The chest is low and close to the waist.
6. The presence of a prominent lump in the back due to the accumulation of grease in the back area.
7. Lack of bending in the waist area.
8. The side line here is almost perpendicular to the ground due to the absence or lack of a waist line in this category, and picture (5) illustrates this



Picture (5) Category (2)

C- Table (5) shows the standard specifications of the third model sample (the third category), which numbered (25) statistically.

No.	range	upper bound	lower bound	variance	standard deviation	mean	Specifications
25	15	135	120	21.167	4.601	126.60	chest circumference
25	18	124	106	21.833	4.673	116.40	waistline
25	25	146	121	48.657	6.975	136.64	hip circumference
25	13	48	35	10.250	3.202	43.20	neck circumference
25	9	22	13	4.750	2.179	16.60	shoulder line
25	24	44	20	21.057	4.589	26.16	Basque line
25	21	55	34	26.493	5.147	44.08	front center length
25	7	48	41	6.907	2.628	45.36	Back center length
25	27	57	30	83.407	9.133	44.64	chest length
25	14	57	43	12.833	3.582	47.60	back length
25	13	43	30	10.793	3.285	34.72	chest height
25	10	29	19	7.417	2.723	24.40	The distance between the tops of the chest
25	13	53	40	11.260	3.356	43.48	View issued

No.	range	upper bound	lower bound	variance	standard deviation	mean	Specifications
25	16	57	41	27.923	5.284	47.44	back view
25	12	53	41	7.777	2.789	47.88	Shoulder width in the back
25	80	98	18	263.660	16.238	32.92	side line
25	40	70	30	195.193	13.971	52.12	Jordan pit depth
25	14	69	55	13.627	3.691	62.72	Sleeve Length
25	11	49	38	7.583	2.754	44.40	arm length from bottom
25	10	49	39	13.123	3.623	44.04	humeral circumference
25	7	37	30	6.523	2.554	33.76	circumference of the elbow
25	5	23	18	2.000	1.414	20.40	wrist circumference
25	8	21	13	7.573	2.752	17.64	sleeve top height
25	10	38	28	8.273	2.876	33.24	elbow height
25	30	115	85	96.690	9.833	100.76	skirt length
25	28	162	134	64.560	8.035	149.68	Dress length in front
25	27	164	137	44.573	6.676	148.36	The full length of the dress from the back
25	9	38	29	7.973	2.824	33.16	chest depth
25	7	26	19	5.010	2.238	22.48	We cross the shoulder in the front
25	6	26	20	3.440	1.855	23.24	Shoulder cross back
25	12	35	23	9.743	3.121	28.08	chest intersection
25	22	43	21	39.360	6.274	28.12	back cross
25	6	38	32	4.833	2.198	35.60	chest arch
25	10	39	29	7.023	2.650	33.24	Foss waist in front
25	17	42	25	22.877	4.783	29.72	Back waist arch
25	17	44	27	15.843	3.980	36.52	Abdominal arc in front
25	20	46	26	24.083	4.907	32.80	Abdominal arc in the back
25	15	43	28	18.823	4.339	35.36	Hip arch in front
25	11	40	29	7.333	2.708	36.00	Hip arch in the back
25	16	121	105	34.333	5.859	114.00	height
25	.13	1.68	1.55	.001	.03814	1.6328	weight
25	3.51	44.53	41.03	1.496	1.22297	42.7448	body mass

**Table (5) Specifications of the third model sample (according to body mass)**

**It had the following characteristics:**

1. Obesity in this category was not uniformly distributed.
2. There is a very large difference in measurement between the chest area, the waist area, and the hip area, as the chest was large and droopy compared to the lower area of the body.
3. In the area where the arm meets the body, there is a clear difference between an enlarged chest and a narrowing in the armpit area.
4. The presence of fleshy lumps in the neck area from the back (back).
5. A clear smallness in the hip area.
6. A clear curvature in the back due to the accumulation of grease in the back area.
7. The shape of the body here resembles an inverted triangle,



Picture (6) Category (3)

D- Table (6) shows the standard specifications of the fourth model sample (the fourth category), which numbered (9) statistically.

No.	range	upper bound	lower bound	variance	standard deviation	mean	Specifications
9	32	142	110	151.528	12.310	130.44	chest circumference
9	47	152	105	213.611	14.615	124.89	waistline
9	26	150	124	106.750	10.332	141.33	hip circumference
9	13	52	39	25.194	5.019	44.78	neck circumference
9	2	18	16	1.111	1.054	16.89	shoulder line
9	8	28	20	6.944	2.635	22.22	Basque line
9	5	45	40	3.944	1.986	42.78	front center length
9	5	45	40	3.694	1.922	43.22	Back center length
9	12	57	45	31.000	5.568	52.67	chest length
9	8	49	41	8.500	2.915	45.33	back length
9	2	38	36	.861	.928	37.11	chest height
9	10	25	15	17.500	4.183	22.33	The distance between the tops of the chest
9	10	52	42	14.000	3.742	47.33	View issued
9	7	51	44	7.500	2.739	48.00	back view
9	8	55	47	12.750	3.571	49.67	Shoulder width in the back
9	8	29	21	9.250	3.041	25.33	side line
9	51	85	34	225.611	15.020	65.11	Jordan pit depth
9	10	68	58	15.194	3.898	62.22	Sleeve Length
9	8	49	41	8.861	2.977	43.89	arm length from bottom
9	14	54	40	25.861	5.085	47.11	humeral circumference
9	11	39	28	16.500	4.062	34.67	circumference of the elbow
9	5	24	19	3.750	1.936	21.00	wrist circumference
9	20	35	15	40.500	6.364	19.00	sleeve top height
9	7	39	32	5.250	2.291	35.33	elbow height
9	25	104	79	98.694	9.935	95.78	skirt length
9	20	152	132	45.750	6.764	146.00	Dress length in front
9	29	149	120	81.694	9.038	142.22	The full length of the dress from the back
9	28	49	21	77.194	8.786	36.78	chest depth
9	15	33	18	20.500	4.528	22.33	We cross the shoulder in the front
9	6	26	20	4.500	2.121	24.00	Shoulder cross back
9	20	42	22	34.750	5.895	29.33	chest intersection
9	16	40	24	36.250	6.021	30.33	back cross

No.	range	upper bound	lower bound	variance	standard deviation	mean	Specifications
9	21	45	24	46.944	6.852	36.78	chest arch
9	18	44	26	31.944	5.652	35.78	Foss waist in front
9	8	35	27	11.778	3.432	31.44	Back waist arch
9	18	46	28	31.194	5.585	39.22	Abdominal arc in front
9	10	40	30	17.250	4.153	36.33	Abdominal arc in the back
9	17	44	27	39.361	6.274	33.89	Hip arch in front
9	4	42	38	2.944	1.716	39.78	Hip arch in the back
9	18	133	115	50.028	7.073	122.44	height
9	.08	1.63	1.55	.002	.03905	1.5900	weight
9	4.75	50.06	45.31	2.852	1.68873	48.4151	body mass

**Table (6) Specifications of the fourth model sample (according to body mass)**

It represented the following characteristics:

1. In this category obesity was evenly distributed.
2. The shape of the body here resembles a rectangle.
3. There is no difference in measurements between parts of the body.
4. A drop in the chest level from its normal position.
5. The presence of fleshy lumps in the back of the neck.
6. There is no curvature in the waist area, and the picture (7) illustrates this.



Picture (7) Category (4)

#### **Statistical Means;**

1. Percentage.

. Range: It is the length of the smallest and a range of all data elements, and it is calculated by subtracting the small sample from the large sample.

3. Arithmetic mean: It is a value around which group values are gathered and through which the rest of the group values can be judged, so this value is the arithmetic mean.

4. Standard deviation: It is the most used value among the measures of statistical dispersion to measure the extent of statistical scattering, that is, it indicates the extent of the extension of the value fields within the statistical data set.

5. Variance: It is the mean of the squares of the deviations of the scores in the distribution from the arithmetic mean, and the standard deviation is then the square root of the variance for the statistical data set. (Al-Munazel, 2010, p. 55-p. 69).

#### **Chapter Four**

##### **First: Presentation and discussion of the results.**

This chapter includes a presentation and discussion of the results reached by the two researchers in this research, according to the objectives presented by the first chapter, and the interpretation of those results in the light of the theoretical framework, and then come up with a set of recommendations and proposals in the light of those results.

1- Reaching a standard specification for the body of an obese Iraqi woman and obtaining molds that fit the nature of those bodies. This specification can be used in the Central Organization for Standardization and Quality Control, depending on the studied categories (A, B, C, D).

2- Through the statistical data of the sample, we can describe the obese Iraqi women's body within the two shapes (pear), which is the obesity of the abdomen and buttocks, and the shape of the (inverted triangle), which is the obesity of the shoulder and chest.

3- Despite the body's obesity in category (4), it is regular and consistent, because obesity is evenly distributed over the areas of the body.

4- It is not possible to dispense with the pennies when executing the base mold for such bodies due to the large number of protrusions and bends in it and to get rid of the folds and increases that appear on the mold after wearing it.

5- There is a large discrepancy between the measurements of one body, that is, the difference between the upper part and the lower part of the categories of the research sample, except for category (4).

6- Most of the sample members suffer from a large protrusion in the abdominal area, which leads to the absence or semi-existence of the waist line, as well as the enlargement in the chest area, which makes the body appear as one mass

7- The types of samples used in preparing the basic mold can not all be used in preparing a basic mold for obese women, as the most suitable for the obese body was the convex and concave groin, provided that it was of a very short length to reduce the defects in the body.

##### **Third: The Recommendations**

1- The necessity of developing the curricula taught to students of the Department of Home Economics and the Department of Clothing Industry in order to keep pace with the development and technological progress. They identify the correct and appropriate methods of dealing with these objects when preparing the standard template for them.

2- Providing the Central Agency for Standardization and Quality Control with special tables for the body measurements of obese Iraqi women and providing factories that produce women's clothing with that specification, whether they are local or foreign Iraqi factories, and it contributes to addressing problems in the production of clothes.

- 3- Attempting to link university education with the community and its needs and benefiting from the graduates of the Home Economics Department to work in the ready-made garment factories to produce a high quality clothing product prepared in a good technical way.
- 4- Conducting more scientific studies that study body patterns and their relationship in the clothing industry.
- 5- Treating some distortions caused by physical patterns by using optical illusion in designing clothes and using straight fabric line and longitudinal cuts to avoid physical defects.
- 6- Making an indicative table to find the appropriate measurement for the bodies of obese Iraqi women, according to the mentioned categories.

#### **Fourth: The Suggestions**

- 1- Obesity and its effect on choosing clothes.
- 2- Finding standard specifications for the bodies of obese men in Iraq.
- 3- A comparative study of obesity between males and females.

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