Virtual fashion shows and their influence on women preferences in selecting outfits appropriate for their body shape

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Abstract:

Many women rush to buy the latest fashion trends which look great on models in magazines and fashion shows, but in many occasions, they find that these designs don't flatter their body silhouette; so they get frustrated and unsatisfied with their look; and may even return these purchases. In order for a woman to appear in her best shape; she must choose clothes that fit well with her body type and shape; as successful fashion design is one that emphasizes her attractive features and hides the problem areas. Here lies the research problem in the following questions: Do the majority of women know their body type? Can they choose the fashion designs that enhance the shape of their body? Can virtual fashion shows help women in choosing the outfits which enhance their body shape and avoid buying unsuitable clothes? Therefore, this research aims to: Help females between the age of 25 and 45 years old identify their body type, provide guide lines on how to choose the appropriate fashion designs and develop virtual fashion shows for each body type which demonstrate the suitable and unsuitable outfits for every type. Through theoretical and practical study; the research has concluded that virtual fashion shows for each body type demonstrate the suitable and unsuitable outfits for every type and it is also beneficial to design educational programs or applications suitable for consumers, to assist them in finding the perfect clothes for their body types and personal preferences. In addition, the research helps females between the age of 25 and 45 years old identify their body type then provide guidelines on how to choose the appropriate fashion designs ..

Introduction

Funds invested in the fashion industry amount to 2.4 trillion US dollars, thus; it plays a vital role in the international economy. Many e-commerce enterprises; such as Amazon and Zalando; give their customer the chance to buy clothes online, still; according to a recent study; around 50% of these purchases are returned and the dominant reason; which stands for 52% of the returns; is "unsuitable".

This is probably because some outfits may look nice on certain body shapes; but not on all body shapes; buyers only see the clothes when worn by professional models with perfect bodies and don't consider the possibility that a certain design may not be suitable for their body shape, as clothes that look very nice on a professional model may have a totally different look on another woman.

Therefore; understanding how to conform between the body type and the design lines can reduce the number of returned outfits and decrease the accumulation of unsuitable clothes in the wardrobe of every woman. Hosnieh (Sattar & et al ,2019) Due to the importance of the fashion industry; information-technology was rapidly introduced to the clothes and fashion field; and virtual fashion shows were fast presented to cope with the current digital era. Designing virtual fashion is similar to designing actual clothes in a method which strongly expresses the idea of the fashion designer. On the other hand; virtual fashion shows can help women choose the design lines which are most suitable for their body shape, especially when an "avatar' is developed for each body type. (Hyeong Seok Ko & et al , 2013)

A common issue that frequently leads consumers to return the clothing they bought is related to problems with the fit of the outfits. or avoid purchasing an outfit after trying it on, have continuously arisen due to an incongruent relationship between the garment and the human body (Huckabay Dabney, 1992). In the ever-changing fashion world, trends change so rapidly and markets offer various styles, however; many of these styles don't always look good on their purchasers; this leads to an important question; how to navigate the market for suitable outfits?

"Any fashion is only as good as it looks on you. Don't worry about the same silhouette; variety can be achieved through fabric, color, texture , accesso" and Fashion design lines   (Betty Feather, 1983), body type plays an important role in choosing appropriate outfits; and in knowing which designs will look good on every woman. Identifying the body type helps choose clothing items that can create the illusion of a balanced and well-proportioned bodyline, accentuate the good features of the female body and camouflage its flaw parts.

Therefore; virtual fashion shows can assist in recognizing the fashion lines which are suitable for each body type, as well as the unsuitable designs, thus; help women in choosing the best outfits for their body shapes.

Research Problem
The problem of this study can be identified by answering the following questions:
- Do the majority of women know their body type?
- Can they choose the fashion designs that enhance the shape of their body?
- Can virtual fashion shows help women in choosing the outfits which enhance their body shape; and avoid buying unsuitable clothes?

Research Objectives
1- Help females between the age of 25 and 45 years old identify the type of their body.
2- Provide guide lines on how to choose the appropriate fashion designs.
3- Develop virtual fashion shows for each body type which demonstrate the suitable and unsuitable outfits for every type.

Research significance
1- The research highlights four types of the female body shape and explains the main design lines suitable for each type.
2- The research helps women define their body type.
3- The research highlights the importance of virtual fashion shows in helping women make the right choice when purchasing outfits suitable for their body shapes.

Research Methodology
The research uses the analytical method to study the different body shapes and the suitable and unsuitable fashion lines for each type. It also uses the experimental method to develop a number of fashion designs for clothes that are suitable or unsuitable for each type and present them in a virtual fashion show to help each woman choose the fashion line most appropriate to her body shape.

Research Hypothesis
This study suggests that
- Choosing the appropriate design for each body type can help avoid the body negative features, accentuate its positive elements and create a better appearance for the female wearer.
- Virtual fashion shows can help women choose outfits which can enhance their body shape; and avoid unsuitable outfits.

Research limitations
Subjective limits: female body types
Time limits: 2022 – 2023
Research tools
1- CLO: a 3D fashion design software to design virtual garments
2- DAZ 3D: to create the models (avatars)
3- Wondershare Filmora Video Editor

Theoretical Framework
The research includes two aspects:
1st: Virtual fashion shows and their influence in helping women choose the suitable fashion lines
2nd: Different body types; their characteristics and the fashion designs suitable for each type.

1st: Virtual fashion shows and their influence in helping women choose the suitable fashion lines
Virtual reality technology has largely helped in the development of fashion and clothing industry, because they allow holding a fashion show at any time that can be presented in any place without the need rent a stage and hire professional models, as in the case of real shows. Nowadays; clothes can be designed in a 360° display technology, remotely promoted and easily adjusted with lesser expenses; thanks to the virtual and enhanced reality technologies.

With the expansion of the digital society in all fields; especially after COVID-19 pandemic; digital transformation has been introduced to the fashion industry and many international fashion houses have presented several attempts in utilizing virtual fashion shows in their business.

Reasons for the wide use of fashion virtual shows:
1- Restrictions imposed on traditional fashion shows during the COVID-19 pandemic.
2- To save the time and effort spent in the preparation of traditional fashion shows; as well as reducing the required expenses.
3- The global transformation towards technology, which affected all customers; and steered them towards virtual shows to save time, effort and money.
4- The several attempts by international fashion houses to use virtual fashion shows, which proved to be successful and thus; they continued utilizing this method.

The advantages of virtual fashion shows
Although the sales of luxurious goods had fallen by nearly 45% during the COVID-19 pandemic; this crisis provided the international fashion industry; with its investments of 2.5 trillion dollars; the opportunity to benefit from the advantages of digital shows in the post-pandemic world.
Such advantages include:
1- Virtual shows reduce the carbon emissions caused by clothes manufacturing, which helped the industry fulfill its long-desired green objective to decrease its carbon footprint. This can be confirmed by the report provided by ORDRE fashion technology enterprise; which

states that the fashion industry emits 241000 tons of carbon dioxide into the environment, which means that it is responsible for 10% of the yearly global carbon dioxide emissions.

2- Lesser expenses; through virtual reality technologies, a virtual stage can be constructed only once and used to present all designs, which means that costs are paid only one time, saving the high expenses required to design a real stage which includes: renting a ball room, designing a stage, hiring fashion models and organizers; as well as the expenses of the guests attending the show, in addition to the costs of each remake of the show.

3- Digital shows have their own magic; noting that actual shows have another type of magic; and although digital shows require a highly energy-consuming massive infrastructure; in the shape of huge servers, computers and laptops; it is still greener than real shows and don't contribute in global warming.

4- Virtual shows only focus on the product itself; as said by Sanjay Garg from Raw Mango; a trademark for contemporary Indian textiles; such as Saris, fabrics and shawls; which are manually weaved using traditional techniques. This trademark intends to present a collection of hand-made textiles in the next London Fashion Week-LFW which combines between the simplicity of embroidery and the luxury of "Bandhani"; a type of tie-dye textile.

5- Overcoming the space limitation; virtual shows provide the opportunity for an unlimited audiences to remotely attend and interact with the show; with its virtual seats which seem to be never-ending; making the show more widespread and helping; on the other hand; in the promotion of the products on a wider scale.

6- Gaining audience from all over the world; virtual reality technology allows any person in the world to virtually attend the show without the need to travel across countries. Hence; promoting the design ideas on a wider international scale and attracting more audiences from everywhere.

7- Buyers can remotely try the products through enhanced reality technique; and may also convincingly make the final decision of buying the piece of clothing. As this technique allows the users to know all the data about a product and virtually try it out, thus; take the final buying decision; which is not available in live shows.

8- Time flexibility and repetition; virtual fashion shows provide a great opportunity to watch the show at any time; contrary to live shows where audience are bound by their fixed timing; virtual shows allows the costumers to see the products at their convenient time, they can also easily re-watch it numerous times without any time limits.

9- Avoid mistakes and easy alterations; virtual fashion shows give the chance to easily correct mistakes, without any delay in the show or causing any distress to the audience; contrary to live shows, in which major mistakes can occur; such as a model falling down causing a chaos; such events can be easily avoided in virtual shows (. Marafaa AL Maarefa , 2022)
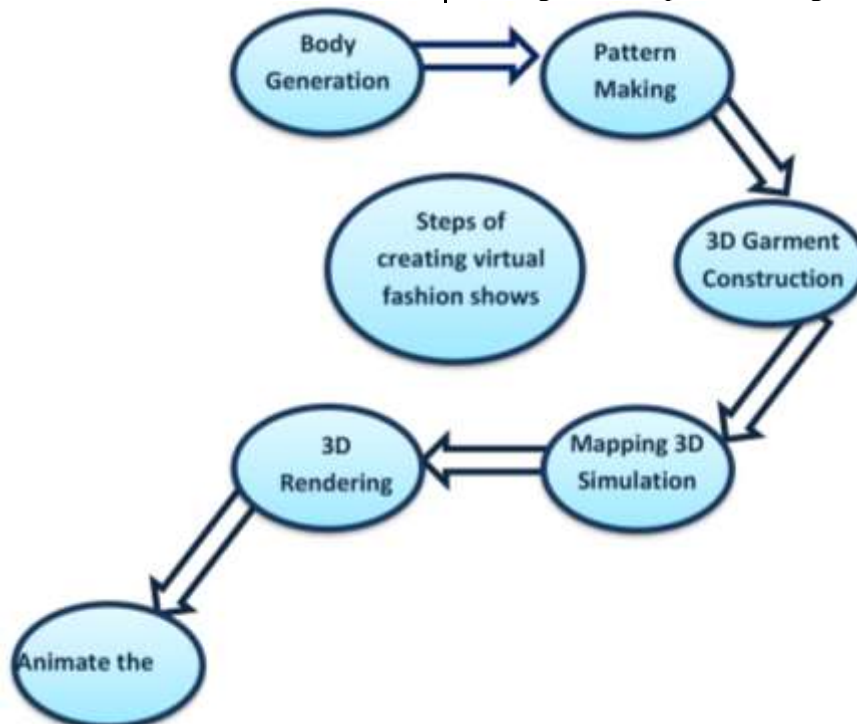
10- Figure 1 :Steps of creating virtual fashion shows

Figure 1 : **Steps of creating**

virtual fashion shows
Table (1) virtual fashion shows
Hanifa's virtual 3D fashion show :

Figure 2 : Hanifa's first virtual fashion show during New York Fashion Week in 2020

Hanifa Mvuemba; the founder of "Hanifa" fashion brand; was planning to present her first fashion show during New York Fashion Week in 2020, but; she couldn't go through with her plans due to the COVID-19 pandemic crisis. Thus; she came up with a new method to reveal her latest designs to the world, as in May 2020, she live-streamed a virtual fashion show on Instagram-Live; in which every dress was demonstrated in 3D technique moving around without being worn by a model, with a black background. This virtual show gained tens of thousands of views, therefore; she successfully benefited from the available technology and social media platforms to build a prosperous business which gained profits up to a million dollars by directly targeting the costumers. Anifa Mvuemba (with date)

Startup Bigthinx in partnership with the organization Fashion novation

Figure 3 : " Fashion novation" a virtual fashion show powered by BIGTHINX during the COVID-19 pandemic

During the COVID-19 pandemic; it was impossible to hold any traditional fashion shows; which forced "Fashionnovation" to organize a virtual fashion show powered by BIGTHINX; in which the stage design was inspired by the "World Ocean Day" and a model was designed in 3D to completely immitate reality.
Bigthinx is a deep-tech "Startup" project launched in partnership with the Prada Group that employs artificial intelligence in its work in the fashion and retail industries. The newest technical advancements are anticipated to assist "Startup fashion" in developing unique virtual fashion solutions for Prada and other fashion labels, which will then be applied to online sales to increase "Startup" consumer base. https://www.malls.com/news/news/the-first-virtual-fashion-show-will-be-supported-by-prada.shtml

Digital Collection Deep, photo from The Fabricant	**The Fabricant, a digital fashion house**
Figure 4 : Iridescence Dress from virtual fashion show designed by "The Fabricant" digital fashion house،	Figure 5 : chloe's 3d top and trousers, photo from selfridges
Figure 6 : Iridescence Dress from virtual fashion show designed by "The Fabricant" digital fashion house،	Figure 7 : Dress from virtual fashion show designed by "The Fabricant" digital fashion house،

A visual example for a virtual fashion show designed by "The Fabricant" digital fashion house, which creates animated virtual drawings of outfits designed by fashion brands; this is a partnership with the retail seller "I.T Hong Kong" with the aim to open a store without real products, instead; monitors will demonstrate 3D products inside the store. (Wu, Sehee, et al,2013)

Trashy Muse virtual avatars fashion show

Figure 8 : Trashy Muse virtual avatars fashion show, photo from Trashy Muse.

Due to COVID-19, the 2020 Shanghai Fashion Week was postponed and forced to rely on digitalization, which was followed by the Paris, London, and Milan Fashion Weeks. Fashion companies employed 3D technology to recreate runways.

Models in the "Digital Fashion Week" walk in front of a green backdrop, and then 3D designers create models and virtual surroundings using computers. For instance, in the Angel Chen Fall/Winter 2020 fashion runway film, the background was built as a modern gladiator arena, with views of an apocalyptic city and desert, and was totally developed by computer. This has opened the way for imaginative backgrounds for virtual fashion shows. (Wu, Sehee, et al,2013)

Figure 9 : A virtual fashion show of Jonathan Simkhai's collection, which consists of a number of wearable digital NFTs

The Jonathan Simkhai fashion collection, which consists of a number of wearable digital NFT devices, was unveiled by Jonathan Simkai at the Fall/Winter 2022 Fashion Week. This experience was created by Everyrealm and Blueberry Entertainment. To coincide with New York Fashion Week, the experiment was conducted. Simkhai

keeps reviving American style by breaking down barriers in both real life and virtual reality. (JONATHAN SIMKHAI, 2022)

2nd: Different body types; their characteristics and the fashion designs suitable for each type

Female Body Types

The body is the nature's foundation for clothing; and because clothing is an extension of the body that often reflects the individual's body image (O'Brien, & et al ,1985): many studies were conducted on how clothes can fit each woman in relation to her body image.

The main problem is that most women focus on a specific area in their body that they consider a flaw, such as the tummy, arms, hips …etc, but it is important to view the body as a whole when choosing different outfits.

The right outfit for each woman must be appropriate to her age, personality and the occasion during which it will be worn; but above all; it must be suitable to her body type.

1.1 The Ideal Body

An individual with an ideal figure means that his/her body parts are delicately structured in a balanced, comfortable and natural position with a minimal effort.

The body parts of an ideal body figure are well proportioned in accordance with the general body line; it is characterized with balanced shoulders and hips, as well as a well-defined waistline (Salah Ewis, 1997).

It is worth mentioning that the term "Ideal body" changes with the fashion trends of each era, moreover, culture has a great influence on the perception of the ideal body shape; almost each country has its own view of the ideal body across time; according to Hesse-Biber's book book (Sharlene Nagy & Hesse Biber, 2006); what we eat, what we wear every day; and how we view our bodies is shaped by the cultural environment.

Figure 10 : The ideal body shape

1.2 Categorization of Female Body Types

Many clothing manufacturers construct their clothing lines according to the categories of body shape, "Identification of human body shapes has been a key issue to develop sizing standards for ready-to-wear clothes and made-to-measure applications. Current methods used to identify the body shapes are mostly based on subjective/visual determination approaches" (ArzuVuruskan& Ender Bulgun, 2011).

There are various methods used to categorize the female body, some of which are: Letters (alphabetization); e.g. O-shape, X-shape, A-shape … etc., Fruits; e.g. pear, apple, banana …etc., Geometrical; e.g. rectangle, circle, triangle …etc.

Also, the number of body types varies from one categorization to the other, for example; "Jeanette Weber" has divided the female body types into four main shapes based on the body outline, which are: triangle, inverted triangle, rectangle and hourglass (Weber . J, 1990). While "Trinny& Susannah" have identified twelve classic women's body shapes that cover the most common female body types, these types are: vase, skittle, hourglass, goblet, column, pear, cornet, lollipop, bell, cello, brick and apple (Trinny & Sussanah 2008).

Traditional categorization methods of body shapes focus on the main body measures; i.e. the bust, waist and hips; as using these measurements provides a scientific and accurate way to determine different body types by evaluating the ratios between these measurements. Examples for methods that use body measures include 1) The WBSAT (The women's body shape analysis tool) developed by researchers at Auburn University, which identified four body types: the hourglass, the rectangle, the pear and the inverted triangle , The FFIT software (The female figure identification technique), developed by Simmons at North Carolina State University; which identified nine body types: hourglass, bottom hourglass, top hourglass, spoon, rectangle, diamond, oval, triangle and inverted triangle (Simmons, 2002).

There are also new and improved technologies that allow more realistic image of the human body, in order to classify it into categories, among which are: Mega-computing power, three-dimensional (3D) body scanning, dimensional design programs and computer-aided-design software (Simmons,K & et al, 2004).

1.3 Female body types

In general, body types/shapes can be divided into five main types, as follows (figure 11):

1- **Triangle**: The upper body is smaller than the lower body; weight is mostly gained around hips and thighs.

2- **Rectangle**: Body is equally proportioned with an almost unidentified waistline; weight is fairly distributed throughout the body, this type includes two sub-types: the brick and the lean column.

3- **Inverted triangle**: The upper body is wider than the lower body; weight is mostly gained in the bust,

arms and stomach.

4- **Hourglass**: Both upper body and lower body are balanced with a narrow waistline, weight is fairly distributed between shoulders, bust and hips, this type include two sub-types: bottom hourglass and top hourglass.

Figure 11: The most common body types/shapes

1.4 Identification of female body types

As mentioned above, body types can be identified by comparing measurements of the basic parts of the body with the primary features of each body type.

Basic body measurements include:
- Shoulders: from the tip of one shoulder to the other
- Bust: the fullest part of the chest
- Waist: the narrowest part of the waist (also called natural waistline)
- Hips: the widest part of the hips

On the other hand, the primary features of different body types are:
- Triangle: hips measurement is larger than shoulders and bust measurements.
- Rectangle: shoulders, bust, waist and hips measurements are relatively the same.
- Inverted Triangle: shoulders and bust measurements are larger than hips measurement.
- Hourglass: shoulders and hips measurements are relatively the same, while waist measurement is less than both of them.

1.5 How to identify body type:

There are simple steps to recognize the body type of each female, as follows:

Step 1: Examine the body
- Observe where body weight is mainly gained.
- Examine the shape of the torso (from the thinnest part of the waist to the rib cage and hip line).
- Determine which body parts are the largest and which are the narrowest.
- Note the problem areas and the positive features.

Step 2: Take body measurements (figure 12)
- shoulders.
- Bust.
- waist.
- hips.
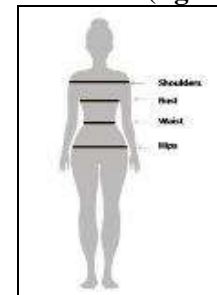
Figure 12: Basic body dimensions

Step 3: Match these measurements with different body types

- Consider the main features of different types.
- Compare between body measurements and each type (figure 13).
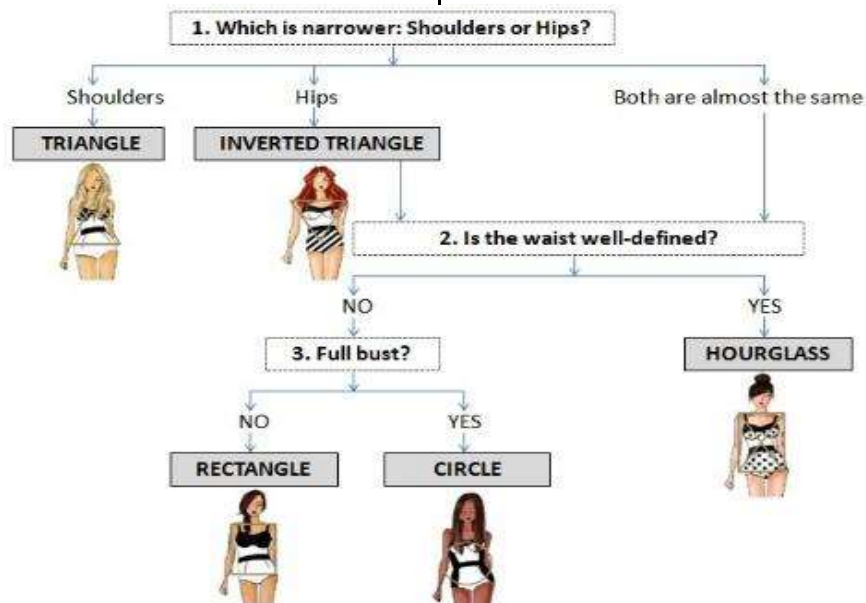
Figure 13: How to identify female body type

2. Fashion strategies for different body types
2.1 Creating the illusion of a balanced body

The ideal (or fashionable) body type is set by culture, society and the fashion trends of each era, but there are few women that naturally match the fashionable ideal body shape, luckily; clothes can help create the illusion of an ideal figure regardless of the body type. Women can "cheat themselves slim" by dressing in a way that include creating more hourglass shape, by slimming the waist and elongate the torso (Haynes, 2013).

Every woman has a natural silhouette which is created by the shape and contours of her figure, its frame, proportions and the distribution of body weight, on the other hand; and since silhouettes are often the first thing that people notice in a person; most women want to transfer their natural silhouette into an ideal one, this illusion silhouette can be created with clothes, fabrics, colors and accessories (Suzan Lazaer, 2012).

2.2 Fashion guidelines (practical study)

An ideal figure is well proportioned, but almost every body type has a main problem in its proportions, so in order to make it appear in its best shape; fashion has offered many designs and styles that can create balance between different parts of the female body, as well as the illusion of a well-proportioned body.

The following tables (1 – 4) sum the general features of the main body types; and provide fashion guidelines for each one.

Table (2): Features and best designs for the "Triangle- pear" body type

Triangle-"A"shape – Pear	**COLOR**: dark colors for the pants and skirt; such as black and brown; and bright shiny colors for the blouse and jacket; such as silver and orange.
 Figure 14 : : The Triangle-"A"shape – Pear body shape	**General Features: Measurements ratio Bust: Waist : Hips 3 : 2 : 4** It is characterized by slim shoulders and wide hips, giving the body the shape of a pear. The upper part of the body is ideal with a medium-sized bust, perfect arms and strong slender back; while the lower part has many clumps, with full round hips and legs.
	FABRIC: Natural silk and jersey, square patterns and printed textiles with adorned designs Light fabrics for the upper part gives a sense of femininity to the body
	The main goal is to create designs which help emphasize the beauty of the upper part; such as open and flat neck-line; to widen the shoulders and balance them with the hips. Fabrics with very narrow wide lines are used as an optical illusion to draw the attention away from the full wide hips and clumpy legs.

AVOID	PREFERABLE
link for virtual fashion shows : (needs an account on Microsoft) : https://fapabuedu-my.sharepoint.com/:f:/g/personal/mona_nasr_fapa_bu_edu_eg/Elmh12WLhwBGrRUyrWFIOQUBWXShuGAbL2oDUye__EkEVA?e=ZmW995	

Figure 15 : The jacket is not suitable for pear body type

Figure 16 : photos of a virtual fashion show. A jacket not is suitable for a pear body type

Figure 17 : jacket is suitable for pear body type

Figure 18 : photos of a virtual fashion show. A jacket is suitable for a pear body type

In this outfit; the jacket is tight with a closed neck-line increasing the smallness of the bust area and making it totally unbalanced with the wide hips, also; the pants are very tight, drawing more attention to the full hips area.	Long jackets with wide collars are preferred to draw attention to the nice bust area, and it is better to wear the jackets open to widen the shoulders and balance it with the hips, pants should be little wide to hide the fullness of the hips and legs.

AVOID	PREFERABLE	AVOID	PREFERABLE	AVOID	PREFERABLE

Figure 19 : A collection of fashion favorites and others that should be avoided for the pear body tape

Figure 20 : photos of a virtual fashion show for A collection of fashion favorites and others that should be avoided for the pear body type

Avoid short blouses ending at the waistline or long blouses covering the hips, because they increase the size of the hips and accentuates already wide thighs, avoid tight neck blouses because it gives the illusion of a smaller upper body and avoid wide/loose pants full of pockets	Blouses and t-shirts with an open front to widen the shoulders and draw attention to the upper part of the body. Pants should be simple without any front or side pockets in order not to widen the hips area, pants should also be relatively wide to hide the round legs.	Avoid flowy dresses with ruffles because they increase the size of the hips. Avoid tight neck dresses because they give an illusion of a smaller upper body.	The best way to hide the legs is the A-Line dresses with wrapped lines to draw the eye away from the full hips. The lower part of the dress should be a little wide and fluttering to give a more feminine style	it is unpreferable to wear blouses, as well as long wide sleeves, which end at the hips line, as they give the illusion of a wider hips area.	It is preferable to wear simple blouses which end at the waist-line with wide sleeves which also end at the waist-line to draw the attention away from the full hips area.

because they also accentuate already wide hips.					

Table (3): Features and best designs for the "Rectangle" body type

Rectangle Athletic Banana Colum	**COLOR :** Bright colors (for petite figure) , - Dark colors (for full figure), - Dotty or floral patterns ,- Bold prints - Horizontal stripes		
Figure : 21 Rectangle Athletic Banana , Colum, body shape	- Straight shoulder line - Straight hips & thighs - Average stomach - Little definition at waist - Shoulders, bust, waist & hips are in-line with each other	- Squared bodyline - No Curves - Small upper & lower body	- Narrow bodyline - Tall figure - Long upper & lower body
	FABRIC : Avoid choosing thick linen fabrics and rough fabric textures because they emphasize the appearance of the rectangle-shaped body, instead use knitted fabrics .		
	The main goal is : Attributing more femininity to the strict rectangular body by adding more curves to the design lines or using print motifs.		

AVOID	**PREFERABLE**

link for virtual fashion shows(needs an account on Microsoft) : https://fapabuedu-my.sharepoint.com/:f:/g/personal/mona_nasr_fapa_bu_edu_eg/EsJNtFhlGkpGieuCqA5D3X0Ba57bXVA9OVgoL9c3QT9sBg?e=GGvqfS

Figure 22 : : The blouse is not suitable for pear body type

Figure 23: photos of a virtual fashion show. The blouse not is suitable for a pear body type

Figure 24: The blouse is suitable for pear body type

Figure 25 : photos of a virtual fashion show. The blouse is suitable for a pear body type

Avoid boxy clothes, shirts and jackets, avoid straight lines in trousers because they elongate and emphasize the rectangular shape of the body .	To add more femininity to the rectangular body, pants that add some fullness to the lower body are preferred, using curved design lines in blouses to give the body the curves of the female body and adding a belt to the waist.

AVOID	**PREFERABLE**	**AVOID**	**PREFERABLE**	**AVOID**	**PREFERABLE**

Figure 26: A collection of fashion favorites that should be avoided for The Rectangle body tape

Figure 27 : photos of a virtual fashion show for A collection of fashion favorites and others that should be avoided for The Rectangle body tape

| The design lines of the skirt and blouse are rectangular and lead to a sense of a boxy body. | The high waist is suitable for this body shape as it draws the eye to the most attractive part of the body (chest). The skirt, which is slightly flowy at its ends, reduces the boxiness of the body. | .- Avoid straight lines in clothing design and avoid vertical or horizontal motifs or patterns as they emphasize the boxiness of the body | The open rounded v-neckline draws the eye to the chest. It is preferred that the jacket has a specific belt to put a tie, bow, or scarf, to give the illusion of a small waist. design lines of the skirt are also preferred to emphasize the hips more to suggest more femininity | Avoid sharp and straight design lines because they emphasize the shape of the rectangular body, avoid straight vertical or horizontal lines. | It is preferable to have asymmetrical slits and drapes that create an illusion of an enveloped lower body without clearly showing its rectangular shape. They also help lift the hips. Folds and pleats below the chest area draw attention there and add a feminine shape to the body |

Table (4): Features and best designs for the "Inverted Triangle" body type

Inverted Triangle - "V" shape - Strawberry	**COLOR :-** Neutral colors, however, if light colors are used, they will be in the lower body.
Figure 28 : The Inverted Triangle , "V" shape , Strawberry body shape	**General Features: Measurements ratio Bust: Waist : Hips 3 : 2 : 1** - -The inverted triangle body shape gives an unattractive shape. - The shoulders are broad, the arms are full, the chest is full and there is no waist, but the thighs are slim along with the long legs . **FABRIC: knitted and silk fabrics at the lower body with a lot of pleats** **The main goal is** -Emphasis on showing the hips more attractive. -The upper body appearing slimmer and thus reducing its appearance. - Designs that contain long lines that wrap around the body to show off the body in its most feminine look -A push-up corset should be worn to give the illusion of a more rounded chest. -Raglan sleeves to help draw eyes down the lower body

AVOID	PREFERABLE
link for virtual fashion shows(needs an account on Microsoft) : https://fapabuedu-my.sharepoint.com/:f:/g/personal/mona_nasr_fapa_bu_edu_eg/EiDAXtKWlqJDgLeAuhw9uvABo5jLJ1mDJhiMflIzTfZBHQ?e=acoLNw	

Figure 29 : blouse not suitable for "Inverted Triangle" body type
  Figure 30 : photos of a virtual fashion show The blouse not is suitable for a pear body type
	Figure 31 : blouse suitable for "Inverted Triangle" body type .
	  Figure 32 : : photos of a virtual fashion show The blouse is suitable for a pear body type

Avoid broad design lines such as wide horizontal stripes, off-shoulder, or horizontal patterns in the upper body because they enlarge the appearance of the upper body. Avoid using any details at the shoulders such as shoulder pads because they enlarge the appearance of the shoulders.	Choose simple lines in the blouse, narrow neck opening to reduce the appearance of the chest area, flared pants to balance out the larger upper body.

AVOID	PREFERABLE	AVOID	PREFERABLE	AVOID	PREFERABLE

Figure 33 : collection of fashion favorites and others that should be avoided for the "Inverted Triangle" body type

Figure 34 : photos of a virtual fashion show for A collection of fashion favorites and others that should be avoided for the "Inverted Triangle" body type .

| High waisted skirts with tight blouses that have details and loose sleeves enlarge the upper | pleated skirts that start at the waist line help balance the hips with | The design lines of jackets and short blouses that end at the waistline increase the sense of a larger upper body. The use of | It is preferable to use a coat with a wide collar, as it works to minimze the space taken by the shoulders. It | Avoid large, wide and oval-shaped neck openings, and avoid using any details on the | It is preferred that the dress has a deep V-shaped neck opening that helps reduce the breadth of the shoulders. |

body making the body look asymmetrical	the shoulders.	lines, horizontal stripes, or wide patterns make the area appear larger. Puffy jackets also give the sense of a larger upper body.	should be open to divide the design lines of the chest and shoulder area into three areas, which reduces the size of that area.	shoulders such as shoulder pads.	Wide straps and diagonal lines flatter the feminine shape of the body while flattering the thighs to balance out the broad shoulders.

Table (5): Features and best designs for the "Hourglass" body type

Hourglass "X" shape "8" figure	**COLOR:** - The femininity of this body type allows it to wear many colors, whether light or dark, and dark ones are preferred such as red, yellow, black, white, violet, and orange, but the colors worn on the upper body must go well with the colors worn on the lower body so that there is a balance between them avoiding the appearance of one looking more massive than the other.		
Figure 35 : "X" shape , body shape	**General Features : Measurements ratio Bust : Waist : Hips 3 : 2 : 3**		
	Curvy bodyline- - Defined bust - Thin narrow waist - - Full hips & thighs - Shoulders, bust & hips are about the same size - with a narrow waist	**Bottom Hourglass** - Narrower shoulders - Fuller hips & thighs	**Top Hourglass** - Broader shoulders - Narrower hips & thighs
	FABRIC : Chiffon is one of the fabrics that is not preferred for this body type -Jersey fabrics and fabrics with medium-sized motifs go well with this body type, while fabrics with large motifs or excess fabric as decorations add extra weight on the body**.**		
	The main goal: Emphasizing the femininity of this body using designs that highlight the fullness of the chest and hips along with the slim waist, so the body does not appear bulky and chunky.		

AVOID	PREFERABLE

link for virtual fashion shows (needs an account on Microsoft) : https://fapabuedu-my.sharepoint.com/:f:/g/personal/mona_nasr_fapa_bu_edu_eg/ErGh64GLMx1PmslicNIVsiwBIXyC41bs_q-d7tk3z2FqbA?e=BKznq2	
Figure 36 : The blouse is not suitable for "Hourglass" body type	Figure 37 : photos of a virtual fashion show The blouse not is suitable for "Hourglass" body type	Figure 38 : blouse suitable for "Hourglass" body type	Figure 39 : photos of a virtual fashion show The blouse is suitable for "Hourglass" body type

Figure 41 photos of a virtual fashion show for A collection of fashion favorites to be avoided for "Hourglass" body type

Avoid wide straight design lines because they hide the femininity of the body, the long straight jacket hides the femininity of the body	Using fitted jackets on the body with a pair of buttons that have a space between them that lengthens the short waist, so the body looks more slender	The blouse has a V-neck opening to reduce size and breadth of the chest. Skirt is fitted with slanted design stripes show a femininity of the body.	Wearing ruffled clothes, or ties, or bows, as this enlarges the female body

RESEARCH CONCLUSIONS

Figure 40 : collection of fashion favorites and others that should be avoided for the "Hourglass" body type

Figure 41: photos of a virtual fashion show for A collection of fashion favorites and others that should be avoided for the "Hourglass" body type .

Avoid wide straight design lines because they hide the femininity of the body, the long straight jacket hides the femininity of the body	Using fitted jackets on the body with a pair of buttons that have a space between them that lengthens the short waist, so the body looks more slender	The blouse has a V-neck opening because it reduces the size and breadth of the chest. The skirt is fitted with slanted design stripes show the femininity of .the body	Wearing ruffled clothes, or ties, or bows, as this enlarges the female body	Fitted dresses with curved design lines emphasize the femininity of the body	Dresses which have many design lines at the top of the chest, such as ruffles, caps, or .. it increases the fullness of the chest and slims the waist down. Puffy sleeves widen the chest area and enlarge the arms

- Helping women between the ages of 25 and 45 years old identify their body type and achieving the best appearance for each woman, by comparing the main body measurements with the fundamental features of different body types.
- Guiding women between the ages of 25 and 45 in identifying some problems and some other positive features regarding their bodies, which leads to them choosing clothes that hide problems and highlight the positives.
- The possibility of adapting different fashion strategies to help make them appear in their best form by analyzing each personality and understanding its origins and challenges; and how to choose suitable fashion designs for each body type, which creates a visual balance for the body.
- Virtual fashion shows help women choose clothes that are appropriate for their body shape and that each body type avoids certain styles because it reflects negatively on their silhouette. It is also beneficial to design educational programs or applications suitable for consumers, to assist them in finding the perfect clothes for

their body types and personal preferences.

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