

WOMEN'S UNDERWEAR AND CURRENT TRENDS



Prof. Dr. Zümrüt BAHADIR ÜNAL
Dr. Eda ACAR



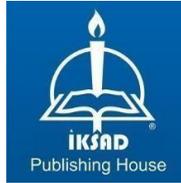
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Prof. Dr. Zümürüt BAHADIR ÜNAL

Res. Asst. Dr. Eda ACAR

Editor: Res. Asst. Esra YARAR

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TURKEY TR: +90 342 606 06 75
USA: +1 631 685 0 853
E mail: iksadyayinevi@gmail.com
www.iksadyayinevi.com

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PREFACE

Underwear production is one of the most difficult areas of apparel. The quality of the materials and accessories used in a product that requires very little material, such as a bra, is of great importance. An undesirable small mistake may prevent the use of the product. Therefore, product quality is also very important in this field. It is possible to classify underwear in various ways. However, all of them are like a second skin that directly touches the skin and wraps the body after the skin. Therefore, it is very important that underwear be comfortable and comfortable. The raw material of the fabric used, the finishing processes, dyeing, pattern, sewing and all the accessories used should be carefully selected. Materials and accessories that may pose a health threat should never be used. With the increase in needs and expectations, functional underwear products have been developed alongside conventional underwear models. Medical underwear, underwear for nursing mothers and sports underwear are some of them. As with other types of clothing, underwear has been one of the most important factors determining status in recent years. The stance of the top garment, the self-confidence, comfort and comfort of the person varies depending on the characteristics of the underwear worn. For this reason, especially in recent years, the variety of underwear products in women's wardrobes has increased.

With the development of technology and textile materials, the production of flexible, comfortable and very aesthetic underwear has become possible. Underwear did not need to be stored with its aesthetic stance, and sometimes it can be preferred as a bustier inside a jacket. These products are produced by embellishing with lace and special fabrics. Nowadays, it is possible to find underwear in almost every color. Therefore, after people decide on the clothes they will wear, they choose the color and model of the inner garment suitable for the outer garment. It is possible to cover body defects and look much more beautiful with properly selected underwear models. Today, with the increase in the variety of products in the underwear market, each individual has the chance to find the product that suits their expectations easily. With the increase in awareness in recent

years, people prefer clothes that they can feel valuable even at home and in bed. For this reason, diversity and functionality have increased in all underwear types, from bras to pajamas. In this book, underwear for women is examined in detail on the basis of product groups. The products in the underwear market are explained with the visuals.

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INTRODUCTION

In the first years, clothing was developed as a basic requirement for reasons such as health, hygiene and protection of the body from external factors, depending on the earth and living conditions. However, today, clothing has become a means by which people express themselves socially and psychologically. Production purpose of underwear products; in the first years, as in outerwear, it was warming and hygiene and took place between the female body and the clothes. Underwear was not only limited to a protective role, but also became an elegant part of clothing.

Underwear is defined as clothing that protects the physical health of the body, gives a good appearance to outerwear, provides the desired form to the body by hiding body defects, and is worn directly against the skin (Çileroğlu, 2006). Another definition is the form of clothing that prevents sweat from passing to outerwear, protects the body from the effects of weather events, and is used to take the desired form of outerwear. Underwear; It has been developed and started to be used to meet physiological needs such as warming, protection from external influences, hygiene and covering (Ceranoğlu, 2010). Properly chosen underwear also makes the body look much more attractive by giving form to the clothes worn on top. The type, color, model and fabric of the top garment play an important role in the choice of underwear. The wrong choice in underwear negatively affects the appearance of the upper clothing and is a factor that lowers the self-confidence of the person.

With the new aesthetic concerns brought by the Renaissance period, it is seen that underwear, which changed depending on the level of culture and civilization and became a necessity in the process, began to be used later to shape the body into the desired shape, to determine the social status and to provide a different function on the female body, giving it a symbolic meaning. Inner garments have an important place in creating forms in outer garments, supporting the body shape and changing its appearance. At the turn of the 20th century, underwear products changed due to aesthetic concerns as well as the search for comfort brought by women's role in daily life.

Underwear began to be sewn in sizes that would fulfill its function. However, at first, it was produced to cover a large part of the body, almost like an outer garment. Conditions such as the scarcity of materials brought by the wars, the search for freedom of movement, technological developments, the production of flexible fabrics with the invention of flexible fibers and the production of the garment in a way that fully encloses the body have been effective in these shrinkages. During these changes, underwear still retained its hiding place as the bottom layer within outerwear. It is observed that underwear, which started to emerge from its hiding place with the entry of the age of communication and internet, has taken its present form with a hundred years of accelerated evolution. Today, underwearproducts are visible and underwear has a significant effect on the aesthetic stance of outerwear, but it is a part and complement of outerwear. The effect of mainstream media and social media in making underwear visible in recent times still maintains its importance (Kahveci, 2021).



Figure 1: Current Trends (<https://www.stuff.co.nz/>)

Although underwear is used by both men and women, women's underwear usage areas are more common, since women's body

features and the importance they attach to aesthetics are more prominent than men. In addition, underwear products especially for women are in constant change and development by evolving until today. It is observed that the aesthetic perception of women, the spread of the concept of fashion and the development of the clothing industry have increased the diversity of underwear products (Vural et al., 2006), and underwear has been shaped as a result of the effect of fashion, as in other clothing types (Çileroğlu, 2006).

The forms, production techniques and supporting materials used in underwear, whose usage purposes have not changed, have developed with technology in the historical process (Bruna, 2015). In general, it is noteworthy that underwear forms have decreased in size and weight from past to present. The changes in material, fabric and sewing properties with the developing technology are reflected in today's underwear. Instead of natural fiber-containing fabrics such as wool, linen, silk, cotton, polyester, nylon, elastane, rubber, etc. It has been determined that fabrics containing synthetic and recycled fiber are used. The sewing techniques used in the production of underwear have changed; It has been determined that the sewing types made by hand have been switched to machine sewing, and even today, it has started to be produced with seamless knitting technology (Vatansever, 2019).

In this study, women's underwear products used today were examined under the main headings. The purpose of use of each product group is explained with images. Corel Draw Graphic Suite, Adobe Illustrator, Clo 3D programs were used in drawing the images. In particular, functional underwear has been researched to meet the aesthetic expectations and some health needs that have come to the fore in recent years, and the innovations in the accessories used in their production have been examined.

1. FOREIGN TRADE OF UNDERWEAR

Underwear and bed clothing is one of the highly developed sub-sectors of the ready-to-wear and apparel industry. The Turkish underwear industry continues to increase its share in world exports

every year with its quality production and product variety. Almost one-fifth of Turkey's exports are carried out by the textile and ready-made clothing industry. Turkey, the world's 7th largest apparel exporter, is also Europe's 3rd largest apparel supplier. The development of the ready-made clothing industry in Turkey also brings the development of the underwear industry. The underwear and bed clothing sector is an important and dynamic sector for the ready-made clothing sector and has gained a significant momentum in exports in recent years (İHKİB, 2022).

In the January-December period of 2021, 878.6-million-dollar worth of woven and knitted, men's and women's panties, briefs, bras, pajamas, nightgowns, dressing gowns, bathrobes, dressing gowns, and bedclothes were exported from Turkey. Exports increased by 29.4% compared to the same period of 2020. Considering the 18.9% increase in total woven and knitted apparel exports compared to the same period last year, it can be seen that a higher performance is displayed in the export of underwear and bed wear. The share of underwear and bedwear exports in total woven and knitted garments exports was 5.1% in this period (İHKİB, 2022).

In the January-December 2021 period, the countries that exported the most underwear and nightwear from Turkey are Germany, England, Iraq, the USA and France. In this period, 123-million-dollar worth of underwear and bedwear were exported to Germany, which ranked first, and Germany's share in Turkey's total underwear and nightwear exports was recorded as 14%. Eighteen of the top twenty exporting underwear and bedwear countries experienced an increase of 5.4% to 114.2% compared to the previous year. There were decreases of 4.9% and 6.2% in the exports of underwear and bed clothing to the two countries. In this period, the highest rate of increase was seen in Poland, where underwear and bedding exports amounted to \$19.9 million (İHKİB, 2022).

2. UNDERWEAR

History of Underwear

Underwear is a piece of fabric that we call loincloth in Turkish, which is used to mean "loincloth" in English, which is tied to the waist in ancient times. These diaper-like loincloths are the simplest form of underwear. It has been seen that it is used as both underwear and outerwear in hot climates. It is thought to be the only underwear of the Egyptian civilization, as seen in the ancient Egyptian paintings, especially in ancient civilizations.

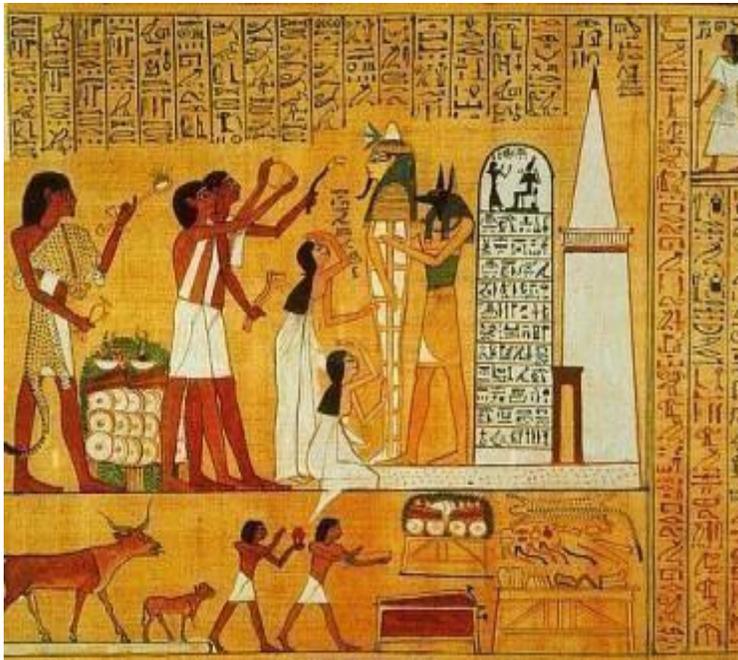


Figure 2: Hieroglyphics in Giza (<https://pestemalcz.wordpress.com/history-of-pestemal/>)



Figure 3: Rahotep (left) and his wife Nofret (right), 4th Dynasty, statues from Maidum, 121 cm x 51 cm. Egyptian Museum in Cairo, Polychrome statues representing Prince Rahotep and his wife Nofret, at the Egyptian Museum in Cairo. Photo: Cordon Press (https://historia.nationalgeographic.com.es/a/estatuas-vivas-rahotep-y-nofret_16722)

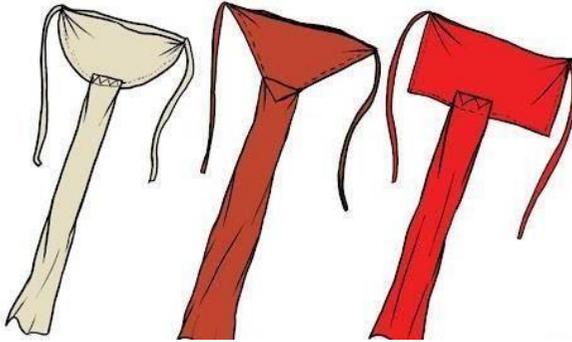


Figure 4: Three Different Loincloth Types(http://lh6.ggpht.com/-do_31kx2Vhk/TfwIqJdxtKI/AAAAAAAAACiw/sjv1UZKIVL8/TXLoincloth-Langoti-D.jpg)

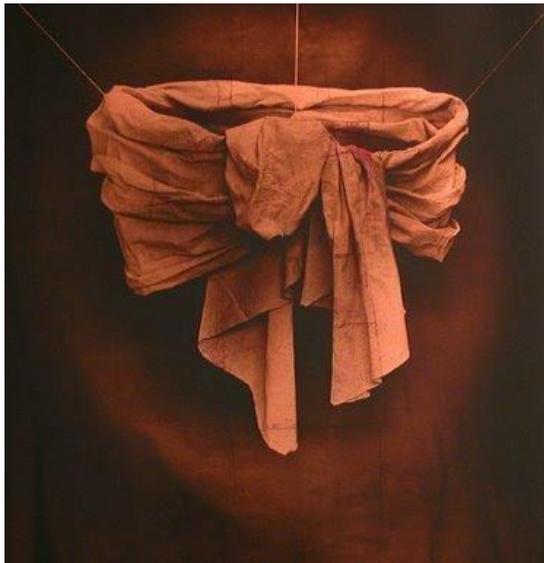


Figure 5: A Type of Tying Loincloth(3.bp.blogspot.com/_IKOn7gWzFeE/SeUh5wPo_aI/AAAAAAAKs/v5Sq36MmXy4/)

The type of peshtamal used among Indians is called "kowpeenam". These loincloths still have a rectangular pattern, but their front and back views are in the form of thong panties.

Peshtemals were diversified in Ancient Rome and were called subligaculum. It is seen that a piece resembling shorts wrapped around the lower part of the body is worn by both men and women. Fragments of skin subligacula were found during excavations of the Roman period.



Figure 6: Hunting house owned by Emperor M. Valerio Massimiano (known as Herculeos Victor), mosaic decorations depicting majestic female athletes whose fame spans the whole world while wearing a “subligaculum”. (<https://www.ilviaggioinsicilia.it/villa-romana-del-casale/>)

Underwear has been used to reshape different parts of the human body in certain periods of the historical process. However, as a result of the use of aesthetic appearance in these periods, extremely useless and unhealthy underwear emerged; In the upper body, corsets were used to slim the waist, and petticoats were used to shape the lower body. Even though underwear has changed depending on traditional features and fashion trends in general from the past to the present (Çalışkan, 2012); continued to provide functions such as protecting the body from cold, supporting and changing the shape of outerwear, and erotic symbol element (Saltabaş, 2015).

The forms, production techniques and supporting materials used in underwear, whose usage purposes have not changed, have developed with technology in the historical process (Bruna, 2015).

In the 14th century, women wore lace corsets called “cotte” made of hard and linen to make their bodies appear slim. In the 18th century, we see that corsets were used on women's bodies in a way that exaggerates the chest and hips, but makes the waist look thin, in accordance with the fashion of that day, together with a hard structure underneath. Bourgeois class women used these corsets, which are hard to even breathe in (Gökkaya, 2008).

The 19th century led to an increase in the production of knitted underwear due to fashion. From the beginning of the 19th century, women began to wear long panties. It is understood from the advertisements given that year that cotton long panties were produced in 1813. The panties are produced at knee level as well as the leg lengths reaching to the ankle. It is produced by sewing the legs separately from the upper part and then adding two parts to each other. Long panties worn inside remained in women's fashion for only 24 years until 1830. The reason for this was that these laundries spoiled the feminine image. In 1807, a new type of petticoats came into fashion. These skirts, which were very narrow and wrapped around the legs, allowed women to walk only with short steps. In the 1880s, as a reaction to the flamboyant fashion of the 18th century and also with the influence of the health movement, fashion became very simple. Wool underwear became fashionable in these days.

Underwear made of pure wool is called “Sanitary Underwear”. The reason for the start of this movement is the use of dangerous dyestuffs containing "aniline" in fabric dyeing. These dyestuffs have caused health problems and poisoning on the skin. Dr. Jeager started this project with the thought that wool laundry prevents bad odors with healthy sweating. In 1874, two American doctor brothers, Warner Bros. Co. By establishing their company, they produced the product they describe as "healthy corset".



Figure 7: Girdle 1955
(<https://www.metmuseum.org/art/collection/search/98721>)

With the influence of the romantic movement that started in the 1890s, the element of beauty began to be sought in both underwear

and outerwear. In the late 19th century, the so-called "S-Twist" line appeared in underwear. Women wore corsets to provide this image. The petticoat was among the underwear of the 19th century.

With the awakening of the idea of sexual attraction at the beginning of the 20th century, a very different trend was entered in underwear. Wool laundry, which was fashionable in the 19th century and preferred because it was healthy, lost its popularity. Later, fabrics such as silk, crepe rosin, satin and georgette, which gave a sexy image, were started to be used. The luxury and elegance that comes from the French word "linge", which is called "lingerie", has been popular for several reasons. It has been observed that these fabrics are much lighter than woolen clothes, more suitable for decoration with lace and embroidery, and are attractive in appearance.

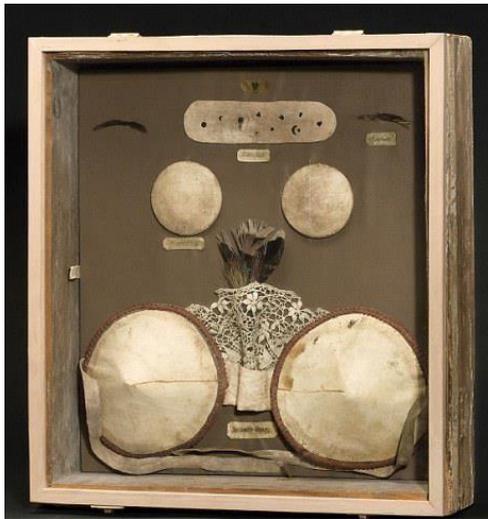


Figure 8:The Bra at the Science Museum, London.
(<https://timurovets.com/koi-e-izmisilil-sutien>)

The first appearance of the bra dates back to the beginning of the 20th century. The first bra design, consisting of two handkerchiefs

and thin ribbons, was made by Mary Pheleps Jacob in 1914 and patented. At first, the bra was without underwire and was used to press the chest. Warner Bros. Co. Made the first backless bra in 1914. In 1917, Berlei, one of the well-known companies producing corsets and bras in Sydney, developed a bra model in 1925 and made adjustable front straps as the distance between the two breasts was left. At the end of the 1920s, Kestos Company in America developed a newmodel by attaching two triangular fabrics with elastic bands, crossing them on theback and tying them in the front. In addition, in the 1920s and 1930s, corset companies entered the bra business and made bras with underwire and in different cup sizes (Gökkaya, 2008). With the discovery of synthetic fibers; as in all knitted products, it has been the beginning of a new era in terms of underwear and swimwear production.

In 1935, Warner Bros. Co. introduced a sizing system for the “cup” region of the bra. In the 1940s, the use of extra sponges allowed the bras to be given different shapes. In 1948, frilly bras were produced by keeping the distance between the chest wide. Strapless bras were also made in the 1950s to be used with strapless dresses. In these years, bras were produced for the first time for adolescent girls and bustier was also used in these years (Gökkaya, 2008).

Factors Affecting Underwear Selection

Women's underwear preferences are affected by various factors such as physical structure, sociological and economic structure, psychological state and fashion. The most important factors that should be found in underwear products are providing comfort of movement, maintaining body temperature in accordance with ambient conditions or absorbing sweat, not disturbing the skin and making the person feel comfortable during use. Apart from some basic expectations, there are factors that vary according to the product groupin order to meet more aesthetic and specific needs.

Considering these expectations, some factors affecting the selection of underwear are as follows.

- ✓ Fabric feature
- ✓ Climate and season
- ✓ Age
- ✓ Anatomic Structure and Gender
- ✓ Health
- ✓ Fashion
- ✓ Tradition
- ✓ Features of outerwear

Fabric Feature

Since underwear is worn on the skin, it is the clothes that get dirty as a result of sweating and dirtiness of the body and need to be washed frequently. For this reason, fabrics that are easy to clean should be preferred. It is suitable that the color of the fabric does not fade because it is washed very often, it is resistant to washing and it is made of light-colored fabrics. The underwear, which is expected to be healthy, should be made of soft, sweat-absorbing fabrics made of natural fibers such as cotton.

Climate and Seasons

The fabrics to be used in the production of underwear products and the model features to be applied should be prepared according to the climate and seasonal characteristics in which the product will be sold. In addition, the needs of the consumer should be met by taking into account the climatic conditions in the region where the sale will be made. While it is necessary to choose fabrics that absorb sweat in the seasons when the temperature is high, it will be correct to produce according to the fabric and model features that will protect or increase the body temperature in the seasons when the cold weather affects.

Age

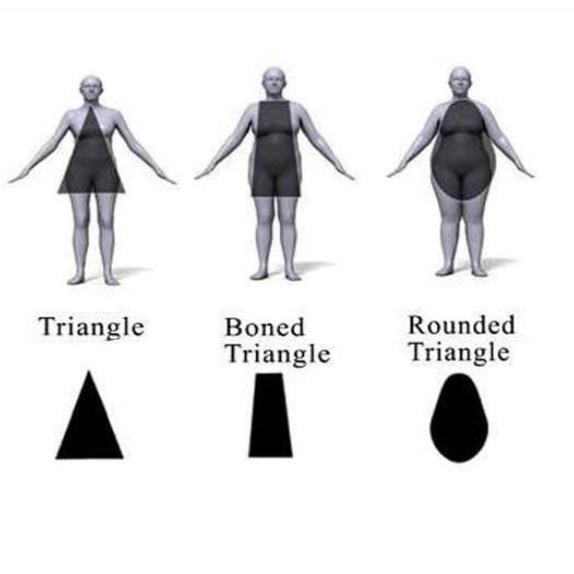
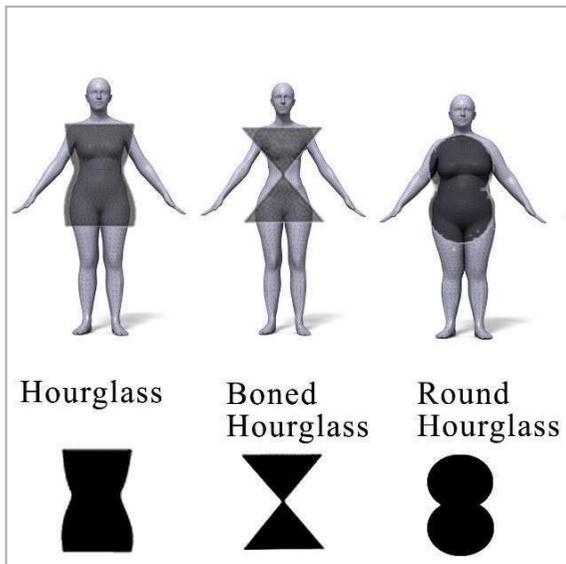
Since the human body structure shows development and change in every age period, the features expected from underwear will change

accordingly. While aesthetic concerns may be at the forefront at an early age, providing basic needs and comfort expectation may become a priority in the future. Therefore, it is necessary to have information about the expectations and body structure of the target audience according to the age range.

Human Anatomy, Body Features and Gender Differences in Underwear

Anatomy is defined as "Anatomy is a science that studies the normal shape, structure and various organs that make up the body and the normal relations between these organs". "When the body feature is mentioned, the person's being thin or fat or a possible body defect comes to mind. In addition, the body structure temporarily differs in pregnant and lactating women. However, body characteristics should not be limited to being thin or fat. Body disorders caused by health problems or bodies that differ according to continents are also factors that should be considered, researched and examined while producing underwear products. In addition to these, there are also temporary body structure changes. These are pregnancy, lactation and post- surgery periods. In addition, grouping people according to gender, age and racial differences is not sufficient to detect body types. In order to have full knowledge of this subject, measurements should be made on people from all over the world (Tama and Öndoğan, 2014), and even examinations should be carried out on cadavers.

Female body types can be evaluated in nine different features.



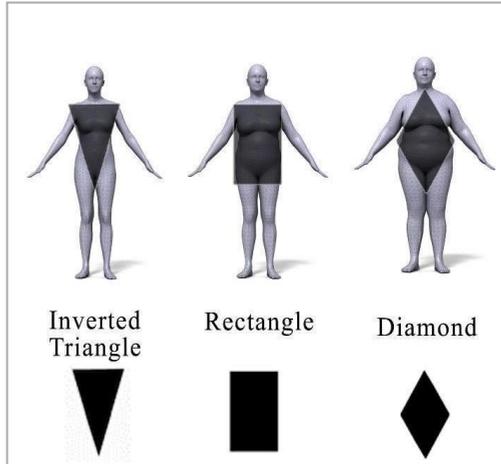


Figure 9: Female Body Types (Figure was drawn using “CLO 3D Fashion Design Software Ver.7.0.528”)

Hourglass: It is the hourglass type, which is ideal for female body types. Here, the chest and hip circumferences are proportional, and the waist circumference is noticeably thinner. Therefore, the upper and lower body numbers are the same in all garments, including underwear. It has equal or almost equal waist and hip width, and the waist is thinner than the shoulders and hips. The person with this shape has a general appearance with an extremely thin waist compared to the shoulders and hips (Knox et al., 2003).

Boned Hourglass: While the waistline has a very thin appearance, the appearance and dimensions of the chest and hips are very close to each other. The difference of this body shape, which is seen more in people with an athletic build, from an hourglass, is that they do not have a bony structure.

Round Hourglass: It appears as a subcategory of the hourglass shape in people with curvy lines. While the shoulder line is soft, the waist line is more pronounced and the hips are curved, while the upper and lower parts of the body are curved but not pronounced.

Triangle: In people with a triangle shape, the waist line is not prominent and the chest appears larger than the hips. While the upper part of the body appears wider, the lower region appears narrower (Istook, 2004).

Boned Triangle: Shoulders are narrow, straight and less sloping, almost straight. People with narrow and straight shoulders generally have this appearance and body shape (Olaru et al., 2011).

Round Triangle: A person with a rounded triangle shape is much wider at the hip than the shoulder and has a recessed waist. The hip view has a much wider view than the waist and shoulder view (Knox et al., 2003).

Inverted Triangle: In this figure, the waist is indented and the shoulder looks much wider than the hip. Therefore, the person has a broad shoulder general appearance. Wide shoulders, a normal waist, long legs and narrow hips are the characteristics of this body type (Dirgar et al., 2021; Knox et al., 2003).

Rectangle: Persons of rectangular shape, slightly indented waist, approximately equal visual balance between shoulder and hip. It is the body shape of those who have the general small waist appearance seen in average people (Knox et al., 2003).

Diamond: People with this shape have a very large middle section compared to the rest of their body. The protrusion in the lumbar region is clearly visible. The waistline is not visible. They look like they have a bagel roll that wraps around the body (Istook, 2004; Eryazici and Çoruh, 2015).

Differences between male and female body types are shown in Figure 10.

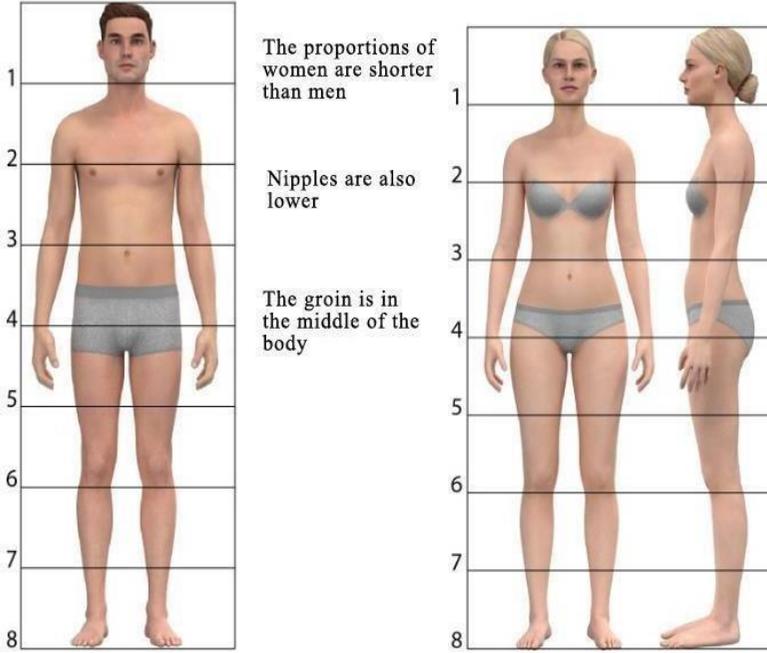


Figure 10: Male and Female Body Proportions (Figure was drawn using “CLO 3D Fashion Design Software Ver.7.0.528”)

Basically, when the female body is compared to the male body; the female head is smaller than the male head. Their shoulders are narrower than men's shoulders, and their breasts and nipples are lower than men's. Women's waist is thinner than men's waist, their hips are relatively larger.

In order to protect body health, underwear products should be produced according to body type differences brought by gender and anatomical features. When underwear production is analyzed by gender; these are the underwear products produced for the protection of the genital area, which is the area that should be especially sensitive

among the underwear products to be produced for men. In order not to restrict the comfort and freedom of movement, the molds of the lower underwear products should be designed according to the male body characteristics. When the underwear products to be produced for women are examined according to their body structure, particular attention should be paid to the mold characteristics of the upper underwear products. Measuring systems should be used correctly in terms of back and chest comfort.

Health

The importance of human health should be taken into account while producing underwear. In terms of health, fabrics that absorb sweat, are not synthetic, and are thin and soft that will not irritate the body, and do not use dangerous dyestuffs should be preferred. In addition, products that will prevent blood circulation in the body and make it difficult for the body to move freely should be avoided. In addition, it is an important issue to design and disseminate products that provide support in the recovery process after some health problems or the operation, and today the variety of products in this field has increased.

Fashion

As in every field, underwear products are in a change with the effect of demo. It is effective in determining the model, fabric, color, auxiliary material and product variety of fashion underwear products. In fact, some underwear products are started to be used with the effect of fashion or the use of some underwear products is discontinued. Especially since underwear products are used as outerwear or as a complementary piece of outerwear, it is very important to closely monitor the effect of fashion on underwear.

Tradition

Traditions of some regions affect people's underwear choice. Underwear, which was worn in the past and is still used in the countryside today, is worn by men and women, but they are cut separately. There are nightgowns that were worn in the past and are still used by men in some regions today. They were cut from white calico for the summer and white flannel for the winter; only grooms' nightgowns were made of white thread. Therefore, the ongoing traditions in the region where the target market lives are counted as one of the factors affecting the selection of underwear.

Features of Outerwear

Outerwear production varies widely in terms of model, color and fabric properties. Today, underwear products are used together with outerwear products and as complementary parts. Underwear and outerwear products can be preferred in terms of features such as model, color and fabric, or optionally in contrasting colors. Therefore, underwear should be designed in accordance with the fashion trends of the period, just like top garments.





Figure 11: Current Trends - Visible Underwear

(<https://graziamagazine.ru/>)

(<https://www.vogue.com/>)

Classification of Underwear

Various classifications of women's underwear have been made that are similar to each other. According to (Ceranoğlu, 2010), women's underwear; are classified as those worn on the skin, those worn in bed, and those worn when getting out of bed. Worn against the skin: bras, singlets, petticoats, corsets, panties, garters, petticoats; The ones that are worn in bed are grouped as nightgowns, pajamas, baby-dolls, and those that are worn after getting out of bed are grouped as dressing gowns and lyssos.

Women's underwear is basically classified in one study as undershirt, flannel, camisole, bra, suspenders, corset, underskirt and petticoat (Çolak, 2011). It is also categorized as those worn on the skin, those worn in bed, and those worn at home (Gökkaya, 2008).

Worn on the skin, tank tops, undershirts, camisoles, suspenders, corsets, petticoats, bodysuits, beachwear, panties, bras; those worn in bed are grouped as nightgowns, bed bikinis, baby-dolls, pajamas, trijamas, lysers, and those worn indoors are grouped as dressing gowns, vests, and tracksuits. In addition, in his study, Saltabaş classified underwear according to its functions (Saltabaş, 2015).

In this study, underwear products are grouped and explained as those worn on the upper and lower body.

Underwear for upper body

- Athlete
- Flannel
- Bra
- Petticoat
- Underwear dress
- Corset
- Nighty
- Dressing gown

Underwer for lower body

- Panties
- Corset
- Garter
- Sock

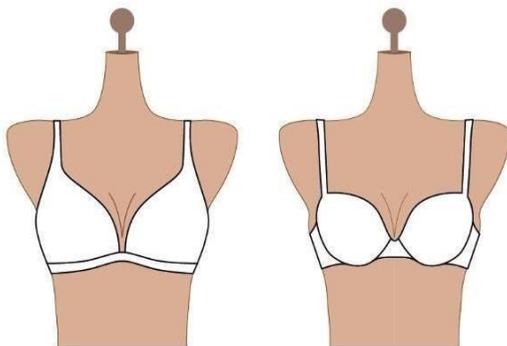
Figure 12:Classification of Women's Underwear (Vatansever, 2019)

3. WOMAN'S UNDERWEAR PRODUCTS

Bra

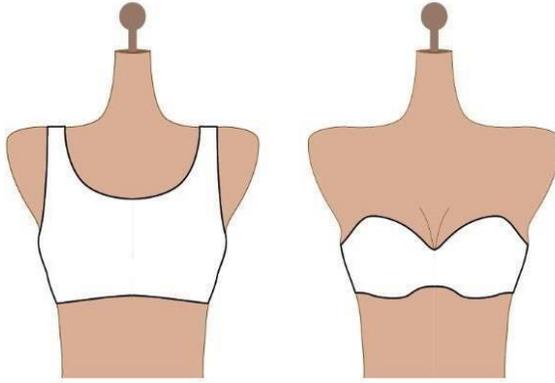
The bra consists of cups, bands, straps and various supporting parts that cover and support the chest area. It is an underwear product used to keep the breasts upright and show them full. With the development of the industry and the widespread use of the field, many models are produced according to need in different shapes such as minimizer, push-up, decollete, maternity/nursing, sports, soft cup, strapless, bralette and fantasy.

Today, aesthetic expectations are at the forefront, and the increase of products that do not leave traces and provide high comfort of use during the day draws attention.



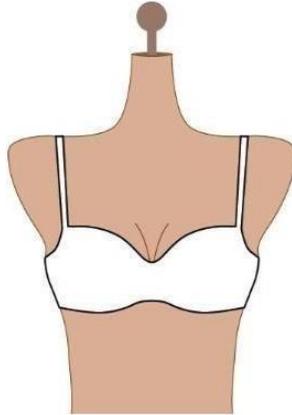
Triangle

Classic



Top

Strapless-Multiway

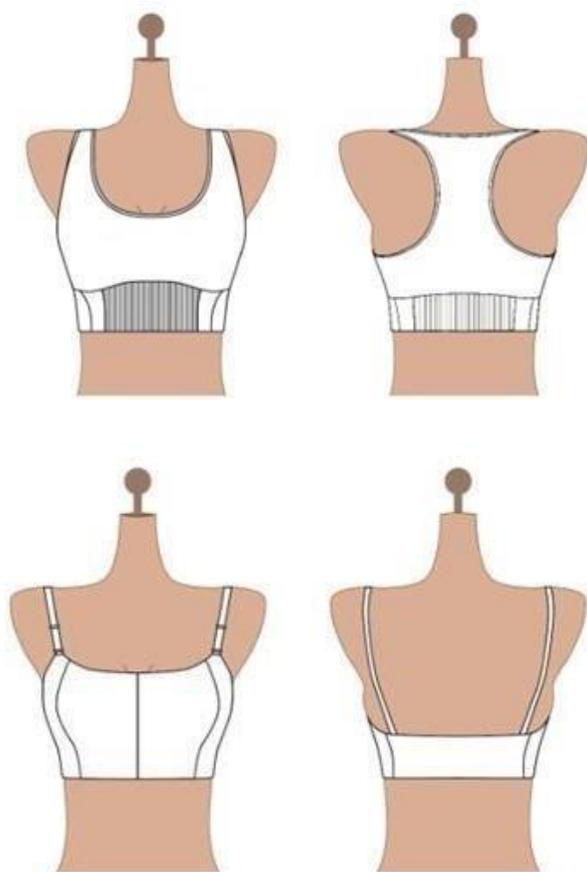


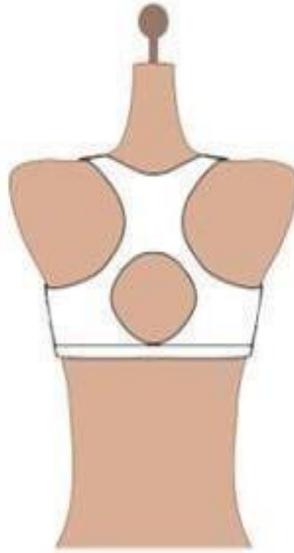
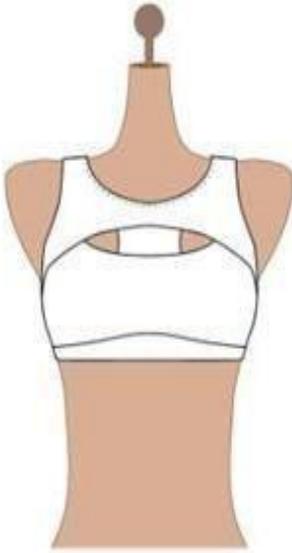
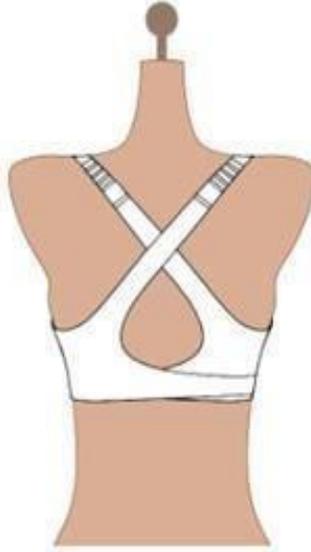
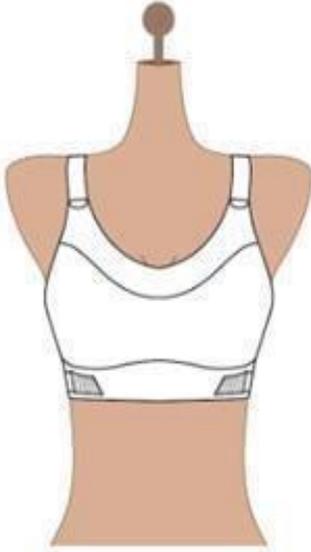
Push-up

Figure13: Bra models (Figures were drawn using Adobe Illustrator 2022 Graftic Design Software)

SportsBra

In addition, with the widespread use of indoor sports such as yoga and pilates reformer in recent years, the use of sports bras that provide movement comfort to the athlete during exercise has also increased. Sports bras, on the other hand, are classified according to the level of support according to the requirements of the sport, the design for the straps and the way they are worn.





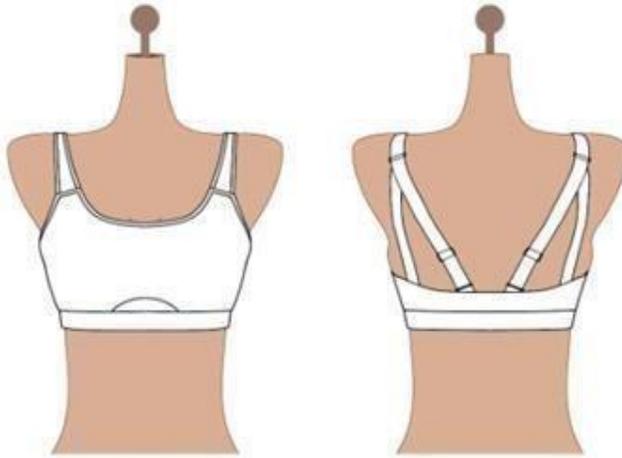


Figure 14. Sports Bra Models and designs (Figures were drawn using Adobe Illustrator 2022 Grafic Design Software)

Bralette

Products produced under the bralette and top category are frequently preferred for daily use, and are used as a complement to both underwear and outerwear. Bralet models, which offer great comfort thanks to their soft fabric texture and the absence of underwire in their structure, are preferred as underwear and outerwear at any time of the day.





Figure 15: Bralette Models
(<https://www.oysho.com/>)
(<https://www.victoriasecret.com/>)
(<https://www.brasnthings.com/>)
(<https://www.penti.com/>)

First Bra

There are bras produced under the name of my first bra for young girls whose breast development is just beginning. These bras are designed not to hinder normal breast development and to maximize comfort.



Figure 16: First Bra Models
(<https://www.penti.com/tr/>)

Nursing Bra

There are also bra designs produced for breastfeeding women. Functional products are offered under the Moms collection category.



Figure 17:Nursing Bra
(<https://www.oysho.com/>)

Mastectomy Bras

There are products under the category of surgical bras for women who have recently undergone mastectomy. Technical and functional collections with single cup, front and back closure, non-wired, adjustable and multi-position, suspenders, breathable feature are designed for the needs and comfort of use of the relevant target audience. In these bras, one side can be worked flat, or a pocket can be made to place a prosthesis on the cup part of the bra in the non-breast area.

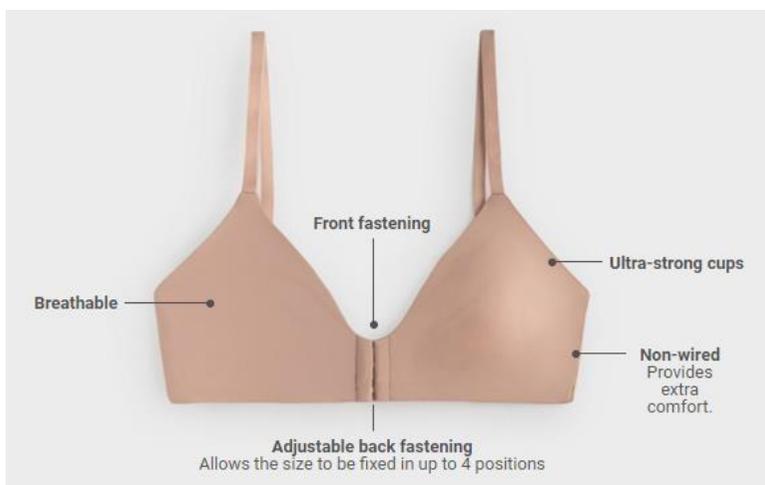


Figure 18: Mastectomy Bras
(<https://www.oysho.com/>)

Minimizer Bras

It is one of the underwear products preferred by people with large breasts. It serves to show the breasts in a smaller size than they are. In addition, it provides a more aesthetic form to the big breast by gathering and straightening it. A larger cup is used to provide this function. In order to carry the weight created by the breast more easily, thick straps and closing bands are used.



Figure 19: Minimizer Bras Models
(<https://www.marksandspencer.com.tr/>)
(<https://www.icgiyimperisi.com/>)

Push-up Bras

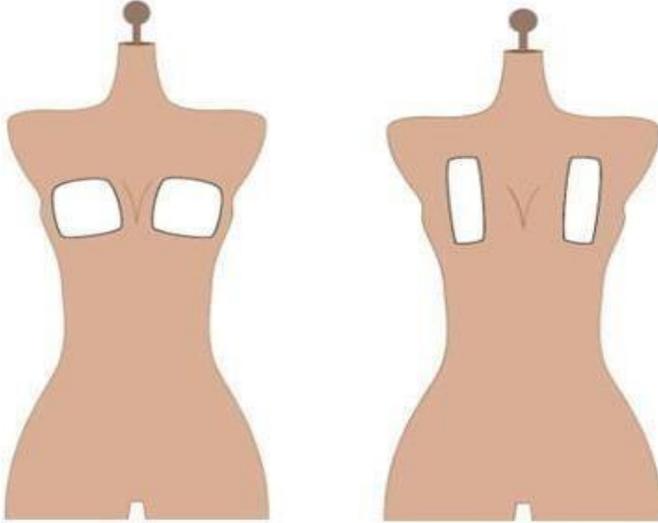
It shows the breast area fuller than it is and since it supports the breast from the sides, the desired fuller appearance and décolleté can be achieved. Push-up levels are available at major, medium, light and minimal lift depending on the need.



Figure 20: Push-up Bra and Its Levels
(<https://www.binbircesit.com/>)
(<https://blog.shyaway.com/>)

Breast Lift Tape

The breast tape is designed to hold, shape and cover the breasts in the desired position. It has a cotton structure and is produced in rolls. Especially in evening dresses with deep decollete, it is preferred to be used in different ways depending on the garment model and need.



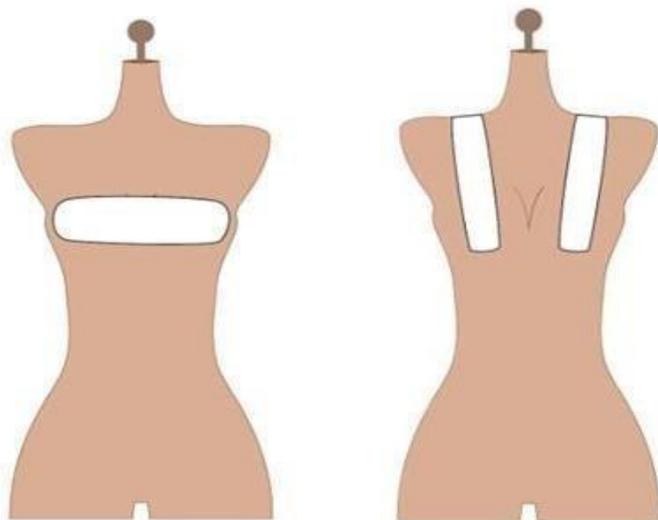


Figure 21: Way of Using Breast Lift Tape(Figures were drawn using Adobe Illustrator 2022 Grafic Design Software)

Bra Strap

Today, bra straps are produced from different materials according to needs. More comfortable straight straps with cotton structure and lycra are preferred, especially in cases where they are used in a way that is not visible in the garment. On the other hand, in clothes where the straps are visible, aesthetic models with blings, embroideries and clear structures, which also support the outer appearance, are preferred depending on the preference of the person.



Figure 22. Bra Strap Models
(<https://www.penti.com/tr>)
(<https://www.amazon.com.tr/>)
(<https://charme.ro/>)

Adhesive Fabric Bust-Enhancing Cups

Adhesive fabric cups are invisible supports that cover the chest and make it easier to wear deep décolletés. They adhere to the chest except the nipple area and are produced with front hook for better effect or with tape support from above to shape the chest.



Figure 23: Adhesive Fabric Cups
(<https://www.oysho.com/tr>)
(<https://www.penti.com/tr>)

Nipple Covers

Nipple pads are used with thin and low-cut clothes that reveal the nipples, and are suitable for use without a bra. Tapes are produced as single and multi-use. Disposables are produced by using adhesive material on a fabric background, reusable ones are made of silicone adhesive material, are long-lasting and resistant to many washings.



Figure 24: Nipple Covers
(<https://www.oysho.com/tr>)

Contour Adjuster

Bra contour adjusters offer alternative sizes for different body types with different color options. It provides comfort in long-term use as it spreads the force over a larger area with its wide bandstructure.

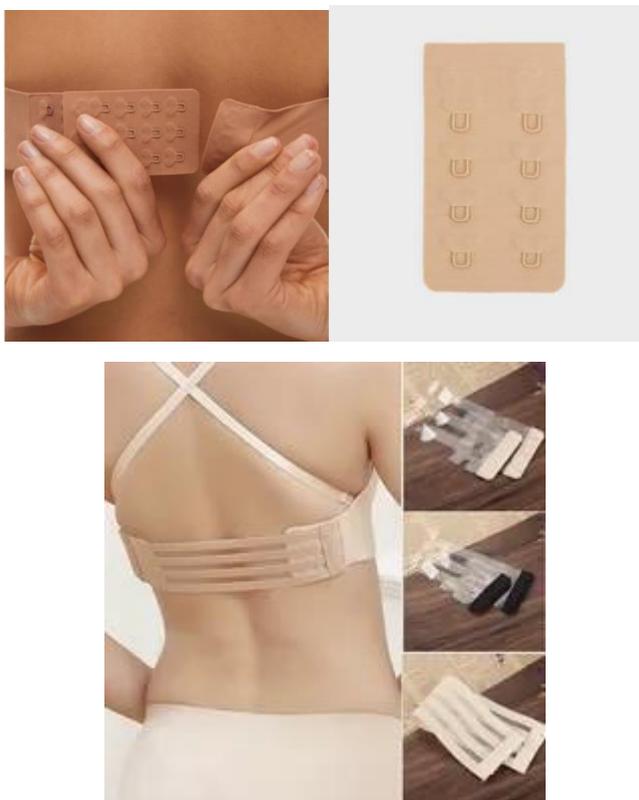


Figure 25:Contour Adjusters

(<https://www.oysho.com/tr>)

(<https://www.joom.com/tr>)

Two-sided Adhesive Fabric Tape

Double-sided adhesive fabric tapes are produced for invisible support when wearing low necklines. It ensures that the decollete of the clothes remains at the desired level by sticking to the skin and clothes at the same time. It can be adjusted by cutting to the desired length.



Figure 26: Two-Sided Adhesive Fabric Tape(<https://www.oysho.com/tr>)

Bra Pads

They are fabric-covered inserts on a sponge structure that are placed inside the bra to support the breast. It is preferred in order to ensure a full fit to the body, especially in products with less size options. It is used similarly in swimsuits and bikinis. Inflatable models are also available to adjust the desired support level. There are also products in the form of post-operative breast prosthesis.



Figure 27: Bra Ped

(<https://www.amazon.co.uk/>)

(<https://www.penti.com/tr/>)

(<https://www.marksandspencer.com.tr/>)

Bra Strap Holder

The primary goal of bra strap holders is to spread the weight carried on the shoulder to a wider area, especially for large-breasted body structures and thin-strapped bra models, and to make the person feel comfortable during long-term use.

In addition, due to its silicone structure, it prevents the hanger from slipping and keeps it stable. It prevents permanent deformation and scar formation in the area where the sling exerts intense pressure on the skin.



Figure 28:Bra Strap Holder
(<https://www.amazon.it/>)

Bra Strap Clips

The bra strap clips fixes the strap in the middle of the back by keeping it stable, especially in models with decollete with varying depths on the back and prevents it from being seen from the outside. In addition, bra extenders are produced for backless dress.



Figure 29: Bra Strap Clips(<https://www.trendyol.com/>)



Figure 30: Bra Extender
(<https://tr.aliexpress.com/>)
(<https://www.amazon.co.uk/>)

Undershirt

Undershirt is an underwear made of fine cotton or fine wool knitted fabric with a sleeveless deep collar, thin or thick straps, and an underwear that can be used by people of all genders and ages. It is used to avoid cold in winter and excessive sweating in summer. It varies in terms of pattern features such as strap width, collar model, body length, arm length, accessories used and fabric content. Due to the direct contact with the skin, it should be able to cover the body without causing discomfort such as itching or prickling. For this reason, it is expected that the stitches and piping to be used in the athlete will not disturb the body. Likewise, in order to increase comfort, the labels used in the product are applied by printing method on the product. Undershirts designed with snap fasteners are frequently used, and collar details and panties/closure parts differ in this product group. This product group is also combined with outerwear in a complementary way. Athlete body sizes may vary depending on the model or fashion.





Figure 31: Undershirt Models (Figures were drawn using Adobe Illustrator 2022 Grafic Design Software)

Padded Bra Shirt

Undershirt models with pads on the chest are produced for people who do not prefer to wear two layers as a bra and undershirt, especially in hot weather. The bra section is joined to the front collar and there is no underwire structure on it. Since there is no joint in the back area, it provides comfort for longer use and looks aesthetically pleasing as there is no visual trace.



Figure 32. Padded bra shirt Models (<https://shopee.com.my/>)

Nursing Undershirt

Special undershirts have been produced for pregnant and nursing women. Undershirts help the baby to breastfeed comfortably with its clip-on model that fits the body thanks to its adjustable straps and can be opened easily.



Figure 33: Nursing Undershirt
(<https://www.lohusahamile.com/>)

Thermal Undershirt

Thermal undershirts are produced in various protection levels in order to maintain body temperature according to ambient conditions, to keep the body at its own average temperature and dry, and to wear less layers of clothing.

They are underwear products that can be used by people of all genders and ages, with short or long sleeves, in different models, generally with a round neck.

Today, it is produced in different thermal levels according to the environmental conditions of indoor and outdoor activities as well as daily use. With the regenerated fiber blends used today, a better thermal insulation is provided compared to cotton products, and the rate of transmission of the liquid to the outside has increased.



Figure 34: Thermal Undershirt
(<https://www.morhipo.com/>)

In addition, there are products produced under the name of thermal undershirt, which makes the body sweat quickly by making a sauna effect in daily life and while doing sports.



Figure 35: Thermal Undershirt
(<https://www.trendyol.com/>)

Flannel

Flannels, which are generally preferred from woolen fabric in cold weather, can be preferred from sweat-absorbing fabrics in hot weather. It can also be produced unstitched or stitched on the side. Unlike the undershirt, it is produced in half-sleeve or long-sleeved models. The fabric used in the production of flannel should not irritate the skin, be soft, not prevent the skin from breathing, and be suitable for frequent washing. In recent years, athletes with cotton inner surface and woolen outer surface have also been produced. Generally, athletes are produced from mixed raw materials in order to benefit from the advantages of fibers.

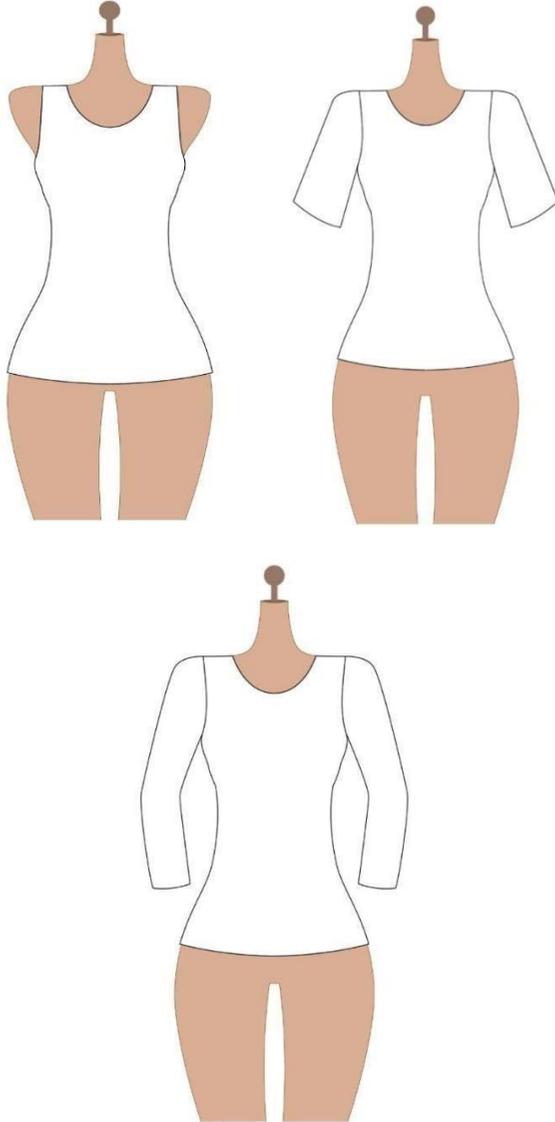


Figure 36: Flannel Models (Figures were drawn using Adobe Illustrator 2022 Grafic Design Software)

Slip

Slips are divided into two according to the material they are produced and the purpose of use. Cotton slips produced for daily use have the same function as petticoats and are used as lining under dresses.

Slips made of more fancy fabrics such as satin can often be worn as a nightgown. All materials that are produced for underwear products and that will not disturb the body can be preferred in the production of slips.

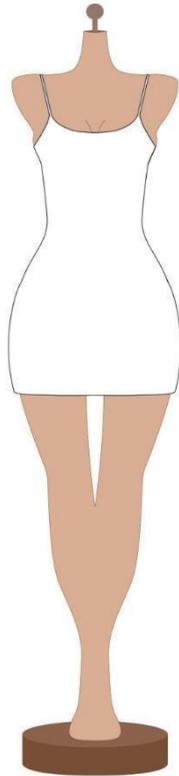




Figure 37: Slip Models(Figures were drawn using Adobe Illustrator 2022Grafic Design Software)

Camisole

Camisole is a women's underwear with short, thin straps, closed front and back, covering the chest part of the body. It is usually embroidered or decorated with lace.



Figure 38: Camisole Models

(<https://www.kom.com.tr/>)

(<https://www.marksandspencer.com.tr/>)

Corset

Corset is an underwear that aims to support almost every part of the body, to form by tightening, and it affects the body shape in long-term use. Corsets, which have areas of use for women and men, can be used in cases arising from aesthetic concerns and health problems. The features expected from the product in the use of corsets are that it provides freedom of movement to the wearer, does not irritate the skin in long-term use, and can fulfill the duties of the purchase reason. Corsets are produced in low, medium and high tightness. In the parts of a product that are expected to look more aesthetic or to be tight, surfaces of different tightness can be created without using any stitches. The sewing techniques used in corsets should be such that they are not visible on the garment.



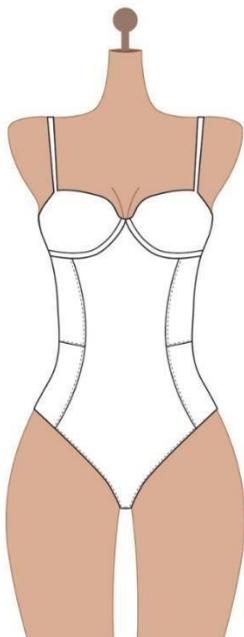


Figure 39: Corset Models(Figures were drawn using Adobe Illustrator 2022Grafic Design Software)

Shapewear Briefs and Shorts

It is produced to support the abdomen and hip region. There are also models of panty shapewear briefs produced to support the upper leg area. In addition, there are shapewear briefs with a high waist and a structure extending under the bust to shape a wider area. Silicone materials are used in the waist and leg sections so that these products do not slide and pile up during movement on the body.

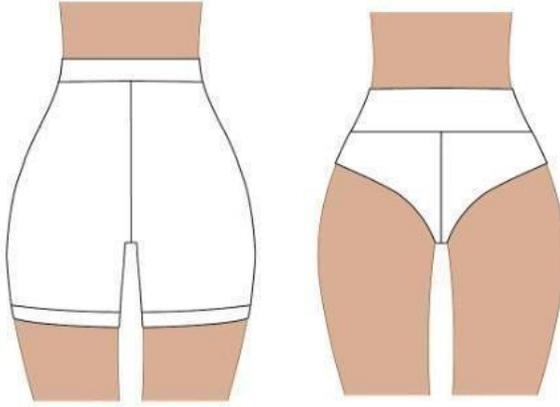


Figure40: High Waisted Briefs and Short(Figures were drawn using Adobe Illustrator 2022 Grafic Design Software)

Body Corset

The body corset, unlike the one-piece corset, is produced as a combination of upper and lower parts, covering the body, and consists of different lengths. It can be with or without shoulder straps.



Figure 41: Body Corset (<https://www.trendyol.com/>)

Post Surgical Corset

Today, body corsets are used to support and recover the body after operations such as tummy tuck, waist slimming, liposuction, laparoscopic sleeve gastrectomy and rapid weight loss.

This type of corset is used to recover the deformation that occurs in almost every part of the body, including the arms and legs. It provides convenience to the user with opening-closing details and different functions according to the requirements of the operation.





Figure 42: Post Surgical Corset
(<https://www.walmart.com/>)
(<https://www.vonamedikal.com.tr/>)
(<https://www.ankamedikal.com.tr/>)

Abdominal Corset

Abdominal/belly corsets are among the corset options that tightly wrap the abdomen and belly area, starting from below the waist. It covers the waist and provides a slimmer appearance.



Figure 43: Abdominal Corset
(<https://loya.com.tr/>)
(<https://www.trendyol.com/>)

Panty

Panties are short, elastic waistband underwear that are in direct contact with the skin in order to cover the genitals. In its production, various models are applied, taking into account the comfort of the body. It should be paid attention that the fabrics to be used in the production of panties are suitable for frequent washing at high temperatures. The nomenclature varies according to the model patterns. Today, laser cut models that do not leave traces are often preferred.



Figure 44:Panty Models(Figures were drawn using Adobe Illustrator 2022 Grafic Design Software)

Hip Enhancer Panties

These are the products in which the back part is supported with sponge structures in order to give the hip a more upright form and a voluminous appearance. It has become widespread on aesthetic expectations.



Figure 45: Hip Enhancer Panties
<https://www.penti.com/tr>

Maternity Panties

It is a high-waisted product that covers the body in the best way during all periods of pregnancy, and especially the belly part is more flexible.





Figure 46. Maternity Panties
(<https://www.penti.com/tr>)

Menstrual Panties

Menstrual support panties are designed with a sustainability approach, to reduce the use of pads and to be used instead of pads. The inner layer has different absorbency levels according to the intensity of the menstruation period, trapping the liquid and smell inside and providing protection by preventing leakage.





Figure 47: Menstrual Pantie Model and 3D Visual(Figure was drawn using “CLO 3D Fashion Design Software Ver.7.0.528”) (<https://www.penti.com/tr>)

Garter

Garter; it is an underwear consisting of a garter belt, stockings and stocking holders. It is a sock tie used by women to keep the socks fixed in a certain place on the leg (below or above the knee). The garter, which was used to prevent the socks from falling and to keep them tight, was used more before pantyhose were produced. Today, with the production of pantyhose, the need to use garters has disappeared. However, it continues to be used for aesthetic purposes. Using garters also has health benefits. Stockings used with rubber affect blood circulation and cause circulatory disorders. The garter eliminates this drawback. In addition to models made only for holding

stockings, there are various models of garters with or without panty that perform the function of corset and garter together.





Figure 48: Garter Model
(<https://www.ayildiz.com.tr/>)
(<https://loya.com.tr/>)
(<https://www.penti.com/>)

Petticoat

Petticoat is a underskirt that is worn under skirts or dresses and produced from fabrics such as combed cotton, satin, tulle, etc. In order to put these fabrics used in underwear in the desired form, auxiliary materials such as sponge, sponge, wire, underwire, frill, flywheel can be used. In the production of narrow-cut and below-the-kneemodels, stretchable fabrics or slits should be used for movement and ease of use. Petticoats are used in a transparent outerwear to hide the body lines, as well as to provide a full and fluffy look to the garment in wedding dresses or fancy garments. In addition, it can be used to prevent direct skin contact of clothes with fabric structures that are irritating and itchy on the body, or to prevent stretching of the hip and knee areas in tight skirts. For embellishment, petticoats decorated withlace, embroidery or scallops are used so that they can be seen from under the skirts.





Figure 49: Petticoat Models
(<https://www.penti.com/tr>)
(<https://www.marksandspencer.com.tr/>)

Nightgown

Due to hygiene and comfort factors, clothes worn in bed should be different from casual clothes. Underwear products worn in bed should be made of soft fabrics so that they do not disturb the person during sleep, and should not irritate the skin.

Nightgown is a sleep dress designed for women, produced for wearing in bed. Generally, there are fabric features and model differences depending on the season in which it will be used. Long sleeved, long skirted, collared or collarless models can be produced in order to maintain body temperature in cold weather seasons. In the hot weather seasons, models with short sleeves, sleeveless, long or short skirts can be produced. Model features may differ for daily and

fantasy use. Since it is a product that has into direct contact with the skin, accessories that do not irritate the body should be used for embellishment.





Figure 50: Nightgown Models
(<https://www.victoriasecret.com.tr/>)
(<https://www.penti.com/tr/>)
(<https://www.marksandspencer.com.tr/>)

Babydoll

Babydoll is a bed dress rich in accessories, which fits under the bust and has a loose fit from under the bust to the hips. Babydolls are underwear products that contain a set of panties. It reveals the chest, back and leg décolleté aesthetically.





Figure 51:Babydoll

Models(<https://www.intimissimi.com/tr/kad%C4%B1n/>)

(<https://www.victoriasecret.com.tr/>)

Bodysuit

A bodysuit is a one-piece garment that covers the torso and groin area of the body and resembles a swimsuit. It is usually designed in a form that can be opened and closed with snaps or hooks on the crotchpart. Bodysuit models are for those who prefer the comfort and elegance of one-piece design instead of bras and panty sets under their clothes in daily life.



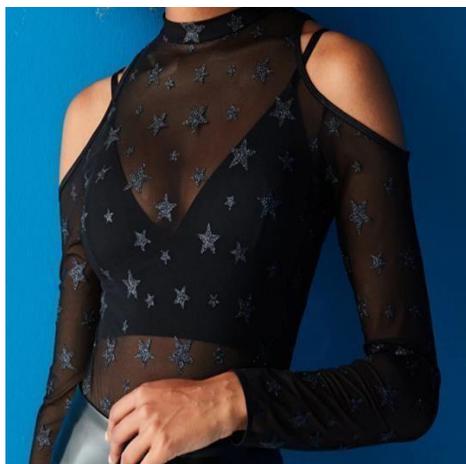
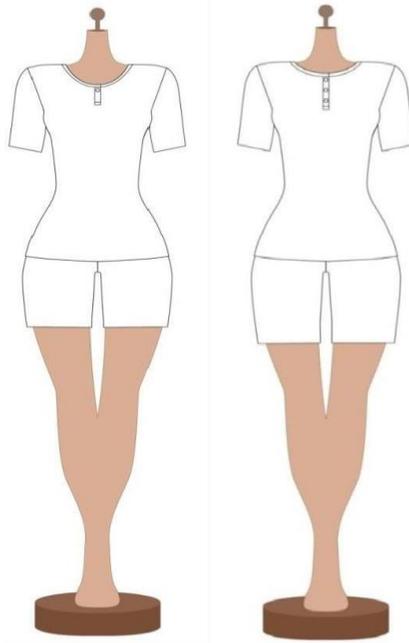


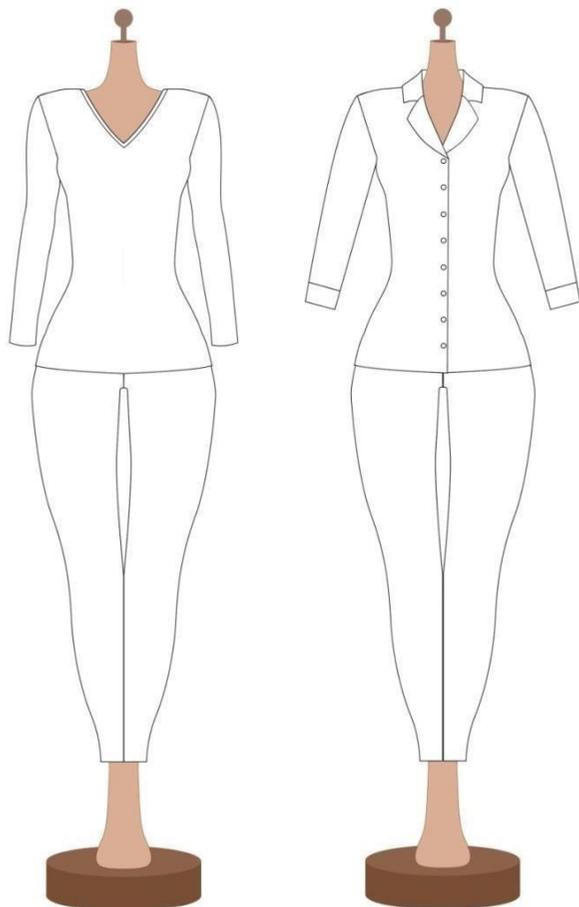
Figure 52: Bodysuit Models
(<https://www.intimissimi.com/tr/>)
(<https://www.penti.com/>)
(<https://www.dagi.com.tr/>)

Pyjama

Pyjamas are sleepwear consisting of a top and a bottom piece. It should not disturb the body during sleep and in daily use at home and should provide a comfortable use. It is produced in different models according to the fabric content; cotton, viscose, satin structure, according to leg length; long, short, or capri length, according to sleeve length; strappy, short or long sleeved models.

Both comfortable use and aesthetic appearance are among the expected features. Considering that pajamas are a clothing item that is washed frequently in terms of human health, strong threads and appropriate sewing techniques should be used during the production phase.





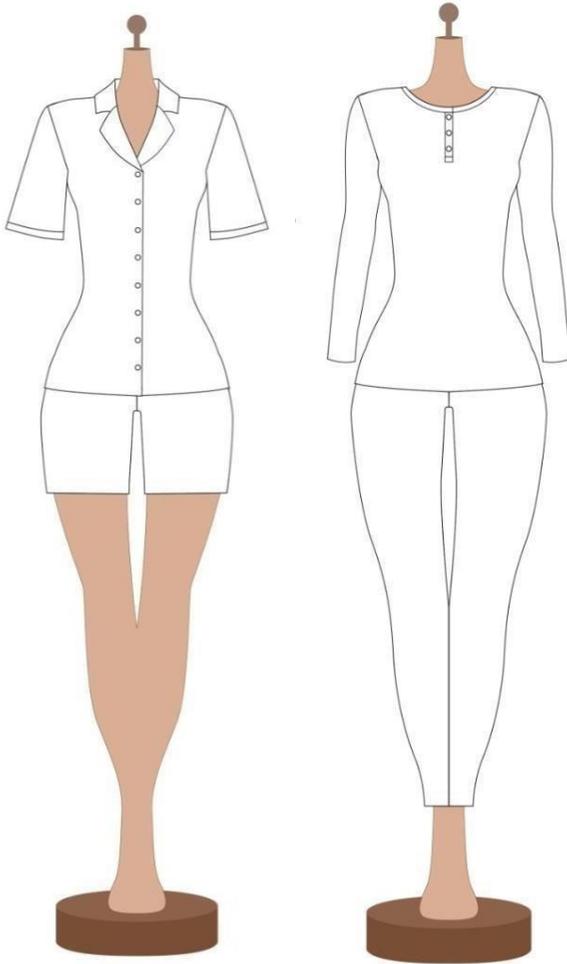


Figure 53: Pyjama Models (Figures were drawn using Adobe Illustrator 2022 Gfrafic Design Software)

4. CONCLUSION

The underwear industry has also shown a constant change by being affected by technological developments. Fabrics and accessories used in underwear production play an important role. The use of fabrics with high comfort properties due to their direct contact with the skin and the flexibility properties of the fabrics according to the product type are very important. The fabrics to be used in the production products covering body such as bras and panties should have high flexibility. Underwear product types and models have spread over a wide range from past to present.

Underwear, which has been used until today, has undergone form changes due to many reasons such as the change in women's social roles, living conditions, ease of use, technological innovations and the effects of ready-made clothing production. Although underwear has changed in general depending on traditional features and fashion trends from the past to the present, it has continued to provide functions such as protecting the body from cold, supporting and changing the shape of outerwear, and erotic symbol. Despite the stylistic change, it has been observed that the influence of underwear continues in shaping the silhouette of outerwear.

Today, underwear is in the foreground rather than being hidden, and it has become a complementary piece of clothing. This trend is mostly seen in upper underwear. In addition, the underwear worn over the clothes in the latest trends attracts attention. Laser-cut products without seam marks, fabrics with low weight value, as well as products that cover a smaller area on the body are preferred for lower underwear.

The use of bras in contrasting colors under transparent shirts, blouses and sweater-like tops has become quite common. Apart from daily use, trends in which the fabric of the clothing is transparent and the underwear is more visible in evening dresses has become widespread.

It is seen that the products produced for medical purposes are produced in different models and designs and a wide product range is offered to the consumer. Considering the underwear needs of consumer groups undergoing operations such as breast prostheses, mastectomy surgeries, liposuction, and stomach reduction, functional products in special categories are becoming widespread.

Especially with the pandemic, the expectation of comfort has become very important in underwear as well as in casual wear. It has been observed that bra models with a hard structure, underwire and leaving marks on the body in long-term use are less preferred. With the increasing habit of doing sports, it has been seen that underwear products with high wearing comfort such as sports bras are frequently used in sports such as yoga and pilates.

In addition, value-added products have been produced with some technological developments apart from these trends. There are various examples of wearable technologies in underwear. In addition to the aesthetic expectations, underwear is a sector that is open to development in both health and smart textiles.

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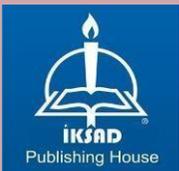
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