

# Research on several factors affecting the structural stability of lace material and clothing effect and its solutions

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## Abstract

This paper analyzed the characteristics of the material and aesthetic lace, clothing style control characteristics of each period of change and development in terms of lace and lace used in the modern types of clothing. Investigate the factors that affect the stability of lace fabric apparel and clothing results in pattern design and process when considering the fabric, structure, process, finishing factor. Through the role of the experiment, testing different organizations, different numbers and different number of warp and weft yarns dense lace slip resistance to research clothing structure, technology, fabrics, such as pre-treatment and finishing of garments and clothing effect structural stability. This paper wanted to meet the structure balance of lace bodice garment and have beautiful effect.

*Keywords:* lace material, clothing structure balance, clothing effect, element, solutions

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## 1 Introduction

Structural balance refers to the clothing worn clothing in the human body morphology of balance and stability of the state, including the morphology constitute clothing geometry and location of the various components made of balance and equilibrium morphology of clothing materials. These factors directly affect the decision of clothing comfort and functionality and visual beauty, is an important factor in evaluating the quality of clothing. At the same time the degree of clothing comfort comfortable dress after the body, also affects the function of clothing comfort and visual beauty, but also an important condition for evaluating the quality of the clothing [1].

Lace originated in Europe in the 18th century is the most emblematic female ornaments. It was the most "feminist" color symbols. Also known as the lace fabric lace fabric is itself hollow upscale clothing, lace "lace" is presented with a variety of patterns as thin decorative fabrics. Usually on an open mesh pattern looper by hand or machine, cross or knitting yarn woven into the fabric. Lace has carved a sense of luxury and special romantic, early is to be used as an excipient. However, due to innovative design concept lace, rich with colourful, people gradually lace fabric by women as a favourite thing and became a symbol of romantic ideals and women. Lace fashion has smokes and mirrors, but fuzzy beauty through unknown. The clothing beauty abstract and figurative one, brings a wealth of imagination and mystery, with luxury, mysterious, sexy, feminine, romantic, feminine side, there are pure, elegant, simple, natural, elegant, fresh side, so lace fabric in the fashion trend of women continue to convey the inherent qualities.

Lace fabric variety, depending on the raw materials are cotton lace, real lace, chemical lace, etc; according to the color black lace, pink lace, white lace, etc; depending on the forming process of the organic weaving, knitting, embroidery, weaving; according to the form of sub-selvage edge straight edge and wave and so on.

## 2 The application of lace fabric in the clothing

Mid-16th century as the people's quest for beauty, for the precious garment lace sleeves, neckline. The 17th century as a combination of art and fashion design formed Baroque costume extensive use of lace, ribbons. To the 19th century, "Robe" lace necklaces women's clothing, men in cuffs, collar lapel, a large number of decorative lace socks mouth.

Until "underwear revolution" of the 20th century lace is not merely decorative, with the rapid development of the lace production technologies and processes, and it plays a more and more role in all kinds of clothing. Lace is not in the details of clothing embellishment, but a large area of use. Lace in different parts of the clothing reflects the different flavor, some cute, some casual, some elegant and so on. Lace sweet romantic graceful and colorful, lace has a noble lineage [2]. Advanced customization is the most exquisite craft, now in extensive use in haute couture. Lace from the initial hand-woven mesh lace to decorate embellishment on clothing, to the current clairvoyant outfit fabrics, lace is no longer a simple dress, but the carrier has its own special clothing charismatic and clothing into the overall shape design.

## 3 Several factors affect the structural stability of lace fabric apparel and its clothing effect

Currently lace fabric clothes are usually used as accessories for it finely crafted with a sense of luxury and romantic qualities reflect today as the main ingredient of the frequency has gradually increased. Typically used on small trailing or upright style, fabric cover on top of the other, may reflect women exquisite figure. Should be treated as the lace fabric accessories, you can use on any style.

Lace fabric clothing as currently indispensable fashion element, his use played a role in decorative fashion.

Common lace fabrics are cotton lace, high-elastic fiber jacquard lace, jacquard lace mesh positioning lace, mesh

cotton jacquard lace, crocheted cotton lace and so on. Whether it is clothing or lace underwear to coat fashion, haute couture dress in clothing graphics to the conversion process, is the most difficult to grasp and control than other fabrics. You can say the most advanced custom craftsmanship is exquisite lace garment design, cutting and sewing [3].

According lace centuries on the use and development of clothing, summed lace fabrics and garments of the most inevitable four problems, a number of factors that the structural stability of lace fabric apparel and clothing Effectiveness of:

1) Apparel poor structural stability, good size control.

Clothing structure refers to confirmation of the relevant finished garment constitute clothing, accessories size specifications and its surrounding morphology. Quality garment structure directly related to the quality of the finished garment. Clothing apparel specific sub-structure structure structure mapping and costume design in two ways. Clothing is the primary basis of structural mapping, and costume design is an advanced variation of the change is made the basis for any changes in clothing styles can be drawing from the base model (also known as the prototype or female) on. Typically the outer contour of the main clothing H, A-type, V, X, four, and shoulders, waist, hip line shape is inseparable from the support line of clothes, so the main part of the garment shape change is shoulders, waist, bottom and girth. Clothing and body balance directly affects the visual beauty clothing dress when the body is one of the important factors that affect the quality of the clothing.

Lace mesh fabric is organized, because the texture of the material, also known as thin and transparent fabric or lace embroidered fabric, lace fabric due to the light, thin, and also garments elasticity and tension stability so difficult to grasp, clothing difficult to achieve the desired effect. It must be secondary to the type. Especially in the clothing division change shape, pleats line changes difficult to achieve, resulting garments are not ideal. Pieces have poor dimensional stability, sewing stretch easily lead to deformation.

2) Lace fabric clothing easy hook wire. Lace fabric patterns evident, raised portions and larger through-hole, leading to lace garment armpit, side seams, placket at the Mouth of friction due to the movement of the human body from the ball, hook wire phenomenon. Especially iron zipper, for non-cotton lace fabric produced serious snag.

3) Lace fabric strands of lace, dark dye can not penetrate the strands, resulting in serious parts sewn grin after sewing. Lace fabric types according to their characteristics can be divided into a bomb and no bombs lace fabric lace fabric, collectively known as the lace fabric. There are bombs lace fabric main ingredients: spandex and nylon; (usually the ratio is 10% spandex + 90% nylon). Without shells lace fabric composition: 100% nylon; this fabric can be dyed a single color. If it is made of 100% polyester for the material; this fabric can be dyed a single color. If you are 85% cotton and 15% nylon; then the fabric can be dyed a single color; if you are 65% polyester nylon +35. This fabric can be dyed color but that two kinds of dye colors. After tailoring sewing seam at the strand break point easily raised, polyester and nylon composite wire is not due to a dark dye through strands, causing serious impact grin when sewing garments

appearance.

4) Soluble lace, holes more, the process should be a lot of clothing repair. Soluble lace fabric has loose structure, poor by force. The entire batch of fabric occurs in the handling, cutting, machining process often fracture pattern, the clothing pieces due to local structural requirements, the fracture pattern was found only changer or hole occurs when after finishing garments, you must manually repair breakage, as usual clothing sampling failure situation.

5) Machine stitch conditions is poor, require a lot of manual processes. Silk or blends of machine sewing conditions are poor, especially those with large elastic lace pattern cotton lace fabric, whether, that is not attached to the lining of the seam thickness also required not exposed seam, etc., making lace fabric garments costume craft reached the peak. Kind of clothing workers to lace fabric garments are born looking dangerous. Typically lace clothing in order to achieve its unique transparent effect, using piping process, take sewing and hand sewing techniques dark

6) Cotton lace garments fade serious. Cotton lace fabric in cutting, sewing process, there are obvious fade phenomenon, ironing spray hot cloth dyeing obvious. Garment washed serious, leading to poor security taking clothing, clothes, and color inequality. This is an urgent need to overcome the factors, in terms of cotton lace fabric is fixing imperative.

#### 4 Solutions (experimental) graphics and parameters

1) Lace fabric.

(1) Yarn dyeing.

According to the different fabrics to match yarn, polyester and nylon composite wire due to the dark can not solve the dye through strands, resulting in cutting, sewing grin phenomenon. Polyester and nylon composite wire using secondary staining, because Jin wheel and spandex as is the acid dyes, disperse dyed polyester effect is better. In selecting the dye required to select proofing dye compatibility, the effect of the cylinder nylon spandex after effects and shape after a big difference.

a. Dye reason: When the dye in the pulp, stereotypes temperature is high, the use of good pulp, so little change in color, so the fabric does not occur or is less such a problem.

b. Aid, choose a good assistant, when fixative not appear stereotypes fabric color.

c. Stereotypes: machine problems stereotypes, stereotypes of speed and time setting plus softener, and halfway down, the card's temperature control and orderly.

d. Cloth itself, ensure uniform distribution of weight, not spotted the phenomenon does not appear.

(2) Fabric structure.

By testing different organizations, different numbers and different number of warp and weft yarns dense lace slip resistance and comparative analysis of the organization again, the number of yarn number, impact and friction factor of the warp and weft density sparse grid-like fabric slip resistance. The results showed that: plain weave fabric slip resistance significantly greater than weave fabric; within a certain range, the fabric slip resistance increases with the number of yarn number and friction factor increases, the density increases with increasing latitude large. Think sparse grid-like fabric slip resistance test results to establish a predictive model of fabric slip resistance provided. Come,

lace fabric bottom structure using plain weave garments better meet process requirements.

(3) Pre-treatment of cotton lace fabric, sizing process.

(4) Cover lining process, similar to the pattern covering the bottom lining process. In the thin end of lace fabric spray fewer hot melt glue lined woven fabrics, fabric structure to maintain good stability, greatly reducing the lace cutting, sewing fabric structure due to a series of problems caused by loose.

2) Costume design.

Costume design technique often used a three-dimensional method, graphic method, three-dimensional and flat, three methods combined. Lace fabric patterns evident, especially in large parts require a larger pattern for clothing, must be three-dimensional and flat combination of methods in order to achieve good results clothing. While reducing segmentation, model obvious local use other fabrics assist the effect, reducing shoulder styling changes shape. Level measurements such as box-type structure, appearance is relatively simple, and its structure is characterized by a high point above the basic upper body fit, under high natural drape, clothing and body depends on the shoulder.

3) Technology.

(1) Cutting Technique.

It must be very careful when cutting. Synthetic lace can be electric melting knife cutting, backing or prevent spread pattern, loose, and keep the integrity of the selvage. At the same time for different lace fabric patterns, arrange different cutting solutions. Fabric is dense, scalable little small pattern, you can crop with the general fabric cutting methods; and through hole pattern of the larger pattern of lace material layer are connected to the net, so that the fabric has a certain flexibility and it was different from the general cutting and sewing cloth; using single single crop, when a large pattern at the cutting line, should keep the pattern intact, using cut along the outline of the pattern approach, keeping pattern integrity.

Depending on the lace fabric material, before cutting shrinkage test must be carried out. So as to affect the structural stability of the structure size clothing and dress. Lace fabric tissue than other fabrics sparse, loose, and the pattern evident in the crop, must be targeted at design shop materials.

4) Sewing technique.

Clear transparent lace fabric, through-hole area more. For garment sewing is a big challenge. Prone to broken wire, partial tightening, jumpers, wrinkling, Artex, sewing traces, traces swing phenomenon, sewing techniques shall not be treated seriously undermine the overall effect on the clothing after. According to the author many years of research and practice, drawn lace fabric seam according to the thickness of the fabric, elastic tissue, can come and joints, edging, roll seam, take the seam, using the outside decorations, and other techniques to hide. Haute satisfied by hand sewing needle to go, take the seam, five stitch, and herringbone stitch is completed.

When the thin elastic lace fabric is sewing, sewing techniques can refer silk fabrics. In lace fabric pieces under the liner, or templates sewing, ensure the stability of the

fabric. At the same time, it adjusted for sewing equipment, after several practices. The needle plate feed dog into dense flat teeth, presser practical plastic material, thread tension fine, speed 2500-3500 lines per minute traces 10-12 needles per inch density is appropriate to complete the stitch formation. Lace fabric did not appear broken wire, partial tightening, jumpers, wrinkling, Artex, sewing traces stitch swing phenomenon, the ideal garment effect.

Typically, lace fabric garment is in two garment sewing alignment with the build method or hand sewing needle dense. Lace garment sewing order is: 1, stitched lining, lace pattern through a large hole more, there is a certain degree of expansion rate, and therefore control lining. After lining stitched with colorful cotton will stretch the garment sewn around a week, and mark the center line, and place people on stage. 2, stitching lace fabric, lace garment put people on stage, and the liner overlap, heal, and then fixed with a bead needle, attention should be aligned with the centerline of the two, and the excess trimmed. Needle method using stretch lined stretch along the garment seam first fixed on the lining. Then turn back seam, make false seam. Remove stretch stitches, remove clothing pieces were sewn lace. Links take place by sewing patterns or hand sewing needle dense, and the final lining seam. To adopt the package seam stitch, due to lace through the hole so there are going to separate trim at the hem, and the lining is not directly sutured.

(3) After-finishing technology.

Because many lace fabric patterns, clothing ironing process are essential. Cotton lace ironing is obvious shrinkage, temperature resistance poor chemical fiber lace, lace blended heat better than the former. So after finishing, depending on the lace fabric treated separately. People use reasonable finishing technology to improve the overall effect of clothing.

## 5 Conclusions

With the rapid development of technology and lace production, lace plays more roles in various types of clothing. This paper analyzes lace fabric in cutting, sewing process experience and contrasts the characteristics of various types of clothing styles which change the development of lace; summarizes a series of solutions. Overcome organizational mesh lace fabric texture, light, thin, and also garments elasticity and tension stability is the difficult problem to grasp, especially in the apparel division change shape, pleats line changes difficult to achieve, resulting garments are not ideal. Pieces which have poor dimensional stability and sewing stretch easily lead to deformation. Drawn lace fabric must be assisted to the type. And the use of lace fabric lining attached, sizing, clothing designed to be simple, reducing segmentation, hand sewing and finishing techniques to achieve the desired effect of clothing and to overcome a number of factors that affect the structural stability of lace clothing and clothing material effect.

## References

- [1] Feng J Clothing technical manuals *Shanghai Science and Technical Literature Press Shanghai (in Chinese)*
- [2] Chen Q The application research of lace in the clothing design *Suzhou University (in Chinese)*
- [3] Gao L Lace in the application of modern garment design research *Clothing technical manuals Beijing Institute of Clothing Technology (in Chinese)*