

Effect of the laundering process and the addition of supplementary fabrics for appearance of the knitted pockets

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Research objectives:

The study mainly aims to study the impact of the type of knitted fabrics and supplementary fabrics on the appearance through several sub-objectives:

1. Study the relationship between the types of knitted fabrics used in the study and the designs of the pockets.
2. Study the relationship between the types of fabrics used in the study and the use of supplementary fabrics in the pocket.
3. Study the relationship between pocket designs and the use of supplementary fabrics in sinuses.
4. Study the relationship between the types of fabrics and methods of washing.
5. Study the relationship between the sinus designs used in the study and the methods of washing .
6. Study the interactive relationship between the washing process and the use of supplementary fabrics (Vaseline) for pockets.

The importance of research:

The importance of this study lies in the fact that the pocket is an essential part in the clothing industry because of its aesthetic and functional value in addition to the most prominent characteristics of knitted fabrics, which are flexible and elastic, which in turn affect the appearance of the pocket, which called for the need to try to reach the best supplementary fabrics suitable The knitted fabrics give the best aesthetic and functional performance.

Research Method:

Search limits:

(1) Sample:

1. Fabrics:

Two types of fabrics were purchased from the Knitted Fabric Factory in Burj Al Arab Industrial Area: 100% Cotton single jersey, 100% Cotton milton fleis, the chemical tests were tested to identify the nature of all types of fabrics selected by the Textile Consolidation fund in The City of Alexandria in standard weather conditions of temperature ($20^{\circ}\pm 2$) and relative humidity ($65\% \pm 2$), table (1).

Table 1: Specifications of fabrics used for pocket designs

The sample	Fabrics	Yarns account			
		Warp		Weft	
		Average	+ Standard deviation	Average	+ Standard deviation
A	(100% cotton Knitted) single jersey	24/1 E			
F	(100% cotton Knitted) Milton Fleis	30/1 E (face)		10/1 E (back)	

2. Supplementary fabrics (Vaseline):

The two lightweight supplementary fabrics (Vaseline) to use in the strengthening the pocket, weighing $32\text{g/m}^2 \pm 20\%$.

3. Threads used for sewing:

Blended sewing yarns (30% cotton - 70% polyester) were selected as a core spun yarn as they are located in the middle of durability after polyester thread and before cotton thread to sew the pieces produced from the pockets, table (2).

Table (2): Characteristics of Threads Used in sewing

Characteristics of sewing thread	Characteristics	Specification
1. Yarns account		ASTM (2001)
Average account E	37.5/2	D190 7-97
Coefficient of variation	0.2%	
Override	6.5%	
2. Tensile strength		ASTM (2001)
Tensile Load (g)	242.1 kg	D22 56-97
Coefficient of variation	5.3%	
Strength	3.39 gm/tex	
Elongation	0.16%	
Coefficient of variation	0.2%	
3. Twines		ASTM (2001)
Number of twists / meters	1006 Z	D1422-99
Coefficient of variation	1.5%	
Factor twist	9.5	
4. Friction resistance	15 cycles	ASTM (1993)
		D 3889-92

4. Sewing machine:

The industrial sewing machine was used to produce the regular straight stitches known as the locked stitch number (301) under classification (300) at 4500 speed. A needle (10) singer (100) metric was used for all designs on the fabrics, 4 stitches per cm (4S.P.cm) to suit the size of the needle and the thickness and weight of the fabrics used in the study.

5. Pocket Designs:

In this study, the experimental approach was used to achieve the research objectives. Four different pockets designs were implemented for each type of fabric used in the study: The patch pocket, Welt pocket, Slash pocket, pocket seam, figure (3). It was carried with and without supplementary fabrics (Vaseline) for the same type of fabrics to compare the shape of the pocket design in both cases, as well as to compare between the same design in the fabrics under study.

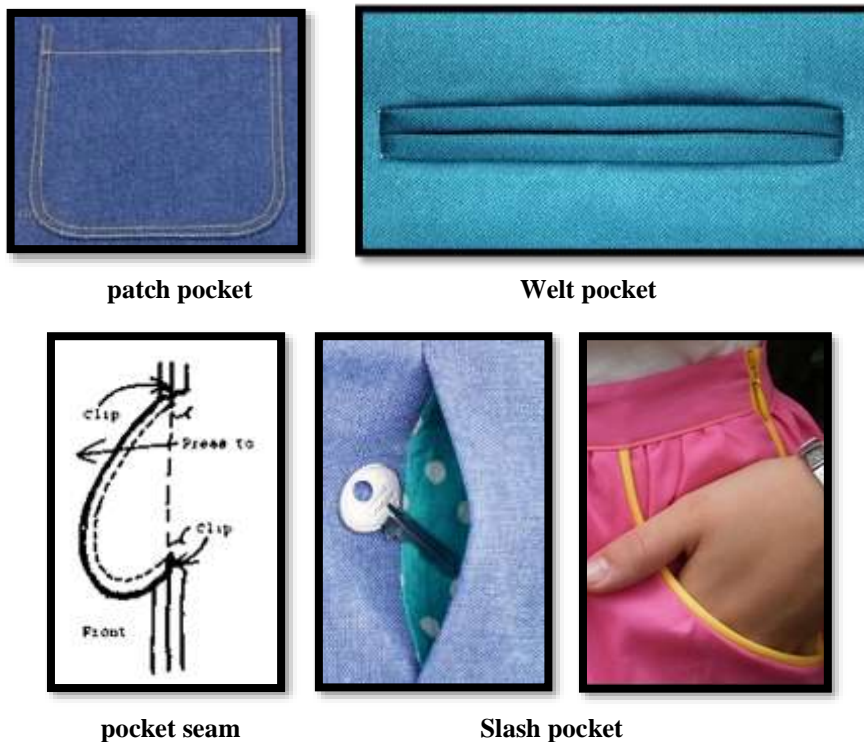


Figure (3) Four pocket designs

After compiling all the elements of the study were implemented the four designs mentioned above and therefore, the number of designs implemented for the selected fabrics 2 fabrics x 4 designs with supplementary fabrics = 8 samples.

2 fabrics x 4 designs without supplementary fabrics = 8 samples, thus the total samples were (16) samples.

(2) laundering:

The samples were laundering under $40^{\circ} \text{C} \pm 2$, 5 laundering cycles, cycle time (10 minutes), detergent ratio 2 g / l water (Egyptian standard).

(3) Arbitration Tools:

The pockets designs were judged before and after laundering by professors specialized in the field of textile and clothing. Each element was weighed in three grades: good, acceptable and bad.

Statistical Processing:

After the collection of arbitration forms, unloading, scheduling and statistically processing them to deduce averages, standard deviation and standard error, as well as the use of variance analysis (F value).

Conclusion:

1. There is a significant relationship within the interaction between the types of fabrics and the designs of the pockets at the level of significance (0.05),
2. The average of the arbitration elements of the three items (the general shape, the suitability of the fabrics design, and the uniformity of the pocket shape) with the designs used by the supplementary fabrics (Vaseline), compared to those that did not use the supplementary fabrics.
3. There was a significant relationship at the level of significance (0.05) in the interaction between the types of fabrics and the laundering process, for the three arbitration items, the mean values of arbitration items after laundering were lower, compared to before laundering.
4. Welt pocket is one of the most designs that obtained high averages using Vaseline compared to designs that did not use Vaseline.
5. There is a significant relationship between the designs and some of them, before and after the laundering process, where laundering processes affect the appearance of the fabric in proportions vary according to the type of fabric.
6. There is a significant relationship at the level (0.05) within the interaction between the laundering process and the use of the supplementary fabrics (Vaseline).

Recommendations:

1. The addition of a scientific basis to form a system that provides an objective assessment used to determine the suitability of fabrics for designs required in clothing.
2. The success of the design process depends to a Designer sense of the characteristics of the cloth and its ability to employ it in a good manner and appropriate to its properties.
3. Awareness of specialized researchers to study the relationship of clothing designs for each part of clothing with the type of material to reach efficiency in aesthetic and functional properties.
4. It is essential that those who deal with clothing have sufficient knowledge of the characteristics of fabrics when designing and implementing them.
5. It is necessary to develop the forms and designs of pockets in the field of knitwear to suitable the changes in the clothing fashion.

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