Individual Project: By Emilia Perez

An Examination of The Wrinkle Recovery of Cotton and Polyester

Purpose:

To determine the wrinkle recovery of cotton and polyester during dry tests and see which fabric performs better.

Significance:

Wrinkle recovery refers to the ability of a fabric to recover from being folded over a period of time (Chowdhary, 2009, p.84).

Literature Review:

To determine if a fabric will have a good wrinkle recovery, there are many factors that have to be established. The factors to consider are the fiber content, the amount of yarns per square inch, the weave, how thick the fabric is, the color, if it has a finish, and what the surface of the fabric is like (Cohen & Johnson, 2012, p.326).

First, the fiber content of a fabric can help determine if a fabric will resist wrinkling. Fibers such as wool and polyester have a great wrinkle recovery unlike cotton since it has a poor wrinkle resistance according to J.J. Pizzuo's Fabric Science (Cohen & Johnson, 2012, p. 326-327). Secondly, the weave and the amount of yarns that a fabric has per square inch can influence a material. The more yarns a fabric has, the less it will wrinkle due to the little fiber displacement (p.326); But the more closely woven a fabric is the more it will show wrinkles because there is not a lot of yarn movement available to undo the creases (p.326). Lastly, the whole surface of the fabric can affect wrinkle recovery. Sometimes the color or a fabric with a rough surface can hide wrinkles (p.327). But overall, a fabric could have a finish that repels wrinkles, causing it to have a good resiliency (p.326).

Hypothesis

Due to the poor wrinkle recovery properties of cotton, a null hypothesis was formed. Polyester will prove to have a better wrinkle recovery over cotton.

Methodology:

For this study, the two different fabrics, cotton and polyester were each cut by using the AATCC recommended size of 6x11 inch specimens (Chowdhary, 2009, p.84). Resulting in five 6x11 inch polyester samples and five 6x11 inch cotton samples. They were then all taken and tested by being placed in-between the wrinkle recovery tester and had 3500 grams placed on top of it. Each specimen had the weight removed after twenty minutes and were hung for 24 hours. After

24 hours they were then evaluated by using the AATCC standard durable press replicas and rated. To pass, the specimens mean rating had to be a minimum of 3.5.

Polyester Specimen #	Rating
1	3.5
2	3.5
3	3.5
4	3.5
5	3.5
	Mean = 3.5

Cotton Specimen #	Rating
1	3
2	3
3	2
4	3
5	2
	Mean = 2.6

Textile	Mean	Standard	Pass or Fail
Cotton	2.6	3.5 min	Fail
Polyester	3.5	3.5 min	Pass

Results and Discussion:

A. Fabric Description

The textiles that were used were 100% cotton and the other was 100% polyester. The polyester fabric is very thin and smooth, like a lining. While the cotton fabric has a stiffer hand to it and a print on it.

B. Interpretation of calculations

The finding had shown that cottons rating were poor. This resulted in cotton not passing the average rating required, a minimum of 3.5, instead cottons rating was 2.6. On the other hand the polyester fabric had passed with a rating of 3.5. It was almost completely wrinkle free compared to the cotton fabric. The print on the fabrics however did help hide some of the wrinkles on the fabrics.

C. Comparison with Literature Review

The literature review findings were consistent with this study. Reinforcing J.J. Pizzuto's findings that polyester has a better wrinkle recovery over cotton (Cohen, A., & Johnson, I. 2012).

D. Learning From the Project

This project has taught me the wrinkling recovery characteristics of the two fibers cotton and polyester. Which will help me with making better fabric choices when constructing a garment in the future.

E. Contribution to the field

This study helps strengthen and support the fact stated in J.J. Pizzuo's Fabric Science that polyester has an excellent resiliency and cotton has a poor wrinkle recovery (Cohen & Johnson, 2012, p.326-327).

F. Implications for Future Research

This study can further be researched to test other fibers besides cotton and polyester to determine other fibers wrinkle recovery.

References:

Chowdhary, U. (2009) Performance Attributes: Dry Tests. In Textile Analysis Laboratory Manual. (pp. 84-85). Deer Park, New York: Linus Publications, Inc.

Cohen, A., & Johnson, I. (2012). Natural and Manufactured Fibers. In J.J. Pissuto's Fabric Science (10th ed., pp. 36-37 & 48-49 &326-327). New York, New York: Fairchild Books.