

The Effect of Different Structural Formations of Innovative Yarns on Fabric Comfort Properties

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Abstract:

The aim of the research is to investigate the effect of different structural formations of Innovative yarns on Fabric functional and comfort properties. The constructional specification is one of the most important fabric characteristics that affects the comfort properties of cloth. Thickness, weight per square meter, weave pattern, yarn count and aesthetic value are all parameters to consider. However, it also determines its air and liquid permeability, as well as its thermal insulation. **The aim of the research** is to investigate the effect of different structural formations of Innovative yarns on Fabric functional and comfort properties. The constructional specification is one of the most important fabric characteristics that affects the comfort properties of cloth. Thickness, weight per square meter, weave pattern, yarn count and aesthetic value are all parameters to consider. However, it also determines its air and liquid permeability, as well as its thermal insulation. The structural composition of the textile design, which is the scientific premise of the artistic creativity, is due to the aesthetic appearance of the woven (color - surface effect - tactile effect - decorative design) where it stems from the ability of the designer to create the structural elements of the fiber and threads forming the textile product. **Research problem:** The textile industry is facing a stagnation in export volume, so a new design vision must be thought of with variations in raw materials and yarns used within the textile product. Although there has been a significant expansion in the production of garments, there are few locally manufactured fabrics of decorative yarn that have the esthetic and functional effect of attracting consumers and competing with the imported product from the external markets. The technical and technological capabilities of the machines intended for the production of the newest decorative threads must be optimized. **Research importance:** The importance of the research is due to the development of decorative yarn design to produce a product with innovative esthetic effects, which is used to produce garments that achieve the aesthetic and functional range of competition in global markets and the Egyptian textile product returns to the forefront as it was before. **Methodology:** The experimental analytical method is used in the study. **Results:** Based on the previous results and discussions, some conclusions were reached that could be used to benefit the production of different structural formations of innovative yarns and the use of this yarn as weft in produced fabrics, which could increase the functional and comfort of those fabrics. **Conclusions:** Fabric's physical and constructional specifications have been studied in order to determine the comfort characteristic of the produced fabric. the importance of weave structure and material as the basic constituents of fabric, as well as the two main types of fibers, natural fibers (cotton) and man-made fibers (polyester).

Keywords:

Fancy yarn, Slub yarn, knop yarn, comfort, Air permeability.

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