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RELATION OF STYLE AND CONSTRUCTION ON GARMENT DRAPING

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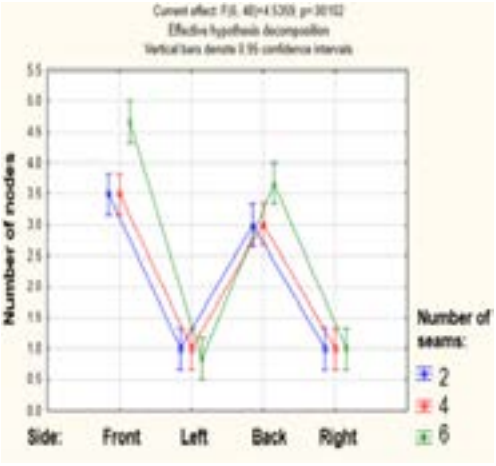

The textiles, as the basic material for garment production, play a crucial role in determining the garment's functional characteristics and appearance. Additionally, clothing drapeability is an important aesthetic property that relates to the 3D shaping of textiles under the action of their own weight. The studies show that when draping, the textile surface always acquires a different shape, since this property is regulated by many factors. Therefore, various attempts have been made over the years for the accurate prediction of this property. Among the latest findings, methods for image processing and analysis have proven to be precise and convenient for drape analysis. A piece of garment is mostly constructed by joining pattern pieces by sewing. Therefore, it is expected that when predicting the visual appearance of clothing, in addition to the draping coefficient, the seams and methods of pattern construction should be considered as well. In this regard, the paper explores the draping appearance of finished clothing depending on the style and garment construction. The garment styles were mounted on a dummy and photographed from the front, back, left, and right sides. Additionally, to obtain orthogonal drape geometry, including the number and shape of the nodes, the draping styles were photographed from above. Image analysis was used, and a method was developed to calculate draped area figures. All the styles were made of the same type of woven fabric: fibre composition 97% cotton and 3% elastane, satin wave, fabric weight of 190 g/m2, and a drape coefficient of 60%. For each investigated garment style, three sessions of mounting on a dummy and photographing were conducted. Orthogonal analysis of the geometry of the draped part from above includes the following steps:

- Selection of the entire draped part with the mannequin's waist;
- Selection of only the draped surface of the style;
- For additional verification and confirmation of the analysis, only the mannequin's waist is selected.

These figures, obtained by image analysis, generate results for draped areas (cm2), perimeter (cm), number of nodes (Nn), and circularity (CIRC).

Several conclusions were obtained:

- The draped area of the garments mounted on the mannequin varies by style. For all investigated styles, the largest draped area is at the back side, followed by the front, then the right and left sides. Also, the influence of the seams is statistically significant in combination with the garment sides and the style.
- The number of seams affects the orthogonal garment draped area. For both styles, the sample having 4 seams shows the highest values of the draped area.
- The investigation shows a statistically significant relationship between the number of nodes, the number of seams, the style, and the sides of the drape. For all investigated styles, an increase in the number of seams affects the increase in the number of nodes, due to an increase in bending stiffness.

Keywords: *drapeability, nodes, seams, styles, image analysis.*