

Achieving Optimum Comfort Properties of Multilayered Hospital Bed Sheet Fabrics

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Abstract:

Hospital bed sheets are one of the most important health care products that must provide patient comfort properties such as absorbency, breathability, moisture management properties, and resistance to the growth of bacteria and fungi. A lot of damage occurs when bed sheets are unable to transfer body heat and the secretions resulting from it, which leads to the creation of a moisture-laden atmosphere beneath the patient, which helps increase body temperature and the growth of microorganisms, and this is one of the most important causes of bed sores. The commercially available hospital bed sheets made of fibers such like cotton, polyester and their blends which are not sufficient. Due to this, the research tended to produce medical bed sheeting fabrics using a multi-layered method to achieve the property of moisture management, as well as the use of new fibers such as (bamboo, polyester microfiber) as well as the use of cotton also to provide physiological comfort for the patient, as bamboo material was used in the face layer, polyester microfiber in inner layer and cotton in the back layer to transmit the body heat and fluids, which makes the patient not feel comfortable. The research relied on the production of 6 samples using a multi-layered method and 2 variables, first: 2 different weft arrangement (1 face: 1 back: 1 filling) and (1 face: 1 back: 2 filling), second: the use of three weave structures for the face layer (hanycomb8, twill1/3, satin4) and the use of fixed weave structure in all samples for the back layer (basket2/2). The cohesion between the layers was achieved by cohesion from the warp. Laboratory tests were carried out on these samples and statistical analysis was carried out.

Research problem: The need for bed sheets that work to transfer moisture resulting from the patient's secretions to the external environment (moisture management system) to reduce the occurrence of bed sores. The lack of scientific studies that study the effect of using the double method and the proportions of fillers on the fabrics of medical bed sheets.

Research aims: Production of bed sheet fabrics using multi-layer method to reduce the formation of bedsores. Take advantage of the various materials in the layers to achieve a moisture management system in bed sheets.

Research importance: Improving the functional properties of hospital bed sheet fabrics using multi-layer method and various materials to reduce bed sores. Contribute to the provision of a specialized scientific and academic study that studies the fabrics of multi-layered hospital bed sheets to resist bed sores.

Research Hypothesis: The use of multi-layer method with different filler ratios affects the achievement of the research objective. The use of different structures of statistical significance in achieving the objective of the research.

Research Methodology: this research follows the analytical and experimental method

Keywords :

Technical Textile, Medical textile, Moisture Management, Bed Sores

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Paper History:

Paper received April 18, 2024, Accepted June 21, 2024, Published on line September 1, 2024.