

Method of Transforming Standard 3D Model into the Model of Really Geometric Shape

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The article presents the method of calculation and design of medical compressive knitted products by applying the algorithm of 3D modeling, and taking into account the results of the analysis of strained deformed state both in the material of the product itself, and on the surface of the product's contact as a result of interaction hereof with a human body in virtual 3D form. Computer designing of compressive products at the stage of designing hereof provides for the use of the finite-element program ANSYS, which is adaptable to any human body models. The results of the calculation have demonstrated that the pressure of a compressive knitted article on the human body is determined not only by the efforts arising in the material of the product's membrane and the configuration of a model leg as well as mechanical and rigidity characteristics of the material of the product's membrane and biological material of the leg model, subject to the change of these characteristics in the course of time. The offered method enables to increase the medical efficiency of application of compressive knitted articles thanks to a reasonable choice of technological characteristics for the manufacture hereof (type of elastomeric threads, kind of interlacing and shape of location of an elastomeric thread in the structure of fabric) as early as at the stage of the designing of a product.