
Biomechanical modeling of personalised implants for reconstructive surgery

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The article considers Russian experience in digital technology applications for the preparation and planning surgical interventions in reconstructive surgery using implants (endoprostheses). The current progress and prospects for biomechanical modeling techniques are discussed. They include the specialized software, as well as technological methods of manufacturing implants replacing the elements of body skeleton, which make it possible to provide the best possible restoration of the original biomechanical and aesthetic characteristics. A complex method for biomechanical reconstruction is suggested. The method provides high quality of organ and tissue replacing fragments, based on the concept of complex design process automation with extensive use of digital technology.

Keywords: additive manufacturing, subtractive manufacturing, 3D modeling, biomechanical modeling, CAD, CAM, individual endoprosthesis, lifecycle

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