REVERSE MODELING OF HUMAN HUMERUS BY THE METHOD OF ANATOMICAL FEATURES (MAF)

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Abstract: Information technology plays important role in the field of orthopedic surgery. The geometrical models created by the adequate software packages can be used in pre-operative simulations, intra-operative guidance, and post-operative treatment of the patient. In order to create such models various methods are used. In general these methods are based on scanned medical data acquired from CT scanners, X-ray, MRI, or other scanning devices. In order to create geometrical models it is possible to use volumetric rendering to visualise scanned medical data in adequate medical software, or to do some post-processing in CAD software. In this paper Method of Anatomical Features (MAF) is applied for the creation of the surface model of the human humerus. This method is based on the anatomical and morphometric properties of the human bone. With this method it is possible to create geometrically accurate and anatomically correct models of the human bones. Such models can be used for later implant and fixator creation, for the education of medical students and practitioners, for the Finite Element Analysis, etc. Results presented in this paper are quite satisfactory, and they demonstrate that MAF can be used for the creation of the surface model of the human humerus.

Key Words: *Human humerus, Geometrical model, Reverse modeling, CAD.*

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