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GEOMETRICAL MODELS OF MANDIBLE FRACTURE AND PLATE IMPLANT

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Abstract. In the oral and maxillofacial surgery there is a requirement to provide best possible treatment for the patient with mandibular fractures. This treatment presumes application of reduction and fixation techniques for proper stabilization of the fracture site. The reduction of the bone fragments and their fixation is much better performed when geometry and morphology of the bone and osteofixation elements (e.g. plates) are properly defined. In this paper new healthcare procedure which enables application of personalized plate implants for the fixation of the mandibular fractures is presented. Geometrical models of mandible and plate implants which are presented in this research were created by the use of Method of Anatomical Features (MAF), which has been already applied for the creation of the precise geometrical models of various human bones, plates and fixators. By using such geometrically and anatomically accurate models, orthopaedic and maxillofacial surgeons can better perform pre-operative tasks of simulation and operation planning, and intra-operative task of personalized plate implantation into the patient body.

Key words: CAD, orthopaedic, mandible, fracture, plate, parametric models, MAF

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