Experimental and numerical method in biomechanical analysis of miniplate osteosynthesis
of mandible fracture

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Abstract: The paper presents the results of research on the choice of optimal metallic biomaterials (Cr-Ni-Mo steel and titanium) for implants applied in maxillofacial part of cranium. Based on literature the range of cognitive problems has been determined, the solution of which is of prospective importance for the development of new techniques of the osteosynthesis of mandible bone. A program of investigations comprised an analysis of the state of stresses and strains in the mandible and stabilization of miniplates applying the holographic interferometry and the finite element methods. The aim of these investigations was to check whether such implants might warrant a controlled stabilization of the broken elements and whether the yield stresses of both biomaterials are not exceeded.
Key words: miniplate osteosynthesis, metallic biomaterials, mandible fractures