

In vitro resistance of titanium and resorbable (poly l-co-dl lactic acid) osteosynthesis in mandibular body fracture

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This study was a comparative evaluation of the bending resistance of metallic and resorbable plates and screws in a mandibular body fracture model. Forty polyurethane synthetic hemimandibles were used; a vertical linear cut was made between the second and first premolars. These 40 hemimandibles were divided into four groups of 10 and were fixed with titanium plates and screws or resorbable plates and screws, with monocortical screws in the upper sector and bicortical screws in the lower sector. Bending resistance tests were done on a universal testing machine with a linear displacement speed of 1 mm/min, a cell load of 500 N, and a load cell on the lower central incisor or on the lower second premolar. Results were analyzed using the Student's t-test, with the significance level set at 5%. No statistically significant differences were observed between the groups studied, either in the analysis of the osteosynthesis materials or related to the load-bearing points. The variables of displacement and peak load did not present any significant differences. In this in vitro model of a mandibular body fracture, the mechanical behaviour of a resorbable osteosynthesis was similar to that of a titanium osteosynthesis. © 2013 International Association of Oral and Maxillofacial Surgeons.

mandible fracture

osteosynthesis

resorbable material

titanium

mandible fracture

osteosynthesis

resorbable material

titanium

Absorbable Implants

Bone Plates

Bone Screws

Fracture Fixation, Internal

Humans

Lactic Acid

Mandibular Fractures

Materials Testing

Models, Anatomic

Osseointegration

Polymers

Stress, Mechanical

Titanium