BIOMECHANICAL EVALUATION OF DOUBLE Y-SHAPED TITANIUM MINIPLATE AND DYNAMIC COMPRESSION TITANIUM MINIPLATE AFTER INDUCED MANDIBULAR FRACTURE (AN EXPERIMENTAL STUDY ON DOGS)

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INTRODUCTION
A variety of internal fixation procedures have been examined, with a wide range of problem rates. For this form of fracture fixation, lag screws, reconstruction plates, dynamic compression plates, and locking plates (1,2).

The aim of the study was to compare the resistance to displacement and stability of two different types of titanium miniplates: Dynamic compression miniplate (DCM) and double-Y miniplate (DYM) in terms of resistance to displacement and stability using an animal model.

METHODOLOGY
Induced fractures were prepared on each side of the mandible of twelve dogs at the angle region. The sample was divided into two groups with randomization. The first group received dynamic compression titanium miniplate to repair the fracture and the second group received double Y titanium miniplates figure (1). The sacrifice of the dogs was done immediately, and biomechanical evaluation was done by a universal testing machine using compression and tension forces figure (2).

RESULTS AND DISCUSSION
Comparison of two different types of titanium miniplates Dynamic compression miniplate (DCM) and double-Y miniplate (DYM) in terms of resistance to displacement and stability using an animal model.

Compression resistance: In the first group, the average Displacement at 900N was 10.77 ± 0.79 mm. In the second group, the average Displacement at 900N was 4.48 ± 1.35 mm figure (3).

Tension resistance: In the first group, the average force which caused the failure of miniplate stability was 377.2 ± 37.19 N. In the second group, the average force which caused failure of miniplate stability was 603.7 ± 44.04 N figure (4).

CONCLUSION
Both miniplates provide favorable means of fixation of mandibular fractures in the angle region. However, fractures fixed with Double-Y shaped titanium miniplates showed greater stability to compressive and tensile forces.

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