The Angle Orthodontist: **Vol. 69, No. 5, pp. 401–407.**

Stability of implants as anchorage for orthopedic traction

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ABSTRACT

The aim of this animal study was to investigate the stability of osseointegrated fixtures when used as anchorage for orthopedic traction with extreme force magnitude. Three Brånemark fixtures were placed in the left zygomatic arch and three in the right of five adult dogs. An orthopedic nonaxial force of 5 N was applied using an intraoral coil system. The initial displacement immediately after force application was measured by means of speckle interferometry. After 2 months of continuous loading, bone adaptation and mineralization around all implants were analyzed. All the loaded implants were immobile. Significant marginal bone loss at the abutment-fixture interface (<1 mm) was observed around each loaded fixture implant. Bone remodeling was significantly more pronounced at the tension side of the implants, irrespective of fixture length. Radiographical and histological analyses showed bone with normal trabecular pattern around the implants.

KEY WORDS: Titanium implants, Orthopedic force, Initial displacement.

Submitted: July 1998
Accepted: March 1999.