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**“An in vitro analysis of
implant screw torque
loss with external hex
and internal connection
implant systems.”**

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*Traduzione in italiano a cura Bone
System del Titolo e dell'Abstract, tratti
dalla pubblicazione indicata, alla
quale si rimanda per una visione inte-
grale e per ogni approfondimento.*

Abstract

PURPOSE: The purpose of this study was to examine, in a controlled environment, effects of connection design upon screw stability. Implant fixtures have 2 types of connections to the abutment: internal connection and external hex. Four implant systems were tested: Bio-Lok (external hex; Bio-Lok International, Inc., Deerfield Beach, FL); Zimmer (internal connection; Zimmer Dental, Carlsbad, CA); Nobel Biocare (external hex; Nobel Biocare USA, Inc., Yorba Linda, CA); and Astra Tech (internal connection; Astra Tech Inc., Waltham, MA).

MATERIALS AND METHODS: Ten samples of each system, including base, implant, abutment, and molar crown, were loaded to 200 N for 1 x 10(6) cycles. Screws were tightened to manufacturers' recommendations, and torque audits done at 2.5 x 10(5), 5 x 10(5), 7.5 x 10(5), and 1 x 10(6) cycles.

RESULTS: The Bio-Lok samples lost an average of 10% of the original torque values, the Astra Tech group lost almost all of the torque and loosened, while the Zimmer and Nobel Biocare samples lost an average of 50% of the torque but did not loosen ($P < 0.05$). **CONCLUSIONS:** It may be concluded from this study that although internal connections are clinically favored, this study did not show any advantage relative to screw loosening. However, screw design may be a significant factor in loosening of the joint.

**“Analisi in vitro dell'allentamento della vite in sistemi implantari
con esagono esterno e connessione interna”**

Riassunto

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