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Abstract

[DAVI, Letícia Resende](#) et al. *In vitro* integrity of implant external hexagon after application of surgical placement torque simulating implant locking. *Braz. oral res.* [online]. 2008, vol.22, n.2, pp. 125-131. ISSN 1806-8324. doi: 10.1590/S1806-83242008000200006.

The aim of this study was to evaluate the integrity of the external hexagon of an implant system with internal and external hexagons but with prosthetic connection through the external hexagon (Internal Torque, IT) in comparison with that of an implant system with external hexagon with mount (External Hexagon, EH). A device was made to measure the rotational freedom angles between implant and abutment hexagons in 10 implants from each group after the application of surgical placement torques of 45, 60 and 80 Ncm simulating implant locking. The distances between the vertices of the external hexagon were also obtained. Rotational freedom data were subjected to ANOVA and Tukey's test ($P < .05$) showing no significant difference between the angles of the intact implants (EH - 3.31 \pm 0.41 and IT - 3.30 \pm 0.17 and after application of a 45 Ncm torque (EH - 3.27 \pm 0.38 and IT - 3.31 \pm 0.22). However, after application of a 60 Ncm torque there were significant differences (IT - 3.40 \pm 0.20 and EH - 4.03 \pm 0.54). After application of a 80 Ncm torque, the IT implant presented values of 3.39 \pm 0.21 whereas the EH did not support the torque, suffering deformation of its external hexagon. Within the limits of this study, it can be concluded that the IT implant system may be preferable in clinical situations where implant placement within a certain bone density could generate torques higher than 60 Ncm.

Keywords : Biomechanics; Dental implants; Torque; Dental prosthesis.

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