

A study of screw joint stability in dental implant/abutment interface

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Abutment screw tends to loosen during function and it remains a problem in restorative practices.

Implant manufacturers introduce external hex types and internal taper types, but it is unclear how the

joint designs influence the stability of implant/abutment interface.

The purpose of this study was to evaluate the screw joint stabilities of six commercially available

implant/abutment interfaces.

Three kinds of external hex implants(E1:3i implant,E2:Avana implant and E3:Neoplant) and three

kinds of internal taper implants (I1:Astra implant with twopiece abutment, I2:Implantium implant with

two piece abutment and I3: Implantium implant with one piece abutment) were examined. Initial

loosening torque values were measured before loading. After cyclic loading, residual loosening torque

values were measured, and the ratio of residual torque to initial loosening torque was assessed.

The following results were obtained.

1. In assessment of initial loosening torque, the mean value of group I3 was superior than those of the

other groups and the mean value of group E3 was superior than other external groups($p<0.05$).

2. In assessment of residual loosening torque, there was no significant difference between internal

groups($p<0.05$). 3. In assessment of the ratio of residual torque to initial torque, the value of external

groups was higher than that of internal groups, and there was no significant difference between

external groups and there was no significant difference between internal groups($p<0.05$).