

Implant surface morphology and primary stability: is there a connection?

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Abstract

PURPOSE: : The aim was to review the influence of surface morphology on the primary stability of dental implants.

METHODS: : MEDLINE-PubMed databases were explored from 1991 up to and including April 2010 using different combinations of the following terms: "dental," "implant surface roughness," "immediate loading," "initial stability," "primary stability," and "osseointegration." Articles published only in English language were included and hand searching was also performed. Letters to the Editor and unpublished data were excluded.

RESULTS: : Ten studies (three clinical and seven experimental) were included according to the search databases. In six studies (three experimental and three clinical), the implant stability was measured at least after 4 weeks after implant insertion; and primary implant stability was recorded in four experimental studies, using the insertion and removal torque tests and resonance frequency analysis using implant stability quotient values.

CONCLUSION: : Rough-surfaced implants have significantly higher success rates compared with dental implants with smooth surfaces; however, the question "Is there a connection between implant surface roughness (microdesign) and primary stability?" remains unanswered.

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