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[\[Image PDF \(1063K\)\]](#) [\[References\]](#)**Mode Superposition Transient Dynamic Analysis for Dental Implants with Stress-absorbing Elements: A Finite Element Analysis**[Yasuhiro TANIMOTO^{1\)}](#), [Tohru HAYAKAWA^{1\)}](#) and [Kimiya NEMOTO^{1\)}](#)

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Abstract:

The purpose of this study was to analyze the dynamic behavior of a dental implant with a stress-absorbing element, using dynamic analysis. Two model types, stress-absorbing model with a resilient stress absorber made of polyoxymethylene and non-stress-absorbing model with rigid titanium, were employed. In both model types, the implant was 4.0 mm in diameter and 13.0 mm in length and placed in the mandibular first molar region. Shapes of the finite element implant and implant-bone were modeled using computer-aided design. All calculations for the dynamic analysis were performed using the finite element method. It was found that the stress-absorbing model had a lower natural frequency than the non-stress-absorbing model. In addition, the stress-absorbing model had a higher damping effect than the non-stress-absorbing model. It was concluded that mode superposition transient dynamic analysis is a useful technique for determining dynamic behavior around dental implants.

Key words:[Transient dynamic analysis](#), [Dental implants](#), [Damping](#)[\[Image PDF \(1063K\)\]](#) [\[References\]](#)Download Meta of Article [\[Help\]](#)[RIS](#)[BibTeX](#)

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