

Author:  [ADVANCED](#)

Volume Page

Keyword:    [TOP](#) > [Available Issues](#) > [Table of Contents](#) > [Abstract](#)

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[\[PDF \(213K\)\]](#) [\[References\]](#)**The Effect of Bleaching on the Elastic Modulus of Bovine Enamel**[Maki OSHIRO](#)<sup>1)</sup>, [Hiroyasu KUROKAWA](#)<sup>1)2)</sup>, [Susumu ANDO](#)<sup>1)2)</sup>, [Atsushi IROKAWA](#)<sup>1)</sup>, [Masashi MIYAZAKI](#)<sup>1)2)</sup> and [Jeffrey A. PLATT](#)<sup>3)</sup>

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**Abstract:**

The purpose of this study was to determine the elastic modulus of enamel during bleaching procedure with the use of an ultrasonic device. Enamel sections were obtained from freshly extracted bovine incisors. Specimens were exposed to 10% carbamide peroxide for two hours, followed by an application of a fluoride-containing toothpaste for five minutes and stored in artificial saliva (pH 7.0). An ultrasonic device was used to measure the sound velocities of longitudinal and shear waves as well as elastic modulus. The mean elastic modulus of bleached enamel decreased with time, from 15.5 GPa to 10.1 GPa. Conversely, the elastic modulus of bleached enamel followed by application of a fluoride-containing toothpaste increased with time, from 15.2 GPa to 20.2 GPa. Results of this study indicated that a decrease in elastic modulus associated with bleaching occurred, and that fluoride-containing toothpaste reversed this effect.

**Key words:**[Bleaching](#), [Enamel](#), [Fluoride](#)[\[PDF \(213K\)\]](#) [\[References\]](#)

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