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[\[PDF \(423K\)\]](#) [\[References\]](#)**Tensile Strength and Durability of Bovine Dentin**[Toshiko INOUE](#)¹⁾, [Takashi MIYAZAKI](#)¹⁾ and [Fumio NISHIMURA](#)¹⁾

1) Department of Oral Biomaterials and Technology, Showa University School of Dentistry

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Abstract:

This study investigated the effects of thermal cycling on the tensile strength of dentin. Bovine dentin were divided into 10 groups, which were then subjected to various conditions: intact after preparation, thereby serving as a control; heating in boiling water for 45 minutes; 10,000 thermal cycles in water; 10,000 thermal cycles in PBS; storage in water at 5, 23, or 55°C for two weeks; and storage in PBS at 5, 23, or 55°C for two weeks. Subsequently, bovine dentin were trimmed into dumbbell-shaped specimens and the tensile test performed in distilled water at 37°C. Mean tensile strengths were compared statistically by one-way ANOVA and Fisher's PLTD test ($p < 0.05$). Fracture surfaces were observed by scanning electron microscopy, and reliability of the results was analyzed with Weibull distribution. Tensile strength did not significantly change after thermal cycling or storage in water and PBS at all temperatures tested (71.2-77.0 MPa) but decreased after treatment with boiling water (65.5 MPa).

Key words:[Dentin](#), [Tensile strength](#), [Thermal cycling](#)[\[PDF \(423K\)\]](#) [\[References\]](#)Download Meta of Article [\[Help\]](#)

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