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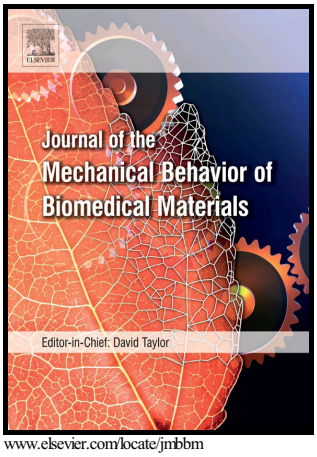

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Surface micro-morphology, phase transformation, and mechanical reliability of ground and aged monolithic zirconia ceramic

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Running title: Mechanical behavior after grinding and aging of a Y-TZP ceramic

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ABSTRACT

This study aimed to determine the effects of grinding and low temperature aging on the biaxial flexural strength, structural reliability (Weibull analysis), surface topography, roughness analysis, and phase transformation (t→m) of an yttrium-stabilized tetragonal zirconia polycrystalline ceramic. Ceramic discs (15.0 × 1.2 ± 0.2 mm, VITA In-Ceram YZ) were prepared and randomly assigned into six groups according to 2 factors (n = 30): 'grinding' (Ctrl – without treatment, as-sintered; Xfine – grinding with extra fine diamond bur - 30 μm; Coarse – grinding by coarse