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[\[PDF \(518K\)\]](#) [\[References\]](#)**Effects of mechanical and thermal aging on microleakage of different fissure sealants**[Alp Erdin KOYUTURK<sup>1\)</sup>](#), [Adem KUSGOZ<sup>2\)</sup>](#), [Mustafa ULKER<sup>3\)</sup>](#) and [Cemal YESILYURT<sup>4\)</sup>](#)

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**Abstract:**

The purpose of this study was to examine the microleakage of three different fissure sealants after they were aged by mechanical loading and thermocycling *in vitro*. To this end, a bonding agent (Prime & Bond<sup>®</sup> NT) and three different fissure sealants (Clinpro, Heliobond F, Teethmate F1) were used, whereby microleakage was evaluated using a dye penetration method after mechanical loading and/or thermocycling. Sealant-treated teeth were allocated into four groups: mechanical loading (50,000 times), thermocycling (10,000 times), mechanical loading (50,000 times) + thermocycling (10,000 times), and one control group. For each fissure sealant, both experimental and control groups showed statistically significant differences in average microleakage score ( $p < 0.05$ ). Further, for each fissure sealant, the highest average microleakage score was obtained in mechanical loading + thermocycling group. When comparison was done for each aging method, the average microleakage scores showed statistically significant differences among the three fissure sealants ( $p < 0.05$ ). Based on the results of this study, it was also concluded that it is necessary to develop reliable *in vitro* test methods for dental materials.

**Key words:**[Mechanical Loading](#), [Thermal Cycling](#), [Fissure Sealants](#)

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