

An in vitro comparative assessment of different enamel contaminants during bracket bonding.

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In orthodontics, adhesive failures can occur because of saliva contamination during bonding. However, most in vitro studies concerning bond strength of saliva-contaminated enamel disregard the influence of temperature changes in a wet environment. The aim of the present study was to compare the influence of saliva, blood and etching gel remnant contamination on shear bond strength (SBS) after thermocycling. After etching of extracted human third molars (n = 80), a conventional primer (Transbond XT) and a moisture-insensitive primer (Transbond MIP) were evaluated using the adhesive, Transbond XT, under dry conditions and after contamination with saliva, blood and etching gel remnants. To simulate temperature changes and the moisture of saliva in the oral cavity, all samples were thermocycled (6,000 x 5 degrees C/55 degrees C) in a mastication device before SBS testing. A Mann-Whitney U test was used to determine statistical differences. Under dry conditions Transbond XT and Transbond MIP showed no significant difference in SBS. However, clinically unacceptable (P = 0.005) bond strength was observed using Transbond XT after saliva and blood contamination. In wet conditions only Transbond MIP showed sufficient bond strength. If contamination during bonding is expected, a hydrophilic primer should be used. Under dry conditions hydrophilic or hydrophobic primers could be applied. Blood contamination seems to be a more serious problem for bond strength than saliva or etching gel contamination.

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