

PhD in Biomedical Sciences

Research Area: Adhesive Dentistry

Title: New degradation-resistant adhesive strategies that support the application of hydrophobic resin-based materials

Success and reliability of dentin adhesion is still highly dependent of the hybrid layer, which is considered the weak link in the adhesive interface. Either short or long-term, the hybrid layer interface is known to be degraded by water or enzymes. Most strategies aiming to improve the longevity of resin-dentin adhesive interface developed so far have only been able to retard the problem. Nonetheless, some strategies focused on collagen-depletion, in dentin, have been successful, ultimately removing the collagen layer and thus, contesting the necessity of a hybrid layer. The aim of this study is to investigate different techniques, able to remove the collagen layer present in dentin without compromising the bond strength, eliminating the necessity to depend on hybrid layers. Moreover, this study also aims to test hydrophobic resin-based materials, capable of simplifying the adhesion technique, as well as their behavior on a dentin-resin interface that lacks organic material.

Keywords: collagen, depletion, adhesion, hybrid layer

Publications (doi)

<https://doi.org/10.1038/s41598-022-17371-0>

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