Silorane Low Shrinkage Composite: Evaluation of Selective Features
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Abstract:

Restorative dentistry has undergone an important paradigm shift during last two decades. Due to increased emphasis on preserving healthy tooth tissue the early concept of amalgam and cast restorations based on macro-mechanical retention coupled with inevitable tissue lost was replaced by the philosophy of minimally invasive dentistry. The introduction of predictable adhesive technologies has made this concept achievable. An adhesive tooth restorative technique enables diseased or lost tooth tissue be replaced by adhering the restorative material directly to the remaining sound tooth tissue. Due to their improved esthetic qualities, strength and wear resistance, resin composites are nowadays the restorative materials of first choice for replacement of lost natural tissues.

It is generally accepted, that polymerization shrinkage of resin composite is a still unsolved problem in clinical dentistry. Therefore, the main objective of this project was to evaluate selective properties of a new low shrinking composite and to compare them with commonly used ones.

This thesis mainly focuses on the influence of the low polymerization shrinkage and shrinkage stress formation on the marginal adaptation. The other factors such as different adhesive application protocols, different adhesive system combinations and dentinal fluid simulation in relation to the marginal adaptation are studied as well. Furthermore, the staining susceptibility of a Silorane resin composite is evaluated.