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EFFECT OF SURFACE TREATMENTS AND CYCLIC LOADING ON THE BOND STRENGTH OF ACRYLIC RESIN DENTURE TEETH WITH AUTOPOLYMERIZED REPAIR ACRYLIC RESIN-AN INVITRO STUDY

By

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ABSTRACT

BACKGROUND AND OBJECTIVES: Denture teeth made of acrylic resin are preferred over porcelain teeth because they chemically bond to denture base materials and are easier to adjust. Debonding of denture increases appointment frequency and laboratory costs. Clinically most rebonding of denture teeth is accomplished by using an autopolymerized repair acrylic resin and grinding the surface of the denture tooth and denture base. Attempts to improve bond strengths of denture teeth to the repair acrylic resin have involved mechanical and chemical means. Most published data regarding the bond strength of acrylic resin denture teeth to denture base resins were recorded with static loads in compression or tension. In these studies, the dynamic forces of mastication or fatigue loading were not considered. There is limited information on the strength of the acrylic resin denture tooth bond to denture base resin systems after subjection to cyclic loading.

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METHOD: In this study, 80 maxillary central incisor denture teeth were selected and ground on the ridge lap portion using a standardized jig. 20 specimens with ground surface will be used as control. The experimental groups will include ground plus airborne-particle abraded, ground plus diatoric recess, and ground plus a bonding agent. The teeth will be affixed by an autopolymerized repair acrylic resin to denture bases. Half the teeth from each group will be subjected to cyclic loading. Compression testing will be carried out on all specimens. The obtained data will be subjected to statistical analysis.

RESULTS: There was significant increase in mean bond strength after various surface treatments. But there was no statistical difference in mean bond strength between when samples were subjected to cyclic loading and without.

INTERPRETATION AND CONCLUSION: The present findings suggest that The use of a bonding agent and the placement of a diatoric recess in the denture tooth resulted in higher bond strengths than grinding alone. Cyclic loading had no significant impact on the bond strength of denture teeth to the autopolymerized repair acrylic resin.

KEYWORDS: fracture, bond strength, surface treatment, diatoric recess, cyclic loading