TO COMPARE THE FLEXURAL STRENGTH AND DIMENSIONAL STABILITY OF HEAT POLYMERIZED POLY (METHYL METHACRYLATE) DENTURE BASE ACRYLIC RESIN REINFORCED WITH INDIGENOUS GLASS FIBER AND PRE POLYMERIZED IMPREGNATED GLASS FIBER

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ABSTRACT

Background & Objectives-

The material most commonly used for fabricating removable partial or complete dentures is poly (methyl methacrylate) (PMMA); however, it has relatively low flexural strength. Therefore, improvements in the mechanical properties of denture base structures have been sought by adding reinforcing compounds to the PMMA matrix, thus creating a reinforced composite. However, good mechanico-chemical bonding between the reinforcement and the acrylic resin is crucial for a significant stiffening effect. It has been suggested that the fibers should be impregnated with a resin having characteristics similar to those used for commercial acrylic resin. The objectives of the study were to compare and evaluate flexural strength and linear dimensional stability of the processed acrylic blocks reinforced with E-glass and preimpregnated fibers.

Method-

33 specimens were fabricated using a metallic die. Three test groups were established, representing the control group, reinforced with E-glass fibers, reinforced with preimpregnated glass fibers. Three-point bending test was employed to determine the flexural properties and dimensions were measured using profile projector.

Results-

The flexural strength and dimensional stability of 33 specimens were tested. It was found that the group reinforced with preimpregnated fibers was having greater flexural strength and dimensional stability compared to group reinforced with E-glass fibers.

Interpretation & Conclusion-

It was concluded that Interlig reinforced PMMA are better than E-glass reinforced PMMA with respect to both dimensional stability and flexural strength.

Key words: E-Glass fibers, Preimpregnated fibers, Flexural strength, Dimensional stability,PMMA