coated with two different silans using the scanning electron microscope.

E Glass fibers coupled with Silan 1 (silan + epoxy resin) and Silan 2 (silan + polyester resin) were used to reinforce denture base polymethyl metacrylate resin. Specimens were produced by two different methods in the first group, and the fibers were soaked with a mixture of polymer powder and monomer liquid. In the second group the fibers were soaked in the polymer liquid for 15 minutes and then blended with PMA polymers. All the samples were heat cured. Transverse strength of specimens was evaluated by a 3 point bending test. Fracture surfaces of the test specimens were examined with SEM to evaluate the degree of impregnation of fibers with the polymer matrix. SEM examination revealed well impregnated glass fibers with the polymer matrix. No difference was found between the test groups.

35.

The Effect of Two Different E Glass Fiber Reinforcements on Mechanical Properties of Polymethyl Metacrylate Denture Base Resins

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Denture base polymers were reinforced with various types of fibers, such as glass, carbon/graphite and ultra-high-modulus polyethylene fibers. These procedures were performed to take advantage of the good esthetic qualities of glass fibers and good bonding of glass fibers to polymers via silane coupling agents. The most common type of glass used in fiber production is the so-called E glass (electrical glass).

This study investigated the effect of chopped fibers with two different silane coupling agents on the strength of denture base polymethyl metacrylate resins. E Glass fibers coupled either with Silan 1 (silan + epoxy resin) or Silan 2 (silan + polyester resin) were used to reinforce denture base polymethyl metacrylate resin. Specimens were produced by two different methods. In the first group, the fibers were wetted with a mixture of polymer powder and monomer liquid and in the second group the fibers were soaked in the polymer liquid for 15 minutes and then blended with PMA polymers. All samples were heat cured. Control group specimens were not fiber reinforced. Half of the prepared specimens were stored in distilled water at 37°C for 48 hours. The others were tested immediately. Transverse strength of all specimens was evaluated by a 3 point bending test. No significant difference was found between the wetted and immediately tested specimens (p=0.755). When all specimens were compared for transfer stength there was statistically significant difference between the wetted and unwetted specimens (p=0). When silanated and control specimens were compared the ones processed with Silan 2 (silan + polyester resin) showed the lowest transfer strenght values.

36.

Numerical and Experimental Analysis of the Influence of Assembling Conditions and the Tolerance of Adapted Implantological Components on the Durability of the Prosthetic Construction

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Durable fastening of implant retained prosthetic restorations, consisting of a series of elements, is one of the main factors of successful prosthetic rehabilitation. Clinically observed mechanical problems concerning the above mentioned components are complications that occur most often in the loading phase.

The aim of this research was evaluation of the suppleness of the implant- -anti-rotary abutment construction to loosening under the influence of labile mechanical stress.

Numerical analysis of resistance based on the finite element analysis (FEA) was used in the initial phase of this research. The actual tests were done with the use of a dynamic mechanical analyser Netzsch DMA 242 and a polarisation microscope equipped with a CCD camera.