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.

A series of implants connected with abutments composed of two parts were analysed.

The results of initial studies utilizing the finite element analysis (FEA) allowed definition of the spheres of stress concentration. On the basis of *in vitro* experiments, the investigators evaluated the influence of tolerance of adapted implant-abutment interface fit, as well as the torque used in the assembly of the abutment, on the occurrence of micromovements and loosening of components. The results strongly indicate correlation between the chosen variables and the risk of occurrence of mechanical complications.

37.
Effect of Long-Term Cycling Load for Abutment Screw Fixation in Implant Prosthodontics

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The aim of this *in vitro* study was to use rotational tests on commercially available abutment screws to evaluate their potential for preload generation and to follow changes in torque by using newer fixation geometry on the interface of the implant-abutment screw joint. Five identical implant/abutment assemblies were chosen from each of the following systems: external hex with standard abutment and Replace with TorgTite screw (Nobel Biocare), Camlog universal abutment (Altatec Biotechnologies), DenTi internal hex (Dentimplant Ltd. Szentes, Hungary), straight abutment with internal antirotational element (Uniplant, Sinalisal, Budapest).

Wax patterns of the upper premolar were performed and then cast from nickel-chrome alloy and full crown castings were cemented on abutments. In a test machine the magnitude and time of chewing function was predefined by using the desired force pattern. Each specimen was stressed for cycles equivalent to an intaoral load of 5 months or longer timescale.

In the static test greater loss in torques was calculated for standard Branemark and Replace screw joints. Assuming that the optimum proportion is the same when we calculate loosening versus tightening torque we obtained a decrease between 0.70-0.59 for Replace and Branemark abutments and a more moderate loss of between 0.90-0.84 for the other systems investigated. The ten month equivalent cycling test produced a loosening torque of 16-17 Ncm for Branemark and Replace abutments. Similar decrease in torque was not found for the other three systems. It was concluded that different approach in achievement of necessary mechanical integration can be seen in implant systems, although a reliable loosening torque could be measured after a longer time scale.

38.
A Different Impression Technique for a Single Tooth Crown Over the ITI Implant

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The single tooth implant has common use in the field of implant dentistry and many studies report high success rates. Improvements in implant design, range of prosthetic components and restorative materials have made it possible to achieve optimal cosmetic results, although tissue contouring problems may sometimes limit optimum aesthetics, especially in the anterior maxilla. This case report describes a different impression technique, by using zinc-oxide eugenol impression paste, to take a precise impression of the periimplant tissues around the subgingival part of the ITI implant, to achieve an optimal cosmetic effect.

39.
Surface Modification of Titanium Dental Implants by Excimer Laser

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