

rat's back. The animals use protocol was reviewed and approved by an independent ethics committee of the Tbilisi State Medical University (Georgia). The maximum animal observation period was three months.

RESULTS: Research has shown that microcarriers "Cultispher" loaded with pulp stem cells can be used as a scaffold in dental pulp bioengineering. Microcarriers "Cultispher" have been confirmed to create a 3D structure of the dental pulp and promote migration, adhesion, and proliferation of dental pulp stem cells. Research has also shown that our bioengineered pulp forms vascularized tissue similar to dental pulp and can express markers involved in dentin genesis and angiogenesis.

CONCLUSION(S): In summary, we have introduced a new biological scaffold and we validated its effectiveness for utilizing it as a bioengineered dental pulp.

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Effect of Two Whitening Mouthwashes on Hybrid CAD/CAM Blocks

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AIM or PURPOSE: The purpose of this study was to compare the effects of two whitening mouthwashes on two hybrid nanoceramic CAD/CAM blocks in terms of colour change and surface roughness.

MATERIALS and METHOD: 40 samples (15mm long, 10mm wide, 1mm thick) were prepared and divided into four groups (n=10): Listerine Advanced White (Johnson&Johnson, USA)-Cerasmart (LA-CS), Listerine Advanced White-Lava Ultimate (LA-LU), Colgate Plax Whitening (Colgate-Palmolive, USA)-Cerasmart (CP-CS), Colgate Plax Whitening-Lava Ultimate (CP-LU). The samples were immersed in mouthwash solution for 24 hours (solution was changed after 12 hours) which is equivalent time to 2 year of 2 minutes daily mouthwash use. Colour change(ΔE) and surface roughness(Ra) values were measured by spectrophotometry and by profilometer at the beginning and at the end of applications. The surface roughness values were evaluated using the Kruskal-Wallis test and ΔE values were evaluated using the WelchANOVA and a post-hoc test. Spearman two-tailed test was used to examine the correlation between Ra and ΔE values ($\alpha = 0.05$).

RESULTS: A statistically significant difference was found in terms of colour change according to blocks($p < 0.05$). In all groups, the highest ΔE was observed in LA-LU group following CP-LU group (LA-LU > CP-LU > CP-CS > LA-CS). LA-CS group exhibited the lowest ΔE value. No statistically significant difference was found between blocks and mouthwashes in terms of Ra($p > 0.05$). There is an insignificant relationship between Ra and ΔE variables.

CONCLUSION(S): This in vitro study demonstrated that whitening mouthwashes affected the colour change of Lava Ultimate blocks more than Cerasmart. Whitening mouthwashes did not affect the surface roughness of hybrid CAD/CAM blocks.

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Fracture resistance of a new fiber post design

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AIM or PURPOSE: The aim of this study was to design and develop new prefabricated fiberglass posts, compare their fracture resistance with those of a metal cast post and a traditional prefabricated fiberglass post, and identify the types of failures.

MATERIALS and METHOD: An in vitro study was carried out employing a new post designed from a conventional prefabricated fiberglass post with a modification in the apical third, consisting of an "anchor" 3 mm high. One hundred fifty-eight extracted teeth received conventional endodontic treatment and were randomly assigned to six experimental groups. For the canal walls preparation the ParaPost® Taper Lux® drills was used. The teeth were cut at the cement-enamel junction to standardize the length (15 mm). The specimens were tested for failure resistance using a universal testing machine at 90° at 0.5 mm/min until failure. The failure mode of the specimens was also evaluated with a stereomicroscope at 40x magnification. The data obtained were analyzed with two-way ANOVA and Tukey's DSH tests ($p = 0.05$).

RESULTS: Regarding the type of tooth (anterior-posterior), there was no statistically significant difference ($p = 0.66$). The fracture resistance (Newtons) of metal cast posts was different from those of prefabricated fiberglass posts ($p = 0.000$) and anchor prefabricated fiberglass posts ($p = 0.000$). Regarding the failure mode, a longitudinal root fracture was exhibited in most of the specimens of prefabricated fiberglass posts and anchor fiberglass posts.

CONCLUSION(S): The new anchor prefabricated fiberglass post tries to unite the retentive characteristics of the metal cast post and the advantages of the elastic modulus of the prefabricated fiber post.

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Decellularized dental pulp as a scaffold for regenerative endodontics

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AIM or PURPOSE: A comparative evaluation of different methods of dental pulp decellularization is presented in this study. The functional characteristics of decellularized dental pulp and the possibilities of its use in regenerative endodontics have also been determined.

MATERIALS and METHOD: Native dental pulp was obtained from humans after tooth extraction, as well as from domestic sheep and pigs. Chemical detergents such as 0.1%, or 1% and 5% sodium dodecyl sulfate (SDS), Triton X-100, and trypsin/EDTA were used to decellularize dental pulp tissue.