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OF SCIENCE AND EDUCATION**



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# **INNOVATIVE DEVELOPMENT OF SCIENCE AND EDUCATION**

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**Editor**

**Komarytskyy M.L.**

*Ph.D. in Economics, Associate Professor*

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**e-mail:** [greece@sci-conf.com.ua](mailto:greece@sci-conf.com.ua)

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**TO REASON BY EXPERIMENTAL'S CHOICE THE METHOD OF  
PROTECTION THE PULP OF TEETH ON STAGE TREATMENT BY NON-  
REMOVABLE DENTURE AFTER OPERATION OF PREPARATION HARD  
TISSUES OF TEETH**

**Yanishen I. V.**

Professor of orthopedic dentistry department

**Diudina I.**

**Tomilin V. G.**

Associate of professors of  
orthopedic dentistry department

**Pereshyvajlova I. A.**

Assistant of orthopedic dentistry department

Kharkov National Medical University

Kharkov city, Ukraine

In orthopedic practice, the use of fixed prosthesis designs that require significant grinding of hard tooth tissues has become widespread. This in turn leads to various complications of the preparation operation [1.2]. To prevent their occurrence, the majority of practicing orthopedic surgeons carry out preliminary depulping of intact supporting teeth. But many researchers have proved that it is inexpedient to use one-piece cast design denture with facing by ceramic or plastic with extruded pulp in support teeth, due to a decrease in their perception of chewing loads [3.4].

The purpose of our research was the saving and recovery the receptor apparatus of supporting teeth after operation of preparation hard tissues with using adhesive system with addition the different medical preparation.

**Materials and method's of research:** object of research – the teeth of white rats of line WAG by weight 220-230 gr. Was 6 groups of rats on 5 individual and 1 control group. Preparation teeth was made with used the anaesthesiological protection. The part of teeth after preparation to cover by new home-made light solidificated adhesive with addition antigomotoxic drug “Traumel” made the company Hell and adhesive Syntac made the company “Ivoclar-Vivadent AG” with addition drug

“Traumel” the same. The part of teeth to cover by composition this adhesive systems with addition the hydroxyapatite of different concentration (1%, 2% and 3%). After euthanasia made extract teeth with segment of jaw in one week, 2 weeks and 1 month after start of experiment and made the decalcification on conventional method, to made microscopic section which to search by electron microscope.

The result of research:

When Traumeel was added to the domestic light-curing adhesive, after 1 week morphofunctional destruction of dentin, decalcification, loosening, and cavity formation were observed. A clear positive result was found only after 1 month. Full regeneration of the processes of odontoblasts, which occurred in the lateral branches and with the most pronounced accumulation of protein in the cytoplasm, was noted. At the same time, the formation of numerous spherical calcification sites in the dentin thickness and intense calcification of the layer on the dentin surface were noted. The organic matrix of dentin looked unchanged.

The use of Traumeel together with Syntac adhesive 1 month after tooth preparation did not improve the regeneration of the processes of odontoblasts of the main substance and the calcification of dentin.

Coating the teeth with Syntac adhesive system with the addition of hydroxyapatite of any of the indicated concentrations after 1 week gave a picture of deep dystrophy and death of the processes of odontoblast in the outer parts of the dentin tubules, the proximal layer is structureless and loose, after 2 weeks in the proximal processes of odontoblasts, activation of regenerative processes was noted in the distal layer, the regeneration process has only just begun. After 1 month, the processes of odontoblasts partially regenerated, however, protein synthesis in the distal layer remained low, regeneration of the processes did not occur in some places, the main substance of the dentin remained expanded and friable. The influence of the domestic adhesive in combination with hydroxyapatite of various concentrations on the processes of odontoblasts after 1 and 2 weeks is similar for the previous groups, but after 1 month there was a complete absence of regeneration of the processes of odontoblasts, hydropic dystrophy in the proximal segments, loosening of the organic

matrix of the dentinal tubules. However, the use of domestic adhesive in combination with 3% hydroxyapatite solution showed a less pronounced deterioration of the microscopic picture.

Thus, we saw a low efficiency in the use of hydroxyapatite for the restoration of processes of odontoblasts damaged during the operation of the preparation of hard tissue of teeth.

**Resume:** on the basis of the results obtained, it is clear that when choosing the method of rehabilitation of the receptor apparatus of the teeth at the stages of treatment with fixed prosthesis designs, the best option for the adhesive composition is the use of the antihomotoxic drug Traumel based on the new domestic light-cured adhesive, which allows to restore the processes of odontoblasts, improves the morphofunctional state of the main substance of dentin and calcification of the outer layer 1 month after preparation, which indicates the possibility of rehabilitation of the receptor apparatus of the stump of teeth after surgery for the preparation of hard tissues.

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