

## عنوان مقاله:

The Effect of Different Percentages of Nano-bioactive Glass in the Synthesized CPP/ACP Paste on the Remineralization of Demineralized Enamel

## محل انتشار:

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## خلاصه مقاله:

Background: The preventive treatments of primary caries lesions are essential for preventing destructive damage to the tooth structure. One of the common treatments is the application of casein phosphopeptide-amorphous calcium phosphate (CCP/ACP) paste on the enamel surface. The aim of this study was to investigate the effect of different percentages of nano-bioactive glass (nBG) incorporation into synthesized CPP/ACP paste on the remineralization of demineralized enamel. Methods: In general, ۲۴ extracted human intact premolar teeth were selected, and their crowns were removed for this purpose. Each crown was cut into two halves, and each half was considered as a sample. The samples were placed in a demineralizing solution at a pH rate of ۴.۶ for ۸ hours, in artificial saliva for ۱ hour, and again in a remineralizing solution at a pH rate of ۷ for ۱۵ hours. The pH cycling was performed for ۱۴ days to demineralize the enamel surface. The samples were randomly divided into ۳ groups (n=۱۶), including G<sub>1</sub> (without treatment), G<sub>2</sub> (treated with synthesized CPP/ ACP paste containing ۵% nanobioglass), and G<sub>3</sub> (treated with synthesized CPP/ACP paste containing ۱۰% nanobioglass). The paste was then placed directly on the surface of the demineralized enamel for ۴ minutes (twice a day for ۲۸ days). The samples were subjected to the Vickers microhardness test. Finally, data were analyzed using SPSS (version ۱۹) and the analysis of variance and Tukey's tests ( $\alpha = 0.05$ ). Results: There was a significant difference between microhardness values in G<sub>1</sub> and G<sub>2</sub>, as well as G<sub>1</sub> and G<sub>3</sub> ( $P < 0.05$ ). However, no statistically significant difference was observed between G<sub>2</sub> and G<sub>3</sub> ( $P > 0.05$ ). Conclusions: The results showed adding bioactive glass into synthetic CPP/ACP paste increases enamel remineralization in spite of the percentage of bioactive glass incorporation.

## کلمات کلیدی:

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