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## **The effect of fluoridated materials on enamel demineralization and remineralization, adjacent to the orthodontic brackets**

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Successful orthodontic treatment is depending on complete treatment without demineralization, discoloration and hypocalcification. But over the years, the enamel demineralization is a well-recognized problem associated with orthodontic treatment. The present study is concerned with evaluation of the effect of fluoridated materials on enamel demineralization and remineralization. One type of orthodontic brackets has been selected for bonding on 80 extracted human premolars. The teeth were divided into four groups to test the effect of fluoride on enamel demineralization and remineralization; two groups were bonded with ordinary light cure composite and one of them was treated with topical fluoride varnish. And other two groups were bonded with fluoride releasing light cure composite and one of them was treated with topical fluoride varnish. The teeth cycled between artificial saliva and acidic solution twice daily, and exposed to acidic solution for one hour period, the teeth were cycled for 31 days. The enamel demineralization and remineralization were determined under polarized light microscope. The data were analyzed by one way analysis of variance and student T-test to determine the effect of fluoride on enamel demineralization and remineralization. The most important results were obtained as the following: the maximum depth of demineralized lesion has been found in the group bonded with ordinary light composite and receive no topical fluoride varnish application while the minimum depth of demineralized lesion has been found in the group bonded with fluoride releasing light cure composite and receive topical fluoride Varnish application. The maximum depth of remineralization of demineralized lesion has been found in the group bonded with fluoride releasing light cure composite and receive topical fluoride varnish application while there is no remineralization in the group bonded with ordinary light cure composite and receive no topical fluoride varnish application.

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