

عنوان مقاله:

Effect of Different Concentrations of Molybdenum on Dental Enamel Microhardness, An In Vitro Study

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خلاصه مقاله:

Introduction: Molybdenum is an essential trace element with several biological functions and therapeutic uses, and reported to have a cariostatic effect and is suggested as one of the agents that could be used as an alternative to fluoride as one the effective ways of preventing dental caries. **Aim:** This study aimed to evaluate the effect of molybdenum compounds on the microhardness of dental enamel. **Materials and Methods:** This in vitro experimental study was performed on 50 extracted sound premolar teeth. These teeth were extracted for an orthodontic cause. Enamel blocks were divided randomly into five groups. Micro-hardness of tooth enamel was measured by the Vickers microhardness test before and after the use of different concentrations of molybdenum solutions. ANOVA and a Dunnett t-test (۲-sided) were used under $P < 0.05$. **Results:** The comparison of means change in microhardness before and after the use of molybdenum compound showed an increase in microhardness number for all concentrations of molybdenum solutions with a significant difference when compared to the control group ($p < 0.000$), and that between sodium fluoride and sodium molybdate with highly significant difference between the initial and final measurements ($P < 0.000$). The difference in sodium molybdate was higher in the concentration 0.۲% than in 0.05% concentration. **Conclusion:** Results indicated that the molybdenum compound significantly increased the microhardness of dental enamel rendering it to be more resistant to acid attack, and its effect will approximate that of fluoride that could use in the prevention of dental caries.

کلمات کلیدی:

Dental Enamel, Molybdenum, Vickers microhardness test, Fluoride, microhardness

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