

Prevention of dental erosions by rinsing with a calcium solution

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Aim

To evaluate if rinsing with a mineral containing solution prior to an erosive attack reduces the resulting softening of dental enamel.

Background

Approximately 50% of anorexia nervosa patients practice vomiting/bulimia. While vomiting, gastric juice gets in contact with dental hard tissues causing erosive tooth wear. Prevalence of erosive tooth wear is up to 98% for patients with eating disorders. For anorectic patients, a prevalence of 33% was observed. In general, irrespective of the type of disorder, these patients have an up to 8.5-times higher risk for developing dental erosions with severe loss of dental hard tissue impairing quality of life drastically.

Taking into consideration the finding that solutions being saturated or even supersaturated with tooth minerals (e.g. calcium) showed no erosive effect, it might be speculated that erosive softening of dental hard tissues is reduced, when a higher content of tooth minerals (especially calcium) is present in the oral cavity during the erosive attack. Therefore, aim is to evaluate if rinsing with a mineral containing solution prior to an erosive attack reduces the softening of enamel.

Method

Volunteers will perform in total five runs (series) of the following experiment: Four enamel samples will be worn in an intraoral appliance. Volunteers will rinse (1 min) their mouths with water (series 1), elmex erosion protection mouth-rinse (series 2), milk (series 3), solution prepared from a calcium effervescent tablet dissolved in 200 ml (series 4) or 400 ml (series 5) of water. Afterwards, volunteers will rinse with Sprite Zero to simulate an erosive attack. Finally, the microhardness of the enamel samples will be measured and hardness loss will be calculated.

Execution

June 2017 - January 2018

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