Accumulation of apatite on initial biofilm *in-situ*

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Natural remineralization of enamel is promoted by calcium phosphate from saliva. Neomineralization of enamel due to biomimetic nanoparticles of calcium hydroxyapatite (HA) are evolved as a new protection opportunity additional to elemental mechanism. Accumulation HA nanoparticles during *in situ* formation of initial biofilm (pellicle) was investigated in this study.

Initially biofilm was formed for 3 min on the buccally placed enamel specimens. The oral cavity was rinsed with 5% HA suspension or 10% HA tooth gel was applicated once in 30-min experiment. The same procedure was repeated ten times every 30 min in 5-h experiment. The *in situ* formation of pellicle followed for 30 min after each application.

Accumulation of HA nanoparticles was qualitative and quantitative analyzed by means of scanning electron microscopy and energy dispersive X-ray spectroscopy. Using the apatite containing suspensions or tooth gels induce a sustainable modification of pellicle development and accumulation of apatite in and on the pellicle. The most effect exhibit suspension with 5% HA.