

1006 The Effect of Calcium-phosphate-containing Chewing Gums on Remineralization of Artificial Caries-like Lesion in situ

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Most investigators have tested only the pH recovery properties of carbamide and carbamide with calcium phosphate chewing gums, very few have reported on their remineralization effects. Objective: to evaluate the remineralizing effects of chewing gums containing carbamide alone, carbamide with calcium phosphate and carbamide with Phoscal® (groups 'A', 'B' and 'C', respectively) on the caries-like lesions in enamel. Methods: extracted molars were coated with nail varnish leaving a 1 mm 'window' on buccal and lingual sides before being immersed in demineralizing solution for 96 hours to produce caries-like lesions, 100-120 µm deep. The teeth were sectioned longitudinally to produce sections, 100-150 µm thick, which were divided into three groups (30 sections/group). Every section was studied using PLM and MRG to determine the depth and mineral content of the lesions before and after a 21-day intra-oral period. Result: Eighteen out of the 30 sections (60%) in group 'A' showed decreased lesion depth, while a small increase in lesion depth was observed in the other 12 sections. All sections (100%) in groups 'B' and 'C' showed a slight decrease in lesion depth. Remineralization was evident in some of the lesions in groups 'B' and 'C'. The mean lesion depth increased by 0.42% in group 'A' while those in groups 'B' and 'C' decreased in the range from -6.9% to -10.1%. ANOVA and Bonferroni comparison tests confirmed a statistically significant difference between group 'A' and groups 'B' and 'C' ($p < 0.001$). No statistically significant difference existed between groups 'B' and 'C' ($p = 0.182$). Conclusion: in addition to enhancing the pH recovery and raising the salivary flow rate, chewing gums containing carbamide promoted remineralization of initial carious lesions and that remineralization increased when calcium phosphate and Phoscal® were combined in the chewing gum. [This study was supported by Dandy A/S Denmark.]

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