

# ***The Effects of Child Formula Toothpastes on Enamel Initial Caries***

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Our previous pilot study showed that both 7-day and 10-day pH cycling models could demonstrate the efficacy of child formula toothpaste. Objectives: To compare, using these two pH-cycling models, the de/remineralization effects of children's toothpastes on primary teeth. Methods: Primary teeth were coated leaving a 1mm window and placed in demineralizing solution for 96 hours to produce artificial carious lesions 60-100µm deep. They were longitudinally cut into 100µm thick sections and assigned to 6 groups. Sections in Groups A and D were exposed to non-fluoridated toothpaste, those in Groups B and E to half-pea-sized (0.16 grams) and those in Groups C and F to pea-sized portions (0.32 grams) of 500ppm F toothpaste. pH-cycling Model I (Groups A, B, C), without added fluoride, ran for 7 days, while Model II (Groups D, E, F), with 0.25ppm F, ran for 10 days. Results: Lesions in Groups B and E progressed by 64% and 61%, respectively, while those in Groups C and F progressed by only 19% and 23% respectively. Groups A and B were significantly different from C and groups D and E were significantly different from F ( $p < 0.001$ , ANOVA, Boferroni test). No significant differences were found between Groups A and B and groups D and E ( $p > 0.05$ ). Conclusions: The findings confirmed previous results that both 10-day and 7-day pH-cycling models were suitable for studying carious lesion progression in primary teeth (the demineralizing and remineralizing solutions of the 10-day cycling model should contain 0.25ppm F). And a pea-sized portion (0.32 grams) of 500ppm F toothpaste could slow down the demineralization progression better than a half-pea-sized portion.

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