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A Study to Evaluate the Effectiveness of Two Battery-Powered Toothbrushes on the Removal of Dental Plaque

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Objective: This study was conducted to compare the effectiveness of two battery-powered toothbrushes with different head designs on removal of dental plaque. **Methods:** The study employed a two treatment, examiner-blind, randomized, two period cross-over design. A total of 38 subjects, age range from 22 to 51 years, 30 females and 8 males were enrolled. The two treatment groups were Crest® SpinBrush™ and Oral-B® Ultra Plaque Remover™ powered brush. Subjects used each brush once during the course of the study. The subjects swished with disclosing solution prior to a baseline plaque examination (Modified Quigley-Hein Plaque Index). They were then instructed to brush for one minute with their assigned toothbrush and marketed toothpaste under supervision prior to having another plaque examination. **Results:** Analysis of covariance (ANCOVA) for a crossover design with baseline plaque score as the covariate was applied to the baseline minus post-brushing differences in average whole-mouth plaque scores in order to assess treatment effects. All comparisons were two-sided at the 0.05 level of significance. Baseline whole-mouth plaque scores averaged 1.89 for the Spinbrush and 1.91 for the Oral-B Ultra Plaque Remover brush. The adjusted mean whole-mouth plaque removal (baseline minus post-brushing) score for Crest SpinBrush was 0.46, while the score for the Ultra Plaque Remover was 0.45. The difference in scores was not statistically significant (p=0.645). For whole-mouth scores, Crest SpinBrush had an adjusted mean 3.6% higher than the Ultra-B Plaque Remover. **Conclusions:** The Crest SpinBrush had directionally but not statistically significantly greater plaque removal efficacy to the Oral-B Ultra Plaque Remover toothbrush (3.6% more plaque removed, p=0.645).

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Plaque Removal by a Battery-Powered Toothbrush Relative to a Manual Toothbrush

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Recently, a new power toothbrush has been marketed with a design that fundamentally differs from other marketed power toothbrushes, in that it incorporates a round oscillating head, in conjunction with fixed bristles. **Objectives:** The objective of this study was to compare the plaque removal efficacy of a control manual toothbrush (Crest Extender) to this experimental power toothbrush (Crest SpinBrush) following a single use. **Methods:** This study was a randomized, controlled, examiner-blind, 4-period crossover design which examined plaque removal with the two toothbrushes following a single use in 42 subjects. Plaque was scored before and after brushing using the Turesky Modification of the Quigley-Hein Index. **Results:** Baseline plaque scores were 1.90 and 1.92 for the experimental toothbrush and control toothbrush treatment groups, respectively. For whole mouth scores, the experimental toothbrush delivered on average 9.9% more plaque than the control toothbrush. These results were statistically significant (p=0.0395). The adjusted (via analysis of covariance) mean difference between baseline and post-brushing plaque scores was 0.49 for the experimental brush, while the control toothbrush delivered an adjusted mean difference of 0.45. Results on buccal surfaces demonstrated directionally greater plaque removal for the experimental toothbrush with an average of 9.7% more plaque removal that was not statistically significant. Results on lingual surfaces also demonstrated directionally greater plaque removal for the experimental toothbrush with an average of 9.1 % more plaque removal that was not statistically significant. **Conclusions:** The experimental power toothbrush was found to be statistically significantly more effective regarding plaque removal than the control manual toothbrush.

Research presented at the 80th General Session of the IADR, March 6-9, 2002

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