Imaging Study to Assess a Novel Power Brush Head

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ABSTRACT

Objectives: The aim of this randomized clinical study was to evaluate the effect of an oscillation-rotation power brush with novel brush head design on plaque by mean of Digital Plaque Imaging Analysis (DPIA).

Methods: This was a randomized, parallel, operator-blind, 2-week clinical trial comparing long-term plaque outcome. The study population included 29 subjects with evidence of overnight plaque. Subjects were randomly assigned to power brush (Oral-B® Professional Care Series 500 with new Precision Clean brush head EB20, n=15) or regular manual brush (ADA, n=14). Both groups used standard fluoridated toothpaste (Crest® Cavity Protection). Unsupervised brushing was twice daily at-home. Overnight plaque was evaluated at Baseline, Week 1 and Week 2 using the DPIA method. Statistical analyses were carried out using an analysis of covariance with baseline pre-brushing percent plaque as covariate.

Results: The average Baseline DPIA plaque percentage was 17.9 for the ADA and 17. 6 for the power group which were not statistically different (p=0.907) from each other. Groups were also balanced for age (p=0.945), gender (p=0.893), race (p=0.489) and post-brushing mean plaque level (p=0.772). At Week 1 the plaque coverage was 13.7% in the power brush group and 20.6% in the ADA group. At Week 2 plaque coverage was 11.8% in the power brush group and 17.7% in the ADA group. Between-group comparisons showed that groups differed significantly at both time points; Week 1 (p<0.002) and Week 2 (p<0.004), favoring the power brush.

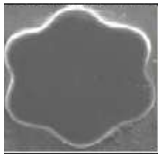
Conclusions: The oscillation-rotation power brush with novel brush head design provided significant improvements in plaque as compared to standard manual brush measured by imaging analysis.

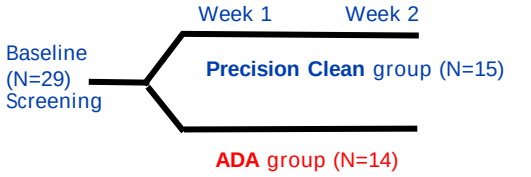
MATERIALS AND METHODS

Oscillation-rotation power brushes have been shown to be more effective than manual brushes in gingivitis and plaque reduction. Recently surface active materials have been developed for efficient plaque removal with genlte brushing.

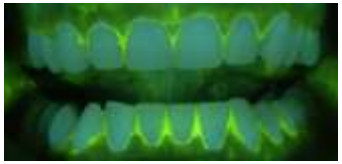
New Precision Clean brushead has a novel brushhead design:

- Increased head size (+29 % more filaments vs previous)
- Specially designed trim profile for optimal 3D-toothwrapping, gentle & efficient brushing
- Latest filament technology to increase surface action and improve paste adhesion





RESULTS

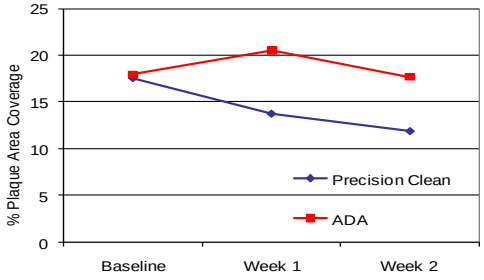


Baseline

Week 2

RESULTS (cont.)

Treatment Group	Week 1 N	Week 1 Adjusted Mean Change	Week 1 p-value	Week 1 % Change From Baseline	Week 1 Between treatment comparison p-value	Week 2 Adjusted Mean Change	Week 2 p-value	Week 2 % Change From Baseline	Week 2 Between treatment comparison p-value
Oral-B Professional Clean	15	4.00	0.006	22.8%	0.002	5.00	0.001	28.5%	0.004
ADA Manual Brush	14	-2.80	0.054	-15.6%		-0.81	0.538	-4.5%	



$$\%\text{Plaque Coverage} = \frac{\text{Total pixels classified as plaque}}{\text{Total pixels classified as plaque and tooth}} \times 100$$

CONCLUSIONS

The oscillation-rotation power brush with novel brush head design provided significant improvements in plaque as compared to standard manual brush measured by imaging analysis.

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