



Plaque Removal

in vivo study

Comparison of plaque removal in orthodontic subjects by Sonicare FlexCare and a manual toothbrush

DeLaurenti M, Putt M, Milleman J, Jenkins W, Wei J, Strate J. Plaque Removal by Sonicare and Manual Toothbrushes in Orthodontic Subjects. J Dent Res 87 (spec Iss B): 2044, 2008

Objective

To compare the plaque removal and gingivitis reduction ability for the Sonicare FlexCare (ProResults brush head) and Oral-B P-40® manual toothbrush in orthodontic population.

Methodology

Ninety-five healthy orthodontic subjects aged 12 years and older participated in a single-blind, randomized, parallel group clinical study assessing gingivitis and plaque over time for the Sonicare FlexCare and a manual toothbrush. All subjects were routine manual toothbrush users. At Visit 1, subjects were screened for eligibility (Modified Bonded Bracket Index (BBI) >2.0; Pocket depth ≤ 4mm). At Visit 2, subjects received a prophylaxis and were randomized to a treatment arm. Subjects were trained and given brushing instructions to use the assigned test device twice daily at home for two minutes. Subjects abstained from oral hygiene for 12-24 hours before each visit. At subsequent visits, safety and BBI were assessed before and after a two minute supervised brushing. Secondary efficacy measurements included Turesky-Modified Quigley-Hein Plaque Index (TPI) on tooth surfaces without brackets and a full-mouth Löe and Silness Gingival Index (LSGI). ANOVA was used for statistical analysis.

Results

The Sonicare FlexCare demonstrated superior plaque reduction in a single brushing on the buccal (bracketed) surfaces assessed by the Bonded Bracket Index compared to a manual toothbrush at the two-week and four-week evaluations (overall $p < 0.0001$ at two weeks, $p < 0.0001$ at four weeks).

The Sonicare FlexCare demonstrated significantly superior reduction in plaque over time (two and four weeks) on the lingual surfaces assessed by the Turesky-Modified Quigley-Hein Plaque Index compared to a manual toothbrush (overall $p = 0.0221$ at two weeks and $p = 0.0025$ at four weeks).

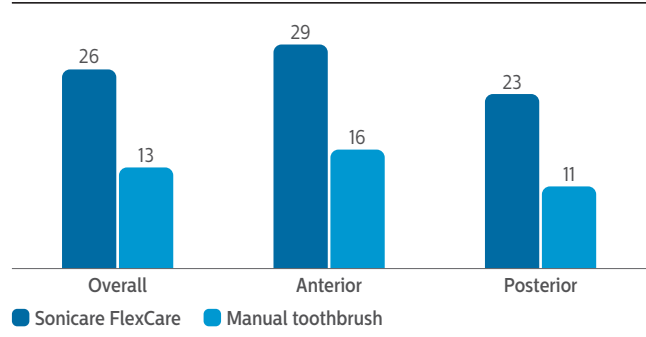
The Sonicare FlexCare demonstrated significantly superior plaque reduction in a single brushing on the lingual surfaces assessed by the Turesky-Modified Quigley-Hein Plaque Index compared to a manual toothbrush at the two-week and four-week evaluations (overall $p < 0.0001$ at two weeks, overall $p < 0.0001$ at four weeks).

The mean scoring Löe and Silness Gingival Index value was low (1.14, std 0.10) indicating that the population presented with healthy gingivae. Both groups, however, were able to demonstrate statistically significant improvement vs. baseline over time (overall $p < 0.0001$).

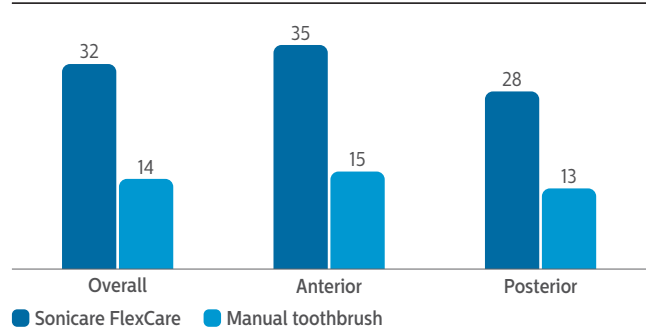
Conclusion

Sonicare FlexCare removed significantly more plaque than a manual toothbrush in a single brushing at two and four weeks on teeth with and without orthodontic brackets. Both toothbrushes were safe for use on oral soft tissues and orthodontic brackets.

Percent Plaque Reduction Bonded Bracket Index Single Brushing Bracketed Surfaces at 2 Weeks
% of Plaque Reduction

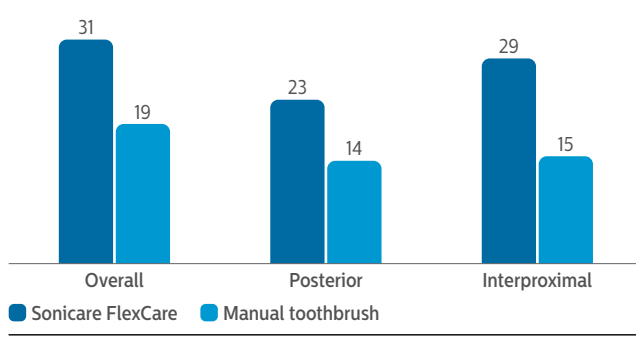


Percent Plaque Reduction Single Brushing Bonded Bracket Index Bracketed Surfaces at 4 Weeks
% of Plaque Reduction



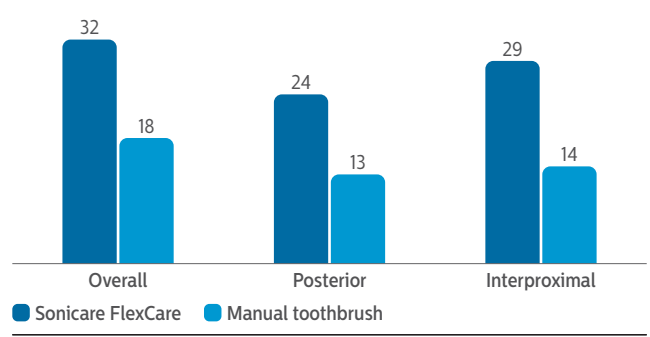
**Percent Reduction Turesky Plaque Index
Single Brushing Lingual Surfaces at 2 Weeks**

% of Plaque Reduction



**Percent Reduction Turesky Plaque Index
Single Brushing Lingual Surfaces at 4 Weeks**

% of Plaque Reduction



Reduction in Mean Turesky Plaque Index Over Time

Mean TPI Plaque Values

