

# A comparison of the Braun Oral-B 3D Plaque Remover and the sonicare® Plus electric toothbrush in removing naturally occurring extrinsic staining

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Oral-B

Sharma N.C., et al., BioSci Research Canada, Ltd., Mississauga, Ontario, Canada. Am. J. Dent. 2000: 13: 17-20

## Objectives

The primary objectives of this study were to compare the ability of the Braun Oral-B 3D Plaque Remover with the sonicare Plus electric toothbrush with respect to the removal of naturally occurring dental stain. A secondary objective was to compare subject satisfaction with the two toothbrushes.

## Design

This was a randomized single-blind, parallel-group comparative study.

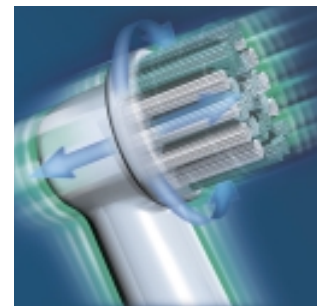
## Materials and Methods

Sixty-seven subjects, between 18 and 61 years of age, randomly selected by the investigators from a general population, entered the study, which was conducted over 6 weeks. Subjects received a baseline stain assessment using the Lobene stain index, and an oral hard and soft tissue examination. Stain was scored on the buccal surfaces of the anterior teeth of at least 10 scorable teeth, from canine to canine in both maxillary and mandibular arches. Stain on the labial surfaces was scored for the gingival region and the body region of the tooth. Stain was expressed as a total stain score, stain area and stain intensity.

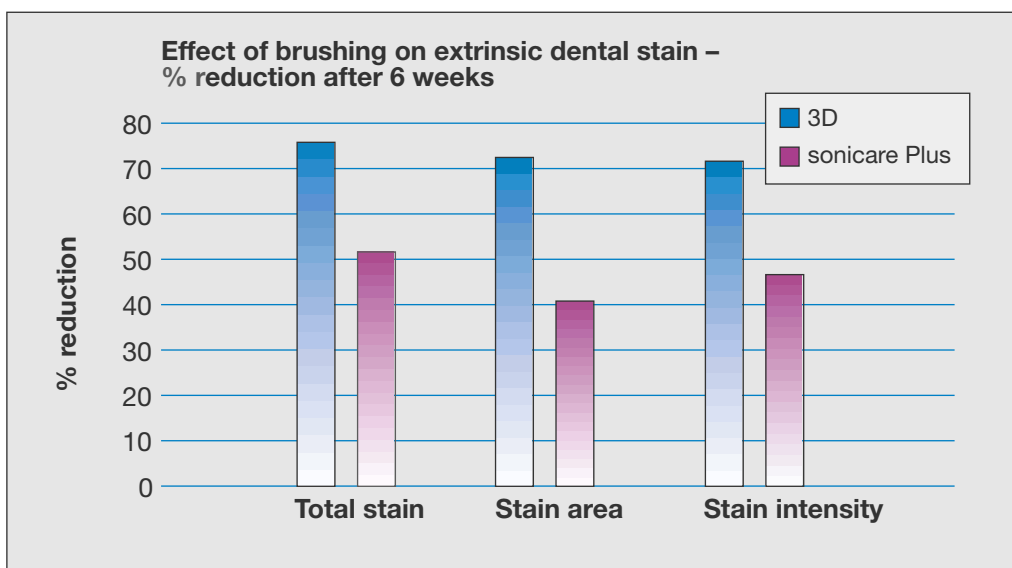
On the basis of the initial stain score and smoking status, subjects were randomized in a balanced way to receive either the Braun Oral-B 3D Plaque Remover or the sonicare Plus toothbrush. All subjects received individual written and verbal instructions on the use of their assigned toothbrush and were instructed to brush twice daily with toothpaste for 2 minutes.

Following 2 weeks of use, subjects were again instructed in the correct use of their respective toothbrushes before continuing with the study for a further 4 weeks. At the end of the study, after a total of 6 weeks, the subjects returned to the test facility for a final stain assessment and an oral hard and soft tissue examination. At this stage, a questionnaire was completed which examined the subjects' overall satisfaction with their respective toothbrushes.

Changes in stain intensity and area, and total stain scores from baseline to final assessment were analyzed using a paired t-test.



## Results



\*Significant difference between groups,  $p < 0.05$

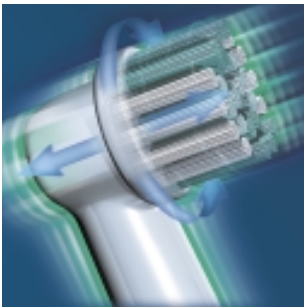
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## Oral-B

Both the Braun Oral-B 3D Plaque Remover and the sonicare Plus toothbrush significantly reduced levels of stain, and by week 6, reductions from baseline for total stain score, stain area and stain intensity were all statistically significant ( $p < 0.001$ ). The efficacy of the 3D was, however, significantly greater than that of the sonicare Plus toothbrush for all three measures of staining ( $p < 0.001$ ), as shown in the figure. Stain area and stain intensity were reduced by 73% and 72%, respectively in the 3D group compared with 41% and 47%, respectively in the sonicare group. This resulted in corresponding reductions in total stain score (76% for the 3D and 51% for the sonicare). With respect to stain scores for the separate tooth regions, the 3D was significantly more effective than the sonicare Plus for each region analysed. For the gingival region, the 3D reduced total stain scores by 73% compared with 44% for sonicare ( $p = 0.001$ ), while for the body of the tooth, the figures were 80% and 64%, respectively ( $p = 0.05$ ).

During the study, there was no observed or reported evidence of any hard or soft tissue damage associated with the use of either device.

With regard to satisfaction with the two toothbrushes, 94% of subjects (31/33) in the 3D group said that they were satisfied with the product compared with 81% (25/31) in the sonicare group. The difference between the two groups with respect to satisfaction was statistically significant ( $p = 0.04$ ).



### **Clinical comment**

This study demonstrated that the Braun Oral-B Plaque Remover is more effective than the sonicare Plus toothbrush at removing naturally occurring extrinsic dental stain. While many studies investigate the ability of a toothbrush to remove plaque and resolve gingivitis, this study compared the cleaning ability of two electric toothbrushes. Cleaning ability is important to the many individuals who due to their lifestyle habits have a tendency to develop tooth staining. In particular, smokers and tea/coffee/red wine drinkers are likely to develop stain and therefore a toothbrush that can clean more effectively may help to encourage long-term compliance. The finding of greater stain removal with the 3D, correlates with the findings of previous studies that have demonstrated greater plaque removal and improvements in gingival health.