The Safety and Efficacy of a Children's Power Toothbrush and a Manual Toothbrush in 6 to 11 Year Olds

García-Godoy F., et al., Global Research Consultants, San Antonio, USA
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Objectives
The aim of this investigation was to compare the safety and efficacy of the Braun Oral-B Kids' Power Toothbrush (D10) with a manual children's toothbrush.

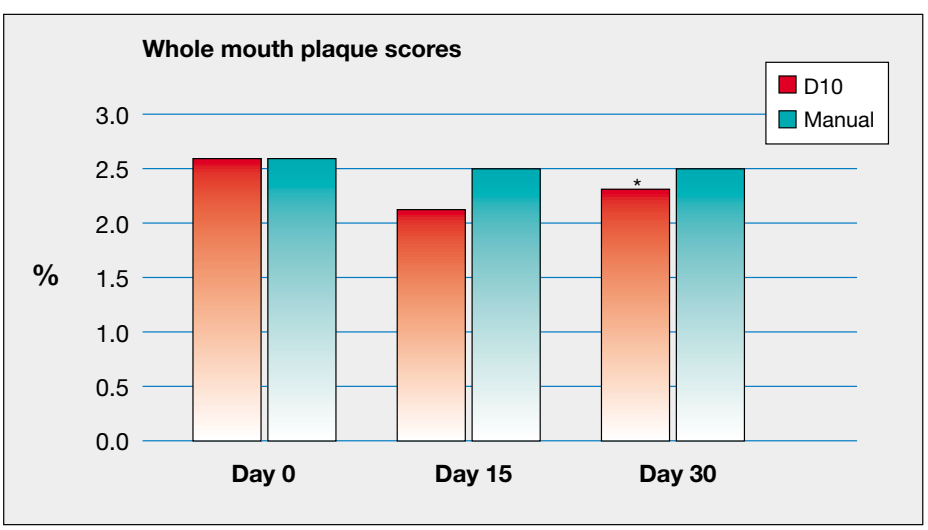
Design
Single, blind, randomised, parallel group.

Materials and Methods
A total of 70 children aged 6 to 11 years were enrolled into the study. Subjects who met the enrollment criteria and had abstained from all oral hygiene for the previous 12-18 hours were randomized (35 subjects per group) to use either a Braun Oral-B Kids' Power Toothbrush (D10) or an ADA reference manual toothbrush for children. Subjects were instructed to brush their teeth at home twice-daily each day for the 30-day study period, brushing for 1 minute using the assigned toothbrushes with toothpaste that was provided.

The study comprised evaluations of efficacy and safety. Single use plaque removal was assessed at each visit (baseline; day 0, day 15 and day 30) following 12-18 hours of no oral hygiene. The subjects brushed their teeth for 1 minute under supervision using the assigned toothbrushes and toothpaste. Oral hard and soft tissues were examined for safety, and whole mouth plaque was assessed using the Turesky Modification of the Quigley Hein Plaque Index before and after the supervised 1-minute toothbrushing at each visit. Long term efficacy was evaluated by recording plaque scores following 12-18 hours of no oral hygiene at day 15 and day 30 and comparing the values obtained with those obtained at baseline.

At the end of the 30 day study period, the children and their parents were asked to complete a questionnaire which asked subjective questions regarding attitudes to the toothbrushes that had been used in the study.

Results



*Statistically significant reduction from baseline, p<0.006

There were no pre-brushing oral hard and soft tissue abnormalities or post-brushing changes in oral tissues in either group and both toothbrushes were considered to be safe.
In the D10 group there were statistically significant reductions in mean plaque index for the whole mouth ($p<0.006$) (Figure 1), buccal surfaces ($p<0.0001$) and anterior teeth ($p<0.008$) from day 0 to day 30, but these improvements were not seen in the manual group. Greater mean changes in whole mouth plaque reduction were seen for the D10 group as compared to the manual group at day 15 and 30 ($p<0.05$). Results from the single-use supervised brushing at each visit revealed that reductions in mean whole mouth plaque were statistically significant in both groups at each visit ($p<0.0001$). There was statistically significantly greater plaque removal after a single brushing at day 0 in the D10 group compared with the manual group ($p<0.002$), but the difference was not significant at days 15 and 30.

Results from the questionnaires completed by the parents and the children revealed that both thought that the D10 was fun, effective and easy to use.

Clinical comment

The results of this 30 day study demonstrated that the Braun Oral-B Kids' Power Toothbrush is safe to use and more effective than a children's manual toothbrush. The D10 removed significantly more plaque than the manual toothbrush, the difference being statistically significant for whole mouth plaque scores, plaque on buccal surfaces and plaque on anterior teeth. Results from the questionnaire showed that both parents and children thought the D10 was effective and fun to use. The D10 may therefore help to encourage children to brush their teeth regularly. The importance of establishing good oral hygiene habits in childhood cannot be overstressed, as once learnt, these habits are likely to be carried forward into adult life.