Comparison of a manual and a new electric toothbrush for controlling plaque and gingivitis


Objectives
The primary objective of this study was to compare the effect of the Braun Oral-B Plaque Remover (D5) with a manual toothbrush (Tandex 40) in controlling plaque and gingivitis, without professional instruction of the volunteers.

Design
Parallel group, single blind to investigator.

Materials and Methods
Forty volunteers aged between 18 and 30 years, possessing at least twenty natural teeth, with no relevant medical condition, nor having used systemic antibiotics within the three months prior to the study were entered.

The volunteers had baseline Gingival Index (Löe and Silness) and Plaque Index (Silness and Löe) scores of at least 1.0.

Following baseline measurement of Gingival Index and Plaque Index, volunteers were allocated to either the manual toothbrush (Tandex 40, Bay & Vissing, Copenhagen) or the electric toothbrush (Braun Oral-B Plaque Remover (D5), Braun AG). Volunteers were given a regular toothpaste (Colgate Classic, Colgate, Denmark) and were instructed not to use any other oral hygiene procedure during the study.

Volunteers in the electric toothbrush group were shown how to switch on/off and charge the unit and were given the manufacturer's printed instruction. No further instructions were given to either group.

Assessment of Plaque Index and Gingival Index was at one, two and six weeks and at the same time the gingivae were assessed for toothbrush abrasion.

Results

<table>
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<tr>
<th>Plaque Index (Silness and Löe)</th>
<th>Gingival Index (Löe and Silness)</th>
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<tbody>
<tr>
<td>Braun Oral-B D 5 n = 20</td>
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<tr>
<td>Manual Toothbrush Tandex 40 n = 18</td>
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Whole Mouth Plaque, and Gingivitis Results

- Baseline
- After 6 Weeks
Thirty-eight of the forty volunteers completed the study.

No gingival abrasion was observed in either group on any occasion. The two groups were essentially identical at baseline for both Plaque Index and Gingival Index (p>0.05).

At all subsequent examinations the electric toothbrush group had a lower Plaque Index than the manual toothbrush group. At six weeks the percentage of sites with visible plaque was significantly lower with the D5, only 9% interproximal plaque compared to 30% with the manual toothbrush.

No decrease in Gingival Index was observed in the manual toothbrush group. However, in the electric toothbrush group there was a significant decrease compared to baseline. This group also showed a significant decrease in Gingival Index between week two and week six.

Bleeding sites also significantly reduced in the electric toothbrush group, both from baseline and versus the manual toothbrush group. Typically the number of bleeding sites at baseline would be twenty-one. This reduced to eighteen in the manual toothbrush group and to five in the D5 group.

**Clinical Comment**
This study demonstrated that the D5 was superior in controlling plaque and gingivitis compared to the Tandex 40 (a multitufted manual toothbrush) when no professional instruction in oral hygiene was given.

There was no incidence of gingival abrasion in either group.

The Braun Oral-B Plaque Remover (D5) demonstrated safety and superiority to a manual toothbrush in a study designed as close as possible to the home use situation.