**Evaluation of the plaque removal efficacy of a novel power toothbrush: Oral-B® Triumph™**

NC Sharma  

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**KEY CLINICAL FINDINGS**

- The Oral-B Triumph™ (ProfessionalCare™ 9000) removed significantly more plaque from whole mouth surfaces than the Oral-B ProfessionalCare 7000 after a single brushing.
- Single-use plaque removal was significantly greater with the Oral-B Triumph than the Oral-B ProfessionalCare 7000 from difficult-to-access gumline margin and approximal surfaces.
- The Oral-B Triumph was safe to oral tissues after single use.

**OBJECTIVE**

To compare the safety and plaque removal efficacy of two power toothbrushes:

- The Oral-B® Triumph™ (ProfessionalCare™ 9000), [Oral-B Laboratories, Boston, MA, USA]
- The Oral-B ProfessionalCare 7000 (Oral-B Laboratories, Boston, MA, USA)

**DESIGN**

This was a randomized, single-blind, single-use, crossover study.

**MATERIALS AND METHODS**

Fifty healthy subjects aged between 19 and 58 years with a minimum of 18 scorable teeth (not including third molars, teeth with orthodontic appliances, bridges, crowns or implants) completed the study. All subjects were current power toothbrush users.

Subjects abstained from oral hygiene procedures for 23-25 hours and from eating, drinking or smoking for 4 hours before each clinic visit. At each clinic visit, all subjects had an assessment of oral soft and hard tissues and pre-brushing plaque levels. At the first visit, only those subjects with a whole mouth pre-brushing plaque score of $\geq 0.6$ based on the Rustogi et al modified Navy Plaque Index (RMNPI) continued in the study.

Each subject was randomly assigned to a treatment sequence so that they used a different test toothbrush on each of two separate clinic visits. Subjects brushed under supervision for 2 minutes without access to a mirror with a controlled pre-measured amount of toothpaste (Colgate® Cavity Protection, Colgate-Palmolive Company, New York, NY, USA) dispensed by the brushing supervisor. After brushing, oral tissues were re-examined and plaque was reassessed.

Subjects used their usual method of oral hygiene during a brief washout period and returned to the clinic to use the alternate toothbrush. One examiner, who was unaware of treatment assignment, performed all clinical measurements at each visit.

Differences from baseline in plaque scores (RMNPI) within each treatment sequence were analyzed using a paired $t$-test and between treatments using an analysis of variance (ANOVA) with models appropriate for the crossover design.
RESULTS

- Both brushes significantly reduced mean plaque scores ($p=0.0001$) for the whole mouth and at marginal and approximal surfaces after single use.
- The Oral-B Triumph removed significantly more plaque than the Oral-B ProfessionalCare 7000 from the whole mouth ($p=0.0005$), along the gumline ($p=0.0001$), and from approximal surfaces ($p=0.0389$).
- No evidence of oral hard and soft tissue trauma was found after single brushing with either toothbrush.

CLINICAL COMMENT

Advances in power toothbrush design are aimed at improving cleaning effectiveness. The Oral-B Triumph is a rechargeable toothbrush with a new brush head designed to provide optimal plaque removal on all tooth surfaces. It has an elliptical design, which is slightly larger than the FlexiSoft brush head, and has 4 textured elements that are free to pivot about their base. In this study, the presence of plaque was assessed by the RMNPI with separate evaluation of plaque on marginal and approximal surfaces where its removal is most difficult. The results clearly demonstrate that while both power toothbrushes were safe and effective, the plaque removal ability of the Oral-B Triumph was significantly greater than the Oral-B ProfessionalCare 7000. The advantage in plaque reduction in favor of Oral-B Triumph was evident for both the whole mouth (primary endpoint) and difficult-to-access gingival margin and approximal surfaces often missed by brushing.