Gingival Health

*in vivo study*

Changes in clinical indices in experimentally induced gingivitis in three periodontitis patient groups: effects of Sonicare FlexCare and a manual toothbrush


**Objective**
To determine clinical benefits of Sonicare FlexCare following experimental induction of biofilm overgrowth (21-day experimental gingivitis) in subjects with mild, moderate and severe periodontitis.

**Methodology**
Ninety-seven healthy adults aged 18-75 years completed a single-blind, randomized study assessing changes in clinical indices in three groups of periodontitis patients (32-35 in each group). Subjects received an experimentally induced gingivitis challenge using oral stents. The periodontitis sub-groups were defined according to the following criteria: P1 exhibited mild periodontitis (1+ site with PD > 3 mm, BOP \(\leq 10\%\)); P2 exhibited moderate periodontitis (1+ site with PD > 3 mm, BOP > 10% but BOP \(\leq 50\%\)); P3 exhibited severe periodontitis (1+ site with PD > 3 mm, BOP > 50%). Subjects were randomized to then receive either a manual toothbrush or a Sonicare FlexCare with compact ProResults brush head in equal allocation, to use for a four-week resolution phase. During both the induction and resolution phases, PI, GI, BOP, PD and CAL were recorded at days 0, 7, 14, 21 (end of induction phase, beginning of resolution phase), 35 and 49 (end of resolution phase).

**Results**
There was a significant response in Silness and Löe plaque index (PI), Löe and Silness gingival index (GI) and bleeding on probing (BOP) during the induction phase and resolution phase \((p<0.0001)\) for all three periodontitis groups \((P1, P2, P3)\) after four weeks of Sonicare FlexCare and manual toothbrush use. During resolution, Sonicare FlexCare exhibited a significant difference in response for GI and BOP compared to a manual toothbrush for all three periodontitis groups \((p=0.03\) and \(0.006, \text{respectively})\). No significant differences were observed between Sonicare FlexCare and a manual toothbrush for plaque index (PI), clinical attachment loss (CAL) or pocket depth (PD), although the decrease in PD approached significance \((p=0.07)\) during resolution for the three periodontitis groups.

**Conclusion**
Sonicare FlexCare significantly reduced gingivitis (GI) and gingival bleeding (BOP) in patients with mild, moderate and severe periodontal disease within four weeks of regular use compared to a manual toothbrush.
Ia. Plaque Index (PI)

- **P1** = Mild periodontitis; 1+ site with PD > 3mm, BOP ≤ 10%
- **P2** = Moderate periodontitis; 1+ site with PD > 3mm, BOP > 10% but BOP ≤ 50%
- **P3** = Severe periodontitis; 1+ site with PD > 3mm, BOP > 50%

P1 = Mild periodontitis; 1+ site with PD > 3mm, BOP ≤ 10%
P2 = Moderate periodontitis; 1+ site with PD > 3mm, BOP >10% but BOP ≤ 50%
P3 = Severe periodontitis; 1+ site with PD > 3mm, BOP > 50%
Stent-induced clinical changes showed significant improvement of mean PI during resolution (p<0.0001) for all three groups (1a). For mean GI and BOP, significant improvement during resolution was seen for all three groups (p<0.0001) (1b and 1c, respectively).

Overall clinical changes showed significant improvement of mean GI (p=0.03) and mean BOP (p=0.006) after FlexCare use during resolution when compared to a manual toothbrush for all three groups (figures 2a and 2b for GI and BOP, respectively).