Gingivitis Reduction and Plaque Removal

*in vivo study*

**Effect of Philips Sonicare AirFloss on interproximal plaque and gingivitis**


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**Objective**

Philips Sonicare AirFloss is a rechargeable interproximal cleaning device that uses a high-velocity burst of air and water droplets to clean between teeth. The objective of this study was to evaluate the effect of Sonicare AirFloss on interproximal plaque and gingivitis when used in addition to manual toothbrushing.

**Methodology**

One hundred forty-eight adults (98 females, 50 males; mean age 39.5 years) with moderate gingivitis participated in this single-blind, four-week, parallel, randomized controlled clinical trial. Ethical approval and written informed consent were obtained. Subjects were randomized either to a manual toothbrush (two minutes, twice a day) or to a manual toothbrush plus Sonicare AirFloss (once daily, evening). Changes in gingival inflammation were measured using the Modified Gingival Index (MGI) and Gingival Bleeding Index (GBI) at baseline, two weeks and four weeks. The amount of interproximal plaque was evaluated by analyzing the residual protein concentration (RPC) of six plaque samples collected from four posterior sextants (one interproximal site per sextant) and two anterior sextants (three interproximal sites per sextant). Baseline plaque samples were collected prior to any intervention. At two weeks, the plaque removal efficacy from a single use of Sonicare AirFloss was assessed by collecting interproximal plaque samples immediately after subjects used their assigned treatment regimen. Safety of the products was assessed through oral examination, prior to all other assessments.

**Results**

Sonicare AirFloss, when used in addition to a manual toothbrush, provided significantly greater reductions in gingivitis and bleeding sites (p<0.01) than a manual toothbrush alone. After four weeks, Sonicare AirFloss reduced gingivitis by 33% more, gingival bleeding by 75% more and the number of bleeding sites by 86% more than a manual toothbrush alone. Interproximal plaque evaluated after a single use showed that Sonicare AirFloss removed significantly more plaque than a manual toothbrush alone (p<0.01). Both products were safe to use.
Conclusion

Sonicare AirFloss, when used in addition to manual brushing, removed significantly more interproximal plaque and resulted in significantly greater reductions of gingivitis after two weeks and four weeks of use, compared to manual brushing alone.

Modified Gingival Index

![Graph showing Modified Gingival Index](image)

Gingival Bleeding Index

![Graph showing Gingival Bleeding Index](image)
### Bleeding Sites

![Bleeding Sites Graph]

- **Manual Toothbrush**
- **Sonicare AirFloss and Manual Toothbrush**

### Interproximal Plaque (RPC)

![Interproximal Plaque Graph]

- **Manual Toothbrush**
- **Sonicare AirFloss and Manual Toothbrush**