Plaque Biofilm Disruption

in vitro study

In vitro evaluation of interproximal biofilm removal with Philips Sonicare AirFloss

de Jager M, Hix J, Aspiras M, Schmitt P. Data on file, 2010

Objective

To evaluate, in vitro, the additional removal of interproximal plaque biofilm of Philips Sonicare AirFloss when used in combination with Philips Sonicare FlexCare.

Methodology

This study evaluated interproximal biofilm removal of Sonicare FlexCare with or without subsequent use of Sonicare AirFloss. An in vitro tooth model was used to assess the efficacy in removing dental plaque biofilm from the interproximal spaces of molar teeth. The dental plaque model was a multispecies oral biofilm grown on hydroxyapatite discs. In a typodont, the discs with biofilm were located on interproximal sites of molar teeth at a distance of 2-4 mm from the tip of the bristles or the nozzle. The typodont was exposed to the dynamic fluid activity generated by the high-frequency bristle movement from the activated Sonicare FlexCare (15 seconds) and by the high-velocity droplet air spray from Sonicare AirFloss (single shot). An inactivated Sonicare FlexCare was used as a control. Plaque removal efficacy was determined by enumeration of the percentage of viable bacteria removed from the discs as a result of these exposures.

Results

Sonicare AirFloss in conjunction with Sonicare FlexCare removed 66% ($p<0.0001$) more interproximal biofilm than the active Sonicare FlexCare alone. Sonicare FlexCare active removed significantly more biofilm than Sonicare FlexCare inactive ($p<0.0001$).

Conclusion

Sonicare AirFloss removed 66% more interproximal plaque biofilm than Sonicare FlexCare alone.

Comparison of In Vitro Interproximal Plaque Removal