Plaque Biofilm Disruption

in vitro study

Interproximal plaque biofilm removal of Sonicare FlexCare, National® Doltz and GC Prinia Slim sonic toothbrushes


Objective To compare the ability of three sonic toothbrushes in removing interproximal plaque biofilm beyond the reach of the bristles in vitro.

Methodology Using an in vitro typodont model containing saliva-based multispecies oral biofilms grown on hydroxyapatite discs, two studies were executed, comparing Sonicare FlexCare (with ProResults brush head) against either National Doltz EW1045 (with brush head EW0901) and GC Prinia Slim (handle MI-0002, brush head MI-1013). Discs with biofilms were located on interproximal sites of molar teeth at a distance of 2-4 mm from the bristles, and exposed to the fluid dynamic activity generated by the activated brushes. As control, an inactivated FlexCare "off" was used. Plaque removal efficacy was determined by enumeration of the percentage of viable bacteria removed from the interproximal discs as a result of brushing treatment.

Results The activated Sonicare FlexCare toothbrush removed significantly more interproximal biofilm compared to either Doltz (73.1% vs 37.3%, p=0.0001), Prinia (73.1% vs 18.3%, p<0.0001) or the inactivated FlexCare "off" (p<0.0001).

Conclusion Of the three sonic toothbrushes tested in vitro, the Sonicare FlexCare removed significantly more dental plaque biofilm up to 4 mm beyond the bristles than the National Doltz EW1045 and the GC Prinia Slim.
Removal of plaque biofilm bacteria from HA discs in an interproximal site model

Mean % of Plaque Biofilm Removed

Treatment

Sonicare FlexCare / FlexCare+

Sonicare FlexCare
National® Doltz

Sonicare FlexCare
GC Prinia Slim