**Gentleness**

*in vitro study*

**In vitro assessment of dentin wear resulting from the use of oral hygiene devices**


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**Objective**

To evaluate dentin wear associated with the use of the Sonicare FlexCare power toothbrush compared to Oral-B Triumph® and a manual toothbrush using simulated clinical conditions.

**Methodology**

Forty human dentin slices with a surface of 3x10 mm were embedded in temporary crown and bridge material and polished to render a smooth surface as starting condition. Samples were either brushed with Sonicare FlexCare at 90 grams, Oral-B Triumph at 150 grams or Oral-B P-35 Soft® manual toothbrush at 250 grams. These brushing loads are representing clinical use conditions. All specimens were brushed using a toothpaste slurry based on Crest Cool Mint Gel for a period representing two years of clinical brushing. Dentin wear was determined before and after brushing using 3D laser triangulation measurements to establish induced wear from toothbrushing.

**Results**

Sonicare FlexCare resulted in significantly less dentin wear than both the manual toothbrush (p<0.05) and the Oral-B Triumph (p<0.05). There was no significant difference between the manual and Oral-B Triumph brush.

**Conclusion**

In this in vitro study, Sonicare FlexCare was found to cause 50% less dentin wear than a manual toothbrush and a rotating-oscillating power toothbrush.