Aim
To evaluate the Interproximal Access Efficacy (IAE) of five designs of toothbrushes, using a laboratory assay that is predictive of clinical effectiveness.

Trial Conditions

Products under investigation
- elmex® interX SENSITIVE toothbrush
- elmex® interX SENSITIVE SHORT HEAD toothbrush
- elmex® interX MEDIUM toothbrush
- elmex® interX MEDIUM SHORT HEAD toothbrush
- ADA reference standard toothbrush

Test sites
Simulated anterior and posterior tooth shapes.

Methodology
Simulated anterior and posterior tooth shapes were subjected in vitro to consistent horizontal and vertical brushing. The maximum brush width corresponding to IAE, was recorded from pressure sensitive paper with artificial plaque surface layers.

Trial

This in vitro study tested the IAE of five designs of toothbrushes. To assess the IAE, anterior and posterior tooth shapes were wrapped in pressure sensitive paper, representing plaque on the teeth, and brushed using the test toothbrushes fixed in a mechanical brushing device. Each test brushed for 15 seconds at two strokes per second, with a 50mm stroke and a brushing weight of 250g. Horizontal and vertical brushing were measured separately. Four toothbrushes of each of the designs were tested six times. IAE was measured by the maximum brushing width marked on the pressure sensitive paper, recorded in cm using vernier callipers. The same trained examiner took all measurements. The results were analysed using ANOVA and the post hoc Tukey test.
Results

Overall Interproximal Access Efficacy:
Overall Interproximal Access Efficacy (combined horizontal and vertical, anterior and posterior IAE values) was significantly greater (p<0.001) with all elmex® interX toothbrushes than with the ADA reference standard toothbrush. Best results are achieved with both short head toothbrushes.

Vertical Brushing:
On anterior and posterior tooth shapes, all elmex® interX toothbrushes had significantly (p<0.001) higher values than the ADA reference standard toothbrush.

Horizontal Brushing:
On anterior and posterior tooth shapes, all elmex® interX toothbrushes showed significantly higher (p<0.001) mean IAE values compared to the ADA reference standard toothbrush.

Conclusions

The elmex® interX toothbrushes show excellent interproximal access efficacy, allowing more plaque removal in the difficult to reach interdental areas. Short head toothbrushes are more effective.