Short-term efficacy and long-term adherence to proximal gingivitis prevention

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Objectives
- Population: participants with irregular interdental home-care
- Intervention: use of a microdroplet device in combination with a sonic toothbrush
- Comparison: use of dental floss and a manual toothbrush
- Outcome: PBI, adherence
- Study design: randomised controlled clinical trial (4 weeks) followed by a one-year observational study

Methods
- N=31 participants (with irregular interdental home-care and clinical signs of gingival inflammation)
- Using oral home-care aids twice daily for four weeks with either
  - AF+SO H2O: AirFloss Ultra (filled with water) + Sonicare FlexCare+ (n=10)
  - AF+SO LIST: AirFloss Ultra (filled with Listerine Sensitive) + Sonicare FlexCare+ (n=11)
  - CTRL: dental floss (Oral B) + manual toothbrush (Eurodont) (n=10)
- Primary outcome: PBI
- Secondary outcome: adherence to oral home-care aids
- Evaluation at baseline, after 4 weeks and 1 year

Results
- After 28 days, both test groups showed significantly lower PBI scores compared to control (Figure 1).
- Even after 1 year, the regular use of either AirFloss Pro or dental floss led to a significantly reduced PBI (Table 3).
- Irregular or no interdental cleaning was reduced from 39% (baseline) to 6% (1year).
- 50% of no or irregular interdental cleaners and 58% of former dental floss users retained to AirFloss Pro use after 1 year (data not shown).
- Main argument: comfort (71%).
- 90% of participants used an electric toothbrush after 1 year (at baseline 42%, data not shown)

Conclusions for gingivitis patients:
- Combining a microdroplet device with a sonic toothbrush reduced gingivitis more effectively than a manual toothbrush with dental floss, irrespective of fluid used.
- Both, the microdroplet device and dental floss showed a prolonged reduced gingivitis status compared to interdental brush after long-term unsupervised use.
- Attributed to the usage comfort, powered oral hygiene aids are well accepted by patients as 90% used a powered toothbrush after one year and 59% the microdroplet device.

Table 1. Clinical characteristics

<table>
<thead>
<tr>
<th>Age Mean ± SD</th>
<th>AF+SO H2O n=10</th>
<th>AF+SO LIST n=11</th>
<th>CTRL n=10</th>
<th>p-value^</th>
<th>p&lt;0.05; ^ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>32±13</td>
<td>11±9</td>
<td>27±7</td>
<td>38±19</td>
<td>.287</td>
<td></td>
</tr>
<tr>
<td>DMFT Mean ± SD</td>
<td>7</td>
<td>7</td>
<td>4</td>
<td></td>
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</tr>
</tbody>
</table>

Table 2. Distribution of interdental home-care

<table>
<thead>
<tr>
<th>Regular interdental cleaning</th>
<th>Pre-study n (%)</th>
<th>1 year follow-up n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>no</td>
<td>12 (39)</td>
<td>2 (6)</td>
</tr>
<tr>
<td>yes</td>
<td>19 (61)</td>
<td>29 (94)</td>
</tr>
</tbody>
</table>

Table 3. Efficacy of patient-chosen interdental cleaning aids at 1 year follow-up

<table>
<thead>
<tr>
<th>PBI mean ± SD</th>
<th>n (%)</th>
<th>p-value^</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afso H2O</td>
<td>17 (55)</td>
<td>1.6±0.6</td>
</tr>
<tr>
<td>Afso LIST</td>
<td>9 (29)</td>
<td>1.6±0.5</td>
</tr>
<tr>
<td>Interdental brush</td>
<td>3 (10)</td>
<td>1.7±0.3</td>
</tr>
<tr>
<td>No interdental cleaning</td>
<td>2 (6)</td>
<td>1.8±1.1</td>
</tr>
</tbody>
</table>

^p<0.05; ^ANOVA, ^Wilcoxon signed rank test

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