**Objectives**

To evaluate the effect of simulated tooth-brushing on surfaces of conventional and milled provisional crown and bridge (C&B) restorative materials.

**Materials**

- Polymethylmethacrylate
  - Telio CAD (Voco)
- Microfiller Reinforced Polyacrylic
  - Vita CAD-Temp (Vita)
- Polymethylmethacrylate
  - artBloc Temp (Merz)
- Bis-acrylic composite
  - Protemp Plus (3M ESPE)
- Bis-acryl
  - Luxatemp (DMG)
- Acrylic Resin
  - Jet Set-4 (Lang)

**Methods**

1. **PREPARATION OF SPECIMENS**
   - Powder-liquid and injectable provisional material specimens were fabricated using silicone molds.
   - Provisional CAD/CAM blocks were sectioned into tiles with the following dimensions 15.5 mm x 19 mm x 2mm.
   - Specimens were polished down to 1μm using diamond paste.

2. **BASELINE SURFACE ROUGHNESS MEASUREMENTS**
   - Polished specimens were measured using a Mitutoyo SJ201 profilometer.

3. **SIMULATED TOOTH-BRUSHING**
   - Specimens (n=10/group) were exposed to mechanical tooth-brushing.
   - Under a 1.85 N load using toothpaste slurry (Crest® Cavity Protection).
   - For 20,000 cycles in two modes: soft bristles and medium bristles (both Oral B Indicator®).

4. **SURFACE ROUGHNESS MEASUREMENTS AFTER TOOTH-BRUSHING**
   - After the simulated tooth-brushing, surface roughness of each specimen was measured using a Mitutoyo SJ201 profilometer.

**Results**

**Graph 1.** Surface roughness (Rₐ, μm) of tested materials before and after brushing for 20,000 cycles.

**Table 1.** Mean (SD) surface roughness (Rₐ, μm) of tested materials before and after brushing for 20,000 cycles.

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>BASELINE (Rₐ, μm)</th>
<th>AFTER ABRASION (Rₐ, μm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SOFT BRISTLES</td>
<td>MEDIUM BRISTLES</td>
</tr>
<tr>
<td>Vita CAD-Temp</td>
<td>0.04(0.01)</td>
<td>0.72(0.37)</td>
</tr>
<tr>
<td>Telio CAD</td>
<td>0.04(0.01)</td>
<td>2.56(0.23)</td>
</tr>
<tr>
<td>artBloc Temp</td>
<td>0.03(0.01)</td>
<td>2.74(0.6)</td>
</tr>
<tr>
<td>Protemp Plus</td>
<td>0.07(0.04)</td>
<td>0.24(0.08)</td>
</tr>
<tr>
<td>Luxatemp</td>
<td>0.03(0.01)</td>
<td>0.38(0.12)</td>
</tr>
<tr>
<td>Jet Set-4</td>
<td>0.08(0.01)</td>
<td>5.91(1.74)</td>
</tr>
</tbody>
</table>

Different letters after values indicate significant differences (p<0.05).

**Conclusions**

- Tooth-brushing had a significant effect (Rₐ) on the surface of artBloc Temp, Telio CAD, and Jet Set-4.
- Protemp Plus and Luxatemp groups showed no significant difference after tooth-brushing.
- Vita CAD-Temp showed a significant difference with “medium” toothbrushes.
- Medium bristles caused significantly higher Rₐ than soft bristles.