The purpose of this study was to compare the physical properties of temporary cements and implant cements, all of which are indicated for cementing fixed restorations on implant-retained abutments.

**OBJECTIVE**

The purpose of this study was to compare the physical properties of temporary cements and implant cements, all of which are indicated for cementing fixed restorations on implant-retained abutments.

**RESULTS**

- Test results are presented in the following table and figures.

<table>
<thead>
<tr>
<th>Material</th>
<th>Flexural Strength, MPa</th>
<th>Maximum deflection, %</th>
<th>Shear Bond Strength, MPa</th>
<th>Water Sorption, μg/mm³</th>
<th>Solubility, μg/mm³</th>
</tr>
</thead>
<tbody>
<tr>
<td>SensiTemp Resin</td>
<td>140.0±9.5</td>
<td>30.2</td>
<td>3.6±0.8</td>
<td>2.5±0.5</td>
<td>N/A</td>
</tr>
<tr>
<td>TNE</td>
<td>104.0±10.7</td>
<td>60±4</td>
<td>1.7±0.5</td>
<td>2.3±0.4</td>
<td>N/A</td>
</tr>
<tr>
<td>Premier Implant Cement</td>
<td>50.1±1.2</td>
<td>75±2</td>
<td>4.4±1.2</td>
<td>2.0±0.3</td>
<td>N/A</td>
</tr>
<tr>
<td>Cem-Implant</td>
<td>52.4±1.7</td>
<td>71±2</td>
<td>4.8±1.8</td>
<td>1.6±0.5</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**DISCUSSION**

- Water Sorption and Solubility for all groups were found to be within ISO 4049 specification.
- Higher flexural strength combined with lower deflection was measured for temporary cements group than these demonstrated by two implant cements.
- Shear Bond Strength to Rexillium® alloy was higher for two implant cements than for temporary cements, but low enough for all groups to deliver easy retrievability when needed.
- Shear Bond Strength values to Titanium Nitride and Zirconium were extremely low due to high surface finish and lack of defects of the substrates resulted in the lack of mechanical retention.

**CONCLUSION**

- Premier Implant Cement and Cem-Implant exhibited the lowest flexural strength and higher deflection, which is critical in-order to guarantee their retrievability.
- Adhesion and water sorption results correlated with elasticity results providing possible secure retention of restorations on implant-retained abutments.

**FUTURE WORK AND RECOMMENDATIONS**

- We will design series of tests to evaluate the retention of crowns to the various types of abutments utilizing different cements.
- The tests will simulate the clinical retention instead of the routinely measuring indirect physical parameters like SBS, flexural strength, etc.