Every year increases use of implants in dental care. Various types of abutments and cements are being utilized nowadays. Retention between crown and abutment depends on adhesive properties of cement. Routine measuring aim to define physical parameters like shear bond strength, compressive strength, etc. However, these methods do not depict an actual situation in crown retention to abutment.

In this study we used device that has been designed in our laboratory. It enabled us to receive more plausible results of tensile strength between crown and abutment in comparison to those obtained through routine measuring.

**OBJECTIVE**

To design series of test to evaluate the retention of crown to the various types of abutments utilizing different cements.

**RESULTS**

<table>
<thead>
<tr>
<th>Cement</th>
<th>Type of Abutment</th>
<th>2Ceramic ZrO</th>
<th>Cementing</th>
<th>Esthetic Contour SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q-TEMP</td>
<td>MD-CRO10</td>
<td>41.4 ± 8.3</td>
<td>270.8 ± 15.7</td>
<td>162.8 ± 16.1</td>
</tr>
<tr>
<td>Temprex</td>
<td>MD-MAC10</td>
<td>340.6 ± 17.3</td>
<td>764.7 ± 33.2</td>
<td>274.8 ± 25.2</td>
</tr>
<tr>
<td>Premier Implant Cement</td>
<td></td>
<td>93.1 ± 15.2</td>
<td>267.8 ± 37.1</td>
<td>108.8 ± 22.3</td>
</tr>
<tr>
<td>Temp-Bond NE</td>
<td></td>
<td>126.8 ± 24.6</td>
<td>138.0 ± 19.0</td>
<td></td>
</tr>
<tr>
<td>High-Q-Bond</td>
<td></td>
<td>350.5 ± 24.9</td>
<td>496.6 ± 16.2</td>
<td>306.2 ± 10.9</td>
</tr>
<tr>
<td>High-Q-Bond SE</td>
<td></td>
<td>496.2 ± 18.3</td>
<td>892.3 ± 50.2</td>
<td>273.2 ± 19.7</td>
</tr>
<tr>
<td>TotalCem</td>
<td></td>
<td>456.9 ± 21.7</td>
<td>843.7 ± 54.7</td>
<td>242.4 ± 21.5</td>
</tr>
</tbody>
</table>

**DISCUSSION**

- 3 types of abutments:
  - MD-CRO10 Ceramic ZrO2 abutment (MIS)
  - MD-MAC10 Cementing abutment (MIS)
  - 4503 Esthetic Countour SD (Life Core Dental)

- 2 resin based temporary cements:
  - Q-TEMP (BJM)
  - Temrex (TNE)

- 1 Implant cement:
  - Premier Implant Cement (Premier Dental)

- 1 zircon-oxide based temporary cement:
  - Temp-Bond NE (Kerr)

- 3 dual cured permanent adhesive resin cements:
  - High-Q-Bond (BJM)
  - High-Q-Bond SE (BJM)
  - TotalCem (Itena)

- Bond strength was measured in according with ISO/TS11405:2003 utilizing Lloyd material testing machine equipped with a load cell of 10N and specially designed testing device as tensile test apparatus.

- The experimental results were statistically analyzed (N=10) by ANOVA (p<0.05).

**CONCLUSIONS**

- Significant differences in bond strength were founded between the tested cements groups. Short-term temporary cements exhibited the lowest bond strength in comparison with dual cured permanent adhesive resin cements.

- The abutments shape and material they are made of are also influence the adhesion.

- The designed tests simulated the clinical retention and correlate with the findings previously reported by the group. The retention of crown to the various types of abutments utilizing different cements was defined as tensile bond strength.