Efficacy of zirconia–based anterior maxillary single crowns with customized copings after 2 years.  
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Investigators
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Aim of the Study
Aim of this prospective clinical study is to evaluate the clinical performance of anterior zirconia-based single crowns manufactured with customized copings.

Study Design at a Glance
Design: longitudinal prospective clinical study
Test Material: Lava™ zirconia frameworks custom designed by using a virtual wax knife and veneered with Lava™ Ceram (3M ESPE)
Number of patients involved in the study: 18
Number of crowns placed: 20
Preparation of abutment teeth: Occlusal reduction of 1.5-2 mm; axial reduction of 1-1.5 mm with minimal 4º taper; 360º rounded shoulder finish-line located 0.5 mm subgingivally on the facial and supragingivally on the lingual side
Framework design: Copings were customized by using a virtual wax knife leading to a selective thickness at the incisal and mid thirds; 0.3 mm thickness at the cervical third; zirconia margins
Cementation of Restorations: RelyX™ Unicem Self-Adhesive Universal Resin Cement
Number of Examiners: 2 calibrated examiners
Evaluation criteria: Modified USPHS-criteria

Status of Study
Baseline 2 year report (+) 4 year report (-)
Year 1 Year 2 Year 3 Year 4 Year 5
1 year report (+) 3 year report (-) 5 year report (-)

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Upper right central incisor: preoperative situation
Clinical Picture by Dr. Ariel Raigrodski, UW
Ceramics: Andreas Salzer

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Results

Number of restorations evaluated → after 6 months: 20
→ after 12 months: 20
→ after 24 months: 14
→ After 36 months: 6

Scores (Alpha/Bravo/Charlie/Delta according to USPHS) after 6 months – 12 months – 24 months – 36 months:

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<thead>
<tr>
<th>Time</th>
<th>Alpha</th>
<th>Bravo</th>
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No proximal decay or periapical pathoses were detected at any recall.

One endodontically treated tooth fractured after 2 years at the level of the free gingival margin. No secondary decay was detected. After placement of a fiber post and a composite-resin core build up the crown was recemented in the patient’s mouth and has been functioning for over three years.

Conclusions from Report

Y-TZP anterior maxillary crowns with customized copings with 0.3 mm thickness at the cervical and zirconia margins performed well over the observation period.

Related Clinical Evaluations


Sorensen J., Lusch R., Yokoyama K. Clinical longevity of CAD/CAM generated Y-TZP posterior fixed partial dentures. AADR 2006; Abstract # 0270