

Clinical Performance of Cements as Luting Agents for Telescopic Double Crown–Retained Removable Partial and Complete Overdentures

Michael Behr, DDS, PhD^a/Carola Kolbeck, DDS^a/Reinhold Lang, DDS^a/Sebastian Hahnel, DDS^a/
Lisa Dirschl, Cand Med Dent^b/Gerhard Handel, DDS, PhD^a

Purpose: The aim of this study was to investigate the survival rates and technical failures of removable prostheses (RPs) supported by telescopic double crown (TDC)–retained abutment teeth luted with zinc-phosphate or glass-ionomer cement.

Materials and Methods: Clinical records of 577 patients (288 women, 289 men) who received 577 TDC-retained RPs supported by 1,807 abutments at the Department of Prosthodontics of the University Hospital Regensburg, Regensburg, Germany, between 1984 and 2007 were analyzed. The 577 prostheses included 200 attached to telescopic crowns with friction fit (FFs), 62 to conical crowns (CCs), and 315 to parallel-sided telescopic crowns with clearance fit (CFs). Survival probabilities were evaluated for the RPs, loss of cementation of the inner copings, secondary caries, and abutment teeth that required endodontic treatment using the Kaplan-Meier method. A Cox regression analysis determined the impact of covariates such as sex, denture location (maxilla/mandible), Eichner classification, number of abutment teeth, and the type of double crown system used.

Results: The 10-year survival probability was $98.8\% \pm 0.09\%$ for FFs, $92.9\% \pm 0.41\%$ for CCs, and $86.6\% \pm 0.05\%$ for CFs. During the observation period, loss of cementation was frequently observed (FFs: 32%, CCs: 53.2%, CFs: 21.3%). After 15 years, more than 75% of patients had experienced at least one "loss of cementation" event. In this respect, zinc-oxide phosphate and glass-ionomer cements did not show any significant difference.

Conclusion: The long-term successful outcome of the RP experience was not compromised, although numerous clinical visits were required for maintenance. The predominant maintenance procedure was the need for recementation of the inner copings. *Int J Prosthodont* 2009;22:479–487.