3M ESPE

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Scientific Facts

Lava™ Crowns and Bridges Five-Year Clinical Evaluation

The introduction of high strength ceramics like allumina and zirconia allowed, for the first time in dentistry, the use of ceramic materials for bridge design in the posterior region. Zirconia is a material regarded as having the highest strength and fracture toughness in dentistry. Many *in vitro* studies show the excellent mechanical properties of zirconia compared to other ceramic materials. Clinical studies confirm the results of the *in vitro* tests. Long term results are on-going. Five year clinical results for 3M™ ESPE™ Lava™ Crowns and Bridges, one of the first commercially available zirconia systems, are now available. Prof. P. Pospiech together with Dr. F. P. Nothdurft and Dr. P. R. Rountree from the University of Munich recently published their data at the Conference of the Pan European Federation of the IADR in Dublin (Ireland).

Thirty-one bridges were placed beginning in October, 2000. All abutment teeth were prepared for full crowns with a maximum 1.2 mm chamfer. Impressions were made with a polyether material (Impregum™ F Polyether from 3M ESPE). All restorations were cemented conventionally with the glass-ionomer cement Ketac™ Cem from 3M ESPE. Recalls took place after one year, three years, and in March, 2006 after a five year observation period. At each recall the fit of the restoration, occurrences of secondary caries, fracture, discoloration of the marginal gingiva, and allergic reactions were recorded.

After five years, 15 bridges could be evaluated clinically. The survival of six bridges could be confirmed by questioning patients by phone. One bridge was lost for endodontic reasons after one year in service. One patient wearing two bridges died after the three year recall. Seven patients could not be recalled (the last recall examinations were conducted at the three year mark for these patients).

	3-year recall	5-year recall
Bridges in situ	100%	100%
Restorations examined	30	21
Fracture of framework	None	None
Chippings of the overlay porcelain	1	5

After five years, no failures were recorded. Slight chipping of veneering porcelain was seen in some cases but did not warrant repair or replacement. No allergenic reactions or negative influences on the marginal gingiva were observed.

The clinicians observed a high level of performance for Lava zirconia-based posterior bridges after five years of clinical service.

Please see the original abstract under http://iadr.confex.com/iadr/htsearch.cgi (Search for: Pospiech, Restrict searches to: 2006 PEF 2006). ▫

fig. 1 Five-year recall, 3-unit bridge, lower left first molar, buccal view

fig. 2 Five-year recall, 3-unit bridge, lower left first molar, lingual view

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