Int Endod J. 2011 Mar;44(3):195-202. doi: 10.1111/j.1365-2591.2010.01797.x. Epub 2010 Oct 7.

Self-adhesive cements as core build-ups for one-stage post-endodontic restorations?

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Abstract

Naumann M, Sterzenbach G, Rosentritt M, Beuer F, Meyer-Lückel H, Frankenberger R. Self-adhesive cements as core build-ups for one-stage post-endodontic restorations? International Endodontic Journal 44, 195-202, 2011. ABSTRACT: Aim To investigate the load capability of root filled teeth restored with glass fibre posts when the same self-adhesive composite resin cement was used as post cement and core build-up material. Methodology Human maxillary central incisors were divided into four groups (n = 10). Teeth were root filled, decoronated and restored using glass fibre posts luted with different cements and composite resins for core build-up (i) RelyX Unicem/Clearfil Core (RXU/CC), (ii) RelyX Unicem/ RelyX Unicem (RXU/RXU), (iii) RelyX Unicem/LuxaCore-Dual (RXU/LCD) and (iv) LuxaCore-Dual/Clearfil (LCD/CC). A 2- mm ferrule crown preparation was always performed. All specimens were restored with adhesively luted all-ceramic crowns and were exposed to thermal cycling and mechanical loading (TCML) and subsequently statically loaded. For analysis of cycles-to-failure during TCML, log-rank statistics were calculated. The nonparametric Kruskal-Wallis test was applied to study group mean differences. Differences in the frequency of the failure modes between the groups were evaluated by Fisher's exact test. All tests were two-sided (α = 0.05). Results Three specimens of RXU/LCD and two of RXU/RXU and LCD/CC, respectively, failed during TCML (P = 0.379). For these specimens, the load capability value was set at 0 N. The median fracture load values (min/max) in (N) were RXU/CC = 294 (209/445), RXU/RXU = 166 (0/726), RXU/LCD = 241 (0/289) and LCD/CC = 200 (0/371) (P = 0.091). The RXU/CC had the highest (80%) and RXU/LCD the lowest (20%) percentage of restorable failures (P = 0.028). Conclusions These results imply that self-adhesive composite achieved similar load capabilities when used as core build-up materials in root filled teeth restored with glass fibre posts and all-ceramic crowns.