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ONLINE ISSN : 1881-1361

PRINT ISSN : 0287-4547

Dental Materials Journal

Vol. 27 (2008) , No. 2 p.195-202

[\[Image PDF \(418K\)\]](#) [\[References\]](#)**Fracture Strength of Direct Surface-retained Fixed Partial Dentures:
Effect of Fiber Reinforcement *versus* the Use of Particulate Filler
Composites Only**[Ovul KUMBULOGLU^{1\)}](#), [Mutlu ÖZCAN^{2\)}](#) and [Atilla USER^{1\)}](#)

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(Received May 14, 2007)

(Accepted September 14, 2007)

Abstract:

This study compared the fracture strengths and analyzed the failure types of direct, surface-retained, anterior fixed-partial-dentures (FPD), reinforced with four types of fiber-reinforced composites (FRC) *versus* non-fiber-reinforced FPDs made of three particulate filler composites (PFC). To this end, surface-retained anterior FPDs (N=70, 10 per group) were prepared and divided into seven experimental groups, where Group 1: FRC1 (everStick)+PFC1 (Clearfil Photo Posterior); Group 2: FRC2 (BR 100)+PFC1; Group 3: FRC3 (Interling)+PFC1; Group 4: FRC4 (Ribbond)+PFC1; Group 5: PFC1 only; Group 6: PFC2 only (Sinfony); and Group 7: PFC3 only (Estenia). Fracture strength test was performed after water storage at 37°C for three days (universal testing machine, 1 mm/min). No significant differences were found among the four FRC types veneered with PFC1 (1490±548—1951±335 N) ($p<0.05$) (ANOVA, Tukey's test). Among all the experimental groups, PFC1 presented a significantly higher mean value (2061±270 N) than PFC2 (1340±395 N) ($p<0.05$) and all the other FRC-reinforced groups ($p<0.05$). Complete pontic fracture was 100% and 70% for PFC2 and PFC3 respectively.

Key words:[Fiber-reinforced composite](#), [Fracture strength test](#), [Particulate filler composite](#)

To cite this article:

Ovul KUMBULOGLU, Mutlu ÖZCAN and Atilla USER. Fracture Strength of Direct Surface-retained Fixed Partial Dentures: Effect of Fiber Reinforcement *versus* the Use of Particulate Filler Composites Only . Dent. Mater. J. 2008; 27: 195-202 .

doi:10.4012/dmj.27.195

JOI JST.JSTAGE/dmj/27.195

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