Objective: The aim of this study was to compare the resistance to vertical root fracture of root-filled teeth restored with four different fiber-reinforced composite (FRC) post systems and two types of dual-cured resin luting agents. Materials and Methods: Ninety extracted human maxillary central incisors were selected and decoronated to obtain a standardized root length of 14 mm. After root canal obturation, post spaces were prepared to a depth of 10 mm with a No. 3 post drill. The specimens (n = 80) were divided into two groups (n = 40) according to the resin luting agents used: group 1, Variolink II + ExciTE DSC; group 2, RelyX Unicem. These groups were subdivided into four subgroups (n = 10) and restored with one of the following post systems: (a) DT Light, (b) DT Light SL, (c) FRC Postec and (d) Everstick, while the remaining 10 teeth served as controls. The roots were subjected to axial compressive loading using a 2.2-mm-diameter metal sphere in a universal testing machine (0.5 mm/min). A factorial experiment with a single control group (analysis of variance) was used to test the resistance of the specimens. Results: Groups 2a (DT Light + RelyX Unicem; 398.5 N) and 1b (DT Light SL + Variolink II + ExciTE DSC; 431.1 N) had significantly higher resistance to fracture than the control group (334.1 N; p < 0.05). DT Light SL and FRC Postec Plus were more resistant to fracture when Variolink II was used as the luting cement. DT Light and Everstick had higher fracture resistance when they were luted with RelyX Unicem (p < 0.05). Conclusion: The results of this study indicate that the use of quartz fiber posts (DT Light and DT Light SL) with an adhesive luting cement in root-filled teeth may reinforce the root to some extent. (C) 2015 S. Karger AG, Basel