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The effect of resin cement thickness on retention. DAN NATHANSON*, FAHAD BANASR. (Boston University, Goldman school of dental medicine)

The purpose of this study is to compare the effect of resin cement thickness on retention in vitro. The following resin cement systems were tested: a. Calibra (Dentsply-Caulk); b. Compolute (ESPE); c. RelyX ARC (3M); and d. Variolink II (Vivadent). 200 steel hollow cylinders with an outside diameter of 12mm, a 6mm height, and a centered hole 6mm in diameter were used as experimental retainers in this study. 200 cylindrical steel cores were made to fit into the steel retainers with dimension allow for cement spaces of 50μ, 100μ, 150μ, 200μ, and 400μ. Resin cements were mixed, applied, and the cores were positioned in the center of each retainer and allowed to set. Samples (n=10/group) were stored at 37°C for one week. Retention was tested in an Instron device. Results are shown in MPa.

	50 μ	100 μ	150 μ	200 μ	400 μ
RelyX ARC	24.66(3.39)	25.52(2.83)	23.5(2.1)	21.27(2.34)	12.27(2.99)
Compolute	37.02(1.76)	30.4(2.37)	28.82(5.33)	26.86(2.56)	24.64(3.85)
Variolink	25.99(2.57)	31.06(3.68)	27.16(3.72)	25.72(3.44)	17.38(3.06)
Calibra	30.92(4.71)	35.61(5.51)	27.56(3.58)	26.4(1.44)	18.5(4.18)

Retention for RelyX ARC did not change significantly from 50μ to 150μ ($P< 0.04$). Compolute had the highest retention at 50μ ($P=0.000$) and no difference between 100μ and 200μ. Variolink and Calibra exhibited the highest retention at 100μ ($P<0.002$). All cements (except Compolute) exhibited a significantly lower retention at 400μ.