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Curing mode effect on physical properties of new resin cements. FAHAD BANASR\*, DAN NATHANSON.( Boston University, Boston, Mass)

The purpose of this study is to compare physical properties of new resin cements and to assess the effect of the curing mode on properties. Compressive strength (CS), Diametral tensile strength (DTS), and film thickness were measured for the following cement systems: a. Calibra (Dentsply); b. Compolute (ESPE); c. RelyX-ARC (3M); and d. Variolink II (Vivadent). CS, DTS, and film thickness were measured according to ADA specification No.96. CS and DTS were tested in an Instron device. Cement curing variables included: a. Self-curing (SC); b. Dual-curing (DC); and c. Light-curing base paste only (LCB). Factorial ANOVA was used for analysis (n=10/group).

	Compressive strength(Mpa)		Diametral Tensile Strength(Mpa)			Film Thickness( $\mu$ )
	SC	DC	SC	DC	LCB	DC
RelyX ARC	239.61 (14.2)	239.36 (40)	45.35 (6.61)	45.38 (6.9)	45.47 (2.9)	15.3 (3)
Compolute	212.62 (21.1)	188.03 (34.5)	35.97 (5.3)	38.59 (3.3)	29.33 (2.7)	30.6 (6.7)
Variolink	194.72 (33.2)	279.33 (28.3)	33.6 (4.7)	42.89 (3.9)	50.5 (3.7)	30.6 (7.5)
Calibra	224.68 (36.5)	216.54 (34.9)	45.24 (4.1)	45.83 (3.7)	56.33 (5.6)	22.2 (3.6)

Variolink showed higher CS and higher DTS with DC vs. SC ( $P < 0.0002$ ). A higher DTS with SC vs. LCB was also observed for Compolute ( $P < 0.003$ ), Variolink ( $P < 0.000$ ), and Calibra ( $P < 0.000$ ). A higher DTS with DC vs. LCB was found for Compolute ( $P < 0.000$ ), Variolink ( $P < 0.0003$ ); and Calibra ( $P < 0.0001$ ). There were significant differences in film thicknesses between the cement systems ( $P < 0.05$ ) except for Variolink vs. Compolute.