Shining Lights: How Curing Lights Polymerize Different Thicknesses of Pigmented Dental Fillings

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Composite dental fillings (CDF) are used to repair teeth. Initially, in the form of a paste, CDFs are polymerized using curing lights. Curing lights use different wavelengths that interact with the photoinitiators in the CDFs, which causes them to become solid. The depth of the polymerization varies on the color and quantity of the CDF being used. The research question being investigated was, which factor plays a bigger part in the efficiency of the depth of cure within a composite? It was hypothesized that for the same amount of curing time the lighter shades will cure more efficiently than the darker shades regardless of the initial depth. Experimentation consists of three curing lights. Each curing light was used to polymerize two different depths at 4mm and 6mm. Curing light exposure was recorded in increments of 5, 10, 15, and 20 seconds. After data collection and analysis, the general trend of the statistics inclines to reject the hypothesis. Both initial depth and type of curing light used seem to have an impact on the efficiency of cure on the composite. The statistical significance of the impact was not found. A formal conclusion cannot be given without more statistical evidence.

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