

Polymerization shrinkage effect on proximal contact tightness of composite restorations

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Proximal contact tightness of class II resin composite restorations is influenced by a myriad of factors. Previous studies investigated the role of matrix band type and thickness, consistency of resin composite and technique of placement. This study investigated the effect of polymerization shrinkage of low shrinkage composite, using two LED lights with different intensities, on proximal contact tightness of class II composite resin restorations in vitro.

Methods: 60 Ivorine teeth with standardized MO cavity preparations were divided into 4 equal groups and restored with Filtek LS (LS) and Z100 (3M/ESPE). One group of each material was polymerized using Smartlite IQ2, Dentsply (IQ2), the other group was polymerized using DEMI-LED, Kerr (DEM) with light intensities of 700 and 1200 mW/cm² respectively. All restorations were carried out using a pre-contoured metal circumferential matrix (KerrHawe 1101-c) with the V-ring separator (TrioDent). Composite material was applied incrementally and cured for 30s each. Proximal contact tightness was measured using the Tooth Pressure Meter (University of Technology, Delft). Data were statistically analyzed using one-way analysis of variance and Tukey post hoc test ($p < .05$).

Results: Means and standard deviations for proximal contact measurements were: 5.25 (.39) for LS and 4.47 (.22) for Z100 when IQ2 light was used while, measurements of 4.32 (.34) and 3.63 (.20) for LS and Z100 respectively were recorded when DEM light was used. There was a statistical difference between all groups except Z100/IQ2 and LS/DEM groups.

Conclusions: Low-shrinkage resin composite and low curing light intensity is associated with tighter proximal contact values.

Biography

Hassan M. El-Shamy has completed his Ph.D. in Conservative Dentistry in 2008 from Ain Shams University, Egypt. He is assistant professor of operative dentistry at King Abdulaziz University, Saudi Arabia since 2011. He was a research assistant at University of Toronto, Faculty of Dentistry in 2008. He has published more than 4 papers in reputed journals. He shared in 88th, 89th and 90th general sessions of IADR/AADR as a presenter as well as several other international conferences. He is a member of Academy of Operative Dentistry, member of International Association for Dental Research IADR and member of Egyptian Dental Union.

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