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Effect of Ultraviolet Light Irradiation on Bonding of Experimental Composite Resin Artificial Teeth

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Abstract:
The purpose of the present study was to evaluate how ultraviolet light (UV) irradiation using an ordinary UV sterilizer would affect the bonding of experimental composite resins to an autopolymerizing acrylic resin. To this end, three composite resins and one unfilled resin—of which the compositions were similar to commercial composite resin artificial teeth—were prepared as repair composites. Their shear bond strengths after UV irradiation for one to 60 minutes were significantly greater than those before UV irradiation regardless of composite resin type. Failure mode after UV irradiation for one to 60 minutes was mainly cohesive failure of the composite resins, but that before UV irradiation and after 24 hours' irradiation was mainly adhesive failure. These results thus suggested that a short period of UV irradiation on composite resin teeth would improve the bonding efficacy of composite resin artificial teeth to autopolymerizing resin.

Key words:
UV irradiation, Composite resin artificial teeth, Shear bond strength

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