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[\[PDF \(181K\)\]](#) [\[References\]](#)**Effect of Light Irradiation Time on the Mechanical Properties of Two Flowable Composites with Different Initiation Systems in Bonded and Unbonded Cavities**[Ma'an M. NAYIF](#)¹⁾, [Masatoshi NAKAJIMA](#)¹⁾, [Richard M. FOXTON](#)²⁾ and [Junji TAGAMI](#)¹⁾³⁾

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Abstract:

The aim of this study was to evaluate the regional mechanical properties of flowable composites with different initiation systems under free and constrained conditions. Forty cavities fabricated in resin blocks with or without bonding treatment were bulk-filled with Estelite Flow Quick (EFQ) or Palfique Estelite LV (ELV), followed by light irradiation for 10 or 30 seconds. Each specimen was sliced to three slabs parallel to the long axis. The middle slab was serially sliced from top to bottom to harvest three sticks for ultimate tensile strength (UTS) measurement. The remaining slabs were polished for microhardness (KHN) measurement. The results indicated that the UTS and KHN of both flowable composites decreased toward the bottom of the cavity and increased with prolonged light irradiation time. At the upper cavity region, UTS values of the bonded groups were significantly lower than those of the unbonded groups, except for the 10-second light irradiation group of EFQ. As for KHN, the values did not change significantly for both flowable composites between the unbonded and bonded groups.

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