



Title	Laser Technology for Removal of Caries
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Aim

To evaluate the scientific evidence on laser technology in removing carious tissue.

Conclusions and results

Limited scientific evidence suggests that laser is as effective as rotary bur in removing carious tissue. Treatment time is prolonged. Limited scientific evidence suggests that adults prefer laser treatment. No conclusions can be drawn regarding biological or technical complications, children's perception of laser treatment, or cost effectiveness of the method.

Three medium-quality studies evaluated erbium laser in cavity preparation and caries excavation. Time required to remove carious tissue was evaluated in 5 studies assessed as medium quality for this outcome. Four studies included the effect of laser treatment on dental pulp as an outcome, but quality was assessed as low due to short follow-up time. Two studies, which included longevity of the restoration as an outcome, were also assessed as having low quality due to inadequate follow-up time. Three studies that evaluated patient response were assessed as having medium quality with respect to this outcome. The economic model showed that compared to excavation by rotary bur, laser excavation increases the cost by about 31 euros.

Methods

The literature search identified 23 papers that addressed treatment effects and economic aspects of laser technology. We found no relevant studies on economic aspects. Hence, a simplified model was used to calculate a cost per intervention. Regarding the effect of treatment, 16 papers were selected for assessment according to established criteria.

Further research/reviews required

Additional studies need to investigate biological and technical complications, children's perception of laser treatment, and cost effectiveness of the method.