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 1: [Dent Mater.](#) 2007 May; 23(5):586-96. Epub 2006 Jul 3. [Links](#)  
FULL-TEXT ARTICLE**External bleaching therapy with activation by heat, light or laser--  
a systematic review.**[Buchalla W, Attin T.](#)Department of Preventive Dentistry, Periodontology and Cariology,  
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OBJECTIVE: External bleaching procedures utilizing highly concentrated 30-35% hydrogen peroxide solutions or hydrogen peroxide releasing agents can be used for tooth whitening. To enhance or accelerate the whitening process, heat-activation of the bleaching agent by light, heat or laser is described in the literature. The aim of the present review article was to summarize and discuss the available information concerning the efficacy, effects and side effects of activated bleaching procedures.

SOURCES: Information from all original scientific full papers or reviews listed in PubMed or ISI Web of Science (search term: (bleaching OR brightening OR whitening OR colour) AND (light OR laser OR heat OR activation)) were included in the review. DATA: Existing literature reveals that activation of bleaching agents by heat, light or laser may have an adverse effect on pulpal tissue due to an increase of intra-pulpal temperature exceeding the critical value of 5.5 degrees C. Available studies do not allow for a final judgment whether tooth whitening can either be increased or accelerated by additional activation. CONCLUSION: Therefore, application of activated bleaching procedures should be critically assessed considering the physical, physiological and patho-physiological implications.

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