

Laser Doppler flowmetry in endodontics (Review)

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[View references \(^ o ^\)](#)

Abstract

Jafarzadeh H. Laser Doppler flowmetry in endodontics : a review. International Endodontic Journal, 42, 476-490, 2009. Abstract Vascular supply is the most accurate marker of pulp vitality. Tests for assessing vascular supply that rely on the passage of light through a tooth have been considered as possible methods for detecting pulp vitality. Laser Doppler flowmetry (LDF), which is a noninvasive, objective, painless, semi-quantitative method, has been shown to be reliable for measuring pulpal blood flow. The relevant literature on LDF in the context of endodontics up to March 2008 was reviewed using PubMed and MEDLINE database searches. This search identified papers published between June 1983 and March 2008. Laser light is transmitted to the pulp by means of a fibre optic probe. Scattered light from moving red blood cells will be frequency-shifted whilst that from the static tissue remains unshifted. The reflected light, composed of Doppler-shifted and unshifted light, is returned by afferent fibres and a signal is produced. This technique has been successfully employed for estimating pulpal vitality in adults and children, differential diagnosis of apical radiolucencies (on the basis of pulp vitality), examining the reactions to pharmacological agents or electrical and thermal stimulation, and monitoring of pulpal responses to orthodontic procedures and traumatic injuries. Assessments may be highly susceptible to environmental and technique-related factors. Nonpulpal signals, principally from periodontal blood flow, may contaminate the signal. Because this test produces no noxious stimuli, apprehensive or distressed patients accept it more readily than current methods of pulp vitality assessment. A review of the literature and a discussion of the application of this system in endodontics are presented. © 2009 International Endodontic Journal.

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