

Pulse Oximetry: Review of a Potential Aid in Endodontic Diagnosis

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Abstract: Tests relying on the passage of light through a tooth have been considered to be a suitable means of assessing vascularity and pulp vitality. Pulse oximetry is an effective, objective oxygen saturation monitoring technique broadly used in medicine for recording blood oxygen saturation levels. It can also be used in endodontic diagnosis for differential diagnosis of vital pulps and necrotic ones. In pulse oximetry, light is passed from a photoelectric diode across the tooth structure into a receptor. The instrument detects changes in absorption in both red and infrared light caused by alteration in tissue volume (tissue perfusion) during the cardiac cycle. However, there are some limitations inherent in the technology of pulse oximetry, such as the effect of increased acidity and metabolic rate, which cause deoxygenating of hemoglobin and changes in the blood oxygen saturation. Also, movements of the body or probe can complicate readings. Because this test produces no noxious stimuli, apprehensive or distressed patients may accept it more readily than routine methods. A review of the literature and a discussion of the potential application of this system in endodontics are presented. (J Endod ۲۰۰۹;۳۰:۳۲۹-۳۳۳)

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