

Decay Can't Hide From the Laser Eye

by **Scott F. Kenward, DMD**

A revolution is taking place in the field of dental diagnostics and a laser beam is leading the way.

Research has shown that traditional explorer or "pick" examinations of the biting surfaces of teeth fail to detect decay as much as 76% of the time. Even the new enhanced digital X-rays may not show decay on this surface either, because the high density of the enamel obscures the view.

Enter the Diagnodent, a compact diode laser designed to identify areas of tooth decay that traditional methods of detection miss. Engineered in Germany, the Diagnodent represents a quantum leap in our ability to diagnose hidden dental disease.

How it Works

The device shines a cool laser beam into the tooth, to a depth of 2 to 2.5 mm. For a basis of comparison, the dentist first provides the Diagnodent with a reading on the patient's healthy tooth enamel, such as the front surface of a front tooth. After baseline programming, the device is then aimed into the pits, grooves and fissures of the other teeth.

The laser light reflected out of the tooth is measured by receptors. The fluorescent wavelength of light reflected out is measured and compared to the known standard previously set for that patient's healthy enamel and dentin. The laser then displays, on an LCD panel, a number from 1 to 99. In addition to the reading, there is an audible alert tone, increasing in pitch as the numbers increase.

Readings from 10 to 20 suggest a soft or decalcified area which bears close watching or possibly a sealant. Readings from 20 on up to 99 indicate deeper decay, warranting a sealant or a filling.

This early detection system means that decay can often be removed by air abrasion or other painless MicroDentistry methods, without the need for anesthesia or invasive drilling. For most patients, identifying tooth decay was often a process that didn't happen until the decay had spread significantly, resulting in deep fillings and the need for anesthesia.

But now, thanks to the Diagnodent, dental diagnostic techniques are out of the Dark Ages and into the laser light!

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