

LASER FLUORESCENCE CARIES DETECTION

State-of-the-Art DIAGNOdent System

Until dental caries can be totally eliminated, professional efforts have been focused on restoring cavities using micro-dentistry. This is an approach to restoring small cavities with less aggressive tooth preparation methods and the use of bonded resin technology, also known as tooth-colored fillings. It has become common to treat cavities earlier and to preserve as much healthy tooth structure as possible, while repairing the damaged areas.

The DIAGNOdent Laser Fluorescence Cavity Detector allows us to quickly and painlessly, measure the amount of decay in a tooth. The high tech laser prevents carious lesions from going unnoticed. Similarly, it confirms when suspicious areas are present but need nothing more than to be monitored, or possibly treated with sealants rather than restorations. This saves the patient from unnecessary treatment in the disease's earliest stages and from more extensive treatment in the disease's later stages, because the diagnosis was made too late.

Pits and fissures are the deep grooves found in the chewing surfaces of teeth. Before the widespread use of fluoride, caries started with decalcification at the surface, which was easy to diagnose visually or with an explorer. With the introduction of fluoride, the outside surface of the teeth, called enamel, has become very hard and relatively resistant to weakening and decay (demineralization and dental caries). Therefore, the entire process of cavity formation is different today. Microscopic bacteria enter the enamel defects and crevices in the teeth without leaving much, if any, visual decay to detect on the surface.

The decay occurs deep under the surface in the base of the enamel defects, often in the dentin, making the dentist's explorer instrument extremely poor in diagnosing this type of cavity. This subsurface decay is also not well detected by x-rays in its early stages. Often, by the time a carious lesion can be seen on an x-ray, the actual damage is 50% to 300% deeper inside the tooth itself than it appears on the x-ray.

In order to diagnose this type of early caries, video magnification, fissurotomy drills, transillumination, air abrasion, and cavity-detecting dyes have become commonplace in our practice. However, these tools are now being supplemented with the latest, most up-to-date system in early caries detection.

The accuracy of the DIAGNOdent laser provides a win-win situation for the dentist and patient. We can now provide the most accurate diagnosis available. Because this instrument is so new, patients should not expect to be reimbursed by third party insurers.