What is Laser Dentistry?

By Dr. Eric Gustavsen, Published in the Walla Walla Union Bulletin 7/29/11

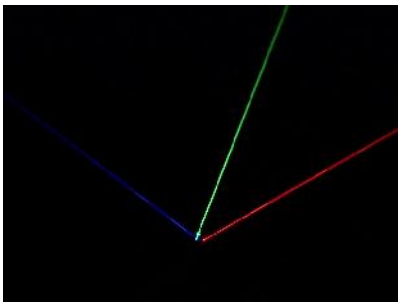
Lasers seem to be popping up everywhere these days, from light shows at Disney World to the most delicate procedures in eye surgery. The acronym laser stands for light amplification by stimulated emission of radiation, which essentially means a focused wavelength of a specific frequency or color of light. Lasers work somewhat like taking a magnifying glass and focusing sunlight on an object on the sidewalk.

Over the last few years a number of very promising applications for lasers have been introduced to the dental profession. The initial cost of buying the units was out of the range of most general dentists but recently the price has been dropping and more offices are being able to use these helpful devices all the time. Generally speaking the use of the technology can be divided into their applications for so called soft tissue, such as gums, and hard tissue meaning teeth and bone.

A non-invasive use of laser technology is a device used to determine the density and soundness of enamel and the underlying softer dentin core. A beam of red laser light is focused on the biting surface grooves of a tooth where openings smaller than the head of a pin allow bacteria to get inside. By measuring how much light is reflected back this tool can help find decay while it is too small to show up on an x-ray or is clearly visible to the human eye. This can be a very important diagnostic instrument as decay in the grooves of the teeth can be very hard to detect because fluoride keeps the enamel looking pristine while bacteria destroy the soft core of the tooth.

A recently developed periscope shaped instrument called a Vel Scope (other brands do the same task as well) emits a specific frequency of green light and is being used to detect oral cancer. This particular light makes abnormal cells glow or fluoresce enabling early diagnosis of mouth cancer. With oral cancer being the 6th most common type of cancer in men, it is an important tool for early cancer detection. Of course, the earlier these cells are discovered the less invasive the necessary treatment. This test is new and not yet covered by dental insurance.

Soft tissue or diode lasers are the most useful and common lasers in dental practices today. Diode lasers have a multitude of practical applications. They can be used after orthodontic braces are removed to gently re-contour gum tissue that has grown like cauliflower around the brackets. Unwelcome cold sores can often be halted, dried up, and the pain relieved with a few minutes of comfortable treatment. Canker sores can be banished in under five minutes. Some offices are reporting excellent results when the laser is used to disinfect gums after a thorough cleaning in patients with advanced gum disease. A wide "bio-stimulation" light tip has approval from the FDA for use to relieve muscle pain in the jaw joint. The most common application in our office is to ensure the gums are shaped ideally for properly sealed fillings and crowns. Most of these procedures can be accomplished in conventional ways but dentists using lasers report another major benefit. The procedure can be done more quickly and their patients report very little, if any, discomfort after the procedure is finished. If your dentist does not yet have one it is a safe bet it is on his/her instrument wish list.



The wonderfully named Erbium Yag and CO2 lasers are the big brothers of the small diode. These much more expensive hard tissue lasers can replace the traditional dental drill in select situations, performing very precise surgical procedures such as biopsies, and assisting with implant site preparation. These devices, however, are out of reach financially for all but the most progressive dental practices.

Laser Dentistry is not one particular use of this amazing technology but many practical applications. Lasers hold the promise of doing common procedures with no next day discomfort. Why? Because of a little pain-causing chemical called histamine. Use of the laser typically doesn't cause the release of histamine and this means a whole cascade of pain causing chemicals is avoided, resulting in a much more comfortable recovery. And that is why many dentists are moving towards the light.