

Laser used to help fight root canal bacteria

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High-tech dental lasers used mainly to prepare cavities for restoration now can help eliminate bacteria in root canals, according to research published in the July issue of *The Journal of the American Dental Association* (JADA).

The study, conducted by researchers in Austria, credits the development of miniaturized, flexible fiber tips for allowing the laser to be used in endodontic (root canal) treatment.

Dr. Ulrich Schoop and a team of researchers in the dental school at the University of Vienna used 60 extracted human teeth with one root each to test the effects of laser irradiation on root canals using an erbium, chromium:yttrium-scandium-gallium-garnet (Er,Cr:YSGG) laser.

Dr. Schoop and colleagues inoculated the root canals with one of two types of bacteria (*Enterococcus faecalis* and *Escherichia coli*) and then irradiated the canals using either a 1- or 1.5-watt power setting.

The team found that the laser reduced the amount of *E. coli* at the lower power setting and reduced it to below the detection level at the higher setting. It also was effective in eliminating *E. faecalis*.

Researchers found, too, that the laser removed the smear layer and debris from the root canal walls and that the temperature rise during irradiation was within safe borders.

The authors concluded that the Er,Cr:YSGG laser may be suitable for

cleaning and disinfecting root canals and that it can be used safely if the common precautions for using lasers are observed and the energy levels and irradiation times are within the proposed range. They also suggested that clinical studies are needed to confirm their laboratory findings.

In a related article in July JADA, Dr. Roy H. Stevens and colleagues at the Kornberg School of Dentistry, Temple University, describe their study of an Er,Cr:YSGG laser with a new tip that emits radiation radially.

Source: American Dental Association

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