

Cigarette Smoking Increases Risk for Root Canal Treatment

According to a new study appearing in the April issue of the Journal of Dental Research, cigarette smoking can lead to not only tooth discoloration and gum disease, but also a common dental procedure that helps to heal a diseased tooth--the root canal.

"The findings substantiate what most of us already know: Smoking is detrimental to your health. But because root canal treatment is so common--it's estimated that half of US adults have experienced one by age 50--I think people can relate to it more than [lung cancer](#) and other smoking-induced conditions. No matter what your age, you may need a root canal and as our research shows, smoking increases your risk," said the lead author of the study, Elizabeth Krall Kaye, PhD, MPH, epidemiologist at the Boston VA Hospital and professor in the department of health policy and health services research at Boston University's School of Dental Medicine in Boston.

Dr. Kaye spoke recently at the American Medical Association and American Dental Association media briefing, Oral & Systemic Health: Exploring the Connection, in New York City.

The findings are based on data collected during Veterans Affairs Normative Aging and Dental Longitudinal studies at the VA Boston Healthcare System in Boston. The study, which began in 1968, tracked how men's dental and physical health progressed over the course of 30 years.

"Men visited the study site every three years where they were checked for signs of caries, or cavities, tooth restorations and periodontal disease. Clinicians also took mouth x-rays and documented their smoking habits, including frequency and type of tobacco," explained Dr. Kaye. "From the data, we were able to identify approximately 811 men with teeth that were free of root canal treatment at the study's beginning. That's 18,893 teeth to track over the course of 30 years."

Root canal treatment is necessary when the dental pulp, or soft tissue of the tooth containing nerves, blood vessels and connective tissue, becomes inflamed. A general dentist or an endodontist, a root canal specialist, removes the infected tissue, cleans the space and fills the tooth to prevent the bacterial infection from recolonizing.

With the help of two endodontic residents, who re-examined the dental x-rays taken over the course of the study, Dr. Kaye was able to identify 998 teeth that had received root canal treatment by the study's conclusion. These data were then compared with each man's smoking habits.

"We found that cigarette smokers are 70 percent more likely to need root canal treatment than nonsmokers," explained Dr. Kaye. The research also showed that cigar and pipe smoking, despite being another form of tobacco smoking, had only slight impact on a patient's risk for root canal compared to non-smokers. "Because fewer men smoked cigars and pipes, we cannot be absolutely positive there's an increased risk there at all," she said.

Besides identifying the risk for root canal treatment, the research also showed the positive effects of quitting. "The total amount time smoked and total time they remained smoke free was directly related to their risk," said Dr. Kaye. "For example, the teeth of a man who smoked for less than four years had a likelihood of treatment that was 20 percent greater than that of non-smokers, but the risk doubled in men who smoked anywhere between five and 12 years and was 120 percent greater for men who smoked for more than 12 years. The good news is that after being smoke free for nine years, the risk returned to the level of men who never smoked."

"While our research doesn't explain why the risk is increased among cigarette smokers, we suspect that the body's reduced infection-fighting capabilities as a result of smoking may contribute," explained Dr. Kaye. "Other studies have also suggested that smokers experience more dental cavities, which is a major reason for root canal treatment. Hopefully future research will be able to identify the mechanisms that explain why cigarette smokers have more root canal treatments."