



FOR PRACTITIONERS



Causes of Severe Pain After Root Canal Therapy

This update is based on research conducted by dentists who are part of the National Dental Practice-Based Research Network, a group of dental practices that treat patients and do dental research. For more information go to www.nationaldentalpbrn.org.

Pain after endodontic treatment is normally manageable and goes away within a week. However, for more than 10 percent of patients, the pain is severe. Research shows there are many factors that can affect how much pain patients feel. These include individual characteristics of the patient as well as the procedure.

The Predicting Outcomes of Root Canal Treatment (PREDICT) Study, a National Dental PBRN prospective study, looked at the predictors of severe, acute pain after a first-time root canal. The study followed 1,459 patients—and there was a fairly even distribution of those who were treated by general dentists and those treated by endodontists.

According to lead investigator Alan Law, DDS, PhD, FICD, FACD, “If we understand how to prevent and/or control the pain associated with root canal therapy, we can also limit the amount of opioids prescribed to treat severe pain.” Dr. Law is an adjunct associate professor in the Department of Restorative Sciences at the University of Minnesota and an endodontist at The Dental Specialists in the Twin Cities.



Characteristics of the endodontically treated teeth

Prior to their procedure, approximately half of the patients had tooth pain in response to cold. Between 65 and 70 percent had pain when biting down or in response to percussion. On average, patients scored pre-procedure pain as a 4, on a scale of 1 to 10. After the procedure, they scored their pain as a 2 (on average). However, 12 percent of the patients scored their pain as at least 7 out of 10, which is considered severe.

If the practitioner used magnification, patients were 54 percent less likely to have severe pain. The greater the magnification, the less likely the patients would have severe pain.

Thank you to everyone who participated in this study. To provide the best dental care, we need to do “real world” studies like this one, and that wouldn’t be possible without our Network members’ help!





Features associated with more pain after endodontic treatment

The PREDICT Study found that the following were linked to more pain:



Being a woman. Women were 50 percent more likely to have severe pain, compared to men.



Being less optimistic about the outcome of the root canal. People who were optimistic and expected the outcome to be “very good” tended to have less pain.



Catastrophizing about pain—feeling it will never go away.



Having symptoms of TMD before the root canal treatment.



Having worse tooth pain before the root canal treatment.

For more information

- You can watch Dr. Law’s talk, Predicting Pain Following Root Canal Treatment, about the PREDICT study on YouTube at <https://www.youtube.com/watch?v=3YjNjVNSXXw&list=PL50e16k7WQ4QYeAz3LOuXh5rGYOsy6D10>.
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What is pain?

Pain is defined as an unpleasant sensory and emotional experience, associated with tissue damage. Because of how our brain processes pain, our emotional state can affect our pain tolerance; pain is a subjective phenomenon. If acute pain is not managed properly, it can evolve into chronic pain.

Endodontic therapy can cause tissue trauma, which causes inflammation. Pain will persist as long as inflammation is present. Pain is an important indicator for signaling us that there has been significant damage. It can also be nonadaptive when pain receptors are amplified by inflammation. Anxiety, genetics, past experiences with pain, and other factors may influence our perception of pain.



How to help prevent extreme pain in patients

Because most endodontic pain comes from inflammation, the most effective medications for managing post-treatment pain are non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen. In addition, many studies have shown that taking acetaminophen along with NSAIDs can increase the effectiveness of the NSAIDs. Most cases do not require opioid medication after a root canal treatment.