

I'd Rather Have a Root Canal...

A popular expression with a common misconception!

By Dr. Michael J. Scianamblo

"I'd rather have a root canal" is a common idiom in our culture for comparing worst case scenarios. However, the underlying sentiment, that is, a situation is so bad one would rather "endure" a root canal is based on a common misconception. While pain in a root canal is from "pulpal" inflammation or infection, which can be excruciating, the actual treatment is relatively painless and very successful.

So the question to ask is, "What is Root Canal or Endodontic Treatment?" This particular treatment has its own specialty called "Endodontics." The word is derived from the Greek words meaning "inside" (*endo*) the "tooth" (*dont*). Endodontics or Root Canal Treatment is a specialized dental procedure performed by a dentist or endodontist (a root canal specialist) to treat the inner aspect of a tooth, specifically the area occupied by "pulp tissue." While most people commonly refer to this pulp tissue as the "nerve" of the tooth (and it does contain a few nerve fibers), the tissue contains much more: tiny blood vessels that give it vitality and "connective" or support tissues that function like most of the other soft tissues of the body.

Teeth are like icebergs; the crowns of the teeth are above the gums and are the parts you see in the mouth, the majority of the tooth is below the gum, which consists of the roots comprising roughly two thirds of the tooth. The crown of the tooth is covered by an enamel cap which is non-living. It is the hardest substance known in nature in the animal world; it is quite impervious to physical and chemical attack and is designed to protect the tooth.

Beneath the enamel cap is the majority of the tooth which is made of dentin, a living bone like substance. Coursing through the central part of each root is a hollow space or canal, which contains the pulp tissue. When a tooth is healthy, the pulp functions as a sensory resource for the tooth: the nerves in the pulp allow the dentin to sense temperature changes transmitted through the enamel. When temperatures are extreme the nerves signal sensitivity and pain.

The pulp, however, is a remnant of development and the tooth can function without it. In fact, as part of the aging process, the pulp shrinks as it lays down more dentin making the small pulp chamber smaller and smaller as it "calcifies" until it is essentially obliterated in late adulthood.

The teeth become thicker, in a sense, and slightly darker with age.

When the first "endodontists" realized the pulp could be lost or eliminated without any significant consequences, the discovery led to the root canal treatment used when this portion of the tooth became diseased. This occurs when the pulp becomes inflamed or infected due to a variety of causes including deep decay, extensive dental procedures, and cracked or injured teeth. If pulpal inflammation or infection is left untreated, it can cause pain or lead to an infection commonly presenting as a dental abscess.

Root canal treatment can be initiated to relieve pain by removing the inflamed or infected pulp, and the bacteria and bacterial toxins that are often associated with the diseased tissue. After the pulp chamber has been cleansed, enlarged and sterilized, also called "the root canal preparation", the canal can be sealed with inert filling materials that

might replicate the calcific-deposits that occur naturally during the aging process. The most common material used to fill or "obturated" the canal is a naturally occurring isomer of natural rubber called gutta percha and specialized sealers that are insoluble. These materials are biologically compatible with the tooth substance, and if placed properly, seal the root canal hermetically preventing further bacterial invasion (Figure 1).

The pulp chamber is a complex system of extraordinary microscopic structure consisting of primary canals (trunks) and secondary canals (branches), which might resemble a Christmas tree. Specialized techniques are usually required to seal the fine lateral or accessory canals that offer "collateral" circulation between the pulp and the adjoining tissues. Most endodontists today use operating microscopes to achieve their task of performing excellent root canal treatment.

The first "endodontists" realized the pulp or nerve tissue inside a tooth could be lost or eliminated without any significant consequences

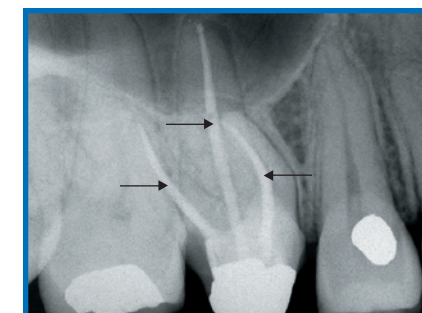
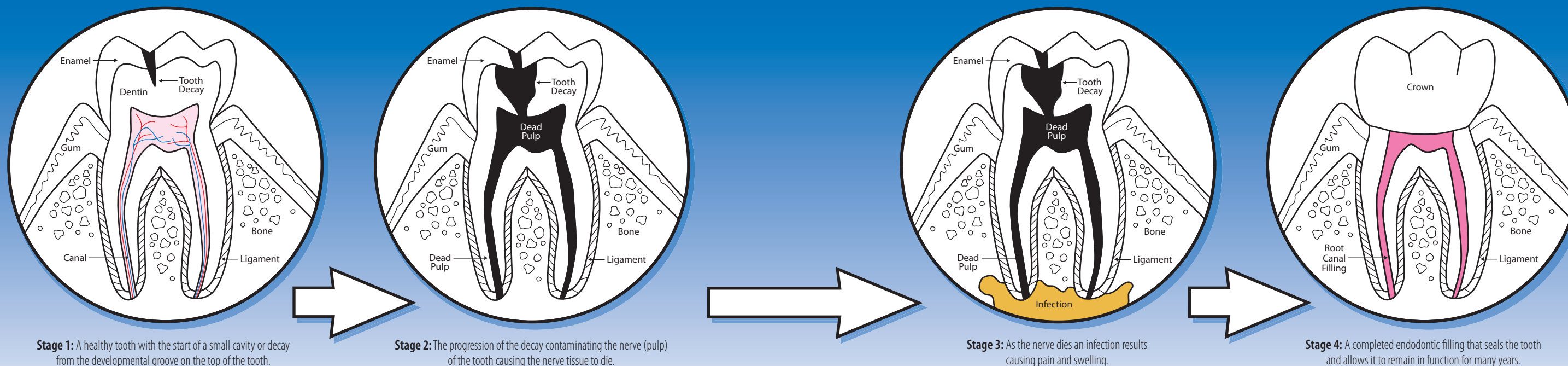


Figure 1: The above x-ray is an example of how a root canal appears after endodontics is completed. Notice how the white filling material in each canal ends at the apex (end) of each root.

HOW TOOTH DECAY CAN CAUSE A ROOT CANAL



Effective removal of a diseased pulp and the bacteria associated with it can ensure a lifetime of comfort and function. Interestingly, tooth removal can be as effective in relieving pain as root canal therapy, but tooth loss can lead to other untoward side effects such as unwanted tooth movement or migration of teeth leading to subsequent malocclusion and an inability to chew. Saving your natural teeth should always be your first choice when dental care is needed. Nothing, not even the most advanced bridges or implants, can truly replace your natural teeth. If you are in doubt about saving a tooth with a root canal problem ask your dentist and seek his advice regarding a specialist consultation with an endodontist.

Symptoms that might indicate that you need a root canal treatment include:

- Momentary sensitivity and/or lingering pain after eating hot or cold foods
- Sensitivity to hot or cold foods after dental treatment
- Sharp pain when biting down on food
- Constant and severe pain and pressure
- Swelling of the gingival (gum tissue) and sensitivity to touch

Gum abscesses may also be caused by periodontal disease so that a proper diagnosis is required to ensure that the correct problem is being addressed. It will take an examination by your dentist or endodontist to determine if root canal treatment is indicated.

Low-grade or “chronic” inflammation and infection can persist for extended periods of time and cause other problems. Some of the systemic problems that have been associated with chronically inflamed or infected teeth are endocarditis (infection and inflammation of the heart valves), a predisposition to atherosclerosis and strokes, pneumonia and auto-immune disease. Further, if the problem is diagnosed and treated before acute symptoms develop, there is a much higher rate of success and a minimum of post-operative side effects.

It is normal to feel some tenderness in the area of the root canal treatment for a few days after the procedure as your body undergoes the natural healing process. You may also feel some tenderness in your jaw from keeping it open for an extended period of time. These symptoms are temporary and usually respond very well to over-the-counter pain medications, particularly anti-inflammatory agents such as ibuprofen or naprosyn.

Root canal treatment is only one step in returning your tooth to full function. A proper final restoration or crown on the tooth is extremely important in ensuring long-term success. Contact your dentist within two weeks to arrange your next appointment. If your tooth is being treated in more than one visit by an endodontist, do not return to your dentist for the final restoration until the root canal treatment is completed. Most posterior or back teeth (bicuspid and molars) will require a crown to protect them from further injury such as fractures since endodontically-treated teeth may become more susceptible to fracturing over time.

The tooth that has had appropriate endodontic treatment followed by a proper restoration can last as long as other natural teeth. After the tooth has been restored, you need only practice good oral hygiene, including brushing, flossing, regular dental check-ups and cleanings. Your dentist or endodontist may periodically x-ray the tooth to ensure that healing has occurred. Occasionally, a tooth that has undergone endodontic treatment does not heal or pain continues. At times, the tooth may become painful or diseased months or even years after successful treatment. Often when this occurs, repeating the endodontic procedure can save the tooth.

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ABOUT THE AUTHOR



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