

ROOT CANAL TREATMENT

The aim of root canal treatment (also called "endodontic" treatment) is to save a tooth that has been badly damaged due to decay, disease or injury.

Many millions of teeth each year are saved from extraction by having root canal treatment. Most people prefer to save their tooth because generally it will function better than an artificial tooth.

Your own tooth is usually stronger and more efficient for biting and chewing. Cleaning and maintenance of a natural tooth is much easier. However good an artificial tooth can be, it will never be more than just a substitute for a real tooth.

Problems with biting, chewing and oral health are associated with losing a tooth.

For example, nearby teeth can move out of their normal position and tilt into the space left by a missing tooth. This can make chewing and biting difficult, and can lead to further decay and gum disease around the tilted teeth.

Root canal treatment is successful in most cases. If you take good care of the treated tooth, it may last for many years and possibly for the rest of your life.

Your tooth will not be treated unless the treatment is likely to succeed. Root canal treatment may not be appropriate in some cases, and extraction may be the best, or only, option.

All general dental practitioners are trained to perform root canal treatment. Some patients may be referred by their dentist to a specialist dentist called an "endodontist" who has special training and qualifications in root canal treatment.

Infection or inflammation of the pulp

Infection or inflammation of the pulp can be caused by:

- breakdown of a filling or crown
- a deep cavity
- trauma
- gum disease
- crack or chip in the tooth
- extreme wear
- extensive dental work to the tooth.

Symptoms may include pain, sensitivity to heat or cold, tooth discolouration, and swelling or soreness in the gums surrounding the tooth. To save the tooth, root canal treatment is needed when the pulp becomes severely inflamed or infected.

To improve the chances of success, root canal treatment should be started as soon as possible. All root canals in the affected tooth must be treated.

Front teeth (incisors) have one or two root canals. Premolars (bicuspid) typically have one or two root canals. Molars usually have three or four root canals.

If the pulp of is not treated quickly, severe pain and abscesses (infections at the ends of the roots) can occur. If an abscess is left untreated, infection can damage the bone surrounding the root. If the tooth does not have endodontic treatment, it will have to be removed.



The healthy tooth - The pulp is the soft tissue deep inside a tooth. The pulp contains nerves, blood vessels and connective tissue. It extends from the tooth crown to the tip of each root. The pulp is important for normal growth, development and health of the tooth. However, a fully developed tooth can function normally without a pulp if root canal treatment has been successful.

Root canal treatment

Your dentist or endodontist will examine the tooth and take a radiograph (X-ray film). A local anaesthetic is usually given to block pain. A sheet of latex, called rubber dam, is used to isolate the tooth and keep it clean and dry during treatment.

To reach the pulp, an opening through the tooth is made with a dental drill. Using special instruments called files, your dentist or endodontist will remove the inflamed or infected pulp.

Each root canal is cleaned, enlarged and shaped. Anti-inflammatory and antibacterial medicines may be put inside the root canal to help stop the inflammation and infection. If a severe abscess has formed at the root tip, oral antibiotics may be needed to treat the infection.

You may need to make several visits to the dentist or endodontist to complete the treatment. A temporary filling will protect the inside of the tooth between visits.

Pain or discomfort, if any, usually lasts no more than a few days, and will not be experienced by every patient. Some people may want to take a mild pain reliever such as aspirin, ibuprofen or paracetamol.

Your dentist or endodontist may take several radiographs to check the shape and length of the root canals and the success of the treatment.

After the pulp has been removed, the tooth is not "dead". The tooth can survive without the pulp because it is nourished mostly by tissues around it.

Completion of treatment

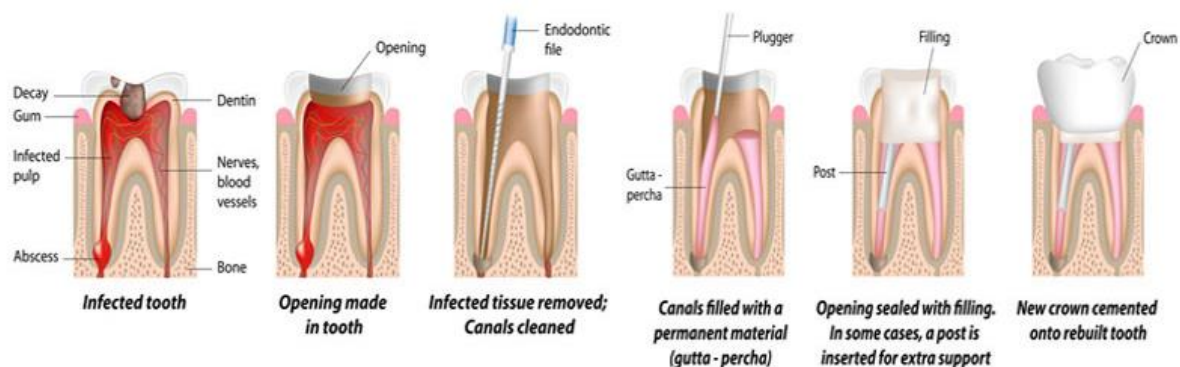
To protect the inside of the tooth and prevent further infection, the root canals are filled, and the pulp chamber is sealed. A post may be inserted inside the tooth if it lacks enough structure to support an artificial crown. As the jaw bone surrounding the treated tooth takes time to heal completely, follow-up visits may be needed to confirm satisfactory healing. This is usually checked by examining the tooth and gums, and by taking a radiograph. To assist healing, continue to practice good hygiene, including brushing, flossing and regular check-ups.

Fitting an artificial crown: Your dentist may recommend that the tooth requires an artificial crown. If your root canal treatment has been done by an endodontist, then the endodontist will recommend that you return to your dentist for the artificial crown.

As an endodontically treated tooth may have a higher risk of fracture without the protection of an artificial crown, one should be fitted soon after treatment.

Typically made of porcelain or gold, the artificial crown is needed to:

- protect, strengthen and further seal the tooth
- restore normal function and occlusion (the way the upper and lower teeth contact each other when biting and chewing)
- restore an acceptable cosmetic appearance.



Possible complications of root canal treatment

As with all dental and medical treatments, root canal treatment has risks. The following list is intended to inform you. There may be others not listed. If you have concerns about possible complications, ask your dentist or endodontist.

- **Loss of tooth:** While root canal treatment can save many teeth, your dentist or endodontist cannot guarantee that it will be successful in every case. It's not possible to predict how long the tooth will last after treatment, but it should last for many years. Success may depend on a patient's general health, age, capacity to heal, oral hygiene, and many other factors affecting the tooth, particularly the amount and strength of the remaining tooth structure. An important factor is the final restoration. Your tooth must be restored completely, or bacteria can re-enter the tooth and cause another infection.
- **Infection:** Infection in the damaged tooth is likely to resolve completely once treatment is undertaken. The risks of re-infection are low. However, if the infection recurs, the tooth may have to be treated again or removed.

- **Discolouration:** In some cases, the treated tooth may lose its original whiteness and become darker. If a front tooth is affected, the person may feel unhappy about the tooth's appearance. Discolouration can be treated by bleaching, or an artificial crown or veneer can be fitted.
- **Pain or discomfort:** Some people may continue to have pain or discomfort around the tooth during and following treatment. Your dentist or endodontist may recommend a pain reliever. If the pain is severe or lasts more than a few days, tell your dentist or endodontist. Additional treatment to the tooth may be needed.
- **Weakness:** An endodontically treated tooth may not be as strong and durable as a normal tooth. This is especially true for the back teeth (molars), and this is why a crown is usually recommended.
- **Altered feeling:** During and after treatment, the tooth may feel slightly different from the other teeth. This should disappear gradually. If the difference in feeling persists, inform your dentist or endodontist as further treatment may be needed.
- **File fracture:** Special metal files are used to clean the root canal. These files are very fine and occasionally may break during use. Special procedures may be needed to remove the broken portion of the file, or you may be referred to an endodontist. In some cases, it may not be possible to remove the fractured file; the long-term effects of this will depend on many factors, such as whether the canal was infected and whether it had been cleaned before the file fractured. Your dentist will discuss this with you in detail if a file fracture occurs.
- **Re-treatment:** Pain or infection may occur months or years after a tooth has been treated. This is usually due to further deep decay, trauma, a cracked tooth or a cracked filling that allows bacteria to enter the tooth and cause the infection. More endodontic treatment or extraction may be needed.
- **Non-healing:** In some cases, tissues around the end of the root may not heal well following treatment. Reasons may include resistant bacteria in an abscess, a cyst, or a reaction to materials. In some of these cases, root canals may need to be treated again, while in other cases an apicoectomy (or apicectomy) may be needed. An apicoectomy is minor surgery to remove the affected tissues and sometimes the end of the roots. In rare cases, a major part of the root may need to be removed (root resection). If you need one of these procedures, your dentist or endodontist can provide more information.