

Patient information

Endodontic Root and Re-root Canal Treatment

Liverpool University Dental Hospital

What is a root canal?

The root canal is in the centre of the tooth and provides the nerve supply, blood supply, and all the nutrients required by the tooth. It is commonly referred to as the pulp tissue.

Why do I need root canal treatment?

The pulp tissue can become infected for a number of reasons most commonly due to tooth decay or impact injuries to the tooth.

Other causes include cracks, gaps around crowns, and occasionally via gum disease.

When bacteria enter the pulp space, they start to damage the nerve tissue. This can lead to inflammation, infection, pain and/or swelling. The aim of root canal treatment is to remove the source of pain and infection.

Other signs and symptoms include:

- tooth discolouration,
- pain to hot and cold food or drinks,
- possible tenderness when biting on the tooth or a gum boil.

What is 're-root' canal treatment?

Sometimes, root canal treatment fails because the tooth has become re-infected, with signs and symptoms such as pain or a 'boil' on the gum that may come and go and release pus. Re-root canal treatment is simply repeat of root canal treatment and it involves cleaning the re-infected canals and replacement of the original root filling.

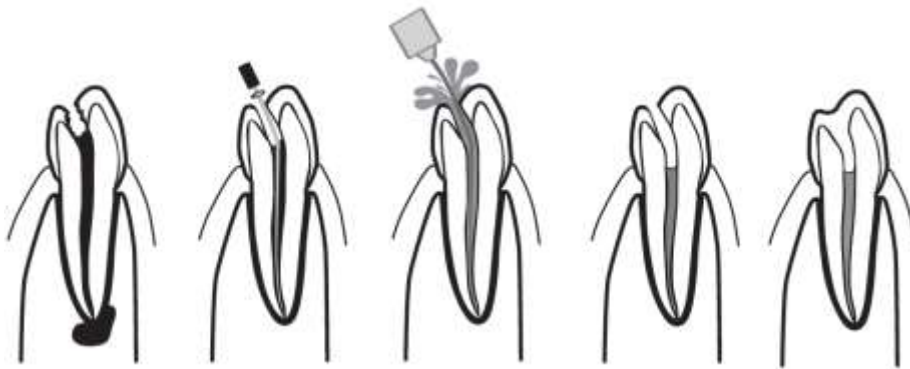
What is the procedure for root canal treatment and re-root canal treatment?

The treatment is provided under local anaesthetic to numb your tooth. A dental sheet (called a dental dam) is used to isolate the tooth from the rest of the mouth, which provides a clean environment to operate as well as protecting your mouth and airways.

The tooth is opened to allow access to the inside of the tooth, which is then cleaned using instruments and solutions.

In the case of re-root canal treatment, the original root filling is also removed. The root canal is then cleaned and re-filled, and the opening cavity is closed with a filling.

The dentist will take X-rays before, during, and after the treatment.



- A tooth cavity causes infection of root canal and sometimes an abscess.
- Root canal treatment involves opening and cleaning the root canal.
- Fine instruments are used to remove the infected tissue including the nerve and shape the canal.
- Antibacterial solutions are used inside the tooth to wash out and remove the infection.
- A root filling is placed in the canal aiming to seal the end of the root.
- A permanent restoration (e.g. filling or crown) is placed over the tooth to seal it and prevent reinfection.

Is root canal treatment painful?

Before starting treatment the dentist will administer a local anaesthetic, which will numb your tooth and the gums allowing the treatment to be carried out in a comfortable manner.

Like all medicines, local anaesthetics may sometimes cause side effects, as well as the effects that are needed. Occasionally, you may experience temporary dizziness, blurred vision, drowsiness and occasionally loss of consciousness.

Serious side effects are rare, and include fits, low blood pressure, slowed breathing and changes in heartbeat, which may be life-threatening. If you have any concerns about any of these effects, you should discuss them with your doctor.

How long will the treatment take?

One or more visits may be required. If multiple visits are needed, an antibacterial medication is placed inside the canal if necessary and a temporary filling is placed within the access cavity of your tooth.

Cases more likely to require two or more visits include:

- Re-treatments
- If a large area of infection is visible on X-ray or seen during treatment.
- Cases where the canals are hard to locate, or have large curves

What are the complications and risks of treatment/retreatments?

- Searching for canals that are very small may result in a hole created within the root, called a perforation. If the perforation is small and accessible, it can be repaired, and the tooth is saved.
- Some canals can be very narrow and an attempt to open them may result in small instruments fracturing within the canal. In some circumstances they may be removed or bypassed, in which case the tooth may be saved.
- Root canal treatment does weaken the tooth and increases the likelihood of chipping or fractures. A filling and possibly a crown will be required as soon as possible following root canal therapy.
- Swelling, bruising and pain may occur in very rare occasions as a result of chemicals used to disinfect the root canal.
- After the appointment, around 10% of patients have mild discomfort which can be managed with Paracetamol and Ibuprofen. In 1% of cases, a post-operative flare up can occur that may require further treatment

The possibility of developing complications is dependent on the complexity of the treatment, which can be discussed with your dentist at the assessment visits.

How likely is treatment/retreatment to be successful?

With regards root canal treatment, studies have shown success occurs in over 90% of cases, reduced to around 70% for re-treatment cases.

The success rate in re-treatment cases is lower as previous treatment can change the conditions in the tooth such as the type of bacteria, canal blockages and damage from previous treatment.

Factors that increase tooth longevity:

1. All canals can be located and cleaned fully.
2. A permanent filling is placed immediately after treatment.

Factors that decrease tooth longevity:

1. There is a dark shadow (radiolucency) present on the X-ray.
2. There is a gum boil (sinus) associated with the tooth.
3. Where the tooth is used to support a bridge.

Are all teeth suitable for treatment?

When root treating any tooth, the dentist must ensure that the tooth can be sealed from the oral cavity. Following a consultation, the dentist may inform you that the tooth cannot be saved and needs extraction if, for example, the tooth is very broken down or has advanced gum (periodontal) disease.

Sometimes, the tooth will require investigation to determine if the tooth can be saved. The investigation involves removing the filling and/or the crown and careful examination often under magnification, to ensure there are no cracks or extensive decay.

Potential problems with teeth that have been heavily restored include:

- Large cracks in the tooth.
- Very large cavities in the tooth extending under the gum margin.
- Loss of bone and poor support of the tooth from the gums and bone due to gum disease or infection.
- Previous treatment compromising the tooth.

What are the alternatives to root canal treatment and re-root canal treatment?

There are two options available other than root canal treatment:

1. Do Nothing: This is always an option but you must be aware that the tooth is likely to cause further episodes of pain, swelling or infection.
2. Extraction: Removal of the tooth will eliminate the source of pain and/or infection. The resultant gap may have functional or cosmetic consequences. The space can often be restored with a denture, bridge or implant; the most suitable option is made by assessing each case individually. Following a discussion between you and the dentist, you will be advised of your options and where the treatment can be obtained.

Another alternative to re-root canal treatment is to carry out a surgical procedure (called an 'Apicectomy') rather than replacing the whole root filling. This procedure is carried out when the previous root canal filling appears satisfactory and the crown of the tooth is sound, but the tooth has not fully healed. Surgery is indicated sometimes when the root canal filling or space can't be accessed, and conventional root canal treatment or retreatment is not possible.

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For Further Information

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References

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Review date: March 2024

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