

Root canal treatment

Orthodontics and Restorative Dentistry

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Information for Patients

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What is root canal treatment?

Root canal treatment is a dental procedure used to treat infection and swelling (inflammation) in the root canal system. The root canal system is in the centre of the tooth. It runs through the part of the tooth above the gum (the crown), down to the tip of the root, and contains nerves and blood vessels.

During treatment, we remove the inflamed tissue and infection within the root canal system. We fill in the inside of the tooth with an artificial filling material. We can also take out and replace an existing root canal treatment when it has failed.

Why do I need root canal treatment?

When the root canal system becomes inflamed or infected, it needs treatment.

Common causes include:

- Tooth decay
- Deep fillings
- Leakage under an old filling or crown
- Repeated replacement of fillings
- Cracks or fractures in teeth
- A physical trauma to your face or mouth, such as a car accident or sports injury

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Signs and symptoms

A number of different signs and symptoms may suggest that root canal treatment is needed:

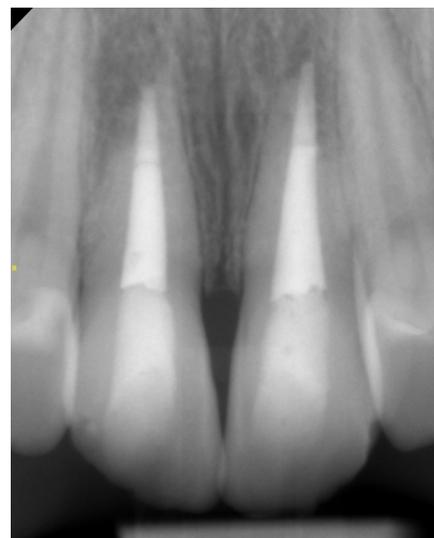
- Long lasting pain (sensitivity) caused by hot and cold
- Severe toothache
- Changes to the colour of the tooth
- Swelling of the gum next to the tooth
- Tenderness of the tooth when biting or chewing

Some teeth that need root canal treatment do not give any pain or problems. They are found from dental X-rays.

X-rays (radiographs) of root canal treatment



12 year old boy who fell off his bike and fractured his upper front teeth. The black shadows at the ends of the root show infection.



X-ray showing completed root canal treatment. The root canals have been cleaned and filled and the black shadows at the end of the roots are healing.

What does root canal treatment involve?

You will have a local anaesthetic just like when a filling is done. Root canal treatment is often painless. You should tell the dentist right away if you feel any discomfort.

- A protective sheet called a rubber dam is placed over the tooth during root canal treatment. The rubber dam stops saliva and mouth bacteria entering the root canal system and causing infection. Root canal treatment is less likely to be successful if a rubber dam is not used.

This picture shows a tooth isolated with a rubber dam. The metal bracket keeps the rubber dam in place.

- Once the rubber dam is in place a small opening is made through the tooth to allow access to the root canal system.
- We remove the infected tissue and the root canal system is cleaned and shaped.
- The root canal system is regularly flushed with a weak bleach (sodium hypochlorite) to remove bacteria. Root canal treatment is less likely to be successful if sodium hypochlorite is not used.
- X-rays are normally taken before, during and after root canal treatment.
- After the root canal system has been cleaned and shaped, the root canals are filled with a rubber like material called 'gutta-percha'.
- The opening in the crown of the tooth is then sealed with a filling.



After root canal treatment we usually recommend that the tooth is protected with a crown. A crown is a cap that fits over the tooth. The crown helps prevent reinfection of the root canal system and protects against tooth fracture. A tooth that has had root canal treatment is 6 times more likely to fracture if it is not crowned. If you have your root canal treatment at Glenfield Hospital, your own dentist would need to provide any crown work that is needed.

How long does root canal treatment take?

Root canal treatment is a time consuming procedure. You may need to attend multiple long appointments. Although, root canal treatment can sometimes be completed in 1 visit, it often takes 2 or 3 visits. If you have treatment in the department each visit will normally last 90 minutes. When the treatment is carried out over several visits, a temporary filling is placed to seal the tooth between each visit. If the temporary filling is lost between visits you should go to your own dentist for a replacement temporary filling to prevent reinfection of the root canals.

What are the risks of having root canal treatment?

- It is common to have minor discomfort and tenderness right after root canal treatment and for a few days afterwards. This can often be managed with over the counter painkillers.
- Pain and swelling is unusual but can happen. If you feel severe pain or swelling after treatment you should contact your own dentist for advice.
- The files that are used during root canal treatment can sometimes break within the tooth.
- The files that are used during root canal treatment may sometimes make small holes through the side of the root.

- It is not always possible to locate root canals or get all the way to the bottom of the root canal system. If this happens, root canal treatment is more likely to fail.
- Root canal treatment may fail and the tooth may need to be taken out (extracted).

Can all teeth have root canal treatment?

No, not all teeth can have root canal treatment.

Root canal treatment can only be done if the root canals are accessible and can be cleaned and sealed.

You cannot have root canal treatment if your oral hygiene is poor or you have uncontrolled tooth decay or gum disease. In these situations you will be returned to your dentist for treatment to make the rest of your mouth healthy.

Your tooth will need good bone support and enough healthy tooth above the gum line to support an artificial crown.

Are there any other treatments?

We can talk about other treatment options like:

- **Having the tooth taken out (extraction).** You will then have a gap instead of a tooth. We do not usually recommend extraction when root canal treatment is likely to be successful.
- **Apical surgery.** This is a surgery done on a tooth with a lasting infection. We remove the root tip and any infection. We place a small filling to seal the root tip. Apical surgery is usually done using local anaesthetic and is not always successful. Apical surgery is also linked with:
 - a risk of pain after surgery
 - bleeding
 - gum recession
 - swelling
 - infection

Apical surgery is only usually considered when the tooth already has a satisfactory root canal treatment.



Who will do my root canal treatment?

Root canal treatment is usually carried out by your own dentist. However, some teeth are more complicated to treat and may benefit from treatment in a hospital. Examples of teeth that we may treat at the hospital:

- Teeth with roots that have curves or unusual shapes.
- Young teeth with roots that have not formed properly.
- Fractured roots.
- Teeth containing broken root canal instruments or broken posts.
- Teeth with very narrow root canals that your dentist has been unable to locate.
- People with medical conditions where extraction is best avoided such as radiotherapy to the head and neck region.

Contact details

Department of Orthodontics and Restorative Dentistry: **0116 258 3525 / 0116 258 3526**

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