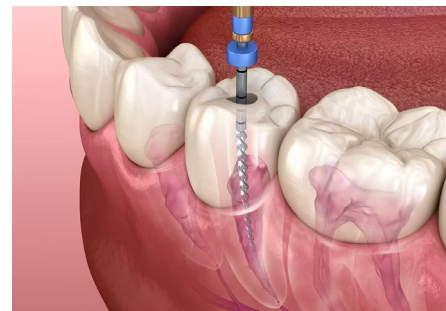


ADG Treatment Guide - Consent to Endodontics (“Root Canal Therapy”)



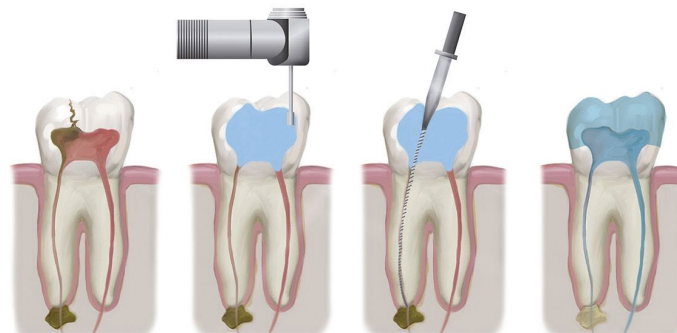
What is Endodontics (or Root Canal Therapy)?

This is a treatment where a dentist carefully isolates a tooth, and gently drills through the core tooth structure to reach the nerve (which is usually dead or dying and may be infected). Once the nerve is reached, the nerve chamber is expanded, and the nerve is removed with fine instruments known as files and reamers. To aid the removal of the nerve, the nerve chamber is flooded with sodium hypochlorite (mild bleach solution) to denature, dissolve and break up the residual tissue and allow this to be more readily removed so that the nerve chamber can be devoid of nerve tissue and can eventually be sealed to avoid the ingress of bacteria.



There are three stages to endodontic therapy:

1. Clean – use of small files and medicaments to remove dead/infected nerve tissue
2. Shape – use of a sequence of straight/tapered files to create a clean and tapered root canal for ease of sealing
3. Fill – Use of adhesive sealers and rubber cones to create a hermetic seal within the root canal chamber to avoid ingress of bacteria.



You must let your dentist know if you feel that you suffer from claustrophobia as you will need to wear a dental dam throughout the procedure to prevent egress of disinfectants from the root canal and to prevent inhalation of fine instruments which will be used in the root canal.



Why do we perform root canal therapy?

The nerve of a tooth dies when there is deep decay or if the tooth has suffered severe trauma. Rarely, a nerve dies idiopathically, which means that there is no apparent reason. When a tooth nerve dies, a tooth can remain asymptomatic. Most of the time though there are symptoms of pain, and the tooth becomes difficult to bite on. The pain can start to throb and become so intense such that the pain wakes you up at night. When a dead nerve becomes infected, which is usually a matter of course, the infection can remain localised or can spread. The latter is known as a cellulitis. This is a life-threatening condition if not treated by either antibiotics, tooth removal or root canal therapy.

We chose to perform root canal therapy if the tooth continues to serve a useful function in the bite. Sometimes, teeth are so infected or there is such poor root length or residual tooth structure that it cannot be justified to save the tooth. Under these circumstances the tooth is extracted, and a restorative solution is considered to fill the space, namely a bridge, denture or dental implant. Where a tooth has a sufficient root length, and there is sufficient tooth structure to crown then we can save the tooth by root canal therapy.

How successful is root canal therapy?

Endodontic therapy enjoys a high level of success when executed in competent hands. Good quality endodontics can usually preserve a tooth for 10-20 years. Success is predicated by a number of factors:

- A competent and skilful operator who can identify all the root canals
- A thorough cleansing of the root canal space to remove all dead and infected tissue
- Careful shaping of the root canal system sometimes using advanced techniques
- Meticulous sealing of the root canal system
- Sufficient residual tooth structure which can receive a crown/adhesive seal after culmination of the root canal procedure

A tooth can sometimes have too large an infection, some which are 'therapy resistant' or a tooth could be so mechanically compromised that saving the tooth is ill-advised. Your dentist will discuss the prognosis and likely success of root canal therapy with you so that a considered decision is made about receiving treatment or extracting the tooth.

Trauma. Front teeth that have sustained trauma and have died can suffer 'root resorption'. This is where the root starts to dissolve. Under these circumstances, root canal therapy may carry a poor prognosis, and it may be better to remove the remains of the root in favour of a dental implant.

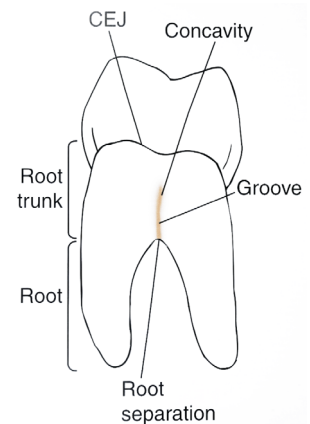
Re-treatment. Teeth that have already received root canal therapy can become infected again due to leakage of bacteria through the root canal system. It is possible to treat some of these roots again by root canal therapy however the procedure has become more complicated as the remnants of the old root canal treatment need to be removed from the fine root canals before the root is decontaminated and filled again.

Root canal therapy is a complex technique in restorative dentistry. There are many advanced materials and techniques that are available. Due to the level of skill required for a successful procedure it is often better to consider the benefits of seeing a Specialist in Endodontics to maximise the success of the outcome (see below).

‘Crown-lengthening’ Procedure

From time to time, we identify a heavily decayed tooth which needs a root canal however the decay is so extensive that it reaches deep to the bone of the jaw and the tooth is too structurally compromised to receive a crown or similar restoration after root canal therapy.

There are times where it would be beneficial to study the tooth anatomy in detail and try to save the tooth. When there is a tall ‘root trunk’ and long roots with good root separation, and a minimal root groove, it may be worth considering a ‘crown-lengthening’ procedure prior to the root canal therapy. This is a procedure where the bone and gum tissue is gently trimmed away to reveal sound tooth structure, and ensure that there is no decayed tissue under the gum and bone. The trimming is carried out with gentle rotary tools or a dental laser. This procedure ‘unwraps’ more tooth structure which can then be accessed and crowned after completion of the root canal procedure.



A surgically trained dentist will need to perform the crown lengthening procedure. Your dentist will discuss the merits of such a procedure if you have extensive decay under the gum.

What are the risks and limitations of root canal therapy?

Root Canal Therapy usually requires the application of local anaesthesia. There are sometimes adverse drug reactions in relation to such local anaesthesia. The dentist will need to use an isolation technique which usually involves the placement of a ‘rubber dam’ across the tooth to be treated. This prevents leakage of irrigant solutions into the mouth. If you suffer from claustrophobia you must inform the dentist as this may limit the application of rubber dam and this may compromise the success of the procedure.

The rubber dam is important to contain irrigant liquids such as sodium hypochlorite which is a common root canal disinfectant. There is always the risk of expulsion of this liquid into the mouth or out of the tooth. Ingestion of hypochlorite will result in paroxysmal coughing and spluttering, and expulsion around the tooth root may cause profound pain and necrosis of surrounding tissue. When the solution expels around the root, it is usually possible to dilute it with local anaesthetic solution of sterile saline to limit the potential for damage.

Root canals can sometimes become partially blocked (‘sclerosed’) by growth of calcific tissue. This may be age related or related to bacterial microleakage through restorations and is a

protective dentine response to insult. Calcific barriers can make it challenging to navigate through the fine root canal system and clean effectively. During preparation of the root canal system it is also possible for procedural complications to occur such as thinning of the canal walls (overpreparation), or creating a bottle-neck in a curved canal (elbowing), or creating a perforation of the dentine wall with instruments. It is also entirely possible to break an instrument in a root canal, and this may affect the prognosis of the procedure.

When a tooth is successfully treated endodontically, there is a loss of pulpal 'mechanoreceptors'. This is a feedback system to the brain to minimise excessive bite forces. There are mechanoreceptors in the tooth ligament, so all is not lost. The loss of these receptors however may result in heavier bite forces on root canal treated teeth and these may readily break.

Benefits of root canal therapy

Despite the difficulties, successfully applied root canal therapy will eliminate pain and swelling, will preserve a tooth unit and the associated bone around this tooth. Such a tooth can serve as an abutment for a crown or a bridge, or a denture/overdenture abutment which can increase the retention of a denture and enable it to function more successfully.

Alternatives to root canal therapy

It is always an option to remove a tooth that has a dead/dying nerve. A space can be left however this can result in migration of adjacent teeth. Leaving a front tooth space unrestored is not a social norm. The space can otherwise be restored with a bridge, a denture or an implant. Where a tooth is saveable, retention of the original tooth is often superior to the options cited.



Need for a good surface seal and support to the remaining tooth walls

After completing a root canal procedure, the tooth must be sealed with an adhesive restoration if it is minimally restored. If a tooth is substantially restored, then it does require the placement of a crown as soon as possible. This is because bite forces may result in cuspal flexure and crack propagation through the tooth. Not placing a crown or new seal as soon as possible has been shown to result in microleakage through the tooth and subsequent failure of the root canal treatment.

Benefits of seeing a Specialist Endodontist

You will note after reading the above that successful root canal therapy is technique sensitive. It is a procedure that requires an immense level of skill and expertise. There are also a wide variety of tools and techniques available to maximise the outcome.

You may wish to consider seeing our Endodontic Specialist for several reasons:

- Endodontic Specialists are trained to a much higher level in root canal therapy than a general dentist and go through a 3-year speciality programme dedicated to root canal

therapy. General Dentists have not received such extensive training in root canal therapy

- There is a higher chance of achieving a positive and longer lasting result with fewer procedural complications when a Specialist tackles a difficult root canal procedure
- Endodontists are trained to use microscopes, and this enables identification of all root canals. There is therefore a reduced chance of missing canals and a higher chance of more effective cleaning of the root canal space to minimise future infection
- Root canal shapes are complex and occasionally curved, and sometimes constricted by calcific barriers. Specialist endodontists have advanced materials and techniques to navigate these challenges
- From time to time, a tooth that has already had a root canal treatment needs re-treatment. This involves taking out old root canal fillings and infection. Such a procedure should really be carried out by a Specialist Endodontist.
- The ability to identify and clean canals will naturally lend itself to better sealing of the root canal space with advanced thermoplastic and adhesive resin techniques

The availability of seeing an endodontic specialist under the NHS is limited and you may need to consider privately funded endodontic care. If you wish to ensure the best outcome in saving your tooth it is ill-advised for your general dentist to 'have a go' at a complex root canal treatment in the hope that a specialist can salvage a challenging root canal after initial treatment is aborted due to difficulty.

Your dentist will support you in your decision-making process around root canal therapy and can arrange a referral to our specialist should that be your preferred option.

I confirm that I have read and understood the information contained within this guide, and I have had the opportunity to ask questions. I feel that I understand the risks, benefits and limitations of the procedures described, and I understand that no promises or guarantees of the proposed outcome can be made. By signing this form, I am providing my explicit consent to render necessary treatment to assist my dental condition.

Name of Patient _____

Date of Birth _____

Patient signature _____ Dated _____

Parent/Guardian/
Legal Representative _____ Dated _____