

# ROOTIPEDIA

An A-Z of Root Canals

Everything you  
need to know  
about root canals.

  
THE  
HARLEY STREET  
— CENTRE FOR —  
ENDODONTICS  




**Being told you need root canal treatment** can trigger anxiety and uncertainty. Much of this is down to a lack of understanding.

**Rootipedia** has been compiled to demystify the procedure and reassure the hundreds of thousands of people in the UK who need the treatment each year.



## Abscess

An abscess is the body's response to infection at the end of the root of the tooth. The abscess could be acute or chronic. If it is acute you will have swelling or pain locally as well as a "fat face." Immediate attention is required. See your dentist or an Endodontist.

## Analgesics

We recommend that patients who are in discomfort should take over-the-counter painkillers, (analgesics), usually Paracetamol or Neurofen. But please discuss with your Endodontist before taking any medication.

## Anaesthesia

There are several ways of making patients comfortable when they need endodontic treatment, from a pain-killing local anaesthetic injection through to sedation.

## Antibiotics

Patients are only prescribed antibiotics when a tooth has a serious infection. Too often patients are prescribed antibiotics without a correct diagnosis having been made.

## Apex

The tip of the root of the tooth.

## Apical Foramen

The opening at the end of the root through which the nerves and blood vessels pass.

## Apex Locator

A device used to determine the length of a root canal. Also known as an electronic root canal measuring device (ERCMD).

## Apical Periodontitis

This is the commonest terminology for the disease process that requires endodontic treatment. It's an acute or chronic inflammation caused by bacterial invasion of the tooth's pulp. Apical periodontitis leads to an abscess at the end of the root.

## Apicectomy

When infection persists in the bony area around the end of your tooth, your Endodontist may carry out a surgical procedure known as an apicectomy.

## Aseptic

Free of any potential infection. All root canal treatments should be carried out in aseptic conditions.

## Avulsion

When a tooth is lost due to trauma – it can sometimes be re-implanted and will invariably need root canal treatment.



## Bacteria

There are many types of bacteria in the mouth. When bacteria penetrate the enamel of a tooth and enter the pulp, they cause inflammation or infection and root canal treatment will be required to save the tooth.

## Biofilm

Bacteria cluster together to form biofilm in the mouth. This is the sticky plaque which needs to be cleaned from teeth regularly in order to prevent decay. Biofilm can exist inside the root canals of teeth.

## BRONJ

See 'MRONJ' below.

## Bleaching

A popular cosmetic treatment for whitening teeth. In the context of endodontics, it's possible to carry out internal bleaching once a tooth has been root-filled to prevent it going grey.



## Bruxism

Grinding of teeth, usually stress-related, which can cause wear leading to stress fractures and potentially the need for endodontic treatment.

## Buccal

The part of the mouth nearest the cheeks.

## Canal

Each tooth has at least one root and each root has a canal at the centre. Within the canal is the pulp of the tooth which may be inflamed or infected. When a tooth needs root canal treatment, it's important to clean out the pulp or its remnants from the canal and fill it with a synthetic filling. Successful treatment involves identifying and treating all the canals.

## Caries

Better known as tooth decay, caries is the most common disease of the Western world, normally associated with a diet of too many sugary foods and drinks. Once a tooth has caries, it will often require a filling. Further caries and filling will allow bacteria to penetrate the pulp, and a root filling will be required.

## Cementum

The hard tissue similar to enamel which surrounds the root of the tooth.

## Chlorhexidine

Antiseptic medication used as a rinse to prevent the spread of bacteria. Often used inside root canals to destroy bacteria.

## Condensing Osteitis

Inflammatory disease in the bone surrounding the root of the tooth, although not serious, indicates an inflamed dental pulp and the need for root treatment. The condition is usually seen on a radiograph (X-ray) and shows up as a pale area (radiopacity).

## Cone Beam Computed Tomography (CBCT)

Endodontic treatments require radiographs or X-rays but sometimes, CBCT can be useful. CBCT builds a three dimensional model of the tooth and its roots providing information over and above a standard X-ray. This valuable information aids diagnosis and treatment planning. CBCT is now widely regarded as the optimum standard of care before many endodontic treatments are undertaken. The Endodontist would advise if this was necessary.

## Core

When large portions of a tooth are missing due to decay or fillings and a crown is required for strength, a core is the build-up material which is placed before a crown is added. Most root treated teeth require a core build up and crown after root canal treatment.

## Crowns

Made by laboratory technicians, a crown provides complete coverage of a tooth. Most root canal treated teeth will require a crown afterwards for protection and strength.

## Curettage

A surgical procedure to remove diseased tissue around the root, usually associated with apicectomy. The endodontist may send this tissue for a biopsy to assess its exact histological make up.

## Cyst

There are many forms of cyst that can occur in the head and neck. If a dental infection at the end of the root is left “unchecked” it can become a dental cyst. Removal of a cyst may require surgical intervention (apicectomy).



## Debridement

The removal of damaged tissue. This term is synonymous with curettage. Dental pulp tissue or its remnants are debrided from the root canal as part of the endodontic procedure.

## Dental Abscess

An abscess can be chronic or acute and is a response to a bacterial infection. The most common type of dental abscess occurs at the apex of the root. This is known as a periapical abscess and is a by-product of a diseased tooth.

## Dentine

The semi-hard part of the tooth below the enamel which encases the pulp.

## Dentinal Tubules

Microscopic tubes within the dentine which carry dentinal fluid and connect with the dental pulp.

## Desensitise

When a tooth or teeth become sensitive, they need desensitising treatment.

## Disinfection

Elimination of bacteria, a process that takes place once a tooth has been opened up for treatment and before it has been filled.

## Distal

Furthest from the centre, in dental terminology the part of the tooth nearest the back of the mouth.



## Electrosurgery

A technique for shaping and cutting soft tissue, often for aesthetic reasons.

## Enamel

Surrounds the dentine of the tooth and prevents decay from entering the dentine and eventually the pulp. It can be attacked and penetrated by sugar and bacteria generated acids and then the decay sets in.

## Endodontics

The branch of dentistry concerned with the pathology of the dental pulp and surrounding tissues. Dentists should undertake an additional two years of training to be an Endodontist and are then accepted onto a General Dental Council specialist list.

## Endodontist

A dentist with two or more years of advanced training whose practice is limited to Endodontics. The role of the endodontist is to help patients keep their teeth functioning and healthy. As specialists, they are usually equipped with the latest technology, such as an operating microscope.



## (Root canal) File

Used to enlarge (shape) the root canal so that the irrigating solution moves all the way to the apex maximising its disinfecting effect. Files can be manipulated by hand or in a special dental hand piece.

## Fistula

This is an abnormal passage from an endodontic infection at the root end to the surface of the gum adjacent to the infected tooth. It allows the discharge of inflammatory or suppurative material. A fistula usually indicates that endodontic treatment is required.



## Gutta-percha

A rubber material used to fill root canals after they have been debrided. Filling the root with gutta percha (GP) is the final part of the endodontic procedure.





## Healing

Eliminating apical periodontitis is the ultimate aim of endodontic treatment. When this is seen clinically and radiographically “healing” has occurred.

## Hypersensitivity

Occurs in teeth when the dentinal tubules are open and react to hot or cold drinks and foods.



## IANB

Inferior Alveolar Nerve Block is a pain-killing injection often administered to the lower jaw for endodontic treatment.

## Implant

Implants replace missing teeth or teeth that cannot be saved by root canal treatment. If the tooth could be saved, request a referral to an Endodontist as they are experts in saving teeth.

## Inflammation

The dental pulp of the tooth becomes inflamed due to decay or trauma. Sensitivity to hot and cold in a tooth can be indicative of pulp inflammation.

## Instrumentation

That aspect of the endodontic procedure that enlarges the root canal. It enables the cleaning solutions to disinfect the root canal space. It is usually accomplished with endodontic files.

## Irreversible Pulpitis

There is no turning back if you have irreversible pulpitis which indicates a diseased pulp. The only solution is root canal treatment or extraction. To avoid emergency treatment see your dentist as soon as possible.

## Irrigation

The root canal is cleaned out – irrigated - with different cleaning solutions. The solutions eliminate pulp tissue and destroy bacteria.



## Lamina Dura

This is boney lining around the tooth. When you see a periapical X-ray, the lamina dura shows as a thin white line around the tooth root.

## Lingual

The part of the tooth nearest the tongue.

## Loupes

Magnifying spectacles to assist dentists. Most specialists will have a state-of-the-art operating microscope which provide magnification far in excess of loupes.



## Maxilla

The upper jaw.

## Mandible

The lower jaw.

## Mesial

In the direction of the front of the mouth.

## Mobility

A loose or mobile tooth indicates that the tooth has lost its bone support. This can be due to apical periodontitis or general bone loss. Apical periodontitis should be treated with endodontics. General bone loss should be diagnosed and treated by a Periodontist.

## MRONJ

This is an acronym for a rare condition: Medication related osteonecrosis of the jaw. Thought to be mostly a side-effect of a tooth extraction in people taking bisphosphonate drugs for osteoporosis, it's now recognised there are other drugs which might be associated with the condition. Having previously been called Bisphosphonate-related osteonecrosis of the jaw, the name has been updated to MRONJ. Always update your dentist on the drugs you are taking.

## MTA

Mineral Trioxide Aggregate is an important repair material which can be used in a variety of ways to help save a tooth and promote healing.



## Necrosis

Literally meaning death of the pulp of the tooth. The tooth needs root canal treatment.



## Obturation

After the root canal has been instrumented and disinfected it is filled with Gutta-percha. This is the final part of the endodontic procedure.

## Odontalgia

Terminology for pain in a tooth that may be non-endodontic in origin.

## Operating Microscope

Most endodontic specialists will have an operating microscope which helps them locate all of the canals in a tooth. The ability to locate all of the canals, instrument, disinfect and fill correctly provides the best opportunity for long-term success and tooth retention.



## Palatal

Referring to the roof of the mouth, or palate.

## Periapical Radiographs (X-rays)

These are taken at the outset of an endodontic appointment to make a diagnosis and then during treatment, to check the tooth has been thoroughly cleaned and filled (obturated) fully.

## Periodontal Ligament

The elastic tissue that surrounds the root of the tooth attached to the cementum. This can appear thickened on a radiograph and suggests inflammation needing endodontic treatment.

## Periodontist

A dentist who specialises in diagnosing and treating disease of the gums and supporting structures of the mouth.

## Periradicular

The tissue below the roots of the tooth and where infection can develop.

## Perforation

This could be a potential complication of a root canal treatment. Perforating the side or tip of the root canal is a treatment error that could potentially lead to tooth extraction.

## Plugger

These are used to compress the Gutta-percha into the instrumented and disinfected root canal.

## Post

After a tooth is root treated, it's sometimes recommended that both a post and core are placed. Together they will strengthen the tooth prior to a crown being fitted.

## Pulp/Pulp Chamber

This is the central part of the tooth which houses the nerves and blood vessels. The pulp tissue inside the tooth develops anatomically into the roots of the tooth during adolescence. The pulp is part of the root canal system.

## Pulp Sensibility Testing

When the Endodontist is diagnosing a problem, they will test to see if the pulp still responds to sensations of hot, cold or electricity. If not, necrosis has set in and root canal treatment is recommended.

## Pulpotomy

A treatment for children when a young tooth becomes infected. The pulp at the centre of the tooth is removed but remaining pulp remains and allows for continued development of the root.

## Pulpitis

Inflammation of the pulp which can lead to necrosis and infection. Pulpitis can be acute and painful or chronic with no pain. The only treatment for both is root canal treatment.



## Radiograph

See X-rays below.

## Re-implantation

Teeth which are knocked out can be successfully re-implanted and saved.

## Resorption

When root tissue is destroyed by infection, usually as a result of apical periodontitis. Root canal treatment can remove infection and stop the progression of this destructive process. Treatment of resorption is best dealt with by an Endodontist.

## Regenerative Endodontics

A revascularisation procedure for saving the immature teeth of young people between the ages of 7 and 16. The procedure allows healthy pulp tissue to re-grow within the tooth and means conventional root canal treatment can be by-passed.

## Retrograde Preparation

A method of sealing the root canal when carrying out an apicectomy by preparing and filling it from the root apex.

## Retreatment

Sometimes a root canal treatment will fail. The Endodontist may discover additional canals that were not treated during the initial procedure. In these cases, retreatment is recommended.

## Root Canal System

The central part of the tooth which houses the nerve & blood supply responsible for the tooth's development. A root canal problem is caused by inflammation or infection infiltrating the dental pulp of the tooth.

## Rubber Dam

A sheet of rubber which is placed over a tooth so only its crown protrudes, the rubber dam isolates the tooth and ensures no bacteria from the mouth are introduced into the root canal. Its use should be standard in endodontics. Don't let your dentist proceed if there is no rubber dam in place.



## Sensitivity

The first sign you might have a root canal problem is usually sensitivity to hot and cold or discomfort with biting.

## Sodium Hypochlorite Solution (NaOCl)

Commonly known as bleach is the main cleaning solution used in endodontics. It will destroy all bacteria, the cause of apical periodontitis.

## Sedation

Many patients are fearful of complex dental procedures such as endodontics. Sedation can be provided by a consultant anaesthetist who will use special drugs to relax the patient during the endodontic procedure. The treatment can be completed whilst the patient is in a totally relaxed state. Sedation is ideal for nervous patients.

## Sodium Hypochlorite

The main cleaning fluid used to irrigate root canals.

## Sterilisation

Maintaining sterility is critical when a root canal treatment is being carried out in order that all infection is removed.



## Wand

An injecting device which enables specialists to provide pain-free treatment.

## Working Length

An accurate working length is highly important to achieve a successful root treatment. An Endodontist will determine the working length of a canal with an X-ray and/or apex locator.



## X-rays

Usually referred to as radiographs, they are very important in root canal treatment and should be taken before, during, and at the end of treatment to ensure the root canals are fully enlarged, cleaned and obturated (filled).



## Zinc Oxide

The main component of the most traditional root canal sealing materials.

# Further Information on Root Canal Treatment:

## **The Saving Teeth Awareness Campaign**

[www.savingteeth.co.uk](http://www.savingteeth.co.uk)

## **The Harley Street Centre for Endodontics**

[www.roottreatmentuk.com](http://www.roottreatmentuk.com)

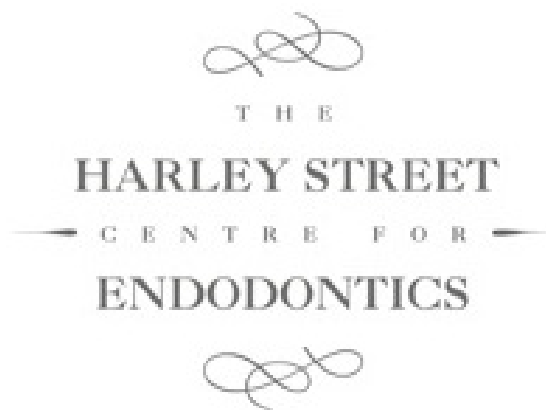
## **The British Dental Health Foundation**

[www.dentalhealth.org/tell-me-about/topic/routine-treatment/root-canal-treatment](http://www.dentalhealth.org/tell-me-about/topic/routine-treatment/root-canal-treatment)

## **The British Endodontic Society**

[www.britishendodonticsociety.org.uk](http://www.britishendodonticsociety.org.uk)





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[www.roottreatmentuk.com](http://www.roottreatmentuk.com)