

# OPTIC NEURITIS

## What is the retina?

The retina is a very thin tissue at the back of the eye which contains specialised cells (photoreceptors) which can convert light into electrical signals. These electrical signals are passed along nerve fibres through the optic nerve and into the brain for processing. Vision is the interpretation of these electrical signals by the brain.

## What is the optic nerve?

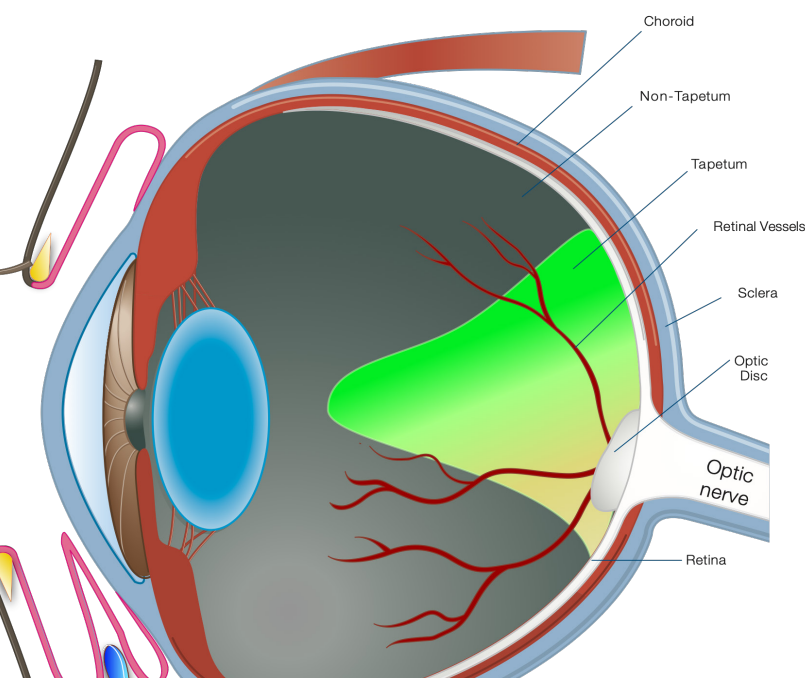
Electrical signals are passed from the retina into the brain through the optic nerve. The start of the optic nerve can be seen at the back of the eye as a white structure and this is commonly called the optic nerve head or optic disc.

## What is optic neuritis?

This is inflammation of the optic nerve, which is the structure responsible for transmitting electrical signals from the retina to the brain.

## What are the signs of optic neuritis?

Some signs will depend on the cause of the optic neuritis, but in all cases the pupils will be dilated and the optic nerve head will appear swollen.



## What causes optic neuritis?

There are a number of causes including:

- Inflammatory disease of the brain e.g. granulomatous meningoencephalitis (GME) and meningitis
- Infection e.g. canine distemper, toxoplasma and feline infectious peritonitis (FIP)
- Trauma
- Inflammatory disease of the surrounding tissues e.g. infection behind the eye
- Toxin ingestion (usually in farm animals)
- Vitamin A deficiency creating abnormal constriction of the bone surrounding the optic nerve
- Cancer of either the optic nerve or surrounding tissues

## What diagnostic tests are available for optic neuritis?

If optic neuritis is suspected we will offer an electroretinogram (ERG) or colourmetric light testing, which assess retinal function. An ERG normally requires a general anaesthetic or sedation because the test is very sensitive and the dog must remain very still. During the test, controlled flashes of light are directed at the eye and electrodes detect very small electrical impulses within the retina. Optic neuritis cases will demonstrate the normal waveform and this allows differentiation from Sudden Acquired Retinal Degeneration Syndrome (SARDS) cases (see SARDS Factsheet)..

We may recommend an MRI scan to provide detailed information about the optic nerves, brain and surrounding tissues. Some cases may be referred to a neurologist and samples of the fluid that surrounds the brain (CSF) may be collected for analysis.

## What are the treatment options for optic neuritis?

This depends on the primary cause of the disease, but in the majority of cases anti-inflammatory or immunosuppressive tablets will be prescribed to reduce the swelling around the optic nerve. These tablets can increase thirst, urination and appetite, but the side-effects will taper as the medicine is withdrawn. Some cases will be prescribed antibiotics tablets and topical medication.

## Will vision return with treatment?

This will depend on the duration of the optic neuritis prior to diagnosis and the nature of the underlying disease. Swelling of the nerve can destroy the fibres that carry electrical impulses and they do not have a capacity to repair themselves. However, in uncomplicated cases, early intervention may lead to complete restoration of normal vision.