Guide Dogs

Puppy Raising for Excellent Partnerships

Foundation knowledge: Visual impairment

Overview

Ideally, you have already read our Puppy Raising for Excellent Partnerships (PREP) principle guidance.

This information on visual impairment gives an overview of the eye conditions that affect our guide dog partners as well as some of the practical implications that these sight conditions can have. This information is a snapshot to the future role your guide dog puppy could take.

Alongside the Foundation knowledge on understanding dogs, this enables you to have a deeper understanding of both our dogs and the people we support.

Version 1.0

What eye conditions do our guide dog partners have?

All guide dog partners are different. So is the level and type of vision that they may have. The five most common eye conditions in the adult population that we support are age related macular degeneration (AMD), retinitis pigmentosa (RP), glaucoma, diabetic retinopathy and cataracts.

Before exploring more, it is helpful to understand some of the basics around how vision works.

How vision works

Visual information transmission

Visual information (transmitted as light) enters the eye via the cornea and the lens. In a healthy eye the light is projected onto the retina and passed to the optic nerve. This information is converted into electrical signals, sent along the optic nerve, and then transmitted to different areas of the brain.

If the transmission of light is interrupted by changes to parts of the eye, optic nerve or brain, then our vision is impacted. The level and type of impact to our vision depends on which area of the eye, optic nerve or brain, has been affected.

Visual acuity

Your ability to see detail is known as visual acuity. Optometrists measure visual acuity both at distance and close up using eye charts with different sized letters.

Visual field

Visual field describes the entire area you can see and is divided into two areas: central vision and peripheral vision (see sections that follow immediately for more). If you have reduced peripheral field, (sometimes referred to as tunnel vision) the outer edges of your peripheral field may be hazy, misty or have no vision at all. If you have reduced area(s) of vision in your visual field then some part(s) may appear distorted, misty, hazy, or have no vision at all. An effected area of visual field might be referred to as field loss, blind spot, or scotoma. This can occur anywhere in your visual field; peripheral, central or both.

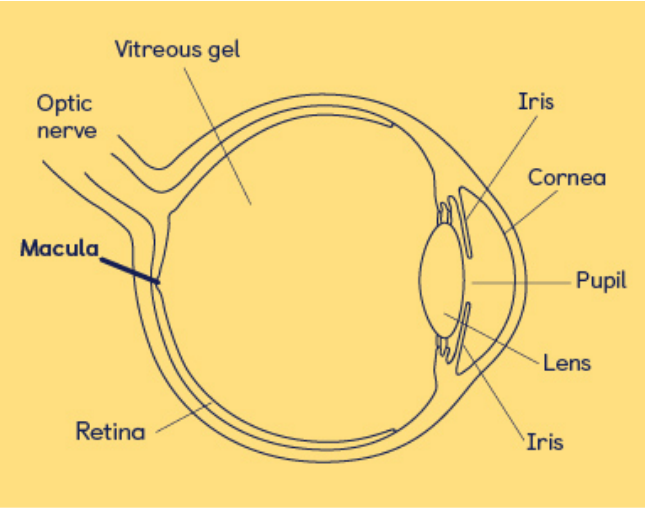
Central vision

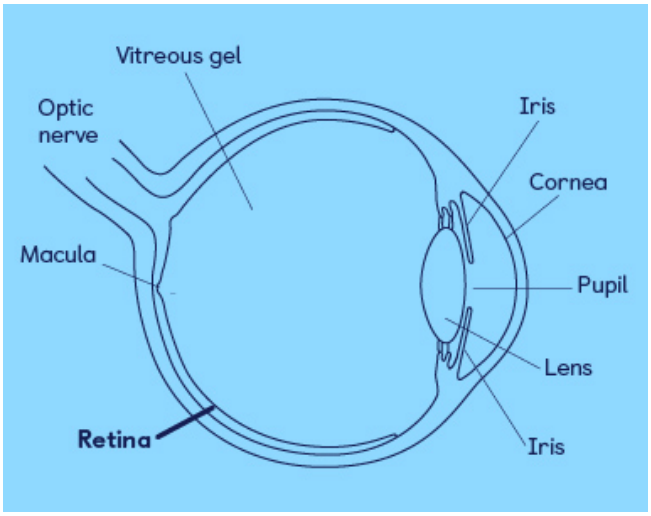
Your central vision is the area you see in the middle of your visual field. It relies on the central area of your retina, known as the macula. If the macula, central parts of the retina or optic nerve are affected in any way you will struggle to see detail and colour.

Peripheral vision

Your peripheral vision is the area you see on the edges of your visual field. It depends on the healthy operation of cells that sit around the outside of the retina. If these cells are affected, and you have reduced peripheral vision (sometimes called tunnel vision), you may be sensitive to light and struggle in dull, dark or night settings. You may also have issues with seeing at night, have issues seeing and avoiding obstacles, or seeing people and other moving things that are not directly in front of you.

The most common conditions in the adults we support





Age related macular degeneration

Age related macular degeneration (ARMD) causes problems with central vision. ARMD is the biggest cause of sight loss in the adult population aged 65 years and over. It often affects both eyes.

Practical implications of ARMD

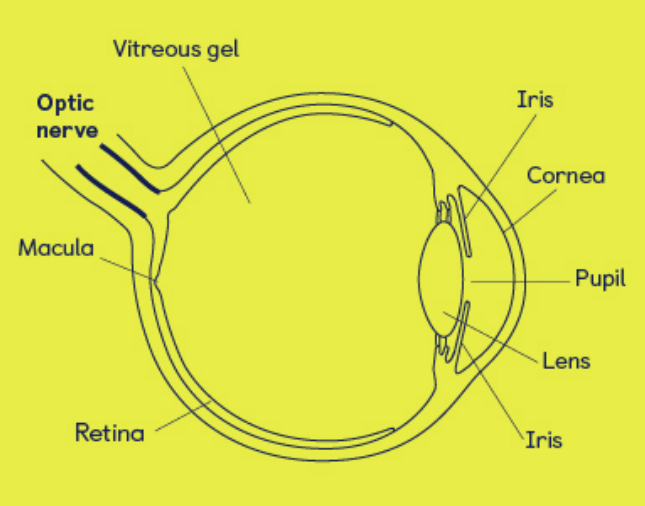
ARMD impacts your ability to read print, small print books, information on medication and bus numbers. It can also affect your ability to see faces, pick up on facial expressions, or recognise people. You might also find it difficult to carry out tasks like writing, doing make-up, shaving and sewing. Seeing, identifying and avoiding objects and hazards could be an issue too.

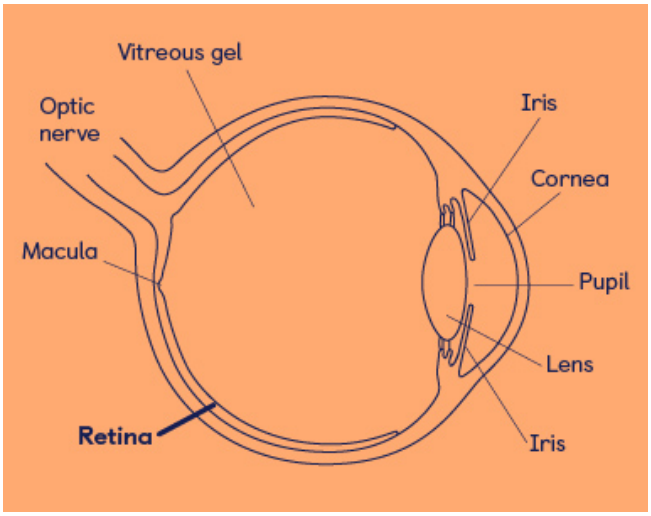
Retinitis pigmentosa

Retinitis pigmentosa (RP) is a collective name for a group of progressive conditions that are often inherited and congenital. Retinitis Pigmentosa is said to occur in 1: 4000 of the population and is the most common inherited cause of sight loss. It is also the most common condition among UK guide dog partners.

Practical implications of RP

If you have RP, you may struggle with dusk and night-time conditions due to Nyctalopia (night blindness). Glare from bright light can be an issue and you may be affected by sudden changes in lighting (for example, when you move from indoors to outdoors). You might also struggle to move around the home safely, see and avoid obstacles, or carry out daily activities like making a drink, personal care and shopping.





Glaucoma

Glaucoma is the collective term used to describe optic neuropathy (optic nerve damage).

The condition usually begins by affecting peripheral vision and can also affect acuity. If the condition progresses, it can impact the entire visual field. Most glaucoma conditions can be treated with drops and/or surgery.

Practical implications of glaucoma

Like RP, when you have glaucoma you may struggle with dusk and night time conditions due to Nyctalopia (night blindness), and with bright light and sudden changes (moving from indoors to outdoors).

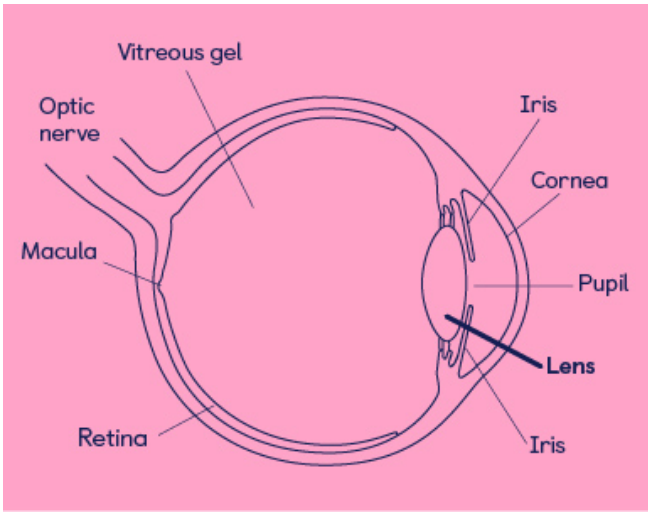
Glaucoma can also reduce your ability to see colour. If you have 'tunnel vision' you may also have problems with avoiding obstacles or doing everyday tasks like making a hot drink.

Diabetic retinopathy

Diabetic retinopathy is the term used to indicate ocular changes that are occurring to the vascular (i.e. blood vessel) structure of the retina. It is generally caused by diabetes. Approximately 40% of people with type 1 diabetes show signs of the disease compared to 20% of people with type 2 diabetes.

Practical implications of diabetic retinopathy

Diabetic retinopathy can cause difficulties with personal care and everyday tasks due to a restricted and/or, fragmented visual field. Applying makeup, shaving, peeling or chopping food, and making a drink can all be particularly difficult.



Cataracts

Cataracts are a condition that causes clouding of the lens of the eye. It will usually occur when there is a change in the balance of the cells within the lens and its layers.

Cataracts can be congenital (from birth or soon after) but this is rare. Most commonly they occur after the age of 40. They can also be a secondary condition to RP and diabetes, be caused by accident or trauma, or be a side effect of the long-term use of certain drugs.

While there are numerous forms of cataract, they can often be treated with surgery.

Practical implications of cataracts

Cataracts in one or both eyes this can cause issues with glare, seeing detail, seeing and recognising people, reading, and undertaking fine detailed tasks.

Cataracts can make the entire visual field appear misty or cloudy. Depending on where the clouding of the lens occurs, they can also affect parts of the visual field.

Overarching practical implications of these sight conditions

Each of these conditions and the impact they have differs from person to person but there are some common areas of difficulty. These include, but are not limited to:

- Crossing roads and seeing where traffic is.
- Recognising and negotiating kerbs or street furniture.
- Glare from the sun and bright light.
- Reduced ability to see low contrast (for example, seeing something that doesn't stand out against its background).

People with these conditions may confuse harmless things with a hazard (i.e. they may think a shadow is a hole). They can also experience headaches, visual fatigue, or back and neck problems from constantly using strategies to help with their low vision.

Further information

Please visit the RNIB website to find out further information on common eye conditions

If you would like to learn more about less common eye conditions, including those that affect Children and Young People (CYP) please visit www.vincyp.scot.nhs.uk/conditions