Macular Disease Foundation AUSTRALIA

LIVING WITH DIABETES RELATED EYE CONDITIONS

Diabetes and your eyes

Diabetes related eye conditions: fast facts

Diabetes related eye conditions are a common complication of diabetes and can cause vision loss.

Early detection and regular eye exams are essential to protect your sight.

Managing diabetes and related risk factors helps reduce the risk of eye disease.

Treatments are available to help stabilise or prevent vision loss.

Free support is available through MDFA's Eye Connect service: www.mdfoundation.com.au/join-eye-connect or 1800 111 709.

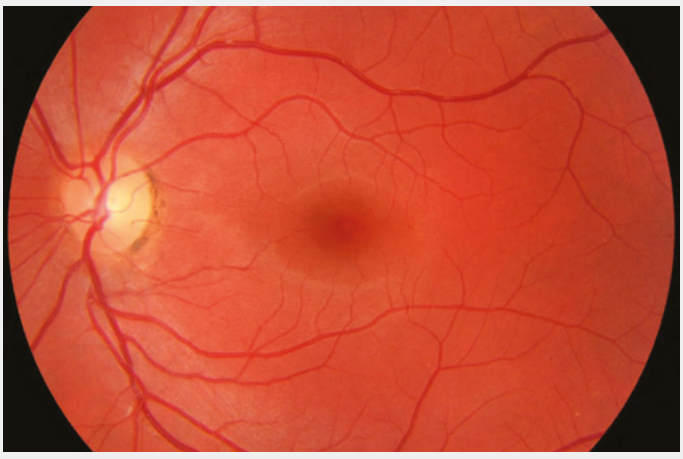
Diabetes is a complex, chronic condition characterised by high blood glucose (sugar) levels. Over time, diabetes affects many parts of the body including your eyes due to changes to blood vessels and blood supply.

Diabetes can affect your eyes in several ways. Diabetic retinopathy is the most common type of eye disease experienced by people with diabetes. Others include cataract, glaucoma and transient blurring of vision. Everyone with diabetes is at risk of developing a diabetes related eye condition. This booklet goes into more detail about conditions affecting the retina and macula at the back of the eye.

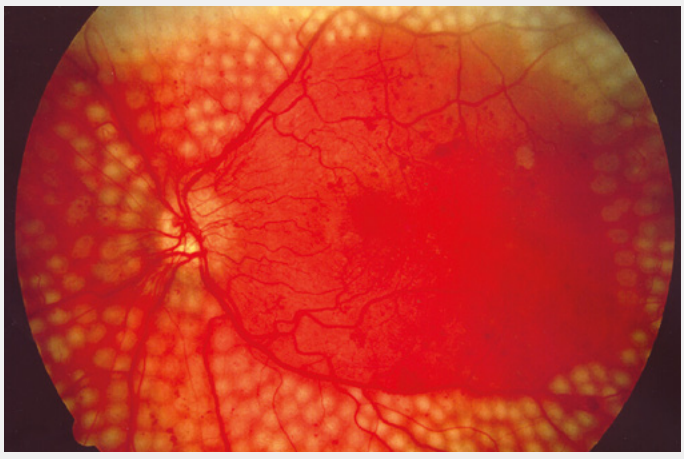
Most vision loss from diabetic retinopathy can be prevented, provided it's detected early and steps are taken to keep it under control. Careful management of diabetes can delay the onset or even reverse the progression of diabetic retinopathy.

Good diabetes management together with early diagnosis and treatment of eye disease dramatically improves the likelihood of saving sight.

A photo of a healthy retina



A photo of a retina which has been treated with laser



Diabetic retinopathy

Diabetic retinopathy is a complication of diabetes caused by damage to the small blood vessels in the retina at the back of the eye. It is the leading cause of avoidable vision loss and blindness in working-age Australians.[1] Up to a third of Australians living with diabetes have some evidence of diabetic retinopathy.

Most people with diabetes will develop diabetic retinopathy over time. However, the severity of disease is greatly influenced by how well your diabetes is managed.

There are two main stages of diabetic retinopathy:

Non-proliferative diabetic retinopathy

The early stage, where blood vessels may leak or become blocked. Vision may be unaffected.

Proliferative diabetic retinopathy

The advanced stage, where new, fragile blood vessels grow and bleed into the eye, potentially leading to scarring, retinal detachment and vision loss.

Diabetic macular oedema (DMO)

DMO can occur at any stage of diabetic retinopathy. It occurs when leaking fluid from retinal blood vessels accumulates in the macula, the area of the retina that is specialised for detailed vision. This can cause the loss of detailed, central vision and even legal blindness if left untreated.

Symptoms

Diabetic retinopathy can progress to advanced stages before you notice any changes to your vision. Sometimes disease progression can be rapid, leading to sudden vision loss. The following symptoms could be due to diabetic retinopathy, and should always be checked:

- blurred, distorted, or dim vision
- frequent changes in glasses prescription
- sudden onset of haze, shadows or 'floaters' moving across the vision (floaters are dots, circles, lines or cobwebs that move across the field of vision, most noticeable when looking at a white wall or clear sky)
- flashes of light seen repeatedly, often in the peripheral vision.

If you notice any new or worrying symptoms, visit your eye health professional as soon as possible, as early treatment can help to save sight.

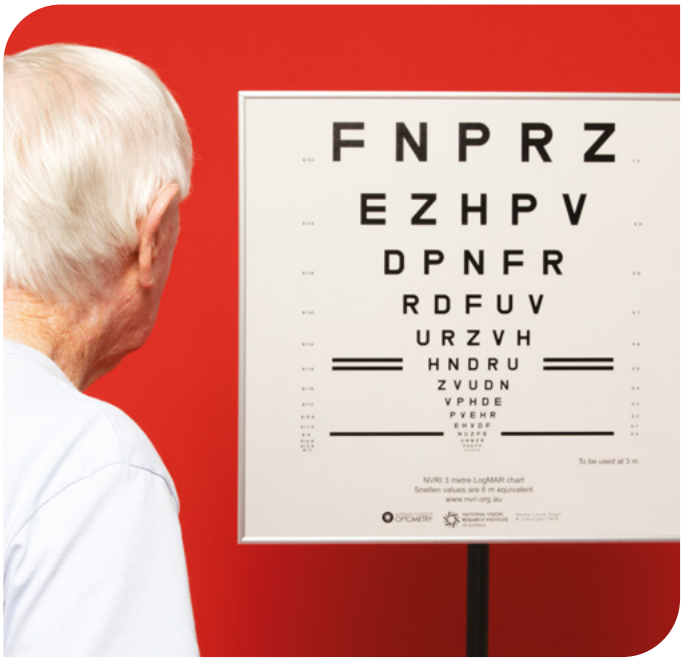
Importance of regular eye examinations

Along with managing your diabetes, regular eye exams with your eye health professional are vital to reducing your risk of vision loss.

When you see your eye health professional, it's important to tell them that you have diabetes. Other important information to share includes how long you've lived with diabetes, your most recent HbA1c result (this provides a summary of the average blood sugar level over the past three months), and any medications you're taking.

Once you're diagnosed with diabetic retinopathy, you'll need to be checked at least every 12 months, or more frequently as advised by your eye health professional.

Even if you don't notice any symptoms, it's important you attend all your scheduled appointments to detect any changes early. Try to avoid cancelling or delaying eye exam appointments.



Help is available.
Diabetes is a chronic, complex condition, requiring multidisciplinary care. A diabetes care team may include your general practitioner or endocrinologist, diabetes educator, podiatrist, eye health professional (optometrist and/or ophthalmologist), and dietitian.

Managing risk factors

To slow, halt or in some cases, reverse the progression of diabetic retinopathy, it's important to manage your controllable risk factors.

- **Healthy lifestyle:** Regular exercise helps insulin to work better, lowers blood pressure, and helps reduce weight, which are all important in reducing the risk of diabetic retinopathy.
- **High blood pressure:** People with diabetes and high blood pressure are more likely to experience rapid progression of diabetic retinopathy.
- **Blood lipids:** Elevated blood lipids, including cholesterol, may increase your risk of developing diabetic retinopathy.
- **Smoking:** Can increase the risk of developing the complications of diabetes, including diabetic retinopathy.

Diagnosis

An eye health professional will use several tests when diagnosing a diabetes related eye condition.

Vision or visual acuity testing

Vision or visual acuity testing provides a measure of how well you see. This allows comparison of your vision with previous visits and is important for monitoring changes in vision over time.

Slit lamp retinal examination

Using a microscope-like instrument, your eye health professional will check the health of your eyes, including the retina, to check for signs of diabetic retinopathy.

Your eye health professional may dilate (enlarge) your pupils using eye drops to examine the retina at the back of the eye. After your pupils have been dilated, it is normal for your eyes to be blurry and sensitive to light for a few hours. You shouldn't drive while your eyes are still dilated.

Supplementary testing

Additional testing may be undertaken, if appropriate, including:

Retinal photography: One or more photographs of the retina are often taken of each eye to provide a detailed record of the level of diabetic retinopathy. This can allow your eye health professional to make comparisons with your previous photographs. The rate of change in retinopathy over time can provide an indication of the risk of the sight-threatening stages. Retinal photography is recommended.

Optical coherence tomography (OCT): This is a non-invasive imaging technique that uses light to produce very high-resolution cross-sectional images of the layers of your retina. It's particularly helpful to detect diabetic macular oedema, which appears as a collection of fluid within and under the retina.

Angiography: If you have leaking blood vessels or macular oedema, your ophthalmologist may perform a fluorescein angiogram. Fluorescein is an orange dye that is injected into the blood via a vein in your arm. This dye rapidly reaches the eye via the bloodstream and circulates through the retina. A specialised camera, often with a blue-coloured flash, is used to take a series of images of the fluorescent dye as it passes through the blood vessels of the retina. This dye highlights areas of blood vessel leakage, abnormal blood vessels and areas of the retina that are not well supplied with blood. This procedure only takes a few minutes. Some OCT machines can perform a type of angiography (OCT-angiography) that does not require dye injection.

Treatment for diabetic retinopathy

Laser treatment

For most people with the proliferative form of diabetic retinopathy, laser treatment is the most effective treatment. Laser treatment is also known as pan retinal photocoagulation (PRP). This treatment has been shown to halve the risk of severe vision loss in people with proliferative diabetic retinopathy. Laser spots are applied to the retina away from the macula, usually over several appointments. Laser treatment is performed by an ophthalmologist, usually in an outpatient clinic. Most people tolerate laser treatment very well, but there may be some discomfort. Drops are needed to dilate the pupils for laser treatment. This can cause blurring of vision for several hours, so you'll need someone to take you home, because you won't be able to drive.

Eye injections

An eye injection (referred to as an intravitreal injection or IVI) involves injecting a medicine directly into the vitreous jelly that fills the back of the eye. While this sounds scary, it's a relatively painless procedure that is backed up by evidence and has a track record of good results. This injection is usually an anti VEGF, a treatment that blocks a protein called vascular endothelial growth factor (VEGF). This protein is responsible for the abnormal growth of blood vessels and fluid leakage under the retina and/or macula. Anti-VEGF eye injections are often used to treat swelling of the macula (diabetic macular oedema). In many cases, these injections can help stabilise or improve vision. Anti-VEGF treatments may sometimes be used to treat proliferative diabetic retinopathy.

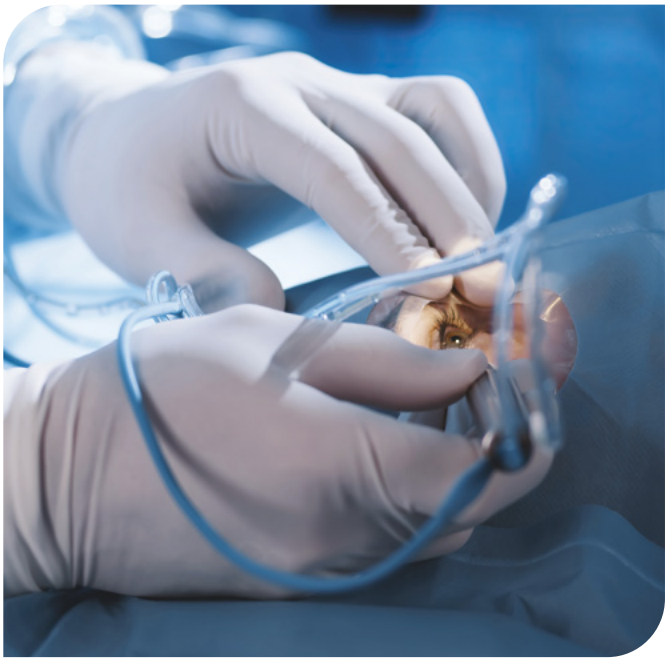
If you have any concerns or are having difficulties coping with the treatment, discuss these with your ophthalmologist.

For more information on the injection procedure, you can read our fact sheet "Eye Injections for Macular Disease".

Vitrectomy

A vitrectomy involves the surgical removal of the vitreous - the clear gel that fills the middle of the eye. You will have the procedure in an operating theatre, usually under local anaesthesia. Your ophthalmologist may recommend a vitrectomy if there is bleeding into the vitreous of your eye (also known as a vitreous haemorrhage.) The procedure is also recommended for people with other complications of proliferative diabetic retinopathy. The surgery aims to remove the blood and scar tissue from the surface of the retina. Laser is often applied during the vitrectomy.

Often, at the end of the procedure, the vitreous is replaced with a temporary bubble of air or gas. This bubble may take days or weeks to be absorbed, so your vision may take some time to clear after surgery. Your ophthalmologist will discuss the benefits and risks of surgery and provide instructions regarding postoperative care.



Managing vision loss

Many people who experience vision loss from diabetic retinopathy recover well with treatment. Sometimes people with diabetes related eye conditions can experience regular fluctuations in vision, especially if blood glucose levels aren't well-controlled. This is a result of the lens swelling, resulting in more frequent changes in their spectacle prescription.

Unfortunately, in some instances vision loss may persist despite treatment. If this happens to you, it can take time to adjust. It's not unusual to experience a range of different feelings ranging from acceptance, to disbelief, or even anger or sadness. However, there's a lot of support and advice available to help you overcome this challenge and maintain quality of life and independence.

Low vision plan

Managing vision loss begins with taking control of your situation. It's important to have a plan in order to maintain your quality of life and independence. A good plan will include:

Assessment: A low vision assessment will find the best strategies and support options for individual needs.

Guidance, advice and support: Low vision services can provide solutions for managing everyday tasks, including aids and technologies, to help you maintain quality of life and independence.

Join Eye Connect today

Living with a diabetes related eye condition is not easy and there may be challenges ahead. Macular Disease Foundation Australia's Eye Connect support service is free of charge, independent and endorsed by Australia's leading eye health professionals. It offers tailored support and information to assist people living with diabetes related eye conditions.

To find out if Eye Connect is right for you visit **www.mdfoundation.com.au/join-eye-connect** or call us on **1800 111 709**.

Connect with us to receive a free newsletter and keep up to date with our latest news and research.

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Diabetes Australia

Diabetes Australia is the national body for people affected by all types of diabetes and those at risk. You can find information about living with diabetes, managing your condition, and preventing complications on their website at **www.diabetesaustralia.com.au.**

KeepSight

KeepSight is a national diabetes eye screening program encouraging people with diabetes to get their eyes checked. By registering with KeepSight, you'll receive important information and alerts. You can sign up for KeepSight at **www.keepsight.org.au.**

References: 1. Out of sight, 2013, Baker IDI & CERA, 2. Keech A et al, Lancet 2007;370;1687