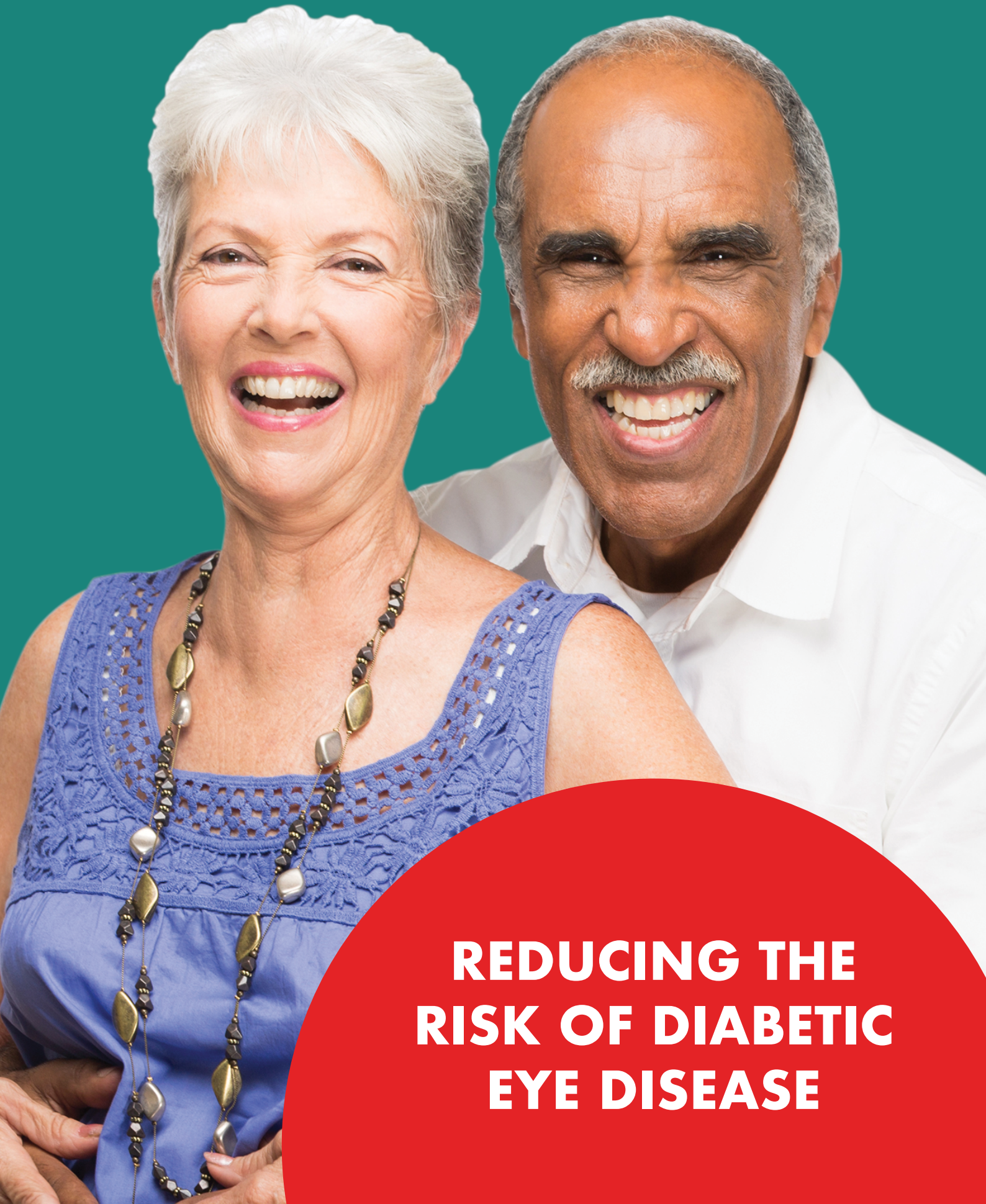




**Macular
Disease
Foundation**
AUSTRALIA



**REDUCING THE
RISK OF DIABETIC
EYE DISEASE**

Diabetes and your eyes

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

Diabetes can affect your eyes in several ways. Diabetic retinopathy (DR) 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 diabetic eye disease.

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

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

Diabetic retinopathy

DR is a complication of diabetes caused by damage to the small blood vessels in the retina at the back of the eye. It's 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 DR.

Non-proliferative diabetic retinopathy (NPDR)

NPDR occurs gradually when there is damage to the small blood vessels in the retina due to increased blood glucose levels. In the early stages, vision may not be affected. As NPDR worsens, vision may be affected. NPDR may progress to proliferative diabetic retinopathy.

Proliferative diabetic retinopathy (PDR)

PDR occurs when the reduced oxygen supply to the retina triggers the release of vascular endothelial growth factor (VEGF), which stimulates the growth of new blood vessels (neovascularisation). These fragile new blood vessels tend to leak and bleed, affecting vision. Scarring can also occur and, as the scar contracts, the retina can detach.

Diabetic macular oedema (DMO)

DMO can occur at any stage of the disease. 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.

Risk factors and prevention

There are factors that can increase your risk of diabetes and DR that you can control. Preventing DR is strongly linked to how well you manage your risk factors and control your diabetes.

Diet and exercise

Excess weight, especially around the waist, can substantially increase your risk of diabetes progressing. A healthy diet and regular exercise help insulin to work better. They also help lower your blood pressure, reduce weight, and reduce stress. Losing just five to 10 per cent of your current weight can significantly reduce your risk.

Aim to incorporate exercise into your daily routine and adopt a healthy eating program. Healthy eating for diabetes includes selecting high fibre, lower glycemic index (GI) carbohydrate foods and reducing fat, especially saturated fat.

Make sure you talk to your general practitioner or endocrinologist before making any changes to your diet.

Control blood glucose levels

If your blood glucose levels are regularly above target levels, you're at risk of developing DR. Make sure you work with your GP or endocrinologist to keep your blood glucose at optimal levels.

Control blood pressure

If you have high blood pressure, you're more likely to develop DR with more rapid progression. It may also aggravate any diabetic macular oedema. If you already have some degree of DR, you should aim for a systolic blood pressure (the bigger number) of 130 mmHg or less.¹

Control blood lipids

If you have abnormal blood lipids (fats in the blood) you're at greater risk of developing DR. Ask your GP or endocrinologist to help get your blood lipids to normal levels.

Don't smoke

Smoking significantly increases your risk of diabetes and its related conditions. It also increases blood pressure and blood glucose levels, making it harder to control diabetes. If you smoke, seek help to quit.

Careful management of the above risk factors reduces your risk of developing DR.



Other risk factors

Not all factors that increase your risk for DR can be controlled. Knowing if you have these is important to determine whether you need to visit your eye health professional more frequently.

Duration of diabetes: Duration of diabetes is the strongest risk factor for DR. The longer you've had diabetes, the more likely you are to have DR.¹ That's why it's important to keep having regular eye exams, even if all previous exams have been normal.

Ethnicity: Aboriginal and Torres Strait Islander Australians are two to four times more likely than non-Indigenous Australians to develop diabetes, and therefore, are at a much higher risk of developing diabetic eye disease.¹

Other higher risk groups include some Middle Eastern and Asian populations and Pacific Islanders.

Genetics: Studies have found that many genetic factors can influence the onset of complications in diabetes, including the severity and speed of onset of DR.¹

Medical history: Women who have previously had gestational diabetes or polycystic ovary syndrome are at increased risk of developing type 2 diabetes,¹ and therefore DR, later in life.

Being aware of risk factors can help you understand the importance of managing your diabetes and the need for regular eye exams.

Diabetes
requires
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.



Symptoms

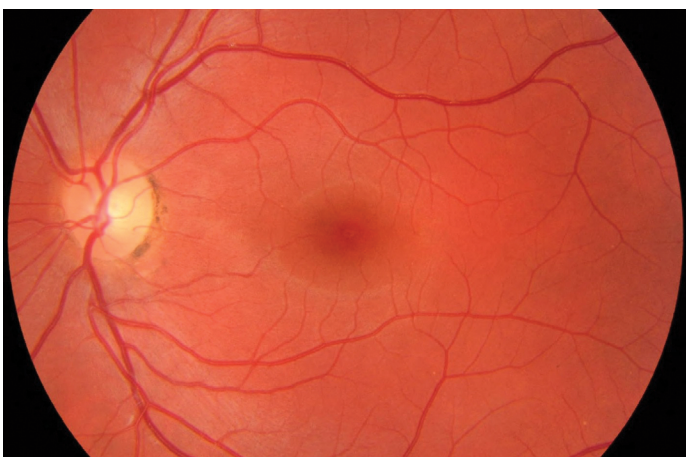
Early DR typically has no symptoms, and progressive damage can occur before you notice any changes to your vision. Sometimes disease progression can be rapid, leading to sudden vision loss.

The following symptoms could be due to DR, and should always be checked:

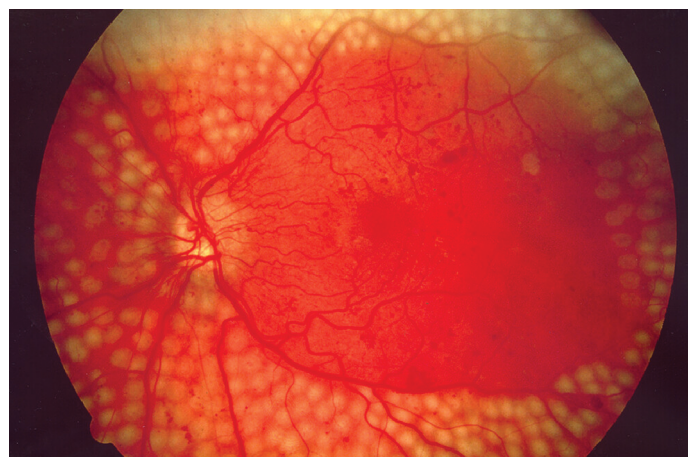
- dark spots or gaps in your vision
- blurred, distorted, or dim vision
- frequent changes in glasses prescription
- flashes of light seen repeatedly, often in the peripheral vision
- sudden onset of haze, shadows or 'floaters' moving across the vision (floaters are dots, circles, lines or cobwebs that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

If you notice any new or worrying symptoms, whether or not you've been diagnosed with DR, visit your eye health professional as soon as possible, as early treatment can help to save sight.

Healthy eye



Eye with diabetic retinopathy treated with laser



Regular eye exams

Along with controlling your diabetes, regular eye exams with your eye health professional are vital to reduce the risk of vision loss. Eye exams can identify DR at its earliest stage before vision loss has occurred.

If you have diabetes, you should have an eye exam when first diagnosed with diabetes, followed by regular eye exams at least every two years thereafter.

If you have diabetic eye disease, you should have an eye exam at least once a year, or as advised by your eye health professional.

When you see your eye health professional, it's important to tell them that you have diabetes, how long you've had it, 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.

Even if your results have been normal in the past, you must continue having regular eye exams. You should also avoid cancelling or delaying eye exam appointments.



Fenofibrate

The drug Fenofibrate, often used to treat high blood lipid levels, has been shown to reduce the risk of DR progression by about 30 per cent for some people with existing NPDR. It appears to provide benefit even

for people who have normal lipid levels.¹ If you're not already taking this drug, and have DR, ask your general practitioner, endocrinologist, or ophthalmologist whether this treatment may be suitable for you.

Preventing DR checklist

- have regular eye exams as advised by your eye health professional
- eat a healthy well-balanced diet
- exercise regularly and control your weight
- aim to keep your blood glucose at optimal levels
- aim to keep your blood pressure at healthy levels
- aim to control your blood lipids
- if you smoke, get help to quit
- follow the advice of your GP and/or diabetes specialist

Need more information?



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.

Macular Disease Foundation Australia

Learn more about macular disease at www.mdfoundation.com.au.

How's your macula? Take the quiz at www.CheckMyMacula.com.au.

You can also access our free, personalised support services and order information kits and Amsler grids by calling our National Helpline on **1800 111 709**.

MDFA has a free newsletter and you can sign up to receive invitations to education sessions and events in your area.

Macular Disease Foundation Australia is committed to reducing the incidence and impact of macular disease, by providing up-to-date information, advice and support.

Reference: 1. Guidelines for the management of diabetic retinopathy, NHMRC, 2008

Disclaimer: Information in this publication is considered by Macular Disease Foundation Australia to be accurate at the time of publication. While every care has been taken in its preparation, medical advice should always be sought from a doctor and individual advice about your eye health should be sought from your eye health professional. MDFA cannot be liable for any error or omission in this publication or for damages arising from it, and makes no warranty of any kind, either expressed or implied in relation to this publication.