



Understanding eye conditions relating to Diabetes



About BID Services

BID Services is a charity dedicated to removing barriers and empowering people who are D/deaf, hard of hearing, sight impaired, deafblind, or living with other disabilities to live full and independent lives.

We deliver a wide range of specialist services across the country, including information, advice and guidance; community services with welcoming social groups and activities; children and young people's services; awareness training and British Sign Language courses; communication support and interpreting services; assessment and rehabilitation for people with sight loss or who are deafblind, including mobility training and independent living skills; hearing aid clinics; and assistive technology and equipment assessments and training.

Self refer online

If you need support or you know someone who does, you can make a referral on our website:

www.bid.org.uk/contact-us

Use the camera on your smartphone to scan this QR code and self-refer online, or go to the end of this booklet for alternative contact information.



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About diabetes

Diabetes occurs when your body doesn't produce enough of the hormone insulin or because the insulin that is produced has a reduced effect. Insulin regulates the way your body uses the food you have eaten. If you have diabetes, your body cannot cope in the usual way with sugar and other carbohydrates that you eat. Nearly 1 in 25 in the UK has diabetes mellitus.

Some children have diabetes, but developing diabetes is much more common in later life. Diabetes can cause complications which affect different parts of your body, including your eye. The two main types of diabetes mellitus are known as Type 1 and Type 2 diabetes.

This leaflet explains how diabetes may affect your eyes. It gives information on how your eyes should be monitored, how eye conditions related to diabetes are treated and the help that is available when your sight changes.

Type 1 diabetes

This type of diabetes commonly occurs before the age of 30 and is the result of your body producing little or no insulin. Type 1 diabetes is primarily controlled by insulin injections, so it is sometimes called insulin dependent diabetes.

Type 2 diabetes

This type of diabetes commonly occurs after the age of 40. In this type of diabetes your body does produce some insulin, although the amount is either too little or your body is not able to use it properly. Type 2 diabetes is generally controlled by diet, exercise and/or tablets. Although some people in this group will use insulin injections, type 2 diabetes is sometimes referred to as non-insulin dependent diabetes.

South Asian communities and diabetes

People from India, Pakistan, Bangladesh and Sri Lanka (South Asian communities) have a four or five times greater risk of developing diabetes than someone from a European community. Around 20-25% of South Asian adults aged 50 or over in the UK develop type 2 diabetes.

At the moment, the reasons why people from these communities are more at risk of type 2 diabetes aren't fully understood.

If you are from a South Asian community, it is important that you know about the risk of developing type 2 diabetes, the sight loss it can cause, and the steps you can take to reduce the risk of losing your sight.

Gestational diabetes mellitus (GDM)

GDM is a type of diabetes that sometimes arises during the second or third trimester of pregnancy. For most women this diabetes goes away after pregnancy, but it increases the chances of developing type 1 or type 2 diabetes in later life.

How your eye works

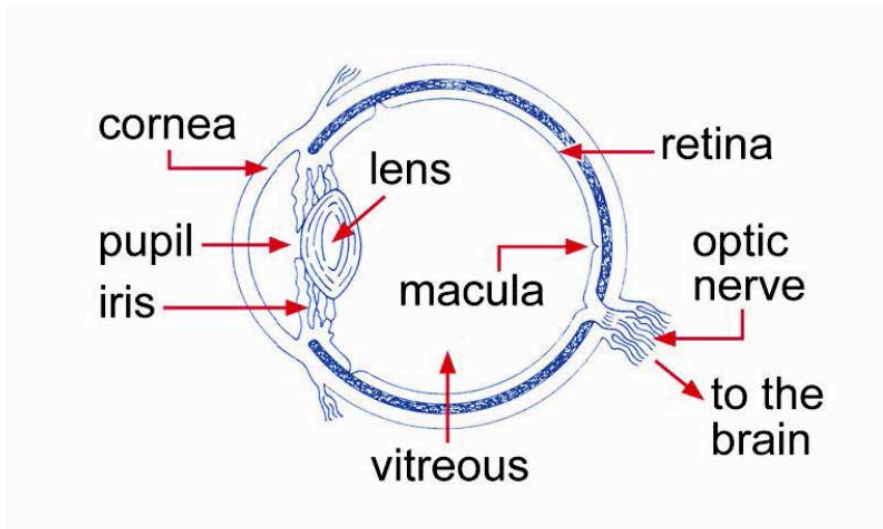
When you look at something, light passes through the front of your eye and is focused by the cornea and lens onto your retina. The retina is a delicate tissue that is sensitive to light. It converts the light into electrical signals that travel along the optic nerve to your brain. The brain interprets these signals to “see” the world around you.

The retina is supplied with blood by a delicate network of blood vessels. These blood vessels can be damaged by diabetes.

Light entering your eye is focused onto a tiny area of your central retina called the macula. This highly specialised area of your retina is about the size of a pinhead. It is vital because it allows you to see fine detail for activities, such as reading and writing, and recognising colours. The rest of your retina, called the peripheral retina, gives you side vision (or peripheral vision).

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Your eye is filled with a clear jelly-like substance called the vitreous gel. Light passes through the gel to focus on the macula.



Diabetes and your eye

Diabetes can affect your eyes in different ways. The most serious condition is called diabetic retinopathy, which affects the network of blood vessels supplying the retina.

Changes in blood sugar levels resulting from diabetes can also affect the lens inside your eye, especially when diabetes is not well controlled. This can cause blurred vision that may come and go during the day.

Over time, diabetes can also cause the lens of the eye to become cloudy. This is called a cataract. Not everyone with diabetes will develop eye problems. Many people who do develop diabetic retinopathy only have a mild form, which may never threaten their sight.

Diabetic retinopathy

The most serious complication of diabetes for your eye is the development of diabetic retinopathy. Diabetes affects the tiny blood vessels of your eye and if they become blocked or leak then the retina, and possibly your vision, will be affected.

The extent of these changes determines what type of diabetic retinopathy you have. 40% of people with type 1 diabetes and 20% with type 2 diabetes will develop some sort of diabetic retinopathy.

Background diabetic retinopathy

This is the most common type of diabetic retinopathy and many people who have had diabetes for some time will have this early type. The blood vessels in the retina are only very mildly affected, they may bulge slightly (microaneurysm) and may leak blood (haemorrhages) or fluid (exudates). As long as the macula is not affected, vision is normal and you will not be aware that anything is wrong. Regular retinal screening tests

check for these early changes and help detect any worsening as soon as possible.

Proliferative diabetic retinopathy

If diabetic retinopathy worsens, some blood vessels can become blocked, reducing oxygen to parts of the retina (ischaemia).

If this happens, your eye is stimulated into growing new vessels, a process called neo-vascularisation. This is the proliferative stage of diabetic retinopathy, and is nature's way of trying to repair the damage by growing a new blood supply to the oxygen starved area of your retina.

These new blood vessels are weak and grow in the wrong place - on the surface of the retina and into your vitreous gel. They can bleed easily and seriously affect vision. In some people the blood clears and vision improves, but repeated bleeding can cause permanent sight loss.

Extensive haemorrhages can lead to scar tissue forming, which pulls and distorts the retina. This type of advanced diabetic eye disease can result in the retina becoming detached, with the risk of serious sight loss.

Only between 5% and 10% of all people with

diabetes develop proliferative retinopathy. It is more common in people with type 1 diabetes than type 2.

Diabetic maculopathy

Diabetic maculopathy affects the macula, the part of the eye used for central vision and seeing detail. It can make it harder to read small print or recognise faces, but side vision is not affected.

Some people develop swelling in the macula caused by fluid build-up (diabetic macular oedema), which can further affect vision.

Treatment, including laser therapy or injections, can help stop vision getting worse and may improve sight in some people.

Reducing risk

Some risk factors for diabetic retinopathy cannot be controlled, but good diabetes control can lower your risk. You can help prevent retinopathy or stop it getting worse by:

1. Keep your blood sugar, blood pressure and cholesterol under control.
2. Stay active, maintain a healthy weight and stop smoking. Smoking makes diabetes harder to control and increases the risk of serious health

problems.

3. Attend regular diabetic eye screening appointments. Early detection and treatment can help prevent sight loss.
4. Keeping fit, maintaining a healthy weight and giving up smoking, are all part of good diabetes control. Nerve damage, kidney and cardiovascular disease are more likely in smokers with diabetes.
5. Smoking increases your blood pressure and raises your blood sugar level, which makes it harder to control your diabetes. Diabetes UK can offer you information and support on living with diabetes.
6. Attending regular retinal screening appointments is the best way to prevent sight loss from diabetic retinopathy. Early detection and treatment can help protect your vision.

Some factors that cannot be controlled:

- The length of time you have had diabetes. This is a major risk for developing diabetic retinopathy.
- Your age affects the progression of diabetic retinopathy.
- Your ethnicity. If you or your family are from India, Pakistan, Bangladesh or Sri Lanka, you are more at risk of developing diabetes and the sight-threatening conditions diabetes can cause.

- If you have diabetes and plan to have a child, your GP will discuss with you how to manage the pregnancy. Retinal screening is carried out more often during pregnancy and for a while after you have had your baby.
- Similarly, if you develop gestational diabetes during pregnancy, you will also have more regular retinal screening during pregnancy and after your baby is born.

Annual diabetic eye screening

Having diabetes does not always mean your sight will be affected, especially if your diabetes is well controlled. However, diabetes can cause eye problems that may lead to sight loss. Most complications that diabetes causes in the eye can be treated, but it is vital that they are diagnosed early.

If you have diabetes, your GP or hospital clinic should arrange for you to have annual retinal screening. These checks help identify early signs of damage before you notice any changes to your vision. At your appointment, eye drops are used to widen your pupils. Photographs are then taken and examined to check for changes.

Finding and treating diabetic retinopathy early can help prevent most sight loss.

You should also continue to have regular eye tests with your optician, as screening appointments do not replace a full eye examination.

It is very important to attend both your retinal screening appointment and your regular eye examination with the optician.

Treatment for diabetic retinopathy

Laser treatment can help prevent serious sight loss from diabetic retinopathy by preventing bleeding and preventing the growth of new blood vessels. There are two types:

Localised laser treatment

This seals leaking blood vessels to stop bleeding and reduce swelling in the retina. It is a quick treatment, often taking only a few minutes, and usually does not affect vision because only a small area of the retina is treated. This is used when maculopathy has been detected.

Pan-retinal laser treatment

If new vessel growth (neo-vascularisation) has been found, more extensive laser treatment may be needed. This treatment stops your retina from producing the growth factors that stimulate new blood vessels to grow. If successful, over time, the

blood vessels usually shrink and disappear. This treatment can affect side (peripheral) vision, and may also reduce night or colour vision. This may affect your ability to drive safely.

Occasionally, your central vision may not be as good as before. For example, print may not be as easy to see.

Although vision may seem worse after treatment, laser treatment helps prevent more serious sight loss. Laser treatment aims to stop vision getting worse, but it cannot restore lost sight.

How is treatment carried out?

You can usually be treated in an outpatient clinic and do not normally need to stay in hospital. Eye drops are used to enlarge your pupils so that your eye specialist can look into your eye.

Your eye is then numbed with drops and a small contact lens is put onto your eye to stop it blinking. During the treatment, you will be asked to move your eyes in certain directions and you will be able to do this easily with the contact lens in place. When the treatment is first suggested, ask how long each session is likely to last. Some people need more than one treatment session.

Is it painful?

Local treatment for sealing blood vessels does not usually cause discomfort. Pan-retinal treatment can be uncomfortable, so you may need a pain relieving tablet at the same time as your eye drops.

Further pain relief is available. Tell your eye specialist if:

- The treatment is hurting.
- You have found a previous session of laser treatment distressing.

Does laser treatment have any side effects?

No treatment is possible without some side effects, but the risks of laser treatment to your vision are far fewer than the risks of not having laser treatment.

The short-term effects of laser treatment are due to the brightness of the laser used. It can cause a temporary reduction of sight, which may last an hour or two after the treatment. You may also lose a little central vision, which may improve with time, or notice the after effects of the laser as small black spots in your vision.

The local treatment has little long-term effect, as it only treats a very small area of your retina. The

more extensive pan-retinal treatment can have more lasting effects on your vision:

- It is quite common to lose some vision to the sides (peripheral vision) and this may affect your ability to drive safely.
- Night and colour vision may also be affected.
- Occasionally, your central vision may not be as good as before - for example, print may not be as easy to see.

The possible side effects of treatment depend on your eye condition and the type of treatment that your specialist suggests. Ask the specialist to talk you through what they plan to do, the advantages and disadvantages of the treatment and the possible side effects, temporary or permanent, for your vision.

If you drive and have had laser treatment in both eyes or your one remaining eye, you must inform the Driver and Vehicle Licensing Agency (DVLA). They may ask that you have a detailed eye examination to make sure your central and peripheral vision are good enough for safe driving.



What if my eye becomes painful after treatment, or if my vision gets worse?

After lengthy treatment, most people develop a headache and so a headache tablet can be taken for this. However, if the pain is severe, or if your eyesight gets worse, you should contact your eye specialist immediately. If this is not possible, go straight to the Accident and Emergency department.

The importance of early treatment

Diabetic retinopathy can develop before you notice any changes in your vision, so early diagnosis and treatment are very important.

Remember:

- Attend your annual diabetic eye screening appointment.
- Have regular eye tests with your optician.
- Changes in vision are not always caused by diabetic retinopathy and may be corrected with glasses.

Early treatment can help prevent sight loss.

Treatment for diabetic macular oedema

Diabetes can cause fluid to build up in the macula, a tiny part of the retina at the back of your eye. This swelling (macular oedema) can make your central vision blurred or distorted. Over time it may cause a blank patch in the centre of your vision.

Laser treatment may help if the centre of the macula is not affected. However, if the oedema affects the centre of the macula, laser treatment will not help and treatment is usually given with anti-vascular endothelial growth factor (anti-VEGF) injections, such as Lucentis, to reduce swelling and reduce the blurred central vision. Lucentis is given by injection into the white of your eye. More than one injection may be needed. Use of Lucentis may depend on how badly your macula is affected by swelling. Your eye specialist will discuss the best treatment for you.

Treatment for advanced diabetic retinopathy

Advanced diabetic retinopathy can cause bleeding inside the eye or scarring that may lead to retinal detachment. In some cases, surgery called a vitrectomy may be needed to remove the cloudy vitreous gel and replace it with a clear solution that light can pass through more easily.

When you have a vitreous or retinal haemorrhage, the reduction in your vision can happen quickly and be dramatic. The specialist can advise waiting for up to six months before carrying out a vitrectomy, carrying this out at the time most likely to give best results. Whilst frustrating to wait, this enables your specialist to monitor how the bleed changes, to see if there are any new bleeds, and if the bleed begins to be reabsorbed and your vision improves.

A vitrectomy is a specialist operation, and your eye specialist will discuss the benefits and risks with you.

Other ways diabetes can affect the eyes

Temporary blurred vision

Changes in blood sugar levels can cause vision to become blurred, especially when diabetes is not well controlled. This usually improves once blood sugar levels are stable.

Cataracts

Diabetes can increase the risk of cataracts, which make vision cloudy or dim. Cataracts can be treated with surgery to replace the cloudy lens with a clear artificial lens.

Important points to remember

- Attend your annual diabetic eye screening and regular eye tests.
- Speak to your eye clinic or optician if you notice any changes in your vision.
- Early treatment can help prevent most diabetes-related sight loss.
- Keeping your blood sugar, blood pressure and cholesterol under control can reduce your risk of eye problems.
- Smoking increases the risk of sight loss from diabetes.
- Attend your diabetic clinic or GP for regular diabetes health checks.
- Don't be afraid to ask questions or express concerns about your treatment.

Monitoring blood sugar levels

Checking your blood sugar at home can help you manage your diabetes. A small drop of blood is tested using a glucose meter to show your blood sugar level.

If you have sight problems, easy-read and talking glucose meters are available. Speak to your diabetes nurse if you have difficulty using or reading your meter. Information about up to date meters is also

available via Diabetes UK, contact details are at the end of this leaflet.

What if my sight is permanently affected?

Support is available to help you make the most of your remaining vision. BID Services, your eye specialist or optician can advise you about low vision aids and local support services.

If your sight is seriously affected, you may be eligible to register as sight impaired or severely sight impaired, which can help you access support and financial benefits.

It is normal to feel upset or worried about changes to your vision. Support and advice is available through BID Services, your GP or social care team.

Useful contacts

The Royal College of Ophthalmologists

Tel 020 7935 0702

Website www.rcophth.ac.uk

Royal National Institute of Blind People (RNIB)

Tel 0303 123 9999

Website www.rnib.org.uk

Driver and Vehicle Licensing Agency (DVLA)

Tel 0300 790 6801

Website www.gov.uk/contact-the-dvla

Diabetes UK

Tel 0345 123 2399

Website www.diabetes.org.uk

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You can access our **Information Library online**, where you'll find a wide range of helpful resources. Topics include communication tips, health and wellbeing, finding and staying in work, and living independently with a disability.



To access the Information Library, visit
www.bid.org.uk/resources

If you require this booklet in an alternative format (e.g. large print, audio or Braille), please contact us.

Tel 0121 246 6100

Email info@bid.org.uk

Website www.bid.org.uk



BID Services,
Deaf Cultural Centre,
Ladywood Road, Birmingham, B16 8SZ.

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