Understanding

Diabetic Retinopathy

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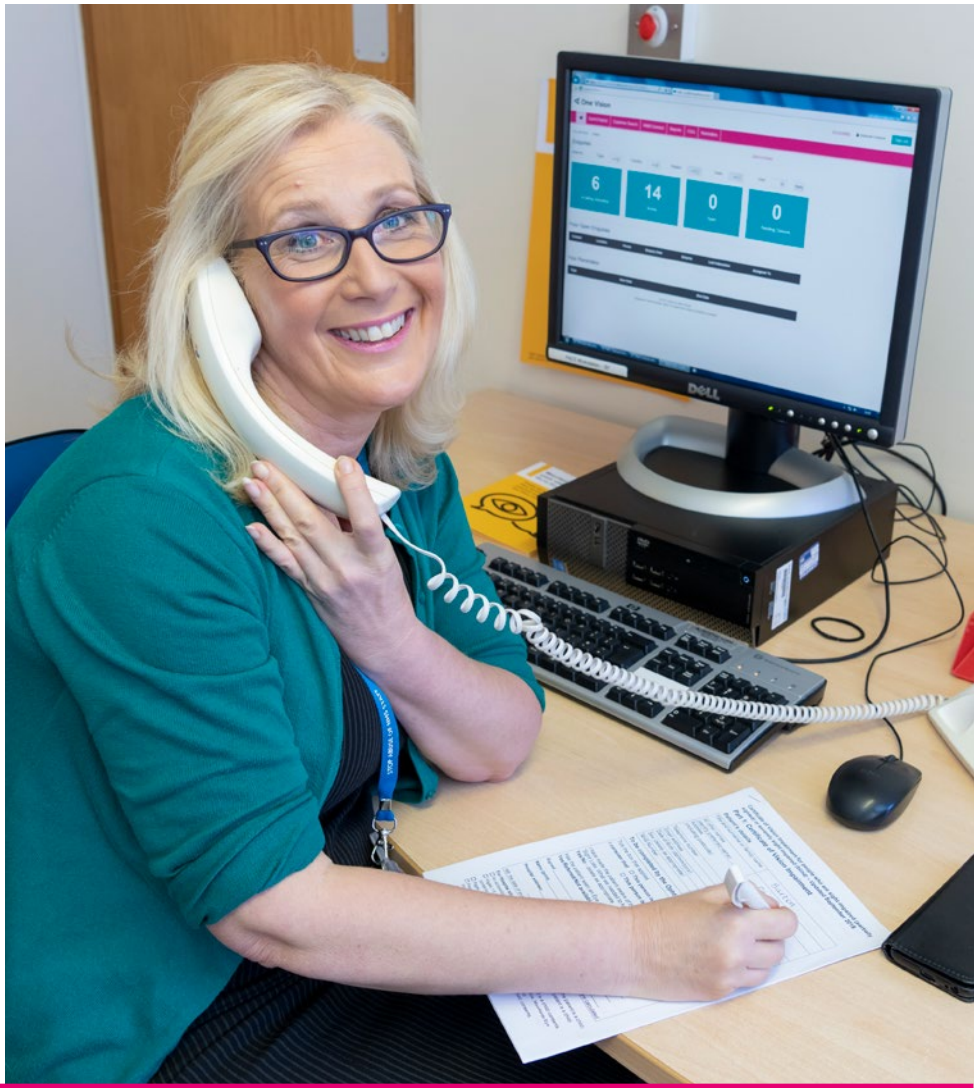
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RNIB's Understanding series

The Understanding series is designed to help you, your friends and family understand a little bit more about your eye condition.

Our booklets are available in print, audio and braille. To request these formats, contact our Helpline **0303 123 9999** or visit **shop.rnib.org.uk**.

Contact us

We're here to answer any questions you have about your eye condition or treatment. If you need further information about how diabetes can affect your eyes or if you have questions about coping with changes in your vision, then our Helpline is there for you.

RNIB Helpline
0303 123 9999
helpline@rnib.org.uk
Or say, **"Alexa, call RNIB Helpline"** to an Alexa-enabled device.

What is diabetes?

Having diabetes (diabetes mellitus) means your body is unable to use sugar (glucose) properly. This makes the sugar levels in your blood too high.

Glucose comes from the food and drink you have, especially those with carbohydrates. After you eat, glucose goes into your blood. Your pancreas, an organ near your stomach, makes a hormone called insulin. Insulin moves the glucose from your blood into your body's cells, where it is used to give you energy. When this process works well, it keeps your blood sugar at a healthy level.

If you have diabetes, your body doesn't make any insulin at all, doesn't make enough, or your cells don't respond to insulin as well as they should. This means sugar stays in your blood instead of being used to give your body energy.

In the UK, about 1 in 15 people have diabetes and the condition lasts for life. It can cause health problems in different parts of your body, including your eyes.

Diabetes can affect the retina at the back of the eye. The medical term for these retinal changes is diabetic retinopathy. Diabetic eye screening is an NHS service that aims to pick up diabetic

retinopathy as early as possible. If you have diabetes and are over 12 years old, you should have NHS diabetic eye screening every year or every two years. The frequency of this screening depends on whether you are at risk of developing diabetes related changes at the back of your eyes. Most of the eye problems caused by diabetes can be treated, so it's important to have this assessment. If you are not under the care of a hospital eye clinic and are not attending diabetic eye screening, you should speak to your GP.

The organisation Diabetes UK has a lot of information about living with and managing diabetes. This can be found on the Diabetes UK website at **diabetes.org.uk**. Their contact details can also be found at the end of this booklet.

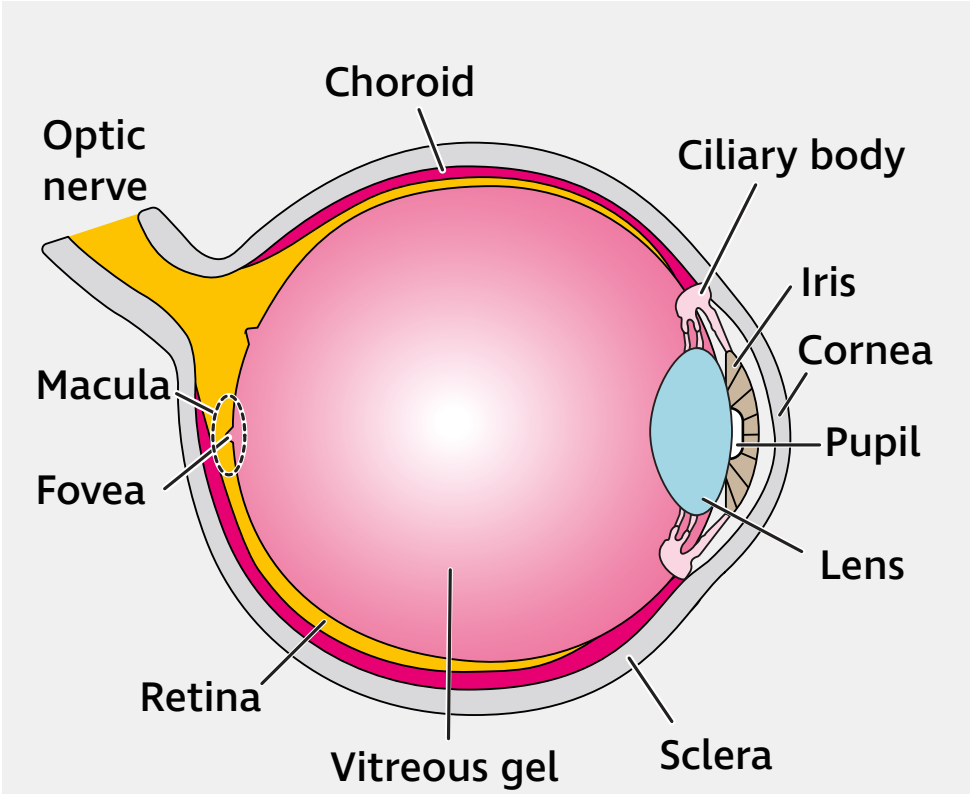
How your eye works

When light enters your eye, it's focused by the cornea and lens at the front of the eye onto your retina which lines the back of the eye. The retina is a delicate tissue that is sensitive to light. It converts light into electrical signals which then travel along the optic nerve to your brain. The brain interprets these signals to 'see' the world around you.

The central part of the retina is called the macula. The macula is vital because it lets you recognise colours and see the fine detail needed to carry out activities such as reading and writing. The rest of your retina gives you peripheral vision (also known as side vision) and the ability to see in dark conditions.

To keep the retina healthy, it is supplied with blood by a delicate network of blood vessels. These blood vessels can become damaged if blood sugar levels are high or not well controlled due to diabetes.

The following diagram shows the cross-section of an eye. From the front to the back of the eye, it is labelled cornea, iris, pupil, lens, ciliary body, sclera, vitreous gel, retina, choroid, optic nerve, macula and fovea.



Why are diabetic retinal screening and regular eye examinations important?

There is treatment for most of the eye problems caused by diabetes. However, it's important these problems are picked up as soon as possible, as treatment is more effective when given early. You can look after your eyes by:

- having your eyes checked regularly by your optometrist (optician)
- attending diabetic eye screening which can pick up any changes before they affect your sight.

Diabetic eye screening

Regular diabetic eye screening is essential in reducing the risks diabetic retinopathy can pose to your sight. You may not be aware that anything has changed inside your eye until the damage has been done. Diabetic eye screening helps to prevent blindness in most people who are at risk, so if you've not had this type of test, ask your GP or diabetic clinic as soon as possible.

NHS diabetic eye screening is offered to people with diabetes who are aged 12 years or older. It's rare for very young children with diabetes to be

affected by diabetic retinopathy. When you are first diagnosed with diabetes, your GP should arrange for you to have your initial diabetic eye screening. After this, you'll be screened as often as is needed. Screening may take place:

- at your GP surgery, your local hospital, optometrist's practice, or another nearby clinic.
- every year or every two years. If diabetic retinopathy was not found at your last 2 tests, you'll be invited every 2 years. Everyone else will be screened at more regular intervals.

If you have diabetes and become pregnant, you will have retinal screenings more often during your pregnancy and after your baby is born. This is because you are at higher risk of progression of diabetic eye disease during pregnancy. However, if you have gestational diabetes (diabetes that develops while you're pregnant), you do not have a higher risk of eye disease during your pregnancy and will not be called for diabetic eye screening.

What happens at the diabetic eye screening appointment?

- This appointment usually takes around 30 minutes.
- You'll be asked to read the letters on a letter chart.
- Your eyes will be photographed one at a time using a digital retinal camera.
- Eye drops are often needed to dilate (widen) your pupils. This allows for a good view of your retina. The drops may sting initially but only for a few seconds.
- When the drops start working, the photographs of your retina are taken.
- You'll see a flash of light, but the camera won't touch your eye.
- You will not get the results immediately as the photographs need to be checked by a clinical expert to identify and grade any retinopathy.
- You'll get a letter with your results a few weeks later.

Tips for your appointment

- You should take any glasses you need to your appointment. These may help you see the letter chart more clearly.
- If you wear contact lenses, it's OK to wear them to your appointment. If dilating drops are used, you'll be asked to remove them, so take any lens solution and storage case you might need along with you.
- You may find sunglasses help when you leave your appointment, as you may be more sensitive to light if you had dilating drops.
- Plan how you'll get home afterwards as you should not drive if you've had your pupils dilated. This is because the dilating drops can make your vision blurry for a few hours afterwards.
- Blur and light sensitivity may mean some tasks, such as using a computer, are more difficult for a few hours after your appointment.

What do the results of my screening mean?

You will receive a letter within three to four weeks telling you the results of your screening. You'll get one of four results:

No changes – this means no retinopathy has been found. You will be asked to return for screening one to two years later depending on your last screening result

Minor changes have been found – this means there are early changes (known as background retinopathy). You'll usually be invited back for screening 12 months' time.

Maculopathy changes have been found – this means there are changes towards the central part of your retina which can affect your vision. A further check with an OCT (optical coherence tomography) scan will be recommended, and you'll be sent a letter with the details of this appointment. An OCT scan is a painless and non-invasive test, and it provides detailed images of the back of the eye. You'll usually be invited back every 6 months. If more advanced changes are found, you may be referred to see an ophthalmologist (hospital eye doctor) in a specialist clinic. This is to find out if any treatment is required.

Changes needing a follow up are found – this means there are greater changes (known as pre-proliferative or proliferative retinopathy) which pose a greater risk to your sight. Further checks will be recommended, and you'll be sent a letter with the details of these appointments. You may also need to see an ophthalmologist in a specialist clinic to find out if any treatment and/or further monitoring is necessary.

Unclear result – this means that the results of your screening did not provide a clear enough result. This might be because the quality of the photograph wasn't good enough to check your retina. It does not mean you have retinopathy but does mean you will be invited back for re-screening using more specialised equipment.

Whatever the result of your retinal screening, it is very important that your diabetes is well controlled to protect your eyes and general health.

Annual eye examinations with an optometrist

Your diabetic eye screening test doesn't replace your regular eye test with your optometrist. Screening only looks for changes at the back of your eyes caused by your diabetes. Your

optometrist will check for other eye conditions as well. That's why it's important to have both tests as often as you're advised.

NHS eye tests are free for people with diabetes. Some optometrists may take a photograph of the back of your eyes as part of your eye examination, but this does not replace your diabetic eye screening. Having both tests gives the best chance of spotting any changes early. This means treatment can start as soon as it is needed to protect your sight.



How can diabetes affect my eyes?

Not everyone with diabetes gets eye problems. Your diabetes may not cause any changes to your vision, especially if your blood glucose levels are well controlled. However, Type 1 diabetics are more at risk of diabetic eye problems than those who are Type 2.

When diabetes does affect the eyes, it can do so in several ways. These include:

An unstable glasses prescription

- Changes in blood sugar can affect the natural lens inside your eye, especially when your blood sugar levels are not well controlled.
- This can cause blurry vision which can change during the day or from day to day, depending on your blood sugar level.
- This can make your glasses prescription variable and unreliable.
- Sometimes, these changes can be the first sign of diabetes, and you may not yet be diagnosed.
- When your blood glucose becomes better managed, your vision usually settles, but this can take a month or two. Your optometrist may suggest ways to manage in the meantime. This might be using less expensive ready-made

reading glasses in the short term, or an old pair of glasses you still have, if they help. It is best to wait until your blood sugar and vision are stable before buying new prescription glasses.

Other eye conditions

There may be an increased risk of other eye conditions when you have diabetes, including:

- cataract – a clouding of the lens inside the eye which can develop at an earlier age in people with diabetes.
- glaucoma – damage to the optic nerve caused by the pressure inside the eye.
- retinal vessel occlusion – when a blood vessel in the retina becomes blocked.
- conditions affecting the cornea (the clear front window of the eye) and the tear film (causing dry eye).
- problems with the muscles controlling eye movements which can cause double vision.

More information about cataract, glaucoma, retinal vessel occlusion and dry eye can be found on our website rnib.org.uk/eyehealth or by calling our Helpline.

Diabetic retinopathy

Over time, raised blood sugar levels can damage retinal blood vessels. Blood vessels can become leaky, blocked, or grow incorrectly. These changes are known as diabetic retinopathy, and they affect how well the retina works.

There are different stages of diabetic retinopathy, and these relate to how much retinal damage there is, and which part of the retina is involved.



What is diabetic retinopathy and how is it treated?

Not all diabetic retinopathy requires immediate treatment. If you do need treatment for your diabetic retinopathy, you will be referred to a hospital eye clinic. The ophthalmologist should explain:

- the treatment options available to you
- the advantages and disadvantages of treatment
- the possible side effects of treatment.

Ask your ophthalmologist any questions or concerns you might have about treatment.

Background diabetic retinopathy

Diabetes causes the smallest retinal blood vessels called capillaries to become weakened initially. They may bleed or leak slightly, and these minor changes are known as background retinopathy. Your sight is not usually affected at this point.

You will not require any treatment, but your eyes will need to be monitored yearly to make sure your retinopathy doesn't progress and get worse.

Pre-proliferative diabetic retinopathy

If background retinopathy does get worse, more retinal blood vessels can become damaged or blocked. If these changes happen over a large area of your retina, it will have an insufficient blood supply (ischaemia). Ischaemia means the retinal cells will have insufficient oxygen to work properly. These changes are known as pre-proliferative diabetic retinopathy.

You will not usually notice too many changes to your vision at this stage. However, it's important your eyes are examined more often to check the retinal ischaemia does not increase.

You'll be monitored by your local diabetic eye screening team or an ophthalmologist. This is to ensure your pre-proliferative retinopathy does not get worse. Usually, this will involve more retinal photographs and an OCT scan of your retina or examination by an ophthalmologist. Your check-ups will be between three and 12 months apart depending on the retinal changes found and the risk your retinopathy could worsen.

Proliferative diabetic retinopathy

Not everyone with diabetes will develop proliferative diabetic retinopathy but it is more common in people with type 1 diabetes than in those with type 2. If ischaemia damages your retina, it causes areas of sight loss where your retina cannot work properly. As retinal ischaemia increases, the body tries to make up for the lack of oxygen by growing new blood vessels inside the eye. This may be on the retinal surface or



into the clear vitreous gel just in front of the retina. This new blood vessel growth is known as neovascularisation. Unfortunately, these new vessels are weak, so they can bleed easily which can affect your sight. These changes are known as proliferative diabetic retinopathy, and treatment is needed at this stage to help protect your sight.

Treatment is offered when retinal changes are still developing (active proliferative diabetic retinopathy). Your vision may still be very good, as initially, your retinopathy may have very little effect on your sight. You may not understand why you need any treatment at all. However, it's important to treat neovascularisation early on to reduce the risk of a greater sight loss over time.

Treatment for proliferative retinopathy includes:

- laser treatment (photocoagulation)
- anti-VEGF injections (rarely)

Laser treatment (photocoagulation)

Laser treatment, known as PRP or pan-retinal laser, aims to shrink the growth of new blood vessels. The aim of this treatment is not to make your sight better. It aims to stabilise your condition and protect your vision from becoming a lot worse. Unfortunately, it does not stabilise the condition for everyone.

There are different types of laser treatment used for diabetes eye changes and can be given as:

- **Focal laser –** used in diabetic maculopathy when a smaller, more central area of the retina is to be treated. This treatment is usually very straightforward.
- **Pan-retinal photocoagulation –** when a greater retinal area is treated for proliferative retinopathy. Pan-retinal photocoagulation may be written as PRP on medical letters or reports you might receive. This treatment is more extensive and can feel slightly uncomfortable for some people. However, it can be given over several sessions rather than all at one go to make it more comfortable.

Laser treatment will usually be given quite quickly when it's needed, within four to six weeks. Sometimes, it may be given on the same day you are seen at the eye clinic, if your ophthalmologist feels there's a high risk of your retinopathy getting worse. You may need more than one session of laser treatment, particularly if a large area of your retina needs to be treated.

How is laser treatment carried out?

- Laser treatment is performed at an outpatient clinic, usually sitting upright, so you won't need to stay in hospital.
- You'll be given eye drops to dilate (widen) your pupils, so your ophthalmologist can get a better view of your retina when they look into your eyes.
- Your eye will be numbed with anaesthetic drops.
- A small contact lens is put on the surface of your eye to keep it open and to focus the laser to the retina at the back of the eye.
- During the treatment, you may be asked to move your eyes in certain directions so the correct part of your retina can be treated. You'll be able to do this easily with the contact lens in place.

- The laser treatment itself doesn't usually take longer than 15 to 30 minutes. Ask your ophthalmologist how long each session of laser surgery is likely to last.

Is laser treatment painful?

All treatments have the potential to cause some side effects. However, your vision will be more at risk if you do not have the laser treatment.

Laser treatment can be uncomfortable – you may feel a prickling sensation at times. Don't be afraid to tell your ophthalmologist if the treatment hurts or if you found a previous session of laser treatment particularly uncomfortable. Taking an over-the-counter painkiller like paracetamol an hour or so before treatment may be helpful.

You may have a headache for a few hours after a long laser session. Again, over-the-counter painkillers should help with this.

What will my sight be like after laser treatment?

In the short-term, laser treatment can temporarily affect your sight because of the brightness of the laser beam and the dilating drops that are used. Therefore, you should not drive yourself to your appointment but arrange alternative transport instead.

The following short-term effects on sight are usually more common after PRP than focal laser treatment.

- your vision can be reduced for an hour or two after the treatment.
- you can feel "dazzled" or feel like your vision has become darker for some time after your treatment.
- you can temporarily see black spots or have black areas in your vision.
- you may have some flashing lights in your vision after a long session of laser treatment.

All these effects should get better after a few hours. You may find that wearing sunglasses immediately after your treatment helps to reduce glare.

In the longer term, laser treatment can have more lasting effects on your vision.

This may mean:

- your peripheral vision may be slightly worse.
- your colour perception and your night vision may be affected.
- occasionally, your central vision may not be as good as before, so reading may be more difficult for a few days.

These side effects can make it seem like your sight is worse than it was before, and this can be frustrating. While laser treatment does not make your vision better, it does aim to prevent your vision from more serious changes over time. A greater loss of sight is more likely in the long term if treatment is not given.

When to get medical advice

Although laser treatment can seem to affect your sight, these effects should not continue to progress after your treatment. It's important you contact your eye clinic or attend A&E immediately if, after your treatment:

- you notice a new shower of floaters (a lot of new dots floating in your vision)
- your eyesight continues to get worse
- your pain worsens or persists for more than a few hours, despite taking painkillers.

Anti VEGF injection treatment for proliferative retinopathy

Occasionally, you may also be offered treatment with anti-VEGF injections to shrink the extra blood vessels at the back of the eye. This may be offered as a temporary treatment if you are unable to have PRP laser treatment for proliferative retinopathy. This might be because you have a vitreous haemorrhage (bleed) or cataract which is blocking the view of the retina. However, other treatments are likely to be needed in these cases.

Anti-VEGF stands for anti-vascular endothelial growth factor., This treatment is given as an injection into the white of the eye (sclera).

More information about anti-VEGF treatment can be found on our website rnib.org.uk/eyehealth or by calling our Helpline.

How will I be followed up after treatment?

One to three months after treatment, your ophthalmologist will check your retina again to see if your condition has stabilised. If it has, you'll continue to be monitored closely for up to a year. If you need further treatment for your maculopathy, this will be offered to you. You'll be treated and/or monitored as often as your ophthalmologist feels is necessary in your case.

Can proliferative diabetic retinopathy cause other complications in the eye?

Yes, it can, and the risks increase if your proliferative retinopathy is not treated. These complications can include:

Vitreous haemorrhage (bleed). This happens when there is a bleed into the vitreous gel in front of the retina. This can reduce or totally obscure your vision in the affected eye, as light entering your eye is blocked by the blood. It can affect your vision quite quickly and this can come as a shock. With time, the blood may be reabsorbed into your body, and your vision may improve. But there is a chance that these haemorrhages will keep happening, and the blood may not be completely reabsorbed each time. Your eye will be monitored over a few weeks or months, as the haemorrhage may gradually go away on its own over time. However, if you're told that you need treatment to clear the blood from inside the eye, you'll be offered surgery called vitrectomy.

Retinal detachment. If proliferative diabetic retinopathy worsens, scar tissue can develop which can pull and distort the retina. This can sometimes cause the retina to detach from the back of the eye and can lead to more severe sight loss. Retinal detachment is also usually treated with vitrectomy surgery.

Glaucoma. Advanced ischaemia in the eye can lead to further new blood vessel growth over the iris, the tissue giving your eye colour, and the internal drainage channels which maintain eye pressure. Your eye pressure can increase; this is called neovascular glaucoma. If new blood vessels are growing on your iris, it's likely you'll be offered laser treatment to your retina.

More information about retinal detachment and glaucoma can be found on our website rnib.org.uk/eyehealth or by calling our Helpline.

When might surgery be needed?

Surgery can be used to treat a vitreous haemorrhage (bleed) and retinal detachment.

A bleed within the vitreous gel is often reabsorbed by your body, clearing on its own over a few months. Your ophthalmologist may advise you to wait for several weeks or months before offering treatment. This is to allow time for the bleed to resolve on its own first. Having to wait can be frustrating. However, during this time, your ophthalmologist will monitor how the bleeding changes, whether it begins to reabsorb and whether there are any new bleeds.



If the blood does not clear from the vitreous gel after around 3 months, you may be offered surgery known as vitrectomy. In this surgery, the cloudy vitreous gel is removed and replaced with a clear liquid. This usually helps to improve your vision.

Vitrectomy is also carried out if retinal scarring causes your retina to detach. If this happens, reattaching your retina with vitrectomy surgery is essential to help prevent more serious sight loss.

A vitrectomy is a specialised and complicated operation which does carry some level of risk, so your ophthalmologist would only carry out this surgery when it is needed, and when the benefits of this treatment outweigh the risks involved. They should discuss the advantages and disadvantages of the procedure with you before scheduling the surgery.

There is more information about retinal detachment and vitrectomy on our website rnib.org.uk/eyehealth or by calling our Helpline.

What is diabetic maculopathy and diabetic macular oedema (DMO) and how are they treated?

The macula is the central, most sensitive part of the retina. Diabetic retinopathy at the macula is called diabetic maculopathy. Most forms of maculopathy do not require treatment. The condition is just monitored every 6-9 months with an OCT scan by your local diabetic eye screening team.

If the blood vessels near the macula are leaky, fluid can build up and cause macular swelling. This is called diabetic macular oedema (DMO). This is usually a more advanced form of diabetic maculopathy which requires treatment.

In the more advanced stages, maculopathy and DMO can make your central vision blurry and distorted. Your ability to see fine detail may be affected and colours may seem less bright. This makes detailed tasks like reading, writing and seeing detail on people's faces more difficult. Over time, persistent macular swelling can cause a blank patch in the middle of your vision.

If you need treatment, you'll be referred to a hospital eye clinic.

Treatment can include:

- macular/focal laser treatment.
- anti-VEGF injections.
- steroid implant.

Your ophthalmologist will explain which of these treatments are suitable for you and the advantages and disadvantages of each option. Ask your ophthalmologist any questions or concerns you might have about your treatment.

Macular laser

Laser treatment can be given over a small area around the macula. It can either be used directly where there are leaking blood vessels or applied in a grid pattern over the macular area. It aims to reduce the leakage of fluid in the macula area to prevent it from reaching the macular centre (fovea). The fovea provides the most detailed vision. This means laser is not suitable for directly treating the fovea itself.

With macular laser:

- it is carried out as an outpatient treatment, whilst sitting upright.
- before the procedure, eye drops will be given to numb your eye and widen your pupils.

- a special contact lens will be placed on your eye to hold your eyelids open and allow the laser beam to be focused onto your retina.
- the treatment is not usually painful.
- a follow-up in few months will be needed to assess the full effect of the laser.
- the treatment can stabilise your central vision but does not generally improve your sight.
- the treatment may need to be repeated more than once a few months apart.
- some people 'see' the laser grid pattern for up to 2 months or so after treatment.

Anti-VEGF injections

Anti-VEGF stands for anti-vascular endothelial growth factor, and it is given as an injection into the eye.

Anti-VEGF treatment:

- reduces the leakiness of existing blood vessels.
- reduces further progression of the retinopathy.
- can reduce your macular oedema to stabilise your vision. Some people notice some improvement in their vision.

The anti-VEGF drug is injected through the white of your eye into the vitreous gel inside your eye. You will need a course of injections over several months.

You can find out more information about anti-VEGF treatment and how it is given on our website rnib.org.uk/eyehealth or by calling our Helpline.

Steroid implants

A steroid implant might be suggested if your macula has not responded to anti-VEGF injections, or if anti-VEGF treatment is not suitable for you. A steroid implant can be injected into your eye. This slowly releases small amounts of steroid to help control the swelling at the macula and help improve your sight.

You may be treated using an implant every 6 months or with one that can stay in your eye for up to three years. The implant eventually dissolves so it does not need to be removed. Your eye pressure may need to be monitored if you have a steroid implant after a few months.

Your ophthalmologist will be able to tell you whether this treatment would be suitable for you and how often your implant treatment would be needed.

What can I expect when I have an injection or implant?

Both anti-VEGF injections and steroid injections are given in a similar way. However, anti-VEGF injections require a small, short needle and steroid implants are given using a specially designed applicator.

You should not drive to or from your appointment, as your vision can be blurry afterwards. This can last for several hours after treatment. You may also be more light sensitive after treatment. Wearing sunglasses afterwards can help to make you feel more comfortable.

- Both anti-VEGF injections and steroid implants are given as outpatient treatments.
- Before either procedure, eye drops are used to dilate (widen) your pupil.
- Your eye will be cleaned with an antiseptic and numbed with drops.
- While you look away to one side, the treatment is given into the white of your eye.
- During either treatment, you may feel a pressure on the eye but should not feel any pain.
- You will be advised what activities to avoid afterwards and for how long. Generally, you should be able to carry on with most everyday tasks.

Follow up and monitoring

DMO is treated while the macula has active swelling present. It's possible to need ongoing treatment until the swelling has resolved. Once treatment has stabilised the condition, you'll be monitored over the next 12 months by your ophthalmologist. You'll be advised how often you'll need to be seen within that time.

If your proliferative diabetic retinopathy or DMO remains stable for one year after treatment is complete, you'll be invited for regular checks either by the diabetic retinal screening service or your hospital eye clinic. These checks are usually every 12 months, but you'll be advised how often they should be in your case.

Can I reduce the risk of developing diabetic retinopathy?

If your blood sugar levels are continually high, there's a greater risk of blood vessel damage and more serious diabetic retinopathy developing over time.

However, there is also evidence to suggest that the risk of diabetic retinopathy can increase if you lower your blood sugar levels too quickly after they've been high. Therefore, it's important to work with your diabetes healthcare team to reduce your blood sugar levels gradually.

The risk of developing serious eye problems is lower if you keep your blood sugar well controlled. Looking after other aspects of your health is also important, such as managing your blood pressure and cholesterol.

There are things you can do to help control your risk of developing retinopathy or stop it getting worse. These include doing your best to:

- keep your blood glucose well controlled.
- control your blood pressure well.
- control your cholesterol level.

- keep as fit as you can with regular exercise and a healthy diet to help maintain a healthy weight.
- give up smoking. This can be difficult. However, nerve damage (known as neuropathy), kidney disease and cardiovascular disease are more likely in smokers with diabetes. Smoking increases your blood pressure and raises your blood sugar level, which makes it harder to control your diabetes. Your GP can tell you about NHS stop smoking services in your area.
- attend all your diabetic health checks at the GP surgery or diabetic clinic as these are important. Diabetes isn't always easy for some people to control, so do speak to your diabetic nurse or medical team if you need further support with this.
- attend regular diabetic eye screening and optometrist appointments as advised. Early detection and treatment will protect your sight.

Unfortunately, there are some risk factors that you cannot control. You're more at risk of developing some form of retinopathy the longer you've had diabetes. Some people still develop more serious diabetic retinopathy, even when they do all they can to lower the risks. However, going to all diabetic eye screening and hospital eye clinic appointments as advised is still important. If new

changes are found early, the right treatment can be given to protect your sight and stop your condition from getting worse.

For detailed information on how to reduce your risk of all diabetic complications, visit Diabetes UK's website at diabetes.org.uk.



Looking after your sight

Don't be afraid to ask questions or say that you're worried about any aspect of your treatment. Ask your ophthalmologist about your treatment plan. The treatment you need may depend on the changes at the back of your eye, but knowing the options can help you feel more confident and informed.

Remember:

- Don't wait until your vision has become worse to have an eye test. Changes can develop inside your eye before you'll notice them. Therefore, you should always go to your diabetic eye screening appointments and as often as you're advised you should attend.
- Have regular eye examinations with your optometrist as well as your diabetic screening, as these are invaluable. If you have diabetes, you'll receive free eye examinations funded by the NHS. An optometrist can examine your eyes and check for other eye conditions, such as glaucoma.

- Speak to someone at your diabetic eye clinic or to your optometrist if you notice changes to your vision. It may not mean you have diabetic retinopathy; it could simply be a problem that can be corrected with glasses. Having an eye examination will make sure important eye health changes are not missed.
- Early diagnosis of diabetic retinopathy is vital. Although your vision can seem good to you, there may be changes in your eyes that need treating. Most sight loss from diabetes is preventable if treatment is given early. The earlier that treatment is given, the more effective it is.

Driving

You must inform the Driver and Vehicle Licensing Agency (DVLA) if you drive and:

- you have had laser treatment in both eyes.
- you have sight in only one eye and have had laser treatment in this eye.

They may ask that you have further tests to make sure your peripheral and central vision are good enough for safe driving.



Living well

If you have a diabetic eye condition that is picked up early, you may not experience much of a change to your vision. You may find you're able to carry on with everyday activities such as reading, watching television and using the computer without any difficulty.

Some people may have sight loss due to diabetes. With the right support, you can live confidently and independently with your condition. You may not need all this support right now, but you can access further support at any time you need it.

Making the most of your sight

If your diabetes has affected your sight, there are ways you can make the most of your remaining vision. This may mean making things bigger, using brighter lighting or using colour to make things easier to see. Call our Helpline or go to our website for our booklet called 'Making the most of your sight'.

A low vision assessment

A low vision assessment can help you make the most of your vision. A low vision practitioner can explore visual aids or techniques that can

help you. This might be with magnifying glasses or aids, or by helping you learn ways of using your vision, called vision strategies. Ask your eye clinic or optometrist about having a low vision assessment.

Managing your diabetes when you have sight loss

If you have sight loss, it can be difficult to access some of the day-to-day devices that are used to manage your diabetes effectively. If you are having difficulties managing your diabetes because of your sight loss, speak to your healthcare team to find out if they can suggest more accessible alternatives for you, such as an audible or talking device.

Your pharmacist may also be able to help you with medication when you have sight loss. For example, they can provide prescribed tablets in a dosette box rather than in packets. A dosette box has compartments for days of the week as well as for times of the day, such as morning, afternoon and evening. They can help you take the right tablets at the correct time.

The following tips may be helpful to people who are managing diabetes and sight loss:

- Using magnifiers for tasks such as looking at blood glucose monitor screens and insulin pumps. Hands-free magnifiers such as stand magnifiers can be useful if two hands are needed.
- Using 'bumpons' or other labelling aids on medicine boxes can help tell the difference between different medications. A 'bumpon' is a sticker with a raised bump which can help identify items and control settings, for example.
- Some insulin pumps have buttons or displays which are larger and easier to identify than others. Some may be compatible with read aloud apps. These can recite your blood glucose levels to you.
- Using apps to help read a screen or describe a scene. There are apps that will narrate what is shown on the mobile phone's camera. Others use a volunteer to describe what the phone's camera picks up.
- Placing equipment on a non-slip mat in a contrasting colour can make it more visible and help keep it from sliding around.
- Some people mark buttons on equipment with a permanent marker or a bumpon.
- Putting records in an accessible format such as large print, voice recording or in digital format can help make it easier to refer back to.

Emotional and counselling support

It's completely understandable to be upset when you're diagnosed with an eye condition that's related to your diabetes, and it's normal to find yourself worrying about the future and how you will cope.

It can sometimes be helpful to talk about these feelings with someone outside your circle of friends or family. At RNIB, we can help with our telephone Helpline and our Counselling and Wellbeing team. Your GP or social worker may also find a counsellor for you if you feel this might help.

The Eye Care Liaison Officer (ECLO)

Your eye clinic may have a sight loss advisor. This advisor may be known as either the Eye Care Liaison Officer (ECLO), the Vision Support Officer or the Early Intervention Support Officer and they are on hand within your hospital or local sight loss charity to provide you with further practical and emotional support about your eye health.

To find out if there is ECLO support in your area, please contact your eye clinic directly or contact our Helpline.

Employment

If you have sight loss, you may be worried about finding work or staying in your job. Our employment advisors can provide specialist support and advice about employment for people with sight loss. You can contact this team via our Helpline.

Assistive technology

There is also technology available that can help with low vision. Many smartphones and tablets are already equipped with in-built software that can enable people with low vision to access information. Low vision devices and assistive apps can help too, as well as computer software programmes which can be installed.

If you would like to find out more about the assistive technology that is available and how it can help you, our Digital Skills advisors would be happy to chat to you. You can get in touch with this team by calling our Helpline.

Certification and registration

If you have a lot of sight loss, you can ask your ophthalmologist to check if you meet the criteria to be certified as sight impaired (partially sighted) or severely sight impaired (blind). Certification depends on how much your vision has been reduced. Being registered can help you access support from social services to stay independent. Sometimes registration can make you eligible for certain financial concessions. Even if you're not registered, a lot of this support is still available to you. More information about certification and registration can be found on our website, or by calling our Helpline.

Independent living

You can contact your local social services directly for help and support with staying independent. Vision rehabilitation teaches practical skills on daily living at home and safe ways to get around to give you more confidence when you are out.

Further information and support

We're here to answer any questions you have about your eye condition or treatment. If you need further information about diabetic retinopathy or on coping with changes in your vision, then our Helpline is here for you.

Call our Helpline: **0303 123 9999**
Email: **helpline@rnib.org.uk**
or say: **"Alexa, call RNIB Helpline"** to an Alexa enabled device.

Our opening hours are Monday to Friday from 9am-6pm.

You can also get in touch by post or by visiting our website: **rnib.org.uk**

RNIB
The Grimaldi Building
154A Pentonville Road
London N1 9JE
rnib.org.uk

Connecting with others

Sometimes, it can help to connect to people with the same eye condition. The following organisations support people with diabetes:

Diabetes UK
Diabetes UK Helpline: **0345 123 2399**
Email: **helpline@diabetes.org.uk**
Web: **diabetes.org.uk**

Breakthrough T1D – formerly Juvenile Diabetes Research Foundation (JDRF)

London office:
Helpline **020 7713 2030**
Email: **info@breakthrought1d.org.uk**

Scotland office:
Helpline: **01224 248 677**
Email: **scotland@breakthrought1d.org.uk**
Web: **https://breakthrought1d.org.uk/**

About The Royal College of Ophthalmologists

The Royal College of Ophthalmologists champions excellence in the practice of ophthalmology and is the only professional membership body for medically qualified ophthalmologists.

The College is unable to offer direct advice to patients. If you're concerned about the health of your eyes, you should seek medical advice from your GP or ophthalmologist. **rcophth.ac.uk**

We value your feedback

You can help us improve our information by letting us know what you think.

- Is this booklet useful, easy to read and understand?
- Is there anything missing?
- How clear, relevant and helpful did you find the images and diagrams?
- How could we improve it?

Send your comments to us by emailing us at **eyehealth@rnib.org.uk** or by writing to the Eye Health Information service, RNIB, The Grimaldi Building, 154A Pentonville Road, London, N1 9JE.

Information sources

RNIB and The Royal College of Ophthalmologists do all we can to ensure that the information we supply is accurate, up to date and in line with the latest research and expertise. This publication uses information from:

- The Royal College of Ophthalmologists' guidelines for treatment
- clinical research and studies obtained through literature reviews
- specific support groups for individual conditions
- medical textbooks
- RNIB publications and research.

For a full list of references and information sources used in the compilation of this publication, email eyehealth@rnib.org.uk.

RNIB

rnib.org.uk

RNIB Helpline



Call: **0303 123 9999**



Email: **helpline@rnib.org.uk**



Or say, **"Alexa, call RNIB Helpline"** to an Alexa enabled device.

This booklet has been produced jointly by RNIB and The Royal College of Ophthalmologists.

RNIB is a member of the Patient Information Forum (PIF) and have been certified under the PIF TICK quality mark scheme.

Produced date: August 2026
Review date: August 2029

PR10879
ISBN 978-1-4445-0132-6
Version: 001



SE180909

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