CONDITION

Diabetes and eye disease

Diabetes can damage the retina and other parts of the eye, sometimes causing permanent sight loss.

WHAT IT IS
Diabetes-related damage to the retina and other eye structures

BODY SYSTEM
Eyes and vision

MAIN SYMPTOMS
Blurred vision, floaters, dark patches, vision loss

WHAT CAUSES IT
High blood sugar damaging small blood vessels

HOW IT IS DIAGNOSED
Dilated retinal examination and retinal imaging

MAIN TREATMENT
Risk-factor control, eye injections, laser, or surgery

CAN IT BE CURED?
No - existing retinal damage may remain

IS IT AN EMERGENCY?
Sometimes - sudden vision loss needs immediate assessment

LONG-TERM OUTLOOK
Early detection and treatment often protect useful vision

Overview

Diabetes and eye disease describes several eye conditions linked to diabetes. The most important is diabetic retinopathy, which affects the retina. The retina is the light-sensitive layer at the back of your eye that sends visual information to your brain.

Over time, high blood sugar can damage the retina's small blood vessels. They may leak fluid or blood, close off, or trigger the growth of fragile new vessels. These changes can interfere with vision.

Fluid can also collect in the macula, the central part of the retina used for reading, recognising faces, and seeing fine detail. This is called diabetic macular oedema, or diabetic macular edema.

Diabetes also increases the chance of cataracts and some types of glaucoma. A cataract makes the eye's natural lens cloudy. Glaucoma damages the nerve connecting the eye to the brain, often because pressure inside the eye is too high.

Early diabetic eye changes often cause no symptoms. Regular eye screening matters because treatment is usually most effective before major sight loss develops.

Symptoms

You may have diabetic retinopathy while your eyesight still seems normal. Symptoms usually appear when leakage, swelling, bleeding, or more advanced retinal damage affects vision.

Possible symptoms include:

Brief changes in vision can happen when blood sugar rises or falls because this alters fluid levels in the eye's lens. These changes are not always caused by permanent retinal damage, but they still deserve discussion at a routine appointment.

Sudden floaters, flashing lights, a curtain-like shadow, or sudden vision loss need urgent assessment.

- Blurred or distorted central vision
- Dark, empty, or missing areas in your sight
- Small moving spots or strands called floaters
- Difficulty reading or recognising faces
- Colours appearing faded
- Vision that changes from day to day
- Partial or severe sight loss

Causes and risk factors

The main cause is long-term exposure to high blood sugar. This damages the lining of small retinal blood vessels. Some vessels become leaky, while others stop carrying enough blood.

When retinal tissue does not receive enough oxygen, it may release signals that cause abnormal new blood vessels to grow. This advanced stage is called proliferative diabetic retinopathy. The new vessels can bleed or produce scar tissue that pulls on the retina.

Your chance of diabetic eye changes generally rises the longer you have diabetes. Other factors linked to a higher risk or faster progression include:

Both type 1 and type 2 diabetes can affect the eyes. The risk is not limited to people who use insulin.

Rapid improvement in long-standing high blood sugar can sometimes temporarily worsen existing retinopathy. This does not remove the long-term benefits of better glucose control. If you already have significant retinopathy, your diabetes and eye teams can coordinate monitoring while treatment changes are made.

- Blood sugar remaining above your agreed target over time
- High blood pressure
- Kidney problems related to diabetes
- High cholesterol or other abnormal blood fats
- Pregnancy in someone with pre-existing diabetes
- Smoking

Diagnosis

Diabetic retinopathy is confirmed by examining or photographing the retina. This may happen through a diabetes eye-screening programme or during a comprehensive eye examination.

Eye drops are often used to widen, or dilate, your pupils. This allows a clearer view of the retina. Your vision may be blurred and sensitive to light for several hours afterward, so you may need help getting home.

Tests may include:

Screening schedules are based on diabetes type, age, pregnancy, and previous eye findings. Adults with type 2 diabetes are generally assessed from diagnosis because the condition may have been present earlier. For type 1 diabetes, screening usually begins within several years of diagnosis. More frequent examinations may be needed when changes are found.

- Visual acuity testing: reading letters to measure how clearly you see
- Dilated retinal examination: looking through the pupil for leaking vessels, bleeding, or abnormal vessel growth
- Retinal photography: taking detailed pictures that can be checked for changes
- Optical coherence tomography: a painless scan that measures retinal layers and detects fluid or swelling

- Fluorescein angiography: injecting a dye into a vein and photographing its movement through retinal blood vessels

Treatment and management

Treatment depends on where the damage is, whether it is progressing, and whether the macula is affected. Mild changes may only need regular monitoring alongside management of blood sugar, blood pressure, and cholesterol.

Anti-VEGF injections are commonly used for diabetic macular oedema and some forms of proliferative retinopathy. VEGF is a protein that encourages leaky or abnormal blood vessels. Medicine placed inside the eye can reduce leakage and abnormal vessel growth. Numbing drops are used, and treatment may involve a series of appointments.

Steroid treatment may be considered for some people with macular oedema. It can be given as an injection or implant inside the eye. Steroids like prednisone or hydrocortisone can increase eye pressure and contribute to cataracts, so follow-up is important.

Laser treatment seals selected leaking areas or treats a wider part of the retina to reduce abnormal vessel growth. It often aims to preserve remaining sight rather than restore vision that has already been lost. Side effects can include reduced night or side vision, depending on the type and extent of treatment.

Vitrectomy is an operation that removes blood-filled gel or scar tissue from inside the eye. It may be needed for persistent bleeding, severe scar formation, or retinal detachment.

Cataracts can often be treated by replacing the cloudy lens with an artificial one. Glaucoma may be managed with eye drops, laser treatment, or surgery. These treatments address separate eye problems but do not remove the need for retinal monitoring.

Do not stop diabetes or blood pressure medicine because of an eye diagnosis without discussing it with the clinician who prescribed it.

Complications

Diabetic macular oedema can damage detailed central vision. Bleeding from fragile vessels may suddenly cloud the gel inside the eye, known as a vitreous haemorrhage.

Scar tissue can pull the retina away from the back of the eye. This is called tractional retinal detachment and can cause permanent sight loss without timely treatment.

Abnormal vessels may also block normal fluid drainage at the front of the eye, causing

neovascular glaucoma. This can produce high eye pressure, pain, and rapid loss of vision.

Sight loss can affect driving, work, reading, medication management, and balance. Low-vision services and visual aids can help you use your remaining sight.

Prevention

Diabetic eye changes cannot always be prevented. Some people develop them despite careful diabetes management.

You can lower the risk of developing severe changes or slow their progression by:

If you have pre-existing diabetes and are planning a pregnancy, arrange an eye assessment before pregnancy when possible. Retinopathy can progress during pregnancy, so additional monitoring may be advised.

Screening does not prevent damage by itself. It finds changes early enough for closer monitoring or treatment.

- Attending scheduled retinal screening and eye appointments
- Working toward agreed blood sugar and blood pressure targets
- Managing cholesterol and kidney problems
- Not smoking
- Reporting new visual symptoms rather than waiting for screening

Living with it and what to expect

Early diabetic retinopathy may remain stable for years, especially when blood sugar and blood pressure are well managed. It can also progress, so continuing eye checks matters even when your vision feels normal.

Some treatments need repeated visits over months or years. Eye injections may become less frequent if swelling settles, but the response is different for each person. Laser or surgery may control serious complications without returning vision to how it was before the damage.

Many people with early or treated changes continue working, driving, reading, and carrying out usual activities. Whether driving is safe and legal is based on your measured vision, not the diagnosis alone.

If sight becomes limited, magnifiers, brighter lighting, screen-reading software, mobility training, and workplace adjustments may help. Emotional support can also be useful. Changes

in sight can affect independence and confidence, even when some useful vision remains.

Keep attending diabetes care as well as eye care. The same blood-vessel damage can affect the kidneys, nerves, heart, and circulation, so eye findings may lead to a wider review of your health.

When to get medical help

Arrange a routine appointment if you notice gradually worsening blur, difficulty reading, poorer night vision, faded colours, or frequent changes in your glasses prescription. Also arrange screening if you are overdue, even if you have no symptoms.

Seek urgent, same-day eye care for:

Seek emergency care immediately for sudden severe sight loss or a painful red eye with blurred vision, halos, headache, nausea, or vomiting. Do not drive yourself if your vision is suddenly affected.

- A sudden increase in floaters
- New flashing lights
- A dark patch or curtain moving across your vision
- Sudden or rapidly worsening blurred vision
- New loss of part of your visual field

Common questions

Can I have diabetic retinopathy without knowing it?

Yes. Early changes often cause no pain or noticeable vision problems. Retinal screening can find damage before you can see its effects.

Can better blood sugar control reverse eye damage?

Better long-term blood sugar control can reduce further damage, but it may not reverse established scarring or lost vision. Some retinal swelling can improve with medical treatment. Major changes to diabetes treatment should be coordinated with your care team, especially if advanced retinopathy is already present.

Do eye injections hurt?

Numbing drops are used before an injection. You may feel pressure, a brief scratch, or mild irritation afterward. Severe pain, increasing redness, or worsening vision after an injection

needs urgent assessment because infection inside the eye, although uncommon, can threaten sight.

Will I go blind if I have diabetic retinopathy?

Not everyone loses vision. Early detection, risk-factor management, and eye treatment can substantially reduce the chance of severe sight loss. Advanced damage may still cause permanent impairment, particularly if it is not treated promptly.

How often do I need an eye examination?

The interval is based on your diabetes type, age, pregnancy status, and retinal findings. People with no visible damage may be screened less often than those with active or treated retinopathy. Follow the timing given by your screening or eye service rather than waiting for symptoms.

Can I still drive?

Many people can continue driving if their central and side vision meet local legal standards. Retinopathy, laser treatment, glaucoma, or cataracts can affect those standards. Avoid driving when your vision is blurred after dilating drops or during a sudden visual change.

Sources

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