

DIABETES AND EYE HEALTH

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What Is Diabetes?

Diabetes is a condition that causes your blood sugar to rise higher than normal and can affect the whole body. People who have diabetes may not be able to produce insulin, or they cannot use insulin effectively. Insulin is a hormone that transports the sugar in the blood to cells around the body. When there is a problem with insulin, blood sugars rise too high. Long-term unmanaged high blood sugar can cause many long-term complications, including eye disease, depression, kidney disease, nerve disease, and diseases of the heart, brain and blood vessels.

Why Is Eye Health and Diabetes Important?

According to the American Diabetes Association, diabetes is the leading cause of new cases of blindness in adults aged 18-64, with diabetic retinopathy being the most common diabetes-related cause of blindness. There is inequity in those who are affected by diabetic eye diseases; African Americans, Native Americans, Alaskan Natives, Hispanics/Latinos, and older adults are at a higher risk of complete vision loss from diabetes. For all individuals with diabetes, it is especially important to manage their diabetes and keep up with their eye health.

Diabetes can lead to eye damage when blood sugar levels are high for long periods of time. High blood sugar causes fluid levels to change, causing swelling in the eye tissues. This swelling can lead to temporary blurry vision that resolves when blood sugar levels drop back down. If blood sugar stays elevated for long periods of time, the blood vessels in the back of the eye can become damaged. This damage can begin as early as the onset of prediabetes. Fluid leaking from these damaged blood vessels causes swelling in the eye. In addition, the new blood vessels that grow are weak and may bleed into the middle part of the eye and cause scarring or dangerously high pressure. All of these things can lead to eye damage and permanent vision loss or blindness.

Many diabetes-related eye diseases begin with damaged or weak blood vessels and involve swelling. The best way to prevent or manage these eye conditions is by managing your diabetes and getting regular eye examinations.

Diabetes-Related Eye Diseases

Eye diseases from diabetes include diabetic retinopathy, macular edema, glaucoma, and cataracts.

Diabetic Retinopathy:

- It is a leading cause of blindness in American adults and the most common diabetes-related eye disease.
- In early diabetic retinopathy, blood vessels can weaken, bulge, or leak into the retina.
- If the disease worsens, some blood vessels can close off, which causes new blood vessels to grow on the retina's surface. The abnormal new blood vessels can lead to serious vision problems such as:
 - Dark, floating spots or streaks that look like cobwebs.
 - Diabetic macular edema (DME): blood vessels in the retina leak fluid into the macula and cause blurry vision.
 - Neovascular glaucoma: abnormal blood vessels grow out of the retina and block fluid from draining out of the eye.
 - Retinal detachment: scars form in the back of the eye and pull the retina away.
 - Vitreous hemorrhage: new blood vessels bleed into and fill the center of the eye, causing floaters or, in more severe cases, blindness.
 - Blindness

Macular Edema:

- The macula is the center of the retina that provides sharp, straight vision.
- It can swell due to leaky blood vessels caused by diabetes and results in blurred or distorted vision.



The best way to prevent or manage these eye conditions is by managing your diabetes and getting regular eye examinations.

Picture credits: RHN Team Picture Bank

- It can destroy the sharp vision in this part of the eye, leading to partial vision loss or blindness.

Glaucoma:

- Glaucoma is a group of eye conditions that can damage the optic nerve.
- There are four major types of glaucoma: open-angle glaucoma, closed-angle glaucoma, congenital glaucoma, and secondary glaucoma.
- Neovascular glaucoma, a form of secondary glaucoma, is caused by diabetes.
- High blood sugar levels can damage the retina's blood vessels and result in the creation of abnormal new ones. When new blood vessels grow on the eye's iris (the colored part of the eye), it can cause an increase in eye pressure.
- This increase in eye pressure causes damage to the optic nerve and possible loss of side vision.
- Vision loss may start without any noticeable symptoms, leading to tunnel vision.
- It can lead to permanent loss of vision without treatment.
- Vision cannot be restored after it is lost.
- Medications and surgery can delay progression.

Cataracts:

- Can form earlier and progress faster in people with diabetes due to the increase of sugar in the blood.
- Creates a cloudy buildup in the eye's lens.
- Can cause vision to become blurry and colors to become dull.
- Treatable with surgery that can help restore vision.
- Diabetes is the most common risk factor.

Preventing Diabetes-Related Eye Disease:

- Manage your blood glucose, blood pressure, and cholesterol
- Have regular dilated eye exams to evaluate the health of your eyes and detect any changes.
- Stop smoking
- Avoid harmful sun rays (wear sunglasses)
- Your doctor may treat your eyes with anti-VEGF medicine (aflibercept, bevacizumab, or ranibizumab). These medications block the growth of abnormal blood vessels in the eye and stop fluid leaks, which can help treat macular edema.
- Laser treatment
- Vitrectomy (surgery to remove the clear gel that fills the center of the eye, called the vitreous gel)
- Cataracts lens surgery

Learn more about diabetes and preventing complications with the following fact sheets.

- [Health Extension for Diabetes](#)
- [Know Diabetes By Heart](#)
- [HGIC 4386, Foot Care for People with Diabetes](#)
- [HGIC 4364, Diabetes](#)
- [HGIC 4373, Prediabetes](#)

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