

# The link between diabetes and eyesight

What exactly happens, when one goes from being diabetic to losing one's sight?

By Dr Leo Seo Wei, Ophthalmologist

High blood sugar (glucose) increases the risk of eye problems which can threaten vision. In fact, diabetes is one of the leading causes of blindness in adults.

Diabetes causes changes to the blood vessels. In some people, blood vessels may swell and leak fluid, while in others, abnormal new blood vessels grow on the surface of the retina, which is the light-sensitive tissue at the back of the eye. Good vision, however, requires a healthy retina.

The three major eye problems that people with diabetes may develop and should be aware of are cataracts, glaucoma and diabetic retinopathy.

## Cataracts

A cataract is a clouding or opacity of the normally clear lens of the eye. The lens allows us to see and focus, just like a camera does. Although cataracts are caused by ageing, diabetics develop cataracts at an earlier age than most because of a biochemical reaction between a particular enzyme and glucose.

In diabetics, the cataract also progresses more rapidly, resulting in vision impairment. The symptoms include blurred vision, cloudy vision or glare. Cataracts are treated surgically by removing the cloudy lens and replacing it with a clear artificial intraocular lens.

However, diabetic patients with visually significant cataracts pose unique challenges during surgery, and may face a more difficult recovery. Surgery may cause rapid acceleration of retinopathy, induce the formation of abnormal blood vessels or lead to macular changes. There is also a higher risk of post-operative infection.

## Glaucoma and diabetes

Glaucoma is the name for a group of eye conditions that result in optic nerve damage, which in turn may cause loss of vision. This damage is usually caused by abnormally high pressure inside your eye. People with diabetes are three times more likely to develop glaucoma than people without, especially if they are over 40.

In diabetics, there is a higher risk of open-angle glaucoma where the increase in pressure can damage the eye's nerves and blood vessels, causing changes in vision. Treatment requires lowering the pressure, either by increasing the drainage of aqueous humour or decreasing the production of fluid. Medication can accomplish both.

With open-angle glaucoma, there may be no symptoms until the disease is very advanced with significant vision loss. Symptoms can include headaches, eye aches or pain, blurred vision, watering eyes, halos around lights, and loss of vision.



Diabetics are also more likely to get the rare neovascular glaucoma, which causes blood vessels to grow on the iris. These vessels block the normal flow of fluid out of the eye, raising eye pressure. Treatment can include special eye drops, laser procedures, medicine, or surgery.

## Diabetic retinopathy

This occurs when diabetes weakens/damages the blood vessels in the eye. Risk factors include long diabetes duration, poor diabetes control, high blood pressure, previous stroke and heart disease. Diabetic retinopathy is the leading cause of irreversible blindness in industrialised nations.

## Preventing eye problems for diabetics

A detailed eye examination can help identify a problem early when it is more easily treated and prevent further vision loss, especially for diabetics. Women with diabetes who become pregnant require a comprehensive eye examination during the first trimester and close follow-up with an ophthalmologist throughout the pregnancy.



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