
Eye Health: Dry Eye with Diabetes

One of the most common, yet rarely talked about, eye conditions in people with diabetes is dry eye. Studies have shown **54 percent of people with diabetes** have dry eye.

Also known as **dry eye syndrome (DES), dry eye disease, or keratoconjunctivitis sicca**, this condition sounds harmless but should be taken just as seriously as any other diabetes eye complication. In fact, they are often related. Quite literally, DES is characterized by a lack of fluid on and around the surface of your eye or poor quality of tears on the front surface of the eye. The causes vary and there is more than a dozen recognized types of dry eye, and each may require different treatment strategies.

Healthy eyes require constant production of tears to maintain their moisture. Crying leads to the production of more tears. And you've likely experienced your eyes watering excessively when something is irritating them.

Tears are made of three ingredients—water, oil, and mucus—that keep the surface of your eyes clear, smooth, and capable of seeing clearly. When you aren't producing enough tears long-term, it can lead to DES.

Why Diabetes Increases Your Risk of DES

You likely already know that diabetes—and more specifically, chronically high blood glucose (blood sugar)—can create many complications in your eyes, including retinopathy, cataracts, and glaucoma. In short, there are several ways diabetes causes dry eyes. Diabetes affects the function of the lacrimal gland, which produces watery parts of your tears. Diabetes also affects oil glands in our eyelids that prevent the watery part of our tears from evaporating too quickly after each blink. These glands are responsible for producing tears and maintaining healthy moisture levels in your eyes.

- Insulin plays a critical role in the function of the lacrimal gland. Inadequate insulin levels in the body can lead to decreased tear production.
- High blood glucose can damage nerves throughout your eyes, including the nerves in the lacrimal gland and nerves on the eyes clear window, called the cornea. These nerves are necessary for tears to “stick” to the front surface of the eye. This means overall blood flow to this area becomes limited, leading to decreased tear production (quantity of tears) as well as decreased tear adhesion to the eye (quality of tears).
- Inflammation and immunity have both been linked to DES. High blood glucose can trigger an inflammatory cascade that affects the overall function of the lacrimal gland and impairs the flow of normal oils from eyelid glands that keep tears from evaporating.

Like most diabetes complications, healthy blood glucose management and an **A1C of less than 7 percent** has been shown to help prevent diabetes-related eye complications like DES.

What Causes Dry Eye Syndrome?

DES can affect people with and without diabetes, but it's important to consider the full variety of factors that can increase your risk of DES, some of which may be related to your diabetes management plan.

According to the **American Academy of Ophthalmology**, some of the most common causes and risk-factors for developing DES include:

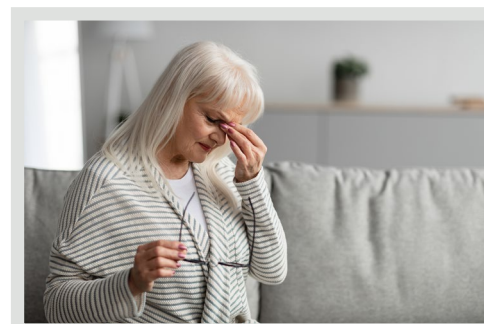
- Prolonged high blood glucose (blood sugar)
- Topical medications used for other eye conditions
- Very dry climate
- Very smokey or windy environment
- Excessive screen-time
- Wearing contact lenses
- LASIK eye surgery
- Hormonal changes (especially menopause)
- Certain eyelid conditions like **entropion and ectropion**
- Some medications for high blood pressure, allergies, sleeping, anxiety, depression, heartburn, and others
- Other chronic illnesses including rheumatoid arthritis, thyroid disease, and lupus

Symptoms of DES

It might seem easy to overlook the seemingly subtle feelings of dry eye in the earlier stages, but if your symptoms develop and progress, you should reach out to your optometrist (eye doctor) or ophthalmologist as soon as possible.

Symptoms of dry eye include:

- Frequent or constant stinging or burning
- Presence of mucus on or around the eye
- Unexplained blurry vision
- Difficulty reading
- Redness of the eye
- Irritation by environmental factors like wind or smoke
- Discomfort or pain when wearing contact lenses
- Excessive tears to compensate for chronic dryness



The last symptom may sound counterintuitive, but as your eyes desperately try to compensate for chronic dryness, they might overproduce tears.



Treating DES

The treatment approach for DES depends largely on the severity and cause. Your treatment plan may also have to work around medications used for other health conditions that might be contributing to your DES. For example, you may need to continue taking beta-blockers to treat high blood pressure which is contributing to dryness in your eyes.

First, you'll need to work with your health care team to improve chronically high blood glucose (blood sugar). For some, this may help resolve your DES entirely.

Many people may need to begin using artificial tears daily to provide their eyes with adequate moisture.

Your eye care team may recommend having your tear ducts blocked with silicone plugs or surgically closed to keep your tears in your eyes longer, giving them more time to moisten the surface of your eye.

Other common treatments include eye drop medications that increase tear production or low strength anti-inflammatory eye drops to help get the eyelid oil glands flowing normally, and even mechanical "milking" of the oil glands to restore their normal function (home based devices or an in-office procedure).



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