



How Diabetes Affects your Teeth and Vision



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01 The Blood Sugar-Oral Health Connection:

Manage Diabetes with Good Oral Hygiene

Did you know oral health plays a significant role in the body's overall health, particularly when it comes to certain chronic conditions such as diabetes? Diabetes affects how a person's body processes blood sugar. If you have diabetes, you have too much sugar in your blood, which can lead to serious health problems. It's the leading cause of new cases of adult blindness, lower limb loss that is not trauma-related and kidney function problems. And, it's the **7th leading cause of death in the U.S.**, according to the National Diabetes Information Clearinghouse.



Those are some scary stats. But, there are ways to keep your blood sugar in check and keep yourself healthy. One of them is seeing your dentist!

How Can My Dentist Help My Diabetes?

When bacteria builds up in your mouth and under your gums, it can cause gum disease, also known as gingivitis. This irritates the sensitive gum tissue and causes swelling and pain. People with gum disease often notice that their gums bleed when they brush their teeth or floss. If left untreated, gum disease can eventually destroy the bone and soft tissues that hold your teeth in place. They can even become loose or fall out.

Unfortunately, those with diabetes are more prone to gum disease because their bodies have a harder time fighting off bacteria. If gum disease develops and a deep infection sets in, it can make blood sugar levels rise and be hard to control, even with blood sugar medicines.

Regular Cleanings Can Prevent Gum Disease

While brushing and flossing every day at home goes a long way to preventing cavities and gum disease, there are some places you just can't reach with your toothbrush. Everyone should visit the dentist regularly for checkups and cleanings to keep bacteria from building up under the gum line. But, this is especially important for people with diabetes whose blood sugar levels will benefit greatly from a healthy, clean and infection-free mouth.

02 ▼ How Diabetes Affects Your Teeth



Diabetes is a long-lasting medical condition that affects your body's relationship with natural sugars like glucose. Your pancreas naturally produces a hormone called insulin to regulate the amount of glucose in the blood. It moves the sugar from your blood into your cells where the sugar converts into energy. The lack of insulin production can cause a type of diabetes to form. It's so common that more than 30 million Americans are affected by diabetes, while 84.1 million Americans have prediabetes.

Diabetes and Teeth

Per the University of Rochester Medical Center, poorly controlled diabetes can often lead to periodontal disease. Diabetes can compromise blood flow and end up weakening the gums and bone in your mouth; This makes them more prone to infections. With poorly controlled diabetes, you may have high sugar levels in your mouth which encourage the growth of bacteria that can cause gum diseases. Poor blood sugar control can also lower your immune system which makes it harder to recover from gum disease.

A common symptom of undiagnosed diabetes tends to be dry mouth. According to the American Diabetes Association, medication side effects and high blood sugar levels cause this symptom. Dry mouth can:

- ▶ Make it hard to taste food
- ▶ Increase the risk of cavities
- ▶ Lead to salivary gland infections
- ▶ Cause bad breath

If you're dealing with this symptom, please make sure to drink more fluids. Sugar-free gum is also recommended to keep the saliva flowing. If gum and hydration don't help to alleviate your dry mouth, consult with your dentist about alternate options. A saliva substitute could be right for you. Worried about the dental costs of an evaluation? With most dental plans, a co-payment for an exam can cost you little to nothing.



03 ►► Diabetes, Liver and Kidney Disease and Dental Health

The first step toward change is awareness. The second step is acceptance.” Nathaniel Branden

You’ve been made aware and have finally accepted your doctor’s prognosis: You have type 2 diabetes. Even though members of your family have it, you just weren’t expecting it. The symptoms you’ve been experiencing make sense now: frequent urination, weight and muscle loss, increased sense of thirst, cuts or wounds that heal slowly, and blurred vision, to name a few.

Now that you’ve accepted this new curve ball in your health, you have amped up your Google research and have found a lot of information on this disease. For example, you now understand that diabetes may cause kidney disease, as well as fatty liver disease. But did you know that there is a connection between liver and kidney disease and dental health? As you can guess, there is. The dental connection is a disease called periodontitis, also known as gum disease.

Periodontitis and Diabetes

Periodontitis is a gum infection that destroys the tissue and bone that support your teeth. It can cause loose teeth and tooth loss. Studies show clinical evidence that periodontal infection makes it harder to control unhealthy blood sugar levels. And on the flip side, patients with diabetes are at a higher risk of getting periodontitis, and other dental infections. In fact, this disease is more extreme in people with diabetes because it slows the healing process and decreases the body’s ability to resist infection. Here’s how this plays out with liver and kidney disease.

Periodontal Disease and Liver Disease

People with type 2 diabetes may have a higher risk for nonalcoholic fatty liver disease (NAFLD). This condition causes an increase in fat in your liver. The buildup is not connected to the amount of alcohol a person drinks.

Here's the dental connection: According to Mayo Clinic, almost 50 percent of the people with type 2 diabetes end up with NAFLD. Other studies show that when periodontal treatments improve, so do certain liver functions in patients with NAFLD.

Periodontal Disease and Kidney Disease

Our bodies are amazing in how it functions. One of its many wonders is our kidneys. This organ has tiny blood vessels inside it that act as filters, removing waste from our blood. However, high levels of blood glucose in our system, overwhelm the kidneys, forcing them to filter too much blood. If not treated, this damages the kidneys and causes kidney failure.

Here's the dental connection. A study published in the Journal of Clinical Periodontology identified people with chronic kidney disease (CKD). After 10 years, they found that the death rate (for any reason) among those with both kidney and periodontal disease was higher (at 41 percent). The death rate in those with kidney disease but without periodontitis was lower (at 32 percent).

Another study done at The University of North Carolina at Chapel Hill included over 5,500 people. It found that those who had dental disease were much more likely to have reduced kidney function, which could eventually lead to kidney failure.

So, let's summarize.

Your overall health impacts and is impacted by your oral. Studies show a connection between oral health disease, periodontitis, and diabetes. There may be an association between periodontal disease and liver disease. Patients with a dental disease, such as periodontitis, are more likely to have reduced kidney function.

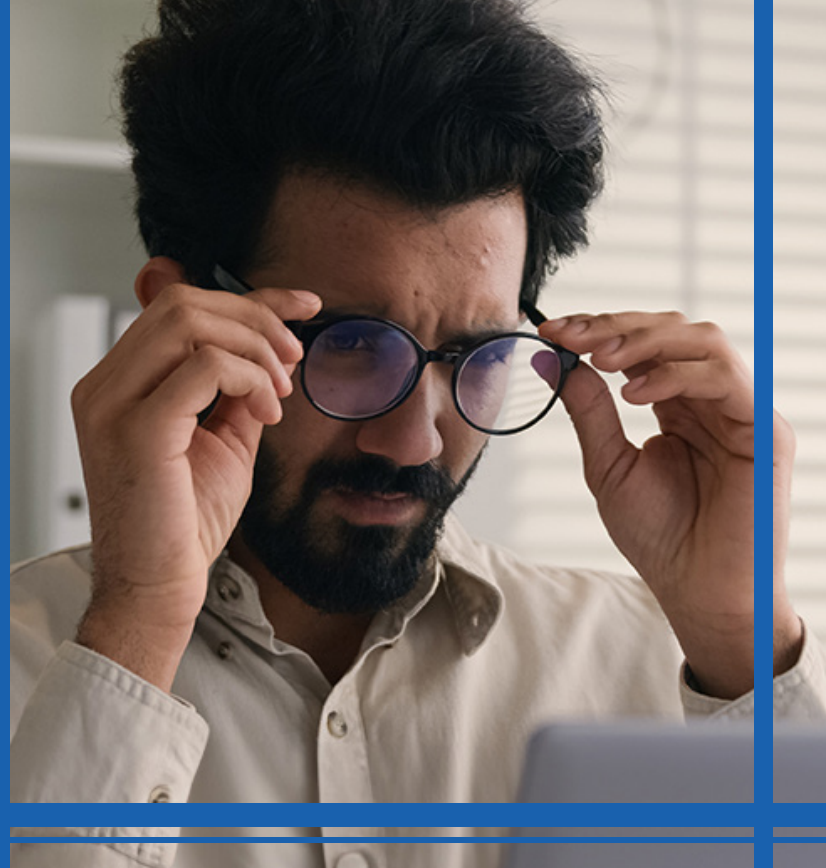
If awareness and acceptance are the first two steps towards change, then taking action is the final part of the equation. Take extra care of your dental health, especially if you have diabetes. That means seeing your dentist every six months (or as often as needed) for checkups, cleanings, and whatever other dental services you may need. It means getting dental insurance so the cost of dental care isn't expensive. It's doing your part at home and brushing and flossing as often as your dentist recommends. It's about maintaining one of the most invaluable things on the planet to you and your family...your health.

04



Is your vision blurry?
Have you been seeing
doubles lately? Just

one more question: do you have diabetes? The fact is, diabetes and vision are connected. In fact, according to the American Diabetes Association, most people with diabetes have minor eye disorders, or have high risk of blindness. The good news is that there are treatments for vision problems related to diabetes. This is especially true if the problem is caught early. When it comes to diabetes and vision, it's important to get the right diagnosis and treatment as soon as possible.



Three Ways Diabetes Affects Vision

Can diabetes affect your eyesight? Generally, if your blood sugar is too high, it will affect both the lenses of your eyes and/or the retina. Three eye diseases may result: glaucoma, cataracts or diabetic retinopathy.

Glaucoma: Glaucoma is a buildup of too much pressure in the eye. The pressure can damage the nerves and blood vessels inside your eyes.

There are two types of glaucoma. Open angle glaucoma—the most common type—offers virtually no early warning signs, unfortunately. Acute angle-closure glaucoma, however, comes with one or more of these signs:

- ▶ Headaches
- ▶ Eye pain
- ▶ Blurred vision
- ▶ Watery eyes
- ▶ Halos around lights
- ▶ Vision loss

Glaucoma can result in blindness if left untreated.

Cataracts: Cataracts affect the eyes' lenses. If you have cataracts, your lenses become cloudy. This makes your vision seem foggy or blurred. Cataracts worsen over time if left untreated. The American Diabetes Association reports that people with diabetes are 60 percent more likely to have cataracts.

Diabetic Retinopathy: This occurs when diabetes has affected your retina's blood vessels. Among the three eye diseases, diabetic retinopathy is the most serious. The longer you have had diabetes, the higher your risk is. If not caught early or if left untreated, it is permanent and will result in blindness.

This disease often shows no early warning signs. Regular eye exams may be the only way to know you have this disease.

Treatments

Your doctor can treat your glaucoma with eye drops, medicines that reduce eye pressure, laser procedures, and/or surgery, depending on your situation.

Your doctor can treat your cataracts with a simple surgery that is performed often with a high rate of success.

Treating diabetic retinopathy is more successful when it is caught early. Treatment can be a laser procedure or surgery, depending on how advanced your disease has become.

If you have diabetes, be sure to control your blood sugar levels, and protect your vision with vision check-ups. The key to preventing blindness is regular eye exams.



05 ▼ Eye Diseases: ▼ What is Diabetic Retinopathy?

If you have diabetes, you most likely have a long list of reasons as to why you should control your blood sugar. One of those reasons could be diabetic retinopathy. If you haven't been checked for it yet, you probably will the next time you visit an ophthalmologist

What is it?

According to the American Optometric Association, diabetic retinopathy is a result of blood sugar being out of control for too long. When your blood sugar is high for a while, you can end up with more fluid in the eye which results in blurred vision. It'll go away if you control your blood sugar, but if you don't, you can end up damaging the blood vessels and capillaries that nourish the retina (which is at the back of your eye and is the light-sensitive tissue that helps you see.)

Symptoms

So, how would you know if you have diabetic retinopathy? At first, you may have no symptoms at all which is why the AOA recommends anyone with a diabetic diagnosis (whether it be Type 1 or Type 2) be checked regularly.

Symptoms you may experience are:

- ▶ Blurry vision
- ▶ Strings or floaters in your vision
- ▶ Decreased color vision
- ▶ Fluctuations in your vision
- ▶ Dark spots in your vision
- ▶ Vision loss

The Mayo Clinic warns about the several serious complications that can result from diabetic retinopathy. Complications can include: retinal detachment (where the retina pulls completely away from the eye), glaucoma (which is pressure that can result in optic nerve damage), and blindness among others. It's very important to be checked regularly.

However, what can be done once it is detected?

Treatment

After your doctor does a dilated eye exam and you've been diagnosed, what happens then? Treatment depends on the severity of the condition.

Early- Focus will be on controlling your blood sugar, and you may be referred back to your endocrinologist to help you do that. If your blood sugar is controlled, the diabetic retinopathy will slow or stop its progress.

Advanced- There are several surgeries that can slow or stop the progress of diabetic retinopathy at the advanced stages. Two kinds of laser surgery can be done right in the doctor's office, while a third is done in a hospital. Surgery can help, but you will still need to be checked regularly.

Diabetic retinopathy can be a scary problem, but just make sure that you have your eye exam regularly, and know that the best thing you can do is control your blood sugar to avoid this issue.



06 ►► The Connection Between Blurry Vision and Diabetes

According to the American Diabetes Association (ADA), people with type 1 diabetes are at higher risk for eye complications. When most people think of diabetes, they think of sugar levels and are not aware of the effects it has on different organs of the body, including the eyes. In order to understand the connection between diabetes and vision, it helps to understand how the eye works.

The cornea is a transparent structure found in the front of the eye that helps to focus on incoming light, that light passes through a protective layer called aqueous humor and then through the crystalline lens that allows for more focusing, then finally it hits the retina. The retina is specialized for seeing the fine details and it is supported by blood vessels. A visualization is shown below.

Normal Eye

Now, where is the connection? Diabetes creates high blood sugar (glucose) levels, which causes glucose to collect in the bloodstream. The glucose then narrows the blood vessels, reducing the flow of blood and oxygen, which increases the risk of damaged vessels. This can lead to short-term and long-term vision complications.

Short-term

Damage to small blood vessels can lead to the most common short-term vision problem, blurry vision. Blurry vision can occur because of:

- Swelling- High blood sugar can cause irritation to the eye lens, causing it to swell. The swelling changes the shape of the eye, which leads to blurry vision.
- Hypoglycemia- A crash in low blood sugar can lead to negative impacts on brain function, which can cause blurry vision.

Eye and vision complications from diabetes are progressive. If blurry vision continues, it may result into a more long-term complication as well as a sign of a more serious problem.

Long-term

Consistently high blood sugar could lead to damaged blood vessels, resulting in the most serious diabetes related vision problems called Diabetic Retinopathy.

Diabetic Retinopathy

Diabetic retinopathy is a general term used for all disorders of the retina caused by diabetes. The disease progresses through four stages:

1. Mild nonproliferative retinopathy
2. Moderate nonproliferative retinopathy
3. Severe nonproliferative retinopathy
4. Proliferative diabetic retinopathy (PDR)

If diabetic retinopathy is not treated and monitored, it can cause serious vision problems and even lead to diabetic macular edema (DME). DME causes a buildup of fluid (edema) at the macula, also known as yellow spots, that appear near the retina. It's the most common cause of vision loss among people with diabetic retinopathy.

Glaucoma

Other than diabetic retinopathy, glaucoma is another long-term issue that can arise from diabetes. According to the ADA, people with diabetes are twice as likely to suffer from glaucoma than people without diabetes. The longer someone has had diabetes; the more common glaucoma is. Often associated with increased blood pressure, glaucoma occurs when pressure builds up in the eye. Overtime, the retina and the nerve become damaged and cause vision loss.

If left untreated, glaucoma can result in peripheral vision loss and eventually, central vision will also be affected until vision is totally lost. As of now there is no cure for glaucoma, and vision lost from it is irreversible. However, the sooner the glaucoma is caught, the more effective treatment can be to slow down its development. There are also vitamins and supplements that can help prevent or slow down glaucoma, listed in our blog '3 Eye Vitamins That May Help Prevent Glaucoma'. If you think you might have Glaucoma, make sure to check with your doctor.

Cataracts

According to the National Eye Institute, adults with diabetes are two to five times more likely to develop cataracts than those without diabetes.

Symptoms of cataracts include:

- ▶ Cloudy, blurred, or faded vision.
- ▶ Excessive glare or a “halo” around lights.
- ▶ Poor night vision.
- ▶ Frequent changes in prescriptions.
- ▶ Double vision.

Early symptoms of cataracts may be treated with new eyeglasses, brighter lighting, and magnifying glasses. Read more facts about Cataracts in our blog ‘Learn the Facts About Cataracts’.

Steps to Take to Preserve Eyesight

Regular visits to an ophthalmologist can greatly help people with diabetes maintain their vision and keep it in good shape. People who already have a diabetic eye disease may need to make more frequent visits to monitor its development.

Other ways to preserve your eyesight are:

- ▶ Keeping blood sugar levels under control.
- ▶ Frequently monitoring blood pressure and keeping it at a healthy level.
- ▶ A healthy lifestyle, including a clean diet and exercise.