

Wrestling with Retinopathy

By Gary Scheiner MS, CDE

Ladies and gentlemen, boys and girls, welcome to tonight's bout. A heavyweight contest between two formidable contestants: You, and Diabetic Retinopathy. At stake is nothing less than your ability to see. Diabetic retinopathy, as you may know, can lead to severe vision loss or permanent blindness. In fact, it is the leading cause of blindness in American adults. Diabetic retinopathy has already affected more than 4 million people with diabetes, nearly 1 million of whom have succumbed to the severe form of the disease. If you have diabetes and think you'll never have to face this evil adversary, think again. Four out of five people with diabetes will eventually run up against diabetic retinopathy in their lifetime.

Now, let's meet the combatants.

Diabetic Retinopathy

The retina is the light-sensitive tissue at the back of the eye, sort of like the film in a camera. A healthy retina is necessary for good vision. In some people with diabetes, the tiny blood vessels that nourish the retina may swell and leak fluid. If the retina does not receive enough blood flow, abnormal new blood vessels may grow out from the surface of the retina. These blood vessels often hemorrhage (leak blood) and block light from reaching the retina, which can result in vision loss.

It is common for blood vessels of the retina to become damaged over time when blood sugar levels are elevated. This is called *diabetic retinopathy*. It is the most common

diabetic eye disease (people with diabetes are also at an increased risk for glaucoma and cataracts). Elevated blood *pressure* also contributes to blood vessel damage. Together, high blood sugar and high blood pressure represent a powerful tag-team working against your healthy vision.

If you have diabetic retinopathy, you may not notice changes to your vision early on in the disease process. But over time, diabetic retinopathy tends to progress and cause vision loss, especially if it is not treated.

Diabetic retinopathy has four stages.

1. Mild nonproliferative Retinopathy (also called "background" retinopathy): At this earliest stage, small balloon-like swellings occur in the retina's tiny blood vessels. There are usually no symptoms at this stage.
2. Moderate Nonproliferative Retinopathy. In addition to swellings, some blood vessels that nourish the retina become abnormal and some become blocked. Swelling of the macula (the part of the retina responsible for central vision) may or may not occur during this stage of the disease. There are usually no symptoms at this stage.
3. Severe Nonproliferative Retinopathy. Many more blood vessels are blocked, depriving several areas of the retina with their blood supply. These areas of the retina send "help" signals that trigger the growth of new blood vessels intended for nourishment. These blood vessels are abnormal and may be very fragile. Although swelling of the macula may cause

blurred vision in some people, these patients may again be asymptomatic.

4. Proliferative Retinopathy. The new blood vessels grow from the surface of the retina. These vessels may bleed or pull on the retina. In either case severe vision loss often results during this stage of diabetic retinopathy if left untreated.

It is important to note that symptoms may occur in any of the stages of diabetic retinopathy or may not occur until the disease is very advanced. Retinopathy is sneaky and likes to hide in the shadows: You can be under attack without even knowing it.

You

Despite the high prevalence of eye problems in people with diabetes, you should not give in without a fight. There are a number of moves and techniques that can be combat retinopathy.

Round 1: Tight Diabetes Control

Your first move should be to achieve the best possible blood sugar control. Research has shown that lowering your average blood sugar (as measured by HbA1c) will significantly reduce your risk for developing retinopathy and slow its progression if you already have it. In the Diabetes Control and Complications Trial, lowering the HbA1c by just two percentage points (from 9.2% to 7.2%) lowered the risk of developing retinopathy by 76% and slowed the progression of existing retinopathy by 56%.

Round 2: Regular Screenings

Early detection of diabetic retinopathy can, and does, lead to early treatment and thus prevent vision loss. You should have your eyes checked regularly by a trained professional. Remember, there are usually no symptoms until retinopathy becomes very, very serious. To catch it early, when it is still easily treatable, see an ophthalmologist or optometrist for a complete eye screening.

According to Alexander Brucker, MD, Professor of Ophthalmology at the University of Pennsylvania and Editor-in-Chief of the journal RETINA, “Symptoms should have NOTHING to do with when you go to the eye doctor. Just one swollen capillary that goes untreated can cause a loss of vision.”

Dr. Brucker also emphasizes that there must be blood vessel leakage/hemorrhaging before symptoms to become noticeable. “That’s why we don’t wait for symptoms to be examined.”

The purpose of an eye exam is to see all of the internal structures of the eye, including blood vessels, and look for abnormalities. It is necessary to dilate the pupil in order to see the blood vessels in the peripheral portions of the retina. If the eye is not dilated, the examiner will only be able to see the central portion of retina (like the bulls eye on a target), but nothing else.

Every adult with diabetes should have a dilated eye exam immediately upon diagnosis of their diabetes, as eye problems may already exist. “We often catch diabetic eye problems before the diabetes is even diagnosed,” says Dr. Brucker. After the initial examination, screenings should be

done every year, or more often if the eye doctor feels it is necessary.

Although diabetic retinopathy is rare in children prior to puberty, regular examinations are still recommended for pre-pubescent children while annual examinations should be done yearly after puberty. With this schedule in mind, eye examinations become part of routine care for all diabetic patients. According to Dr. Brucker, the odds of developing retinopathy increase the longer one has diabetes, but some people are naturally more susceptible and may develop it at a younger age.

For women with Type-1 diabetes who become pregnant, an immediate eye screening is essential. The hormonal and blood pressure changes that take place during pregnancy can speed up the progression of even very mild cases of retinopathy.

Round 3: Aggressive Treatment

If unusual symptoms appear, see an eye doctor right away. Symptoms that may indicate diabetic retinopathy include blocked or blurred vision in one or both eyes, a red “haze” in your field of vision, or particles that seem to be floating in mid-air. “Floaters,” as these are called, are very common. They might not represent a problem, but they could mean that blood vessels in the eye are leaking. If in doubt, see your doctor.

If you discover that you have diabetic retinopathy, even a very mild form, get a referral to an ophthalmologist who specializes in the treatment of retinopathy. Today’s ophthalmologists have a variety of tools and procedures designed to keep the

retinopathy from progressing to the point that it may impair your vision.

Laser treatment is one of the most effective tools used by ophthalmologists to prevent vision loss. A laser beam of light focused on weak or damaged blood vessels “seals” them so that they won’t leak or hemorrhage. The focused laser procedure takes just a few minutes, and there is usually little or no discomfort. When blood vessel damage is more widespread and there is growth of blood vessels in the eye, a “scatter” laser procedure is used over a large area of the retina.

Dr. Brucker emphasizes that laser treatment works best when retinopathy is caught early. “Lasers can work wonders for preventing vision loss, but there are limits to what they can treat. When retinopathy spreads and proliferates, or when serious hemorrhages occur, the laser procedure becomes more difficult and less effective for restoring normal vision.

Another option used for treating diseases of the macula (the part of the retina responsible for central vision) is the use of injectible medications. Steroids are sometimes used to decrease swelling of the macular, and ranibizumab (brand name LUCENTIS®) or bevacizumab (Avasstin) may help to suppress the growth of new blood vessels in the eye.

Round 4: Control the Blood Pressure

Another way to attack diabetic retinopathy is by keeping blood pressure well within normal limits. Blood pressure control is important for preventing the progression of existing retinopathy, and is believed to also help to decrease the risk of its development. Because high blood pressure places extra

stress on blood vessels, it can contribute to leakage/hemorrhaging of already damaged capillaries in the retina. Lowering the blood pressure has the opposite effect: it reduces the risk of leakage.

Some people are warned against heavy exercise because of the risk it might place on the eyes. The fact is, cardiovascular (aerobic) exercise is a great way to lower both blood pressure and blood sugar, so it may be beneficial to the eyes. Only exercises that cause sharp *increases* in blood pressure may create a potential risk for those with existing retinopathy. These include high-intensity weight lifting, deep sea diving, and activities in which the head is below the level of the heart.

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Heed the advice given above – particularly Rounds 1 through 4. Give yourself a good fighting chance to fend off diabetic retinopathy and stay in focus for a lifetime.

Round 5: Don’t Fall For the Fakes

There are certain things that have no real benefit for preventing or treating diabetic retinopathy. These include getting new eyeglass or contact lens prescriptions; taking special vitamin supplements; loading up on foods rich in vitamin A (such as carrots); or taking aspirin (although aspirin may be beneficial for other health problems). Rather than waste your time (or money) on these, focus on the effective strategies listed above.

And The Winner Is...

When it comes to diabetic retinopathy, not everything is within our control. Some people are simply more prone to it than others. It progresses faster in some people than in others. And abnormal/damaged blood vessels grow and leak in unpredictable ways. But that doesn’t mean that we’re helpless. Even the “little guy” can beat the