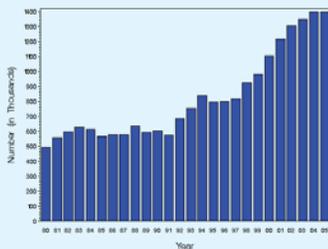


# DIABETIC RETINOPATHY

According to the Department of Health and Human Services, Center for Disease Control and Prevention, from 1980 through 2005, the number of adults aged 18-79 with newly diagnosed diabetes almost tripled from 493,000 in 1980 to 1.4 million in 2005 in the United States.

The total prevalence of diabetes in the United States as of 2005 was 20.8 million or 7.0% of the population. In 2002, Diabetes was ranked 6<sup>th</sup> as the leading cause of U.S. deaths. Complications that develop as a direct result of diabetes include: Blindness, heart disease and stroke, high blood pressure, kidney and nervous system disease, amputations, dental disease, high risk pregnancies, and other serious life-threatening issues.



## WHAT IS DIABETIC RETINOPATHY?

Diabetic retinopathy is the most common diabetic complication affecting the eyes and as mentioned above, is one of the leading causes of blindness in Americans. It is caused by inappropriate changes in the retinal blood vessels. The changes may make blood vessels swell and leak fluid. New abnormal frail blood vessels can develop, which can rupture, creating serious additional problems for the patient.

## WHO IS AT RISK FOR DIABETIC RETINOPATHY?

Any patient with diabetes--both type 1 and type 2 is at risk. Every person diagnosed with diabetes should get an annual dilated comprehensive examination. The longer someone has diabetes, the more likely he or she will get diabetic retinopathy. Between 40 to 45 percent of Americans diagnosed with diabetes have some form of diabetic retinopathy. If you have diabetic retinopathy, your doctor can recommend treatment to help prevent its progression.

During pregnancy diabetic retinopathy issues may become a greater problem for diabetic women. To protect vision, every pregnant woman diagnosed with diabetes should have a comprehensive dilated eye exam as soon as possible. Your doctor may recommend additional exams during your pregnancy.

## TYPES OF DIABETIC RETINOPATHY:

Diabetic retinopathy may present in various presentations or degrees. They are termed mild non-proliferative retinopathy, moderate non-proliferative retinopathy, severe non-proliferative retinopathy, and proliferative retinopathy.

### 1. Mild Nonproliferative Retinopathy:

In the earliest stage, microaneurysms may occur. Microaneurysms are small areas of balloon-like swelling in the retina's tiny blood vessels.

### 2. Moderate Nonproliferative Retinopathy:

The disease causes some blood vessels that nourish the retina to become blocked. Small hemorrhages and microaneurysms develop in tiny retinal blood vessels. These changes are evident only during a dilated eye exam. If vessels begin to leak, the leaking fluid and lipid may collect in the macula, a condition called "macular edema" or clinically significant macular edema (CSME).



### 3. Severe Nonproliferative Retinopathy.

Retinal blood vessels become occluded (plugged) and the retina loses its critical oxygen and nutrient supply. The retina responds by growing abnormal fragile new blood vessels (neovascularization) across the retina. These vessels can break and bleed into the vitreous, preventing light from reaching the retina. Macular edema may be evident and this condition is called CSME. It can occur at any stage of diabetic retinopathy, although

more likely to occur as the disease progresses. Approximately 50% of patients with severe non-proliferative retinopathy develop CSME.

### 4. Proliferative Retinopathy.

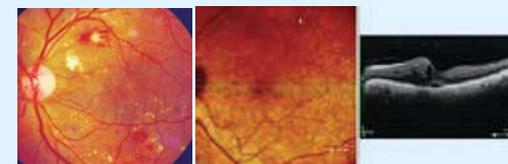
The retina grows more abundant new blood vessels, glial scars may be evident, and the retina may even detach. Fluid in the vitreous and/or macular edema may also be present. The signals sent by the retina for nourishment trigger the growth of new blood vessels which are inherently abnormal and fragile. These fragile vessels tend to rupture and leak causing severe vision loss, culminating in legal blindness in the affected eye(s).

**CSME** (Fluid that has leaked into the center of the macula. The macula is the part of the eye where sharp straight-ahead vision occurs. CSME causes decreased vision, blurred vision, and wavy vision).

## PREVENTING DIABETIC COMPLICATIONS:

In the majority of cases the patient has the power to avoid developing diabetic related complications. Stave off developing complications by:

1. Working closely with your physician and eye doctor



2. Working closely with a dietician to develop a proper meal plan
3. Monitoring blood sugar regularly
4. Routine daily exercise (walking is a great exercise)
5. Reduce your overall weight
6. Control blood pressure (every 10mmHg systolic reduction reduces diabetic risk by 12%).
7. Control of blood lipids (cholesterol, triglycerides, and lipids)

## ARE THERE SYMPTOMS FOR DIABETIC RETINOPATHY?

Usually there are no symptoms in the early stages of the disease. If you have been diagnosed or suspect you are diabetic, be sure to have a comprehensive dilated eye exam annually or more frequently if diabetic retinopathy is found. If new blood vessels grow on the surface of the retina they can bleed into the eye and block vision and possibly lead to a retinal detachment which may cause permanent blindness.

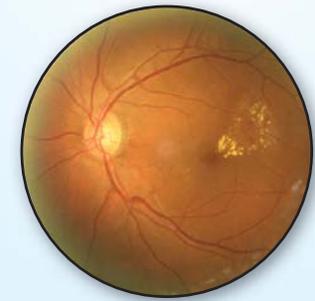
## HOW IS DIABETIC RETINOPATHY TREATED?

During the first early stages, treatment is not necessary unless macular edema was found. The main way to reduce or eliminate retinopathy is for the patient to properly control their levels of blood sugar, blood pressure, and blood cholesterol.

Once diagnosed with proliferative retinopathy, laser treatment may be required. The use of the laser destroys the affected areas of the retina which in of itself creates blind spots in the vision yet can save the rest of the patient's remaining sight. The laser treatment works better before the fragile, new blood vessels have started to bleed. Therefore it is critical to have regular, comprehensive dilated eye exams.

If you develop severe bleeding, you may need another surgery called a vitrectomy. Vitrectomy's remove the blood and the gel-like substance (vitreous) in the eye. If CSME develops, focal laser surgery will be performed to slow the leakage of fluid and reduce the amount of fluid in the retina. Focal laser treatment stabilizes vision and tends to reduce the risk of vision loss by 50 percent.

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