

# Diabetic Retinopathy: The Big Picture

Diabetic retinopathy is damage to the retina that results from Type 1 or Type 2 diabetes mellitus. More than 40% of Americans with diabetes have some stage of diabetic retinopathy. Some types of diabetic retinopathy do not affect the vision, while other types can cause blurred vision or blindness.

**Non-proliferative diabetic retinopathy** is marked by retinal bleeds and microaneurysms. Progressive loss of circulation can stimulate the more severe **proliferative diabetic retinopathy** in which abnormal blood vessels can grow, bleed and cause tractional retinal detachment. **Diabetic macular edema** is swelling of the central retina, a common cause of decreased vision.

## Who gets diabetic retinopathy?

More than 4 million American have diabetic retinopathy. Risk factors for retinopathy include long duration of diabetes, poor blood sugar control, high blood pressure, and cigarette smoking.

## How does diabetes affect the vision?

Diabetic retinopathy begins well before the vision is affected, with spots of blood scattered throughout the retina (background retinopathy, which can be mild, moderate or severe). As the retinopathy progresses, parts of the retina can lose blood flow and therefore oxygen supply.



There are three main ways in which diabetes can affect the vision:

**Diabetic macular edema** (swelling of the center of the retina due to leakage from blood vessels damaged by diabetes)

**Diabetic macular ischemia** (loss of blood flow in the central retina resulting in loss of oxygen to the tissue corresponding to central vision)

**Vitreous hemorrhage** (bleeding into the vitreous gel that fills the eye, due to abnormal blood vessels known as proliferative retinopathy)

## How often should I get my eye examined if I have diabetes?

All patients with diabetes should undergo a thorough examination of the retina at least once a year. Patients with retinopathy often need evaluation more frequently. Your BARA doctor will discuss the recommended frequency of examination based on your risk of vision loss.

## How can I prevent my diabetic retinopathy from worsening?

Progression of diabetic retinopathy is based primarily on the severity of the underlying diabetes. Progression is less likely with strict blood sugar control. Control of high blood pressure will also decrease the risk of progression, along with cessation of smoking. If you are unsure how to improve control of your diabetes or high blood pressure, please consult your primary care physician or nephrologist.



*Diseases & Surgery of the Retina and Vitreous*

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## Evaluation of diabetic retinopathy

Several tests are commonly used to identify diabetic retinopathy. Your BARA doctor may use some or all of these tests at different point in your care in order to guide management and treatment of diabetic retinopathy.

- **Optical coherence tomography (OCT)** is a 3-dimensional scan of your central retina used to identify swelling or thinning due to diabetic retinopathy.
- **Fundus photography** is photographic imaging of your retina used to identify patterns of bleeding, cholesterol deposits from chronic leakage, blood vessel abnormalities due to diabetes and hypertension, and more.
- **Fluorescein angiography** is photographic imaging after intravenous injection of a dye that reveals the blood flow in the retina. Angiography allows direct visualization of blood vessel pruning (ischemia), leakage or proliferation (neovascularization).



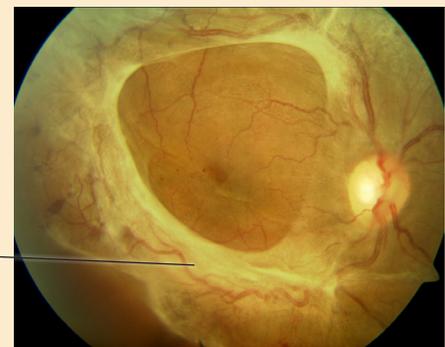
Spots of blood and lipid from non-proliferative diabetic retinopathy



Vitreous hemorrhage from proliferative diabetic retinopathy



Severe vision-threatening proliferative diabetic retinopathy



Fibrovascular (scar tissue) complex from proliferative retinopathy



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Bay Area Retina Associates is a group practice of retinal surgeons. All members of the group are board certified by the American Board of Ophthalmology and have completed fellowship training in the medical and surgical care of retinal diseases. All BARA surgeons have expertise in the treatment of common diseases such as AMD, diabetic retinopathy and retinal detachment, as well as rare diseases. BARA physicians see patients in eight offices around the East Bay, a community we have served for almost 40 years.