

# What Is Macular Edema?

Macular edema is swelling or thickening of the eye's macula, the part of your eye responsible for detailed, central vision.

The macula is a very small area at the center of the retina—a thin layer of light-sensitive tissue that lines the back of the eye. Light rays are focused onto the retina, where they are transmitted to the brain and interpreted as the images you see. It is the macula that is responsible for your pinpoint vision, allowing you to read, sew or recognize a face.

Macular edema develops when blood vessels in the retina are leaking fluids. The macula does not function properly when it is swollen. Vision loss may be mild to severe, but in many cases, your peripheral (side) vision remains.

Macular edema is often a complication of [diabetic retinopathy](#), and is the most common form of vision loss for people with diabetes—particularly if it is left untreated.

## What Causes Macular Edema?

There are many causes of macular edema. It is frequently associated with [diabetes](#), where damaged blood vessels in the retina begin to leak fluids, including small amounts of blood, into the retina. Sometimes deposits of fats may leak inside the retina. This leakage causes the macula to swell.

Eye surgery, including [cataract surgery](#), can increase your risk of developing macular edema due to blood vessels becoming irritated and leaking fluids. Macular edema that develops after cataract surgery is called cystoid macular edema (CME).

Some of the other macular edema causes include:

- [Age-related macular degeneration](#)
- [Uveitis](#)
- Retinal vein occlusion
- Blockage in the small veins of the retina, due to radiation, macular telangiectasis
- Side effects of certain medications
- Certain genetic disorders, such as retinoschisis or retinitis pigmentosa

## Macular Edema Symptoms

Macular edema is often painless and may display few symptoms when it develops. When symptoms do occur, they are a sign that the blood vessels in your eye may be leaking.

Symptoms of macular edema may include blurred or wavy central vision and/or colors appear "washed out" or changed.

If you have macular edema symptoms, you should see an ophthalmologist right away. If left untreated, macular edema can cause severe vision loss and even blindness.

# Macular Edema Diagnosis

During an eye exam, your ophthalmologist will dilate your pupils and examine your retina.

Because macular edema occurs inside the layers of retina tissue, you may have a test called fluorescein angiography, or another called optical coherence tomography (OCT) to help make an accurate diagnosis.

Fluorescein angiography images show your Eye M.D. if any blood vessels are leaking and how much leakage there is. With OCT, a special camera is used to photograph your retina. It measures the thickness of the retina and is also very sensitive at detecting swelling and fluid.

## Macular Edema Treatment

If your Eye M.D. makes a [macular edema diagnosis](#) due to diabetes or retinal vein occlusion, focal laser treatment is often used to reduce swelling of the macula. With this form of laser surgery, your Eye M.D. applies many tiny laser pulses to areas of fluid leakage around the macula. The main goal of treatment is to stabilize vision by sealing off leaking blood vessels that interfere with the proper function of the macula. In some cases, vision loss may be improved with laser treatment.

A patient may need focal laser surgery more than once to control the leaking fluid. If you have macular edema in both eyes and require laser surgery, generally only one eye will be treated at a time, usually several weeks apart.

Medication injection therapy is also being used to treat macular edema. Two drugs —steroids and anti-VEGF agents — have shown promise in reducing diabetic macular edema.

Anti-VEGF drugs target a specific chemical in your eye called vascular endothelial growth factor — or VEGF — that is critical in causing abnormal blood vessels to grow under the retina. Several drugs have been developed that can block the trouble-causing VEGF. An anti-VEGF drug can help treat macular edema by reducing the growth of abnormal blood vessels and slowing their leakage, which helps to slow vision loss.

Medication injection therapy is performed in the doctor's office. An anesthetic is used to numb the eye, and a tiny needle is inserted into the eye to deliver the medication near the retina.

For people with diabetes, controlling blood sugar and blood pressure is another method of macular edema treatment.

To treat cystoid macular edema, where the eye is irritated by the presence of a new lens, your Eye M.D. may prescribe non-steroidal anti-inflammatory (NSAID) eyedrops for a few months. If these drops do not help to reduce the edema and improve vision, you may need to use steroid drops. Sometimes, more powerful steroid injections around or even inside the eye may be used. In rare cases, when cystoid macular edema does not respond to drops or shots, vitrectomy surgery may be needed to clear the gel inside the eye. Also, in rare instances, a lens replacement may be required.

Sometimes the swelling in your eye can cause you to have increased pressure within the eye, called [glaucoma](#). In such cases, your ophthalmologist will treat you with medicines to control your glaucoma.

It may take several months for macular edema to resolve itself. During this time, it is important to follow the treatment regimen that your Eye M.D. recommends in order for your treatment to be effective.