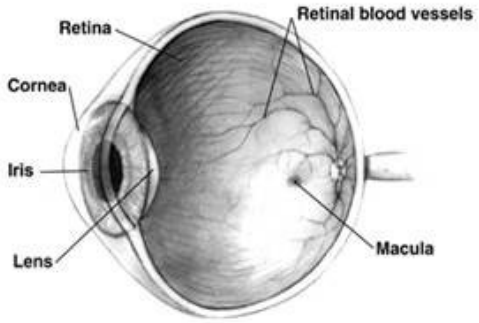
Macular Pucker

A macular pucker is scar tissue that has formed on the eye's macula. The macula is located in the center of the eye's light-sensitive tissue called the retina. The macula provides the sharp, central vision we need for reading, driving, and seeing fine detail. A macular pucker can cause blurred and distorted central vision.

Most of the eye's interior is filled with a gel-like substance *(vitreous)* that fills about 80 percent of the eye. Vitreous helps the eye maintain a round shape. The vitreous contains millions of fine fibers that are attached to the surface of the retina. As we age, the vitreous slowly shrinks. This shrinkage causes the vitreous to pull away from the retinal surface. This is called a vitreous detachment, and it is normal. In most cases, there are no negative effects. It may cause a small increase in floaters, which are little “cobwebs” or specks. These seem to float about in your field of vision.



Sometimes, when the vitreous pulls away from the retina, there is microscopic damage to the retina's surface. When this happens, the retina begins a healing process to the damaged area. This process forms scar tissue (*epiretinal membrane*). This scar tissue is firmly attached to the retina surface. When the scar tissue contracts (*gets smaller*), it causes the retina to wrinkle, or pucker, usually without any effect on central vision. If the scar tissue has formed over the macula, your sharp, central vision becomes blurred and distorted.

For most people with macular pucker, vision remains stable and does not get increasingly worse. Usually macular pucker affects one eye, although it may affect the other eye later.

Other Names for Macular Pucker

- Epiretinal membrane.
- Preretinal membrane.
- Cellophane maculopathy.
- Retina wrinkle.
- Surface wrinkling retinopathy.
- Premacular fibrosis.
- Internal limiting membrane disease.

CAUSES

- Most macular puckers are related to vitreous detachment. Macular pucker usually occurs in people over age 50. As you age, you are at increased risk for macular pucker.
- A macular pucker can also be triggered by certain eye diseases and disorders. Detached retina and inflammation of the eye (*uveitis*) can cause macular pucker.
- People with diabetes sometimes develop an eye disease called diabetic retinopathy. Diabetic retinopathy can cause a macular pucker.
- A macular pucker can also be caused by trauma from surgery or an eye injury.

SYMPTOMS

- Vision loss from a macular pucker can vary from no loss to severe loss. Severe vision loss is uncommon.
- People with a macular pucker may notice that their vision is blurry or mildly distorted, and straight lines can appear wavy.
- You may have difficulty seeing fine detail and reading small print.
- There may be a gray area in the center of your vision. There may be a blind spot.

TREATMENT

In many cases, the symptoms of vision distortion and blurriness are mild. No treatment may be needed. People usually adjust to the mild visual distortion. Mild visual distortion does not affect activities of daily life, such as reading and driving. Eye drops, medicines, or nutritional supplements will not improve vision distorted from

macular pucker. Sometimes the scar tissue, which causes a macular pucker, separates from the retina, and the macular pucker clears up.

Surgery

Rarely, vision grows worse, to the point that it affects daily activities. When vision gets worse, surgery may be recommended. This procedure is called a vitrectomy. In this procedure, the vitreous gel is removed. Removal prevents the gel from pulling on the retina. The vitreous is replaced with a salt solution. You will notice no change between the salt solution and the normal vitreous. The scar tissue which causes the wrinkling is removed. A vitrectomy is usually performed under local anesthesia.

After the operation, you will need to wear an eye patch for a few days or weeks. The eye patch will protect the eye. You will also need to use medicated eye drops to protect against infection.

Surgery to repair macular pucker is very delicate. Vision improves in most cases. It does not usually return to normal. About half of the vision lost from a macular pucker is restored. Some people have much more vision restored, some less. In most cases, vision distortion is reduced. Recovery of vision can take up to three months. You should talk with your caregiver about whether treatment is right for you.

The most common complication of a vitrectomy is the development of a cataract (*clouded eye lens*). Cataract surgery may be needed within a few months or years after the vitrectomy. Other, less common complications are:

- Retinal detachment, either during or after surgery.
- Infection.
- The macular pucker may grow back (rare).

Macular pucker and macular holes.

- A macular pucker and a macular hole are different conditions, although they both result from the pulling on the retina, from a shrinking vitreous.
- When the “pulling” causes microscopic damage, the retina can heal itself. Scar tissue, or a macular pucker, can be the result.
- If the shrinking vitreous pulls too hard, it can tear the retina, creating a macular hole, which is more serious.
- Both conditions have similar symptoms: distorted and blurred vision.
- A macular pucker will not “develop” into a macular hole.
- An eye care specialist will know the difference.

Macular pucker and age-related macular degeneration

A macular pucker and age-related macular degeneration are two separate and distinct conditions, although the symptoms for each are similar. An eye care professional will know the difference.

RESEARCH

Please note that both of the procedures described below need additional clinical testing. We suggest you share this information with your caregiver.

- Some caregivers are researching the use of a surgical procedure, in which scar tissue is peeled off, without performing the vitrectomy.
- Other caregivers are researching a new surgical technique to remove the internal limiting membrane (a layer of the retina) for patients with both macular pucker and macular hole. This surgical technique is called Fluidic Internal Limiting Membrane Separation (FILMS). After a vitrectomy, fluid is injected between the membrane and the retina, which causes the membrane and the scar tissue to lift away. It is then removed with forceps (*grasping tool*).

This information was developed by the National Eye Institute to help patients and their families search for general information about macular pucker. An eye care professional who has examined the patient's eyes and is

familiar with his or her medical history is the best person to answer specific questions.

RESOURCES

National Eye Institute
2020 Vision Place
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Inclusion of an item in this information does not imply the endorsement of the NEI or the NIH.

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