



## Posterior Vitreous Detachment & Floaters

Posterior vitreous detachment (PVD) is a normal change in your eye which does not typically cause sight loss. It is very common and most people will develop it at some point. Although it can cause some frustrating symptoms, it does not cause pain or change the way the eye works. In the vast majority of cases, PVD will not lead to long term changes in your vision. However, in a small number of people, a PVD can be an early warning sign of other problems.

### How your eye works

Light passes through the cornea at the front of your eye, and is focused by the lens onto your retina. The retina is a delicate tissue that lines the inside of your eye. The retina converts the light into electrical signals that travel along the optic nerve to your brain. The brain interprets these signals to “see” the world around you.

Light from the object you are looking at directly is focused onto a tiny area of the retina called the macula at the back of the eye. The macula is about 4mm across and is responsible for detailed central vision and most colour vision. It provides the vision you need to read, recognise faces, drive a car, see colours clearly, and any other activity that requires detailed, fine vision. The rest of the retina gives you side vision (peripheral vision).

### Causes of PVD

The middle of the eye is filled with a clear substance called the vitreous. Light passes through the vitreous to focus on the retina. The vitreous is made up mainly of water and collagen and it has a stiff, jelly-like consistency. As we age, the vitreous becomes more watery, less jelly-like and isn't able to keep its usual shape. As a result, it begins to move away from the retina at the back of the eye towards the centre of the eye. When the vitreous comes away from the retina this is called a posterior vitreous detachment (PVD). This is different to a retinal detachment.

Over 75 per cent of the population over the age of 65 develop a PVD, and it may occur as early as your 40s or 50s. PVD itself is not a sign of a disease or eye health problem.

### Symptoms and diagnosis of PVD

PVD can cause symptoms such as floaters, little flashes of light, or a cobweb effect across your vision. Some people get all three symptoms and others may only get one or two.

Although PVD is not a significant issue itself, these same symptoms can be an indication of a more serious problem, such as a retinal tear or retinal detachment, which needs urgent attention.

The only way to tell whether floaters and flashes have been caused by PVD or a retinal detachment is to have your eyes examined by an ophthalmologist or optometrist. If you suddenly experience any of the following symptoms, make sure you have your eyes examined as soon as possible:

- a sudden appearance of floaters or an increase in their size and number
- flashes of light and/or a change/increase in the flashing lights you experience
- sudden blurring of vision
- a dark 'curtain' moving up, down or across your vision, as this may mean that the retina has already partially detached.

In most cases, flashes and floaters are caused by a PVD and this rarely causes any long term problems with your vision. However, because there is a small risk that these symptoms may be a sign of a retinal tear or retinal detachment, it is always best to have your eyes examined.

## Long-term PVD symptoms

The symptoms of PVD will change over time. Even though floaters and flashes of light can be frustrating in the short-term, they usually settle down over about six months. Occasionally, the floaters caused by the PVD can last for a year or longer. If PVD takes longer than six months to calm down it does not mean there is anything wrong, but if you have concerns about any ongoing symptoms you should speak to an ophthalmologist or optometrist.

### Small flashes of light

These can be visible when the vitreous pulls away from the retina at the back of the eye. The movement of the vitreous away from the retina creates a tug on the retina. The retina reacts by sending a small electrical charge to your brain. You see this as short, small, flashes of light.

In the long term, you are unlikely to see these flashes because once the vitreous has fully come away, it no longer pulls on the retina. Some people may be more prone to seeing the occasional flash of light in the long term but this is not usually anything to worry about.

### Floaters

Floaters can take lots of different forms, shapes and sizes. You may see them as dots, circles, lines, clouds, or cobwebs. Sometimes, floaters can move around quickly. At other times it can feel like they hardly move at all. You may find floaters are more obvious in bright light or on a sunny day.

A floater is created when the vitreous becomes more watery and small, harmless clumps of cells develop and float in the more watery vitreous. The light rays which travel from the front of the eye, meet a clump in the vitreous and it casts a shadow on the retina at the back of the eye. We see this shadow as a floater.

For most people, floaters will become less obvious with time. Sometimes new floaters can develop or it can take longer for the floaters to calm down and for your brain to learn to ignore them. This may be because the vitreous continues to become more watery even when it has detached from the retina.

Many people have floaters even if they do not have PVD or an eye condition. Floaters are very common and your brain usually learns to ignore them over time.

### **Cobweb effect**

As the vitreous pulls away from the retina you may see the thicker, outer edge of the vitreous. This slightly changes the way light passes through the eye, which can make it feel like you are looking through a cobweb. This visual effect soon disappears once the vitreous has come away from the retina.

## **Treatment of PVD**

There is currently no medical treatment for PVD available in Australia. There is no evidence that eye exercises, diet changes or vitamins can help a PVD. Because PVD floaters will normally settle down on their own, the possible benefits of surgery generally do not outweigh the risks involved.

In rare situations, an ophthalmologist may offer laser treatment for floaters. However, this is not commonly used as studies have reported that this treatment only helps to partially reduce floaters in a third of cases. It may make large floaters smaller but it does not seem to improve vision in the long run. There is concern that the possible risks of laser surgery may outweigh the benefits you may gain.

There is also a surgical procedure called a vitrectomy which removes the vitreous jelly from the middle of the eye, and can reduce floaters. It is a major operation and it is not usually offered to patients with PVD due to the risks involved. It is however an option if floaters persist and are causing significant distress. People who have had a vitrectomy will nearly always develop a cataract in that eye.

## **PVD and other eye conditions**

In a small number of cases an acute PVD can lead to a retinal tear. This happens when your vitreous, which is firmly attached to the surface of the retina, tugs quite strongly on the retina as it pulls away. In many cases, an untreated retinal tear can lead to a retinal detachment. A retinal detachment can cause significant sight loss and must be investigated immediately. Retinal tears and detachments are much less common conditions and only a very few people with PVD go on to develop either of these.

When you have your PVD examined the eye specialist will look for any complications and will advise you of symptoms to look out for.

## Coping with PVD

You may find floaters frustrating as they get in the way of seeing things and can make activities, such as reading, more difficult. This is particularly true if you have one large, distracting floater. If this is the case, you might find the following technique helps: move your eyes around in a gentle circular motion so you create currents in the vitreous within your eyes. This can sometimes move the floater out of your direct field of vision. It works best if you have one large floater rather than lots of small ones.

Making things bigger can also help while you have floaters so that you are able to see things around the blank spots the floaters cause. Sunglasses or UV eye shields limit the amount of light coming into your eye, which may help the floaters be less obvious, especially in bright conditions. However, most people find that over time the floaters become less of a problem and they don't need any special adaptations.

Most people with a PVD have no restrictions on their activities. This is because there is no evidence to suggest stopping certain activities will prevent your PVD turning into a retinal tear.

You may find that some activities make your floaters more noticeable. This is due to the movement of the activity rather than a change in your eye, so you may want to wait until your floaters have settled down.

You can carry on with daily activities such as walking, gentle exercising, reading, watching TV and using your computer. There is no evidence to suggest that flying in an aeroplane will harm your PVD or make it worse.



Our focus is your vision

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