

Photosensitive epilepsy

Photosensitive epilepsy only affects around 3% of people who have epilepsy. It is a lot less common than people think.

Photosensitive epilepsy is mainly diagnosed in children and young people under the age of 20. It is also more common in women and girls.

What is photosensitive epilepsy?

Seizures can be triggered by many factors or events, such as [stress](#) or [lack of sleep](#). Some people also have their seizures triggered by something which is visually stimulating. This could be a flashing or flickering light, or certain high contrasting patterns. If you are affected by this, then you have photosensitive epilepsy.

People with photosensitive epilepsy will have a seizure straightaway when exposed to a visual trigger. If you merely feel a sense of discomfort or feel unwell following a photosensitive trigger, this is not photosensitive epilepsy. Even people without epilepsy, for example those affected by migraines, can sometimes feel unwell from being exposed to visual triggers.

How is photosensitive epilepsy diagnosed?

As part of your general epilepsy diagnosis, you will usually be offered a specific test to check you for photosensitivity.

This involves looking at flashing lights at different speeds during an electroencephalogram (EEG) to see if the EEG records any changes in your brain's activity. This would be a sign of a pending seizure. The technician will switch off the flashing lights before you have a seizure.

If you are not sure if you have photosensitive epilepsy or cannot remember whether you had this test, your epilepsy specialist nurse can give you more information.

Which types of seizure are affected by this?

The most common photosensitive seizures are tonic-clonic seizures. However, [any type of seizure](#) can be triggered including focal seizures with impaired awareness or absence seizures.

How is photosensitive epilepsy treated?

It is treated with anti-seizure medication (ASM) just like any other types of epilepsy. Medication may reduce your sensitivity to photosensitive triggers and can make it less likely for you to have a seizure.

Possible photosensitive triggers

When it comes to photosensitive epilepsy, most people immediately think of strobe lights. However, there are many more triggers, even natural light sources, which may affect someone with photosensitive epilepsy.

Flashing or flickering lights

The flicker or flash rate needs to be at a certain speed, ie between 3 and 30 per second (hertz), to usually affect someone with photosensitive epilepsy. Some people can, however, experience a seizure outside this range of frequencies.

Concert venues and clubs often use strobe lighting effects. Even watching a film at the cinema or watching a programme on TV may confront you with unexpected strobe lighting.

Many venues give advance notice of strobe lighting, and you can also be proactive and contact them in advance. The [British Board of Film Classification](#) website lists the classification ratings for each film, including notification of flashing/flickering lights.

[OFCOM](#) (the regulator and competition's authority for the communications industry) has issued guidelines for the TV sector ensuring that flashing and flickering light effects as part of a programme or film are within the safe range. If potentially harmful flashing lights can be editorially justified, such as a live news report with flashing camera lights, channels need to give an advance warning of this.

OFCOM regulations also cover any TV series (but not films) shown via an on demand streaming service, but only those that operate within the UK.

Seasonal lights or flashing bicycle lights against a dark background can also be a trigger for seizures if they fall within the sensitive range of frequencies.

Faulty lighting

Light bulbs or fluorescent lights don't flicker, unless the bulbs are faulty, or you have used the wrong type of bulb for a device. Always replace any faulty flickering bulbs to reduce the risk of seizures.

Repetitive and high contrast patterns

Patterns containing stripes or repeating geometric patterns can also trigger a seizure for those with photosensitive epilepsy.

High contrasting colour combinations are more likely to cause a problem than others. The risk of a seizure increases if these types of patterns are animated.

Natural light sources

The sun reflecting off the surface of water or sunlight reflected through trees, railings or blinds or through rotating wind turbines can sometimes create a similar effect under certain weather conditions.

Televisions, computer screens and other devices

Modern TV and computer screens have a high refresh rate well above the sensitive range, and do not flicker, unlike the older style screens. Laptop screens using LCD (liquid crystal display) technology, and tablet/smartphone screens using LED (light emitting diode) or OLED (organic light emitting diode) technology are safe too.

Of course, any screen can start flickering when faulty or damaged.

There is no evidence that watching 3D TV and 3D films could trigger a seizure. Some people suggest that you remove your 3D glasses before you switch channels or look at another screen.

Screen content

Content of television programmes, films, computer games, internet or social media pages can, of course, feature repetitive or fast moving patterns, or flashing and flickering images. No modern screen technology will prevent this potentially having an effect on those with photosensitive epilepsy.

How to reduce potential risks

Cover one eye with your hand!

If you are suddenly faced with unexpected flash/strobe lighting, quickly cover one eye with your hand and turn away. This can sometimes disrupt the brain activity leading to a seizure.

Do not close your eyes though, as this may cause a flicker effect.

Be screen-smart!

- Always sit in a well-lit room when playing a computer game or watching something on a screen. Seeing the content and effects of a computer game against a dark background can make a seizure more likely.
- Always sit at a distance from your monitor. If you are too close to a screen taking up your full field of vision you are more likely to have a seizure. A suggested distance is approximately two feet away from a computer screen, and at least eight feet away from a TV screen.
- Set your social media platforms so Gifs don't automatically start playing.
- Avoid spending too much time in front of a monitor. Always give yourself regular breaks away from a screen and possibly restrict the amount of time spent in front of a screen to reduce the likelihood of a seizure. Being tired and/or stressed can be a common seizure trigger for some people.
- A screen filter can help with sensitivity to light and glare. It is unlikely to stop any photosensitive seizures though. You can also download screen filter apps.

Polarised sunglasses

These are unlikely to prevent a seizure, but they can reduce reflection and glare helping with any discomfort you may experience from exposure to light.

The glasses need to be dark enough to block most of the light. Glasses which are wraparounds can further reduce the amount of lighting effects hitting your eyes. Seek advice from an optician to make sure the glasses suit your purposes.

Coloured or photochromic glasses

If you are generally sensitive to light or are affected by visual distortions (for example seeing wavy lines), speak to your optician. Coloured or tinted glasses or those which darken when exposed to light (photochromic glasses) might help with some of these symptoms. However, like polarised glasses, these are unlikely to prevent seizures.

Z1 lenses

These are cobalt blue lenses made by optical manufacturer Zeiss. An Italian [study](#) from 2006 suggests these lenses may block certain wavelengths, which can reduce the number of photosensitive seizures. Ordinary blue tinted lenses do not appear to have the same effect. Your optician may be able to give you further information on these lenses.

More information

If you want to get more information on anything mentioned in this factsheet or find out more about epilepsy in general or other common seizure triggers, please contact our helpline on 0808 800 2200. We are open 10am to 4pm, Mondays to Fridays.

Our resources are always free. If you would like to support our work, please text FACTS to 70085 to donate £3. Texts cost £3 plus one standard rate message.



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