

## How common is photosensitive epilepsy?

Around 1 in 100 people has epilepsy and, of these people, up to 5% have photosensitive epilepsy (PSE). PSE is more common in children and young people (up to 5 times more than in later life) and is less commonly diagnosed after the age of 20.

## What is photosensitive epilepsy?

This is when you have a seizure straightaway, caused by being exposed to flashing lights or patterns.

An electroencephalogram (EEG) can test for PSE. This usually involves looking at a light which will flash at different speeds but other triggers can be tested for in specialist centres. If this causes any changes in brain activity the physiologist will stop the flashing light before a seizure develops.

Visit [epilepsysociety.org.uk/diagnosis and epilepsysociety.org.uk/epileptic-seizures](https://epilepsysociety.org.uk/diagnosis-and-epilepsysociety.org.uk/epileptic-seizures)

## What rate of flashing light can trigger seizures?

Between 3 and 30 Hertz (flashes per second) are the most common rates to trigger seizures, but this varies from person to person. While some people are sensitive at frequencies up to 60 Hertz, sensitivity under 3 Hertz is not common.

## What patterns can trigger seizures?

Some people are sensitive to geometric patterns with contrasts of light and dark such as stripes or bars. Patterns are more likely to be a trigger if they are changing direction or flashing, rather than if they are still, or moving slowly in one direction.

Flashing, flickering, or patterned effects can make people with or without epilepsy feel disorientated, uncomfortable, or unwell. This does not necessarily mean they have PSE.

## How is photosensitive epilepsy treated?

The most common way to treat photosensitive epilepsy is with anti-seizure medication (ASM). This is to lower the risk of having a seizure.

Visit [epilepsysociety.org.uk/medication-epilepsy](https://epilepsysociety.org.uk/medication-epilepsy)

Triggers are individual, but the following sources are not generally likely to trigger photosensitive seizures.

- **UK TV programme content.** Ofcom regulates most material shown on TV in the UK. The regulations restrict the flash rate to three per second or less, and they also restrict the area of the screen allowed for flashing lights or alternating patterns.  
Visit [ofcom.org.uk](https://ofcom.org.uk) for more information
- **Digital TV and plasma screens.** Adjusting the brightness down on some screens can be helpful if you have photosensitive epilepsy.
- **Modern computer or TV screens** do not flicker, or have a very high flicker frequency. Flatscreen monitors, such as laptops, have a liquid crystal display (LCD) that, under normal circumstances, doesn't flicker, so are even less likely to trigger a seizure.
- **Cinema and hand-held screens.** Due to the size of the screen and the low intensity of the projection, it is rare for seizures to be triggered by films in a cinema, or by hand-held miniature screens.
- **3D cinema films.** Images are projected separately at each eye, reducing the already low intensity of the projection even further, and so the risk of a 3D film triggering a seizure is about the same as a normal cinema film.
- **Interactive whiteboards** are unlikely to trigger a seizure, unless another flickering light source in the room reflects onto the whiteboard.

## What may be a photosensitive trigger?

- Flashing or flickering lights or images between 3 and 60 hertz (flashes per second).
- A contrasting dark and light geometric pattern, such as black and white stripes or checks.
- Virtual reality. This is an experience created by a computer that stimulates more senses than just vision. Images generally flash too quickly to trigger a seizure in people with photosensitive epilepsy. However, the field of view is large and so more of the eye is stimulated. This means that more of the brain may be affected and this may trigger a seizure.

If you have epilepsy you may be able to identify triggers for your seizures. These might include stress or tiredness. If seizures are triggered by flashing lights or certain patterns, this is called photosensitive epilepsy.

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Confidential, national call rate.  
Information and emotional support.  
Visit [epilepsysociety.org.uk/helpline](https://epilepsysociety.org.uk/helpline)  
for opening hours.

## Factors that may increase the risk

- Tiredness, stress, or excitement. For example, playing a video game for a long time without breaks.
- The effect taking up all your field of vision. For example, being very close to a screen.
- A light and dark pattern moving quickly, or changing direction, creating a disorientating effect.
- Seeing the effect against a dark background, such as watching a screen in a darkened room.

## What to do if you are suddenly exposed to a trigger

- Covering one eye completely with your hand can reduce the photosensitive effect.

## Other photosensitive triggers

### TV and computer screens that flicker

- Cathode ray tube TVs (older box style) which 'refresh' the image, if this causes a flicker rate between 3 and 60 hertz (flashes per second).
- Faulty TVs or other screens that flicker.
- A flashing image on a computer screen or game.

### Patterns in the natural environment

- Sunlight through trees, blinds, or on water.
- Railings, escalators, or other structures that create repetitive patterns as you move past them.
- Rotating wind turbine blades, if certain weather conditions occur together with other specific factors, particularly for smaller blades that rotate faster.

### Flashing or flickering lights or images

- Cameras with multiple flashes or many cameras flashing at once. Single or double flashes are not likely to pose a risk.
- Strobe lights at performances or in nightclubs.
- Lights flickering, such as faulty fluorescent tubes and dimmers.
- Fireworks, if they create a high enough flash rate.
- Flashing bicycle lights or other LED lights against a dark background, and the effect fills your vision
- Several circuits of festive lights flashing together could increase the flash rate.

## Reducing the risk of a photosensitive trigger

### The environment and how you use a screen

- Use a flatscreen TV or computer monitor.
- Take regular breaks from the screen.
- Sit well back from the screen.
- Use a remote control to change channels.
- Watch TV or use a screen in a well-lit room.
- Watch 3D TV without other TVs or screens being visible. Remove 3D glasses before switching channels or looking at another screen.
- Use the settings in internet options to control moving images in your browser.

### Special glasses

- Special glasses do not stop photosensitivity in a person, but they may help to reduce the effect.
- An optometrist can prescribe coloured or photochromic glasses (darkened lenses) to reduce light sensitivity or visual distortions. The choice of colour of the lenses can, in special circumstances, be tailored to the individual.
- Polarising sunglasses reduce reflection and glare such as sunlight on water.

### UK regulations

- Ofcom regulations require that TV programmes and news stories have a warning if there is going to be a high level of flashes in the programme.
- The Health and Safety Executive recommends that strobe lighting at public performances or in clubs flashes at a maximum rate of four Hertz (flashes per second) or less.

Epilepsy Society is grateful to Prof. Stefano Seri, Emeritus Professor of Clinical Neurophysiology and Developmental Neuropsychiatry, College of Health and Life Sciences, Aston University, who reviewed this information.

**For a printed copy of this information contact our helpline.**

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