

*If you have epilepsy you may be able to identify triggers - situations that cause your seizures. Common triggers include stress or tiredness. If seizures are triggered by flashing lights or patterns, this is called photosensitive epilepsy.*

## How common is photosensitive epilepsy?

Around one in 131 people have epilepsy and of these people, up to 5% have photosensitive epilepsy. This is when seizures are triggered by certain frequencies of flashing lights or contrasting light and dark patterns such as stripes or bars.

Photosensitivity is more common in children and young people and is less commonly diagnosed after the age of 20.

## How can I tell if I am photosensitive?

Many people know this if they have a seizure when exposed to flashing lights or patterns.

A tonic clonic (convulsive) seizure is the most common type of seizure that is caused by photosensitivity, although this varies from person to person. If a seizure is caused, it will normally happen straightaway.

Some people with photosensitive epilepsy also have seizures that are not triggered by flashing lights or geometric patterns, while other people may only have seizures due to this trigger.

When an Electroencephalogram (EEG) is carried out, a flashing light test, called photic stimulation, will often show if you are photosensitive. The light test is usually stopped if it looks like you might have a seizure.

→ For more on this see NSE leaflets 'epilepsy – diagnosis' and 'epilepsy – seizures'.

## What frequency of flashing light is most likely to trigger a seizure?

Between 3 and 30 flashes per second (hertz) are the common frequencies to trigger seizures, but this varies from person to person. While some people are sensitive at higher frequencies than 30 hertz, it is not common to be sensitive below 3 hertz.

## What patterns are most likely to trigger a seizure if I am photosensitive?

Some people are sensitive to geometric patterns which have strong contrasts of light and dark such as stripes or bars. These might be on a television (TV) or computer screen, or something in the natural environment such as sunlight through trees, or through venetian blinds. Such contrasting 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.

## Common triggers for people with photosensitive epilepsy include:

- TV, video games or computer graphics - the *images* that are on the screen;
- a TV or other screen that flickers slowly - the *flicker rate* of the screen itself;
- strobe lights;
- sunlight coming through a line of trees;
- sunlight on water;
- looking out of the window on a train; and
- looking at a moving escalator.

## What things can affect photosensitivity?

A number of things can affect whether someone reacts to flashing lights or geometric patterns. These include:

- the number of light flashes per second (hertz);
- the intensity (brightness) of the light;
- the amount of your field of vision that is exposed to the light or pattern. In other words, there is more chance of triggering a seizure if you watch a very large TV screen compared to a small one, or if you are sitting very close to the screen rather than far away; and
- the background light levels. For example, the flickering from a fluorescent tube light could interact with the light from a screen and trigger

a seizure. The risk of this happening may be reduced by using non-fluorescent lights and always viewing the screen in a well-lit room.

### Can TVs, computer screens and computer games trigger photosensitive epilepsy?

Most people with photosensitive epilepsy do not have a problem with using modern computer screens, as they usually operate at a very high flicker frequency. Computers with flatscreen monitors, such as laptops, have a liquid crystal display (also called LCD or TFT) that does not flicker. This makes them even less likely to trigger seizures. What is often more important than the type of screen is what is happening on the screen. For example, a flickering image or changing geometric pattern could trigger a seizure.

The organisation Ofcom regulates material shown on TV to avoid causing photosensitive seizures. Ofcom restricts the flash rate to 3 flashes or less per second, and restricts the area of screen allowed for flashing lights or alternating patterns.

Because of the size of the screen and the low intensity it is rare for seizures to be triggered by watching films in a cinema, or by hand-held miniature screens.

Interactive whiteboards, sometimes used in schools, have not generally been found to be a particular trigger for photosensitive epilepsy, although triggers can be individual.

A seizure can sometimes happen by chance while someone is watching TV or playing computer games, and may be a coincidence. Tiredness brought on by watching the screen for a long time, or excitement when playing computer games, may also be a factor.

### Can disco lights trigger photosensitivity?

Coloured lights do not usually cause a problem if they do not flash quickly. However, deep red flashing lights, such as rear cycle lights, and strobe (flashing) lights can trigger seizures,

especially if it is dark. If you know you are photosensitive, it may be best to avoid strobe lights, or cover one eye if you are suddenly exposed to them.

The Health and Safety Executive (HSE) recommends that strobe lighting in nightclubs or at public performances is kept to a frequency of four hertz (flashes per second) or less.

### How is photosensitive epilepsy treated?

Photosensitive epilepsy usually responds well to anti-epileptic drugs (AEDs) that are used to treat generalised epilepsies.

→ For more on this see NSE leaflet 'epilepsy – medication for adults'.

### Helpful tips

If you know you have photosensitive epilepsy, the following tips might be helpful:

- watch TV or use a computer in a well-lit room;
- change TV channels using a remote control to avoid getting too close to the screen;
- avoid poorly tuned or faulty TVs, or consider a high definition TV (100 hertz or more);
- minimise the time you are exposed to triggers;
- use a computer with an LCD screen which is flicker-free, and take regular breaks from the screen. This can be helpful for all computer users;
- cover one eye if you are suddenly exposed to a flashing or flickering light. Photochromic glasses, where lenses are darkened, may also help (available from opticians);
- polarised sunglasses (often available from specialist sunglasses shops) reduce reflection and glare such as sunlight on water;
- avoid becoming over-tired as this may increase the risk of seizures; and
- speak to your GP or specialist about your seizures, as epilepsy varies from person to person.

To become an associate member call 01494 601 402 or email [members@epilepsysociety.org.uk](mailto:members@epilepsysociety.org.uk)  
For a fundraising pack call 01494 601 300 or email [fundraising@epilepsysociety.org.uk](mailto:fundraising@epilepsysociety.org.uk)

#### Epilepsy Information Services National Society for Epilepsy

Chesham Lane, Chalfont St. Peter, Bucks SL9 0RJ  
[www.epilepsysociety.org.uk](http://www.epilepsysociety.org.uk)

#### Epilepsy Helpline

01494 601 400 (national call rate)  
Monday - Friday 10am - 4pm  
(Translation service available)

