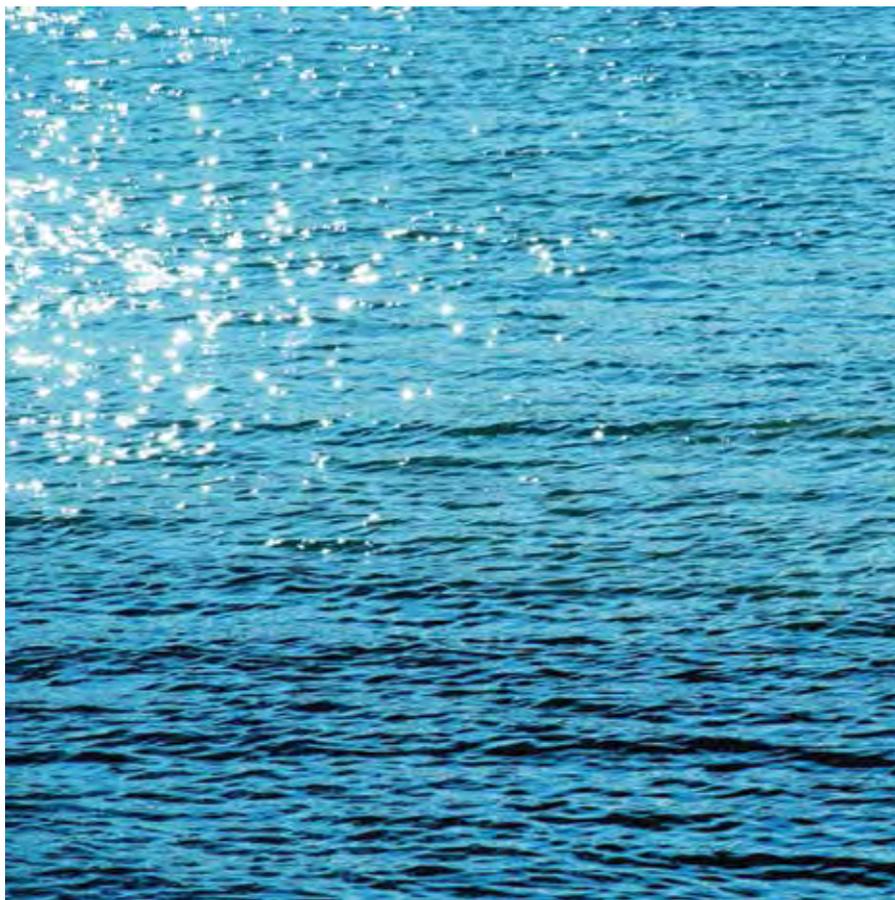


Photosensitive epilepsy



Epilepsy Action aims to improve the quality of life and promote the interests of people living with epilepsy.

Our work...

- We provide information to anyone with an interest in epilepsy
- We improve the understanding of epilepsy in schools and raise educational standards
- We work to give people with epilepsy a fair chance of finding and keeping a job
- We raise standards of care through contact with doctors, nurses, social workers, government and other organisations
- We promote equality of access to quality care

Epilepsy Action has local branches in most parts of the UK. Each branch offers support to local people and raises money to help ensure our work can continue.

Your support

We hope you find this booklet helpful. As a charity, we rely on donations to provide our advice and information. If you would like to make a donation, here are some ways you can do this.

- Visit epilepsy.org.uk/donate
- Text ACT NOW to 70700 (This will cost you £5 plus your usual cost of sending a text. Epilepsy Action will receive £5.)
- Send a cheque payable to Epilepsy Action.

Did you know you can also become a member of Epilepsy Action from as little as £1 a month? To find out more, visit epilepsy.org.uk/join or call 0113 210 8800.

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Introduction

The aim of this booklet is to tell you what photosensitive epilepsy is, who it affects and what might trigger a seizure if you have photosensitive epilepsy. There are also suggestions for reducing the risk of having a seizure.

About photosensitive epilepsy

Photosensitive epilepsy is a type of epilepsy, in which all, or almost all, seizures are triggered by flashing or flickering light. Both natural and artificial light may trigger seizures. Some patterns, like stripes or checks, can also trigger seizures for some people with photosensitive epilepsy.

Various types of seizure can be triggered by flashing or flickering light. These include tonic-clonic, absence, myoclonic and focal seizures. The most common is a tonic-clonic seizure. The seizure(s) will usually happen at the time of, or shortly after, looking at the trigger.

Around three in every 100 people with epilepsy have photosensitive epilepsy. It usually begins before the age of 20, most commonly between the ages of seven and 19. Photosensitive epilepsy affects more girls than boys.

[Epilepsy Action has more information about epileptic seizures.](#)

About hertz (Hz)

The word hertz (Hz) refers to how often something happens in a second. For example, it can mean the number of times something flashes or flickers in one second. It can also mean the number of times the scanning lines on televisions and computer monitors 'refresh' themselves in one second.

Most people with photosensitive epilepsy are sensitive to 16-25 Hz. Some people may be sensitive to rates as low as 3 Hz and as high as 60 Hz.

Diagnosing photosensitive epilepsy

If you have an epileptic seizure when looking at flashing or flickering lights or certain patterns, this is a sign that you may have photosensitive epilepsy.

Your doctor may ask you to have an electroencephalogram (EEG) test. This test records the electrical signals from your brain on an EEG machine. During the test, you will be asked to look at some flashing lights. If doing this changes the electrical signals in your brain, it may indicate that you have photosensitive epilepsy.

The person doing the test will usually try to stop the test before you actually have a seizure. However, there is a small risk that you will have a seizure when the test is done.

[Epilepsy Action has more information about EEG tests and diagnosing epilepsy.](#)

Ways to reduce the risk of seizures if you have photosensitive epilepsy

- Avoid looking at anything that you know may trigger a seizure.
- Avoid things that can increase your risk of having a seizure. These can include feeling tired or stressed, not having enough sleep and drinking alcohol.
- If you take epilepsy medicine, always take it as prescribed by your doctor.
- If you look at something that might trigger a seizure, don't close your eyes. This could increase your risk of having a seizure. Instead, immediately cover one eye with the palm of your hand and turn away from the trigger. This reduces the number of brain cells that are stimulated and reduces the risk of a seizure happening.



Some possible seizure triggers for people with photosensitive epilepsy

Ceiling fans

Light seen through a fast-rotating ceiling fan may trigger a seizure. Using a slow-rotating fan would reduce this risk.

Cinema films

Watching films, including 3D films, at the cinema doesn't pose a risk in itself. However, some films contain images such as flashing or flickering lights, which could trigger a seizure.

In the UK, the British Board of Film Classification states that it is up to the film makers and distributors to identify works in which there may be problems with flashing lights. They should then make sure that, if necessary, warnings are given to viewers about this. However, there is no guarantee that this will always happen.

Computer and television screens

It is unusual for modern computer and television screens to trigger seizures. But it could happen, depending on the screen or the images that you are looking at.

Types of screen

There are different types of screen which can be used with a computer or when watching television. These include cathode ray tube screens, liquid crystal screens and plasma screens.

Cathode ray tube screens – Cathode ray tube (CRT) screens use tubes to create a picture. They are the older style of screen and are large and bulky. They are prone to flickering.

Modern CRT screens have a ‘refresh’ rate of 100 times each second (100Hz). These are unlikely to trigger a seizure, unless they are faulty.

Older CRT screens may refresh the picture at a rate which could trigger a seizure, especially if you sit near to the screen.

Liquid crystal screens – Liquid crystal display (LCD), light-emitting diode (LED) and thin-film transistor (TFT-LCD) screens all use liquid crystals to create a picture. They are all thin and have a flat screen.

Liquid crystal screens don’t flicker and are far less likely to trigger a seizure than CRT screens. However, the risk of having a seizure is not removed entirely, because they are brighter and have more contrasting colours than CRT screens. Contrasting colours increase the risk of seizures.

Plasma screens – Plasma display panel (PDP) screens use tiny gas plasma cells to create a picture. They are thin and have a flat screen.

Plasma screens don’t flicker and are far less likely to trigger a seizure than CRT screens. The risk of having a seizure is not removed entirely, because plasma screens are brighter and have more contrasting colours than both CRT and liquid crystal screens. Contrasting colours increase the risk of seizures.

Choosing a screen

If you have photosensitive epilepsy, the current advice is to use an LCD screen. This is the type that carries the least risk of triggering a seizure.

Images on computer and television screens

The content you look at on a computer or television could trigger seizures if it has any of the following.

Flashing or flickering lights – For example, when there are a lot of press photographers on television, all using a camera flash at the same time.

Rapidly changing images – For example, these may appear when you are playing on a games console.

Contrasting or moving patterns – For example, these may appear when you are watching video clips on a computer.



In the UK, there are guidelines for TV broadcasters to restrict the use of images that may cause a problem for people with photosensitive epilepsy. They should also give a warning if a programme has images that could trigger a seizure. However, there is no guarantee that a warning will always be given.

General safety suggestions for watching television or using a computer

- Make sure that the room is well lit.
- Have a lamp lit close to the screen.
- If possible, use a liquid crystal or plasma screen and reduce the brightness setting.
- If you use a CRT screen, make sure that the 'refresh' rate is set to greater than 70Hz. Also make sure that the screen is in good working order.
- Consider covering one eye with something that won't let light through, such as an eye patch. This will reduce the number of brain cells that are stimulated by any flashing or flickering. For most people with photosensitive epilepsy, this will minimise the risk of having a seizure.
- If you have any discomfort, such as dizziness, blurred vision, loss of awareness or muscle twitching, stop looking at the screen immediately.
- Take frequent breaks for rest and food.

Safety suggestions specific to watching television

- Sit or stand at a distance of at least 2.5 metres (8 feet) from the television.
- Use the remote control wherever possible – from a safe distance – to adjust the television or to change channels.
- If you have to go near the television, cover one of your eyes with the palm of your hand.

3D television

3D images do not have a higher risk of triggering a seizure than 2D images, as long as you follow these safety guidelines.

- Remove 3D glasses before you stop watching something in 3D. This is because the glasses flicker for a few seconds when 3D is turned off. This flickering could trigger a seizure.
- If you are using an active shutter 3D system, the television should not be placed near a window. When it is daylight, the active shutter glasses produce a flicker in the window. This could trigger a seizure.

Interactive whiteboards

Looking at an interactive whiteboard is not likely to trigger a seizure, unless the material shown contains flashing or flickering lights, or contrasting patterns.

Lighting

Fluorescent strip lights and light bulbs may trigger a seizure if they flicker because they are faulty. Otherwise, they should not cause you a problem.

Flashing Christmas tree lights

At the moment there is no UK law that directly covers the frequency at which Christmas lights can flash. So these could be a seizure trigger for someone with photosensitive epilepsy.

If you think you have had a seizure triggered by looking at flashing Christmas lights in a public place, you may want to complain to the Events department of your local council. Councils must look into complaints about artificial light if the light could be classed as a 'statutory nuisance' (covered by the Environmental Protection Act 1990).

For the artificial light to count as a statutory nuisance it must do one of the following:

- Unreasonably and substantially interfere with the use or enjoyment of a home or other premises
- Injure health or be likely to injure health

Flashing novelty badges

Novelty badges do not have to comply with health and safety regulations, so they could flash at any rate. There is the possibility that these could cause you to have a seizure.

Red or white flashing bicycle lights

Legally you must have a white light on the front of your bike and a red light on the back. There is a law that says these lights must not flash at a frequency above 4Hz. So they are very unlikely to trigger a seizure in someone with photosensitive epilepsy.

Strobe lights

You may come across strobe lights in places like night clubs, discos and theme parks.

In the UK, the flash rate of strobe lights is restricted to a maximum of four flashes a second by the Health and Safety Executive. This rate is considered to be safe for most people. However, some people with photosensitive epilepsy may still find strobe lights could trigger a seizure.

Patterns

Some high contrast or moving patterns can trigger seizures in some people with photosensitive epilepsy. Here are some examples.

- Black and white stripes
- Some patterned materials and wallpapers
- Large areas of floor and ceiling tiles with high contrast lines
- Looking down a moving escalator



Sunlight

Being in sunlight is unlikely to trigger a seizure if you have photosensitive epilepsy. However, looking directly at certain patterns connected with sunlight could trigger a seizure. Here are some examples.

- Sunlight through slatted blinds
- Sunlight through trees, viewed from a moving vehicle
- Sunlight reflected off moving water
- Sunlight through moving leaves
- Sunlight through railings, as you move past them

Sun beds

Sun beds may trigger a seizure if the tubes flicker because they are faulty. Otherwise, they should not cause you a problem.

Wind turbines

In the UK, the flicker frequency of wind turbines on wind farms should be limited to 3 Hz. This flicker rate is unlikely to trigger a seizure.

Wind turbines that are not on wind farms are not subject to the same planning regulations as wind farms. If a turbine is in the wrong position in relation to the sun, it could create a strobe effect. This could trigger a seizure for some people with photosensitive epilepsy.

If you live in the UK and have concerns about a planned or existing wind farm, you may wish to contact the British Wind Energy Association (BWEA), who can provide contact details of specific wind farm operators.

Useful information and contacts

British Wind Energy Association (BWEA)

Greencoat House, Francis Street, London SW1P 1DH

Telephone: 020 7901 3000

Website: britishwindenergy.co.uk

Health and Safety Executive

Helpline: 0300 003 1747

Website: hse.gov.org

Ofcom

Riverside House, 2a Southwark Bridge Road, London SE1 9HA

Telephone: 0300 123 3333 or 02017 981 3040

About this publication

This booklet is written by Epilepsy Action's advice and information team, with guidance and input from people living with epilepsy and medical experts. If you would like to know where our information is from, or there is anything you would like to say about the booklet, please contact us.

Epilepsy Action makes every effort to ensure the accuracy of information in its publications but cannot be held liable for any actions taken based on this information.

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This booklet was reprinted in October 2016 with a change to the information about Christmas tree lights and bicycle lights. See page 13 for details.

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First aid for tonic-clonic seizures

The person goes stiff, loses consciousness and falls to the floor.

Do...

- Protect the person from injury (remove harmful objects from nearby)
- Cushion their head
- Aid breathing by gently placing the person on their side (in the recovery position) when the seizure has finished (see picture)
- Stay with them until recovery is complete
- Be calmly reassuring



Don't...

- Restrain the person's movements
- Put anything in their mouth
- Try to move them unless they are in danger
- Give them anything to eat or drink until they are fully recovered
- Attempt to bring them round

Call 999 for an ambulance if...

- You know it is the person's first seizure **or**
- The seizure continues for more than five minutes **or**
- One seizure follows another without the person regaining consciousness between seizures **or**
- The person is injured **or**
- You believe the person needs urgent medical attention

First aid for focal (partial) seizures

The person is not aware of their surroundings or of what they are doing. They may pluck at their clothes, smack their lips, swallow repeatedly or wander around.

Do...

- Guide the person away from danger
- Stay with the person until recovery is complete
- Be calmly reassuring
- Explain anything that they may have missed

Don't...

- Restrain the person
- Act in a way that could frighten them, such as making abrupt movements or shouting at them
- Assume the person is aware of what is happening, or what has happened
- Give them anything to eat or drink until they are fully recovered
- Attempt to bring them round

Call 999 for an ambulance if...

- You know it is the person's first seizure **or**
- The seizure continues for more than five minutes **or**
- The person is injured **or**
- You believe the person needs urgent medical attention

Further information

If you have any questions about epilepsy, please contact the Epilepsy Action Helpline.

Epilepsy Action has a wide range of publications about many different aspects of epilepsy. Information is available in the following formats: booklets, e-books, fact sheets, posters, books and DVDs.

Epilepsy Action has a range of online courses and learning resources about epilepsy.

Information is also available in large text.

Please contact Epilepsy Action to request your free information catalogue. Or download a copy at epilepsy.org.uk/catalogue

Epilepsy Action's support services

Local meetings: a number of local branches offer support across England, Northern Ireland and Wales.

Coffee and chat groups: these give people living with epilepsy the chance to meet new people, share experiences and learn more about life with epilepsy.

forum4e: our online community is for people with epilepsy and carers of people with epilepsy aged 16 years or over. Join at forum.epilepsy.org.uk

Epilepsy awareness: Epilepsy Action has a number of trained volunteers who deliver epilepsy awareness sessions to any organisation that would like to learn more about epilepsy. The volunteers are able to offer a comprehensive introduction to epilepsy to a range of audiences.

If you would like more information about any of these services, please contact Epilepsy Action. Contact details are at the back of this booklet.

Photosensitive epilepsy

We would like to know if you have found this booklet helpful.

As a result of reading the information, please let us know if you agree (tick yes) or disagree (tick no) with any of the following statements.

Yes	No	
		I feel more informed about issues to do with epilepsy
		I feel more confident about talking to my GP/epilepsy specialist/epilepsy nurse/other (cross out those that don't apply)
		I have talked to my employer/colleague/teacher/family/ other (cross out those that don't apply) and they have improved how well they support me
		I have used other Epilepsy Action services, such as the website, the Epilepsy Action Helpline, support groups or forum4e

Please tell us how you think we can improve this information

Please return the completed form to:

**FREEPOST RTGS-LEYK-XGCK, Epilepsy Services, Epilepsy Action,
New Anstey House, Gate Way Drive, Yeadon, Leeds LS19 7XY**

You can also give us feedback online. Visit epilepsy.org.uk/feedback

Thank you.

epilepsy *action*

**FREEPOST RTGS-LEYK-XGCK,
Epilepsy Action
New Anstey House,
Gate Way Drive,
Yeadon,
Leeds LS19 7XY**

Registered charity in England (No. 234343)

Ways to contact the Epilepsy Action Helpline



Telephone: freephone 0808 800 5050

We are usually open 8.30am to 5.30pm, Monday to Friday. Our helpline staff are Text Relay trained and we are able to offer advice and information in 150 languages. To ensure the quality of our service, we may monitor calls.



Email: helpline@epilepsy.org.uk

Email us your question about epilepsy. We aim to reply within 48 hours (on work days)



Text: 0753 741 0044

Text us and we aim to send a text reply back to your phone within 24 hours (on work days)



Twitter: @epilepsyadvice

Tweet us with your question and we will tweet back (on work days)



Post: New Anstey House, Gateway Drive, Leeds, LS19 7XY

Write to us and we aim to reply within seven working days

About the Epilepsy Action Helpline

We do:

- Provide confidential advice and information about epilepsy to anyone
- Give general medical information
- Give general information on legal and welfare benefit issues related to epilepsy

We do not:

- Tell people what to do
- Offer a medical diagnosis or suggest treatment
- Take up people's legal cases on their behalf

If we cannot help you directly with a query, we will do our best to provide details of other organisations that may be able to help. In doing this, Epilepsy Action is not making a recommendation.

We welcome feedback, both positive and negative, about our services.

Epilepsy Action Helpline:

freephone 0808 800 5050
epilepsy.org.uk



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