

What are photosensitive seizures?

In some people, seizures can be triggered by flashing or flickering lights, or by certain geometric shapes or patterns. This is called photosensitivity. It is uncommon - only seen in approximately 5% of people with epilepsy. Photosensitive seizures can be minimised with simple strategies.

How can I tell if I am photosensitive?

Today's lifestyle can involve spending many hours using visual technology such as watching television, playing video games or using computers. While a seizure may occur in one of these circumstances, it may be a spontaneous or chance event - not at all triggered by the television, video or computer monitor.

Some people have only ever had a seizure in the presence of a flickering light source or visual pattern, while others have had seizures with and without this stimulation. Meaning some people purely have only photosensitivity, whilst others may have other seizures as well as photosensitive seizures.

It is important to have expert diagnosis or you may restrict your lifestyle unnecessarily believing your seizures are visually triggered. Photosensitivity is usually diagnosed by having an EEG with strobe (flickering) light or pattern stimulation. There is evidence that photosensitive seizures are inherited.

How is it treated?

In most cases seizures can be controlled by antiepileptic medication and avoiding known triggers.

What are the triggers?

Some known triggers are:

- ◆ Watching television or playing video games
- ◆ Strobe lights
- ◆ Driving at dawn or dusk with sun shining through a line of trees
- ◆ Sun shining on water
- ◆ Looking out of the window from a fast moving vehicle
- ◆ A faulty light or television that flickers
- ◆ Other factors include:
 - ◆ Brightness and speed of the flashes.
 - ◆ Rapidly changing colours, say oscillating from red to blue.



How much a person's field of vision is exposed to the light. When a television is large or the viewer sits a short distance away, it takes up most of a person's visual field and increases the risk of triggering a seizure.

Good background lighting is best while watching television or working on a computer or video game, to help counteract the brightness of the screen.

Managing photosensitivity

The following precautions only apply to those people who are diagnosed with photosensitivity.

Television: This is the biggest concern for people who are photosensitive, but it had improved with better television technology. The most important factor is the distance between the viewer and the set.

Sitting too close to the screen causes it to fill the person's entire field of vision. Instead sit at least 2.5m from the television screen in a well-lit room. Sit at an angle rather than directly in front. Place a lamp on or behind the television to reduce the contrast between the screen and the surroundings, even when watching during the day. Use a remote control or place a hand over one eye to lessen the effect of the flicker when manually changing settings. Do not watch the screen when fast forwarding, rewinding or adjusting the vertical hold. A small screen is preferable.

Note: Conventional televisions use cathode ray tube (CRT) technology. When you are very close to the screen, you can see the flicker. It is common for people with photosensitivity to be sensitive to this flicker rate, so it is best to sit well back from the television to reduce the risk of seizures. Newer CRT's now flicker at a much faster rate, almost undetectable by the human eye and outside the most common sensitivity for triggering seizures. Therefore they are much less likely to trigger seizures in people with photosensitivity.

Plasma and LCD televisions do not use the scanning lines of the CRT televisions. The risk of triggering seizures is not completely removed, but is much reduced. Plasma screens tend to be brighter and have more contrast than LCD screens. This could make seizures more likely for some people with photosensitivity.

If you are choosing between a plasma or LCD television, and you have photosensitivity, the current advice is to buy an LCD television. Both are preferable over the conventional television.

Television images: Some images may provoke a seizure, such as flashing sequences or rapid changes from light to dark or to contrasting colours, e.g. from blue to red.

Video games: Current medical opinion is that games only trigger seizures if there is an underlying tendency to have them. Generally, a seizure is most likely to occur within the first 30 minutes of play. Prolonged play is not a risk unless associated with sleep deprivation - which is a known trigger for seizures. Television screens used as monitors for video games may also be triggers.

Minimise the chance of seizures by sitting 2.5m from the screen. Play the game in a well-lit room and reduce the brightness of the display. Avoid continuous exposure to the same pattern and playing when excessively tired. Check video games for epilepsy or seizure warnings. If you do find that video games make you feel like you are going to have a seizure, then it is best to stop playing and keep exposure to the video game in short bursts (have a break every 10-15 minutes).

Computer monitors: It is quite rare for a computer to cause a seizure. Only in exceptional cases would it be necessary to restrict computer work. If you are sensitive to screen flicker on older monitors, a screen filter may help. High quality monitors, liquid crystal or LCD screens with a refresh rate of at least 60Hz should not pose a problem.

Lights: The frequency of flashing light most likely to trigger seizures varies from person to person. Generally it is between 8-30 flashes per second, but this can vary for individuals. Ordinary lighting in a room is preferable to fluorescent, but faulty fluorescent lights are rarely the cause of a seizure.

Fans: Ceiling fans in a lit room can create a flicker effect. A pedestal fan is best if you feel the ceiling fan may trigger a seizure.

Camera flashes: These rarely trigger seizures unless fired in rapid succession. It is also rare for seizures to be triggered by hand-held screens or watching a film.

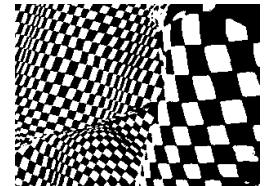
Red flickering light and strobe/disco lights: These can trigger seizures, particularly if the room is darkened and there are other triggers such as stress, excitement, tiredness and/or alcohol. For those who are photosensitive, the risk will depend on the speed of the flashing light. Responsible clubs and DJs generally display warnings if these lights are used and retail employers may turn off flashing lights in their store if requested.

Sunlight: This can trigger seizures in two ways: the reflection of light flickering off water or through leaves of trees, and light flickering through posts or railings when moving, e.g. travelling in a car. Cover one eye with the hand to lessen the effect of the flicker as binocular (looking through both eyes) vision is needed to trigger a seizure. Polaroid sunglasses also help reduce the risk.

Photosensitive facts and hints

Seizures can be triggered in many ways and not all of the listed hints may apply. It is best to avoid particular situations known to trigger seizures.

- ◆ Seek expert diagnosis. Do not assume you are photosensitive as you may be placing unnecessary constraints on your lifestyle.
- ◆ 96% of people with photosensitivity are sensitive to flickering between 15-20Hz/flashes per second.
- ◆ Wear polarised sunglasses to reduce glare.
- ◆ When watching television, or using computers and video games, always ensure a light is on so there is less contrast between the screen light and the room light.
- ◆ If possible, reduce the brightness of the screen.
- ◆ Use a television remote control.
- ◆ In most cases seizures can be controlled with regular medication.
- ◆ Photosensitive seizures happen during, not after, the photic stimulation.
- ◆ Cover one eye to reduce the effects of flashing or flickering light.
- ◆ Most computer monitors do not present a problem.
- ◆ Seizures triggered by video games are most likely to occur within 30 minutes of play.
- ◆ Keep 2.5m from the television or video game screen and 30cm from a computer monitor.
- ◆ Take frequent breaks from video games and look away from a computer/television screen regularly.
- ◆ It is rare for seizures to be triggered by hand-held screens or watching a film.
- ◆ Camera flashes rarely trigger seizures unless fired in rapid succession.
- ◆ Tiredness can be a factor in photosensitive seizures.
- ◆ Avoid excessive consumption of alcohol.
- ◆ If you feel strange, or like you may have a seizure, immediately turn off the game/computer or television or look away.



REFERENCES

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This information is given to provide accurate, general information about epilepsy. Medical information and knowledge changes rapidly and you should consult your doctor for more detailed information. This is not medical advice and you should not make any medication or treatment changes without consulting your doctor.