EPILEPSY FOUNDATION®
Not another moment lost to seizures™

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Photosensitivity and Seizures

Epilepsy is a hidden episodic condition that affects more than three million Americans. For about 3 percent of them (approximately 100,000), exposure to flashing lights at certain intensities or to certain visual patterns can trigger seizures. This condition is known as photosensitive epilepsy. It is more common in children and adolescents, especially those with generalized epilepsy, in particular juvenile myoclonic epilepsy. It becomes less frequent with age, with relatively few cases in the mid twenties. Many people are unaware that they are sensitive to flickering lights or to certain kinds of patterns until they have a seizure. They may never go on to develop epilepsy, which is characterized by recurrent spontaneous seizures, though a seizure may be triggered by certain photic conditions. Many individuals who are disturbed by light exposure do not develop seizures but experience other symptoms such as headache, nausea, dizziness and more. They do not have epilepsy.

Seizures in photosensitive people may be triggered by exposure to television screens due to the flicker or rolling images, to computer monitors, to certain video games or TV broadcasts containing rapid flashes or alternating patterns of different colors, and to intense strobe lights like visual fire alarms. Also, seizures may be triggered by natural light, such as sunlight, especially when shimmering off water, flickering through trees or through the slats of Venetian blinds. Certain visual patterns, especially stripes of contrasting colors, may also cause seizures. People have wondered whether flashing lights on the outside top of buses or emergency vehicles may trigger seizures in people with photosensitive epilepsy.

Not all televisions, video games, computer monitors, and strobe lights trigger seizures, however. Even in predisposed individuals, many factors must combine to trigger the photosensitive reaction such as the frequency of the flash (that is, how quickly the light is flashing), its brightness, the contrast with background lighting, the distance between the viewer and the light source, the wavelength of the light, and whether a person's eyes are open or closed. The frequency or speed of flashing light that is most likely to cause seizures varies from person to person. Generally, flashing lights most likely to trigger seizures are between the frequency of 5 to 30 flashes per second (Hertz).

According to the Epilepsy Foundation Professional Advisory Board the likelihood of such conditions combining to trigger a seizure is small. However, to be safe, photosensitive individuals are advised to keep at a distance from TV screens and to place other lights in the surrounding area to lower the contrast between the brightness on the screen and the background. These conditions protect the viewer and are easy to obtain during TV viewing but not while playing video games or when randomly exposed to strong environmental lights. Therefore, other protective devices or strategies may be needed.

If you are concerned about flashing lights and believe you may have photically triggered seizures, you should check with the doctor who provides your care for epilepsy. Chances are that your medical records will indicate how you responded to flashing lights during the electroencephalogram (EEG), a test done routinely in most people with epilepsy. During this test, sensors are attached to the patient's scalp to monitor the electrical activity of the brain in various conditions, including light stimulation generated by a strobe positioned in front of the eyes. An abnormal response when the patient is exposed to various frequencies of flashing lights indicates the presence of photosensitivity. If you have not been diagnosed with epilepsy or have not had this type of test, ask your doctor about ordering one for you, or consult a local neurologist. The same concerns may apply to relatives of individuals who are known to be photosensitive, such as siblings. Because the condition is genetic it may affect other members of the same family. Finding out if your are photosensitive or not is relevant, especially if the relatives are children or adolescents who intend to engage in activities presenting risks such as intense videogame playing.

Your local Epilepsy Foundation may be able to help you identify epilepsy specialists in your area. Visit our website at www.epilepsyfoundation.org, or call our Epilepsy Resource Center at 1-800-332-1000 to find out which local Epilepsy Foundation serves your area.

If you are diagnosed with photosensitive epilepsy, your doctor may prescribe medication and suggest that you [1] avoid exposure to certain kinds of flashing lights and [2] cover one eye and turn away from the direct light source when in the presence of flashing lights. You may also wish to discuss with your doctor whether the following tips suggested by photosensitivity and epilepsy experts would be helpful to you.

Visual Fire Alarm Strobe Lights

Under the Americans with Disabilities Act, most workplaces and places serving the public, including theaters, restaurants, and recreation areas, are required to have fire alarms, which flash as well as ring so that people who cannot hear or cannot hear well will know that there is an emergency.

To reduce the likelihood of the strobe light triggering a seizure, the Epilepsy Foundation's professional advisory board recommends that

- the flash rate be kept to under 2 Hertz with breaks every so often between flashes; and
- flashing lights should be placed at a distance from each other and set to flash together at the same time to avoid an increase in the number of individual flashes.

Television Screens

- Watch television in a well-lit room to reduce the contrast between light from the set and light in the room.
- Reduce the brightness of the screen.
- Keep as far back from the screen as possible.
- Use the remote control to change channels on the TV so you won't have to get too close to the set.

- Avoid watching for long periods of time.
- Wear polarized sunglasses while viewing television to reduce glare.

Videogames

- Sit at least 2 feet from the screen in a well-lit room.
- Reduce the brightness of the screen.
- Do not let children play videogames if they are tired.
- Take frequent breaks from the games and look away from the screen every once in a while. Do not close and open eyes while looking at the screen – blinking may facilitate seizures in sensitive individuals.
- Cover one eye while playing, alternating which eye is covered at regular intervals.
- Turn the game off if strange or unusual feelings or body jerks develop.

Computer Monitors

- Use a flicker-free monitor (LCD display or flat screen).
- Use a monitor glare guard.
- Wear non-glare glasses to reduce glare from the screen.
- Take frequent breaks from tasks involving the computer.

Exposure to Strong Environmental Lights

- Cover one eye (either one) with one hand until the stimulus is over. Closing both eyes or turning your eyes in another direction will not help.