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Photosensitive Epilepsy

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Introduction

Photosensitive epilepsy is a type of epilepsy where seizures are provoked by flicker (photic stimulation) at a certain speed or frequency.

It is this type of epilepsy that led to the “Pokemon Incident” in Japan, when hundreds of Japanese children experienced a seizure whilst watching an episode of Pokemon on TV.

However, photosensitive epilepsy is usually a rare phenomenon. While the more common epilepsies may occur in 2 in 100 of the population, photosensitive epilepsy affects roughly one in 4000 of the population, peaking at 5 in 4000 during childhood to late teens.

A condition of young people, onset is usually between 9 and 15 years of age, with girls more affected than boys. It is unusual to have a first seizure due to photosensitivity before the age of 5 or after the early 20's. There is evidence that this type of epilepsy is inherited, as Binnie et al. (1994) argue, the age dependency of the appearance of this particular form of epilepsy would strongly suggest that it is the expression of a genetic trait.

How photosensitive epilepsy is diagnosed

A diagnosis is reached by undergoing an EEG (electro-encephalogram) test, during which the person is exposed to photic (flickering light) stimulation at different speeds. Modern lifestyles involve a lot of time watching T.V., playing video games or looking at a computer monitor. While a seizure may occur in one of these circumstances, it may be a spontaneous or chance event rather than being triggered by the TV or computer screen. It is important to have photosensitive epilepsy properly diagnosed, otherwise you may be limiting your lifestyle unnecessarily with the inaccurate belief that your seizures are triggered this way.

Managing photosensitivity

Old style CRT Television is the biggest problem for people who are photosensitive. New LCD screens with higher refresh rates are less troublesome. 50 and 100Hz TV does not cause trouble, but good old standard TV still has 25Hertz flicker, and this is the main trigger. The most important factor is the distance between the viewer and the television. Sitting too close to the T.V. causes the screen to fill up the entire field of vision and so increases risk. High contrast can also aggravate the tendency, and so there should also be other lighting turned on in the room as well as the TV.

Video Games, according to Edson et al., do not trigger seizures unless there is an underlying tendency to have seizures. If this tendency exists, a seizure is likely to happen within the first 30 minutes of play. Generally prolonged game playing is not a risk unless it is combined with sleep deprivation, which is a factor that can lower the seizure threshold and allow a seizure to occur.

Computer Monitors rarely present an issue, only in rare cases would it be necessary to restrict computer work. If you are sensitive to screen flicker a screen filter may help. Use a high quality monitor with a refresh rate of at least 60 Hz

Lights: Use ordinary lighting rather than fluorescent. The frequency of flashing light most likely to trigger seizures varies from person to person. Generally it is between 8-30 flashes per second, with the commonest frequencies being 15-20 per second.

Camera Flashes: rarely trigger seizures unless fired in rapid succession. It is also rare for seizures to be triggered by handheld screens or while watching a film.

Red flickering Light and strobe or disco lights can trigger seizures, particularly if the room is darkened and there are other triggers such as stress, excitement, tiredness and, alcohol. For those who are photosensitive the risk will depend on the speed at which the lights flash.

Sunlight 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 created by movement eg travelling in a car.

References

Binnie, C. D., van Emde Boas, W., & Trenité, D. K. N. (1994). Photosensitive epilepsy as an age related genetic disorder. In *Epileptic seizures and syndromes* (pp. 41-48). John Libbey, London.

Edson, A. S., Fylan, F., Harding, G. F. A & Webb, R. M. (1999). Mechanisms of Video-Game Epilepsy. *Epilepsia*, 40(s4), 28-30.