



## **Triggers for Epileptic Seizures**

Many patients with epilepsy have learned from experience that certain situations make them more likely to have seizures. These triggers do not typically cause seizures in the general population. In other words, one has to have epilepsy for these triggers to lower the threshold sufficiently such that an epileptic seizure results.

For example, a "normal person" could have seizures as part of a serious illness like double pneumonia, and once the illness is over, have no more seizures. That person would not typically be considered to be an individual with epilepsy.

Epilepsy affects everyone differently. In most cases, epileptic seizures seem to come out of left field, with no rhyme or reason. Although we will look for triggers, they are not often found. There are, however, special circumstances in which some patients have learned that they can more-or-less expect seizures, and they can try to avoid these situations.

### ***Possible Seizure Triggers (possible means possible, not probable or definite)***

#### **Late Nights and Lack of Sleep**

Significant sleep deprivation is probably the most consistently observed trigger for seizures. The best example is in patients with Juvenile Myoclonic Epilepsy. Some of these patients essentially never have spontaneous seizures, and almost all that occur happen after sleep deprivation.

Neurologists commonly see a brief flare up when a patient begins university. For the first time, these students have increasing independence as a part of university life; some will party at night and get up early in the morning to do assignments. In other words, they are "burning the candle at both ends" and may find that their previously good seizure control has disappeared. Neurologists may also see a "mini epidemic" in May and June coinciding with high school graduation parties. For some students, this is the first time they have been up all night (or most of it) and they may have had too much to drink. The combination of the two usually results in two or three teenagers in the emergency room with their first grand mal tonic-clonic convulsion.

#### **Alcohol and Recreational Street Drugs**

Excessive alcohol and binge drinking can trigger seizures, as can street drugs, even in those people who do not have epilepsy. It is not uncommon to have patients in the emergency room with tonic clonic seizures after exposure to cocaine, crystal meth or other stimulants, like speed.

In the context of epilepsy and alcohol, it is more complicated. Those patients who report a worsening of their seizures when they have been drinking usually have not slept very much that night. They are up late partying, and they usually have their seizure the next morning. This suggests that the sleep deprivation is the major factor. Patients don't typically have their seizures while they are drinking and still intoxicated.

#### **Stress**

Patients commonly report that they have more seizures under times of stress. This has proven to be a very difficult connection to prove from the scientific point of view. The problem is that patients are often able to record times of significant stress in which they have not had seizures. Upon analysis, most of those patients



report that they slept very poorly under those times of stress. In other words "they take their stress to bed", and will toss and turn and have a poor quality sleep, which may result in a seizure(s).

It is clear that there is a "final common pathway" whereby lack of sleep, however it comes about, seems to be a strong trigger for lowering the threshold, resulting in more seizures.

### **Flickering or Flashing Lights**

It is well-publicized that flickering lights can trigger seizures, and one will often see posted signs of caution in environments in which patients with epilepsy may be exposed. However, this trigger is blown far out of proportion. In fact, it likely affects fewer than 3-5% of people with epilepsy.

Those who are affected by lights usually have a hereditary form of epilepsy, and not one that has been acquired. They do not have a known structural cause for their epilepsy. They usually have normal intelligence and development, and typically have an EEG that shows an abnormality during the photostimulation portion of the test.

Even for those who might be at risk, the risk is higher during the years of childhood and adolescence, with most outgrowing this tendency as adults.

### **Fevers and Flu-like Illnesses**

There seems to be an increase in seizures with illness, but the mechanism is not well understood. High fevers are most often relevant in babies and young toddlers. In fact, these are referred to as "febrile seizures" and aren't thought of as a type of epilepsy.

### **Hormones or Menstrual Cycle**

About one-third of women may have more seizures "semi-predictably" in the days just before their menstrual cycle. Considering that half the people with epilepsy are women, it is disappointing that we have no consistent and effective treatment for this situation. Many hormonal manipulations have been attempted, but none has had consistent success.

### **Medications and Supplements**

There are very few medications that can trigger seizures, but there are some notable ones. Zyban, a drug to assist smoking cessation, can lower the threshold in a patient with epilepsy and should be avoided. Old tricyclic antidepressants such as Elavil or Tofranil in high doses were thought to lower the seizure threshold. This has to be weighed against the well-known clinical observation that an untreated significant depression will bring on more seizures itself. The new class of antidepressants, or SSRIs, of which Paxil or Prozac are examples, are "threshold neutral". In fact, they may be beneficial in slightly raising the threshold for seizures.

One often hears a precaution that coffee, tea, and pop containing caffeine can trigger seizures and should be avoided. In fact, stimulants suppress seizures. When drug combinations were common 30 and 40 years ago, amphetamine or Dexedrine was often mixed in with antiseizure medications. Ritalin, (a stimulant) used to be more widely prescribed to counteract the sedating effect of the older drugs.

Likewise, the aspartame in diet pops is controversial. In fact, the association of worsening seizure control is not with drinking diet cola (aspartame). The association is with the amount consumed, e.g. drinking 10-12 cans of diet cola per day. In other words, the excessive amount of fluid consumed in the cola or in a large amount of coffee causes a "water overload" that can lower the seizure threshold. This is very similar to one of the proposed mechanisms of menstrual seizures, in which some women retain fluid prior to their menses, and seem to experience more seizures.

### **Forgetting Antiepileptic Medication**

The most commonly considered cause of a breakthrough seizure in a person who previously had good seizure control is whether or not they may have missed their medication. It is easy to become somewhat casual when things are going well, and not think much of missing a dose here and there. However, the cumulative effect is such that the medication levels may fall into the subtherapeutic range and seizures can result.

If a patient discovers later in the day that they have missed their morning dose, they should take it then. If it is not discovered until the regular bedtime dose, they should take the morning and the bedtime doses together. They will not be overdosing, and they will still get their 24-hour requirement.

### **Conclusion**

There are many triggers to guard against, but in reality, the only predictable thing about most seizures is that they are unpredictable.

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