

# In the news

Our comprehensive rundown on the latest news and research surrounding epilepsy



## Energy-efficient lights a threat?

AUSTRALIA was the first country to outlaw old-style or incandescent bulbs, with a total ban by 2010, and replace with the energy-efficient compact fluorescent light (CFL) bulbs with the aim of saving money, reducing fossil fuel consumption and green house gas emissions.

While lighting authorities assure CFLs to be safe to use in homes, people with epilepsy, migraines and Multiple Sclerosis (MS) are raising concerns about experiencing discomfort when using them. A variety of reasons have been postulated, such as flicker rate, mercury vapor or the radio wave frequencies produced by CFLs. However, very little research is available to confirm these effects and influence governments to reconsider their course of action at present.

Katherine Anderson, public affairs officer from the Department of Environment, Water, Heritage and the Arts, says the Australian Government is going ahead with a three-year phase-out of energy-inefficient incandescent lights “where cost effective, viable and more efficient alternatives exist.”

The first step is the planned restriction on the importation of energy-inefficient incandescent bulbs from November 2008. “Lighting retailers will then have a further 12 months to sell existing stock before an expected retail sales restriction will come into force in November 2009,” Ms Anderson says.

More efficient forms of incandescent lighting will continue to be available, such as mains voltage halogen lamps, can be used in all the same fittings and are readily available. “The halogen gas they contain allows them to operate at a higher temperature, which results in higher efficiency levels than the [incandescent] bulb,” she says.

### Comparing light bulbs

The key difference between compact fluorescent and incandescent bulbs is how they create light. While an incandescent light bulb uses heat to produce light, a CFL creates light using a different method that is four to six

times more efficient. This means you can buy a 15-watt compact fluorescent bulb that produces a similar amount of light as a 75-watt regular incandescent bulb, which will save users money in energy costs over the life of the bulb.

CFLs flash on and off very quickly, flickering at a rate between 25,000 – 32,000 times per second, according to Sean O’Brien, product and business development manager of GE Consumer and Industrial Lighting. This rate of flickering is not visible by the human eye and should not affect people with photosensitive epilepsy, who usually have seizures triggered at flicker rates between 8 and 30 flickers per second.

When CFLs slowly deteriorate over time, Mr. O’Brien says there is no change in flicker rate. “As CFLs age they get a little duller and will fail – other than this there will be no effect of age on the lamps,” he says.

When it comes to using CFLs with dimmer switches, Mr O’Brien cautions to only use CFLs designed for dimmers and use the correct dimmers for the lamp operation. “When a standard CFL is inserted into a dimmable socket, it may flicker till it goes out. Warnings are on the pack not to use non-dimmable lamps on dimmers,” he says.

### Questioning the quality of CFLs

Dr Arnold Wilkins, a professor of cognitive and sensory neuroscience at the University of Essex in England, explains “the rapid modulation of light from fluorescent lamps is responsible for eye-strains and headaches,” referring to his published research on the subject.

“In principle, CFLs should be flicker-free [but] in practice, some disposable ballasts are cheaply made and this creates voltage problems, which seems to cause unfavourable symptoms in some people,” Dr Wilkins says. “There have been anecdotal reports of seizures from fluorescent lighting, but no direct electrophysiological demonstration of photosensitivity when the lamps are operating normally.”

Malfunctioning lamps can impact people with epilepsy and there is evidence of electrophysiological disruption in photosensitive individuals, he adds, recommending fluorescent lighting be powered by electronic high-frequency ballasts of good quality. Ms Anderson says the Government will be imposing a number of Australian and New Zealand Standards that will ensure only good quality CFLs will be available. “Standards will apply to quality characteristics, such as lifetime, efficacy, power factor and mercury content,” she says.

### ‘Dirty electricity’

Dr Magda Havas, associate professor of Environmental and Resource Studies at Trent University in Canada, has conducted extensive research on electromagnetic pollution and has focused her attention on the radio wave frequencies produced by CFLs, causing poor power quality or ‘dirty electricity’. Dirty electricity is a ubiquitous pollutant that flows along wires and radiates from them at frequencies much higher than those used for electricity.

Dirty electricity is generated by electronic equipment such as computers, plasma TVs, energy efficient appliances and dimmer

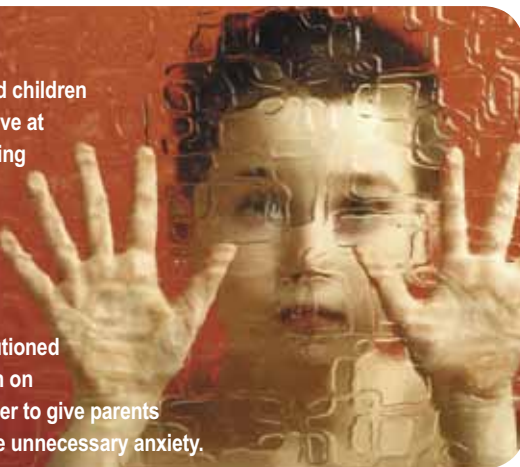
### Have your say

Do you have concerns over CFLs? Let us at Epilepsy Action know if you have experienced changes in seizure activity or found the need to remove CFLs from your home. Write to us so we can raise your concerns with the Department of Environment, Water, Heritage and the Arts. Please email your letters to *Epilepsy360°* at [epilepsy@epilepsy.org.au](mailto:epilepsy@epilepsy.org.au) or write to Epilepsy Action, PO Box 879 Epping NSW 1710 and we will forward them to the Department.

For more information about CFLs, visit [www.environment.gov.au](http://www.environment.gov.au), [www.apec-esis.org/www/cfl](http://www.apec-esis.org/www/cfl) and [www.environment.gov.au/settlements/energyefficiency/lighting.html](http://www.environment.gov.au/settlements/energyefficiency/lighting.html).

## FYI

AN Australian systematic review showed children with autism spectrum disorder (ASD) have at least a 10-fold increased risk of developing epilepsy. Among children with ASD, 10 – 39 per cent had developed epilepsy by their mid teens or 20s. Even children with higher IQs have a much higher rate of epilepsy than the general population, which is 1 – 2 per cent. Researchers cautioned that more work needed to be undertaken on predictors of long-term outcomes in order to give parents more accurate prognoses and not create unnecessary anxiety.



switches. Last year Dr Havas began testing CFLs to try to find out what some people may be reacting to.

“In addition to measuring their lumens and energy efficiency we also measured the electromagnetic frequencies they generate in the form of dirty electricity and radio frequency through the air,” Dr Havas says. “We found that 90 per cent of the CFL we tested produce a considerable amount of radio frequency radiation in the Intermediate Frequency (IF) range of the electromagnetic spectrum. In other words, in the kHz range (1000s of cycles per second) we found that the CFL vary considerably with some models being relatively ‘clean’ electromagnetically and some being quite ‘dirty’.”

Recent inventions of metering and filter equipment provide scientists with the tools to measure and reduce dirty electricity on electrical wires. For the European Union and Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR), Dr Havas presented several case studies and anecdotal reports of individuals who benefited from a filtered environment.

For instance, Graham/Stetzer (GS) filters were installed in three schools with ‘sick building syndrome’ to clean the power and dirty electricity generated within the buildings. After a few days to weeks, staff and students reported improvements in energy, performance, mood and/or health.

GS filters were also placed in homes and offices where people reported having better sleep, more energy and less pain, as well improvements in memory and concentration.

“The connection between electromagnetic pollution and these disorders needs to be investigated and the percentage of people sensitive to this form of energy needs to be determined,” Dr Havas says.

### Testing CFLs for dirty electricity

Although not all energy-efficient CFLs contribute to dirty electricity and produce radio frequencies, “unfortunately, most [CFLs] on the market will make people sick,” she says. The most common symptoms reported are headaches, migraines, fatigue, confusion, dizziness, ringing in the ears, eyestrain, nausea and skin irritations. Dr Havas says a simple way to test the CFL for radio frequencies is to hold an AM radio close to the bulb. If there are excessive radio waves being emitted, the radio will begin to buzz.

Mr O’Brien says there should not be any ‘dirty lamps’ downunder. “There is a standard of EMC emissions that are regulated in Australia and New Zealand. All products sold in this market should have a ‘C-Tick’ mark on them to show that they are compliant,” he says.

Mr O’Brien, who attended the Phase-Out 2008 (Working Towards Global Phase-out of Inefficient Lighting) in China earlier this year, says epilepsy was a topic of discussion and that speakers on the subject stated there was no proven link between CFLs and seizures. “If there is an issue [with CFLs] and it can technologically be corrected, GE will be in the lead to do it,” he says. “I am sure other major brands would also.”

Ms Anderson says the Government is also “committed to ensuring that all possible impacts have been fully researched and any potential health issues are addressed. The Department welcomes the opportunity to work with organisations, like Epilepsy Action, to comment on information we have produced about CFLs and people with epilepsy.” The Department of Environment, Water, Heritage and the Arts website will be updated to include answers to questions about CFLs. “We have also investigated and prepared fact sheets that respond to other concerns that have been raised about the phase-out of incandescent light bulbs,” she says.

## Product picks

Fascinating read about puzzling epilepsy cases | Stylish ID jewelry | Alarms to monitor a variety of seizures

### Puzzling cases of epilepsy

The study of epilepsy has allowed scientists to discover regional brain function. *110 Puzzling Cases of Epilepsy* showcases studies of epilepsy that provide a clinical teaching message from more than 100 epilepsy experts around the world. Their collection gathers a range of



unusual presentations and surprising clinical courses as well as unforeseen problems and unexpected solutions.

Those with a clinical interest in epilepsy will enjoy and benefit from this fascinating book. RRP around \$98.

ISBN#:1853179620.

### Monitoring children with convulsion alarms

The Vigil-Aide Convulsion alarm provides successful monitoring of people from children to adults. Listed with the TGA (Therapeutic Goods Administration), the system has a wide range of variations that have developed from client requests, including small units incorporated into childrens’ or babies’ nightclothes to monitor jerking-type seizures. All systems are manufactured to order so that almost any variation required can be built into the system. Prices begin at \$750. For more information and to receive a special discount, see page 15.



### Wearing ID jewelry in style

‘The In Thing’ offers a wide range of safe, yet stylish medical ID jewelry and accessories with something to suit everyone – women, men and children. The interchangeable ID tags allow you to change your bracelet to suit your needs. Own one ID tag and as many bracelets as you like to mix and match to suit your outfit.

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