



Experts say exposure to artificial light from tablets is causing sleep disorders

By Deborah Rice

Updated Mon 1 Jul 2013, 7:18am AEST

The exploding popularity of hand-held digital devices could lead to a big jump in sleep disorders, with experts warning the light emitted from digital screens can have a disturbing effect on the body clock.

Leading Australian researcher Professor Shantha Rajaratnam says there is growing evidence that the night time use of portable digital devices is likely to compound the problems associated with artificial lighting.

"We think that the advent of electric lighting has significantly impacted upon sleep-wake patterns, but with the proliferation of electronic devices that emit light we are expecting that these problems will increase," said Professor Rajatnam, from Monash University's School of Psychology and Psychiatry.

A recent study in the United States showed that devices such as laptops, smart phones and tablets emit approximately 30 to 50 lux, about half the illumination of an ordinary room light.

"We know from preliminary reports that this level of light emission, 30 to 50 lux, is sufficient over a week or so to delay the timing of the circadian clock as well as suppress the production of the hormone melatonin," says Professor Rajaratnam.

Melatonin, which is produced when it is dark, helps regulate and promote sleep. People who do not have enough of the hormone take longer to fall asleep.

"The extent of the response of the circadian clock will depend on how bright the light is - that is how far away the device is from the eyes - as well as what colours of light are being emitted," Professor Rajaratnam said.

Most disruptive to the body clock is short wavelength blue light - exactly what backlit portable screens shine directly into the eyes.

In addition, the devices are held close to the face and they are easily used in bed.

Dimming the screen brightness may help reduce the effect and technology is being developed that will allow filtering of the worst wavelengths.

Professor Rajaratnam says the best solution is the simplest.

"We would recommend that these devices are shut down or closed off up to two hours before bed time, but at least one hour before bed time, to try to reduce the impact of these light sources on sleep."

Increase in screen-related disorders

Clinical psychologist Dr Amanda Gamble, from Sydney's Woolcock Insomnia Clinic, agrees.

Dr Gamble says she is seeing an increasing number of patients who are presenting with screen-related



VIDEO: Hand-held digital devices could lead to rise in sleep disorders (7pm TV News NSW)

MAP: Australia

- Body clock is affected by artificial light.
- Short wavelength blue light is the most disruptive.
- Body does not produce as much melatonin, a hormone that helps sleep.
- Lack of sleep can affect alertness, concentration and memory.
- Risk is most significant for adolescents.

Search ABC News

ABC Technology & Games

- [NBN in August: Fear and loathing as election looms](#)
- [What the Americans do with fibre-based broadband](#)
- [Rise of the Triad: a crazy old-school shooter in a modern shell](#)

ABC Health & Wellbeing

- [Why doctors are telling us not to smack our children](#)
- [Exercise therapy for Parkinson's disease](#)
- [Antibiotics: how one course can contribute to resistance](#)

Top Stories

- [Abbott asks voters for trust on budget costings](#)
- [Medical breakthrough gives cancer survivors hope of pregnancy](#)
- [Car crushing to resume after SA court revives Government's anti-hoon laws](#)
- [Swathes of southern Australia at higher risk of bushfires this summer](#)
- [Body found in Blue Mountains may be missing Sydney man](#)
- [Franklin to miss Hawks' finals clash with Sydney](#)

Connect with ABC News



NewsMail

The latest ABC News delivered to your inbox.



News Podcasts

Catch up with ABC News programs.



Got a news tip?

If you have inside knowledge of a topic in the news, [contact the ABC](#).

sleep problems

"We've gone from bigger devices - the computers that were fixed on our desk to the handheld portable devices ... so it's become a much more difficult issue to actually create a boundary between sleep and switching off these devices, because of course they come into the bedroom and a lot of people use their mobile phones as their alarm clock," she said.

Dr Gamble says studies show many young people are using computer screens every night in the hour before bed and also in bed.

She believes it is a growing problem.

"Often what we're seeing is the device use is getting younger and younger so we now have children in grades 4, 5 and 6 that have mobile phones and computers," she said.

"There's a shift in schools too, to ask students to complete their work online, rather than writing with pen and paper.

"So they've got a number of messages coming at them that lead them to use devices more frequently and to use them in younger age groups as well."



VIDEO: Deborah Rice speaks with Dr Amanda Gamble (ABC News)

Doctor outlines three main effects

Dr Gamble says there are three main effects resulting from electronic devices.

"Obviously the devices emit light and they're often held close to the face, in the case of an iPad for example. The light suppresses melatonin [and] that makes it harder to fall asleep and delays the sleep pattern," she said.

"Secondly, these devices are really mentally and physically arousing - they're interesting, they're fun and so it takes a while for the brain to wind down and prepare for sleep after using them.

"The third factor is that often young people are using these devices in the bed and this creates a learned association between the bed as being a place of study or work or socialising, rather than keeping the bed just for sleep."

The risk from the intense light is most significant for adolescents, who commonly have delayed sleep patterns anyway, due to biological changes.

"Superimpose on top of that using a lot of electronic devices, then you end up with almost the perfect storm for a sleep problem to develop," Dr Gamble said.

Lack of sleep can affect alertness, concentration and memory, leading to problems at school.

There can also be long-term effects for sleep-deprived adolescents.

"They're at much greater risk of later developing anxiety disorders, depressive illnesses, substance abuse issues and also, on the more physical side, they're at increased risk of poor glycaemic control, diabetes and so on."

The same health impacts can also be experienced by adults.

Topics: [sleep-disorders](#), [computers-and-technology](#), [science-and-technology](#), [medical-research](#), [health](#), [diseases-and-disorders](#), [sleep](#), [australia](#)

First posted Mon 1 Jul 2013, 12:01am AEST



A kayaker is rescued off WA's far northern coast after being stalked by a massive crocodile for two weeks.



Kevin Rudd says Labor can still win the election despite another bad poll. Look back at the day's events.



Veteran British journalist David Frost is being remembered as an icon of modern broadcasting.



A new city, complete with schools and playgrounds, is being built for 600,000 Syrian refugees in Jordan.