

## **CELLPHONE research points to increased brain tumour risk: Some NZ teens in high-risk category.**

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In brief:

- **6% of New Zealanders likely to be at increased risk of brain tumour from cellphone/cordless phone use by mid-teens**
- **Cordless phones are a type of cellphone with the base-transmitter in the home**
- **Nearly ¼ of 10-13 year olds spend 30 minutes or more on the phone daily**
- **NZ lags behind in cautioning the young about cellphone use**
- **Study highlights the need to caution heavy cell/cordless phone users**

A Victoria University of Wellington researcher has found that some New Zealand adolescents are using cellphones and cordless phone very extensively. Mary Redmayne's paper, "**New Zealand adolescents' cellphone and cordless phone user habits: are they at an increased risk of brain tumours already? A cross sectional study**" has recently been published in the journal of *Environmental Health*.

Mary points out that there has recently been a rapid increase in use of these wireless phones among adolescents. There is also growing concern among scientists and health professionals internationally that there may be a corresponding link to adverse health risks amongst those with the highest use.

Cellphones and cordless phones operate in a similar fashion and both emit pulsed microwaves (also called radiofrequencies). There is significant evidence that heavy cellphone and cordless phone use over a number of years increases the risk of brain tumours.

Very few studies have been done on the uses of wireless phones by adolescents. Their thinner skulls and developing brains are two reasons that scientists and health professionals are voicing concern. This has led several countries such as Israel, France, Russia and Switzerland to issue governmental warnings about cellphone use by children and teenagers.

Mary Redmayne's study is an important addition to this debate.

In mid-2009, Mary asked 373 school students aged 10 to 13 within the Wellington region about their cellphone and cordless phone user-habits. While most people's use was low to moderate, some spent hours a day on them. When this was combined with night time proximity and exposure, a revealing pattern emerged.

Two-thirds of student cellphone owners kept their cellphone beside the bed at night, an additional 12% kept it under the pillow. Many of these kept it switched on overnight, with more than a third being woken by it at least weekly. Being woken at night was reflected in being chronically tired at school.

Students who kept the cellphone turned on and with them at night tended to also carry them in a pocket during the day. The fine print of virtually every cell phone

manual states that the cell phone should be kept at least 2.5cm from the human body.

When asked about this, Mary pointed out that, “The amount of exposure increases dramatically as the phone comes close to the head or body.” Since her study, smart-phones have grown in popularity. She said, “It is important to realise that if these are left with functions such as Twitter and Facebook active the phone will be transmitting almost continuously, so exposure if one is kept in a pocket will be much higher than on standby. An advisable precautionary step is to avoid carrying the phone in a pocket while it is turned on, and especially when connected to social networking sites, to avoid possible damage to vulnerable cells during times of growth.”

In 2011, the WHO and its cancer research arm IARC brought together 31 international scientists who concluded that radiofrequency radiation from cellphones and other radiofrequency transmitting devices is a class 2B carcinogen.

Two of the major works they relied on for this classification were the studies of a Swedish group led by Lennart Hardell and the results of the 10 year, 13-country Interphone study on cellphones. The Interphone study found that those with highest cellphone use, more than 1640 hours in total, had an increased risk for brain tumours. A Swedish study showed that this risk is greater when first exposure is before the age of 20.

What is important about the New Zealand Redmayne study is that it includes both cellphone and cordless phone use. One of the most disturbing statistics she found was that 6% of young people in her study were very heavy users of both phones. This year marks four years since the survey bringing the average age of participants to 16. At their reported rate of use, they will this year already be in a category of increased risk for brain tumours as reported in the Hardell and Interphone studies.

To put this in perspective, brain tumours are a very rare disease, but as Mary says, “All our children are precious. The loss of even one child from an avoidable brain tumour would be a tragedy.”

According to the National Radiation Laboratory, the official line in New Zealand on the whether it is safe for children to use cellphones is that, “it is a matter for informed choice by parents”.

Mary considers that young people are likely to be more vulnerable than adults to potential health risks and recommends educating children, parents and teachers about cellphones and cordless phones and how to lower their exposure levels. She hopes to have resources to enable this available later this year. “In the meantime, using a wired landline phone for all long calls, and limiting use of cellphones for other functions (about 30cm from the body) would be a good way to reduce exposure considerably” Mary says.

In 2012, the Bioinitiative report was updated from its initial 2007 publishing. 29 scientists and health professionals reviewed over 1800 papers, published over the past 5 years, on biological effects from electro-magnetic radiation. It concluded that the evidence of health risks are significant with children and young people especially at risk.

A recent 2013, 750 page paper “Late Lessons from Early Warnings” from the European Environmental Agency documents how vital health issues from environmental exposures such as asbestos and smoking have often been ignored, even when early warnings were clear and present. The potential of health risks

(including increased brain tumours) from cellphone exposure is one of the real risks we are facing according to this EEA report.

Mary Redmayne's recent study is local in research and global in implication. What is clear from this study is that the cell and cordless phones habits of adolescents should be an important aspect of research and monitoring for health officials, scientists and parents, both in New Zealand and world wide.

A link to the full paper appears at <http://www.ehjournal.net/content/12/1/5>

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