

The Nicosia Resolution from the Austrian and Cyprus Medical Associations and Cyprus National Committee on Environment and Children's Health includes practical advice for keeping children and adults safer:

[www.cyprus-child-environment.org/easyconsole.cfm/id/428/lang/en](http://www.cyprus-child-environment.org/easyconsole.cfm/id/428/lang/en)



## E-Safety:

# Wireless technologies

We help children and young people to stay safer online by discussing with them the importance of protecting personal information, issues with online content, screen time and building resilience and wellbeing. But there is another important aspect: the radiofrequency signals emitted from wireless devices and transmitters.

Informing people about the risks gives them the choice to better protect themselves and those they are responsible for.

This leaflet raises awareness about the risks and gives positive actions to help keep children and young people safer, as well as where to find further information.

What actions can we take to better protect children and young people (and ourselves)?

See video for teenagers from the Cyprus Government: [www.youtube.com/watch?v=RCy3WfaXZkl](https://www.youtube.com/watch?v=RCy3WfaXZkl)

### Ask children and young people to:

- not hold a mobile (or cordless phone) against the head – provide a wired phone at home, in school/college or in university accommodation. If they do use a mobile, use an air-tube headset or speakerphone, keeping the phone away from the body.
- keep tablet computers, smartphones or laptops away from the chest or body when texting, using the internet or streaming.
- not carry a wireless device on the body, in a pocket or bra – it can go in a bag.
- not sleep with a mobile phone or tablet under their pillow or close to their bed.
- not wear radiofrequency-emitting technology or clothing, or place wireless virtual reality headsets or smartphones in front of their eyes (up to 30x more radiation absorbed into the brain than for adults<sup>17</sup>).
- use wired connections whenever possible and switch wireless signals off on computers or devices.

### Adults can protect children and young people by:

- not buying a smartphone for your children, or waiting until they are older (Nicosia Resolution suggests emergency use only under the age of 16).
- switching off Wi-Fi at home and in schools/colleges (including during exams), in university accommodation and for children in care. Wired access points/internet connections can be provided and wireless signals switched off on the computers and devices.
- providing a wired phone; if using a DECT cordless phone, keep the base station away from the bed and where people spend a lot of time.
- providing wired phones in public places.
- considering wireless risks when purchasing products.

Using wired connections is safer, healthier, more sustainable and better for the environment



Includes: different types of advice, information on cancer, fertility, mental health, behaviour and the brain, as well as actions and links to find out more.

## Different types of advice on the safety of wireless technologies

The report which the UK Government has based its advice on (AGNIR 2012), has been shown in a peer-reviewed scientific journal to be inaccurate, incorrect and misleading<sup>15</sup>. It is still being used to advise the public, schools and Parliament that there are no adverse effects below current ICNIRP exposure guidelines. We need accurate, evidence-based information; without it adults cannot protect children and young people from harm.

In contrast, many scientists have called on governments and organisations to better protect the public ([www.emfscientist.org](http://www.emfscientist.org)) and to reject the ICNIRP exposure guidelines, as they are not protective of health ([www.emfcall.org](http://www.emfcall.org)).

### Cancer

The World Health Organization International Agency for Research on Cancer (IARC) classified all radiofrequency signals (as used by smartphones, tablet computers, Wi-Fi, Bluetooth, smart meters, 4G, 5G...) as a possible human carcinogen in 2011<sup>1</sup>.

We now have more evidence of increased cancer risks and some experts are calling for the classification to be upgraded to a definite human carcinogen<sup>2</sup>. IARC is expected to re-assess the classification by the end of 2024<sup>3</sup>. But we can take action to stay safer now, based on evidence.

- Using a mobile phone for the equivalent of 15 minutes or more per day over 10 years significantly increased the risk of developing a brain tumour in adults (≥896 hours)<sup>4</sup>.
- Young people who first used a mobile or cordless phone under the age of 20 were at increased risk of a tumour, compared to adults<sup>5</sup> (e.g. 100% greater increased risk of a glioma with cordless phone use compared to first use between the ages of 20-49<sup>5</sup>).
- Some women who carried a mobile phone in their bra developed breast cancers<sup>6</sup>.
- Rats exposed to radiofrequency signals developed tumours of the heart and other organs<sup>7</sup>.
- Exposures from tablet computers can be as high as from mobile phones (similar maximum specific absorption rates, SARs)<sup>8</sup>.

### The brain

Studies have described effects of wireless signals on the brain. These are expected to affect brain development, brain function, behaviour and mental health:

changes in brain activity, increased cell death, damaged DNA, altered electrical properties and communication between neurones, changed expression of genes, altered concentrations of neurotransmitters and enzymes, increased anxiety-like behaviours, impaired learning and memory and decreased ability of haemoglobin in the blood to carry oxygen<sup>14</sup>.

- Wireless signals themselves can have harmful effects – it is not enough to just look at screen time, use of social media or online information.

**If we want to address the current increase in mental health and behavioural problems in young people, we need to include the effects of wireless signals when considering solutions.**

### Fertility

Studies have also reported damage to fertility, pregnancy and foetal development<sup>14, 16</sup>. For advice during pregnancy: Cyprus Government video for pregnant women, [www.youtube.com/watch?v=tsRgC2yXBZo](https://www.youtube.com/watch?v=tsRgC2yXBZo), and the BabySafe Project, [www.babysafeproject.org/](http://www.babysafeproject.org/).

### References

1 IARC Monograph <https://monographs.iarc.fr/wp-content/uploads/2018/06/mono102.pdf>; 2 Anthony Miller talk [www.youtube.com/watch?v=jz7hAivb\\_tj](https://www.youtube.com/watch?v=jz7hAivb_tj); Hardell and Carlberg 2018 [www.spandidos-publications.com/10.3892/ijo.2018.4606](http://www.spandidos-publications.com/10.3892/ijo.2018.4606); Miller *et al.* 2018 [www.ncbi.nlm.nih.gov/pubmed/30196934](http://www.ncbi.nlm.nih.gov/pubmed/30196934); 3 Priorities for future IARC Monographs [www.thelancet.com/journals/lanonc/article/PIIS1470-2045\(19\)30246-3/fulltext](http://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(19)30246-3/fulltext); 4 Coureau *et al.* 2014 [www.ncbi.nlm.nih.gov/pubmed/24816517](http://www.ncbi.nlm.nih.gov/pubmed/24816517); 5 Hardell and Carlberg 2009 [www.ncbi.nlm.nih.gov/pubmed/19513546](http://www.ncbi.nlm.nih.gov/pubmed/19513546); Hardell and Carlberg 2015 [www.ncbi.nlm.nih.gov/pubmed/25466607](http://www.ncbi.nlm.nih.gov/pubmed/25466607); 6 West *et al.* 2013 [www.ncbi.nlm.nih.gov/pmc/articles/PMC3789302/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3789302/); 7 US National Toxicology Programme Study 2018 <https://ntp.niehs.nih.gov/results/areas/cellphones/index.html>; Ramazzini Institute Study, Falcioni *et al.* 2018 [www.ncbi.nlm.nih.gov/pubmed/29530389](http://www.ncbi.nlm.nih.gov/pubmed/29530389); 8 SAR examples [www.apple.com/legal/rfexposure/iphone10.1/en/](http://www.apple.com/legal/rfexposure/iphone10.1/en/); [www.apple.com/legal/rfexposure/ipad7.5/en/](http://www.apple.com/legal/rfexposure/ipad7.5/en/); 9 Calvente *et al.* 2016 [www.ncbi.nlm.nih.gov/pubmed/26769168](http://www.ncbi.nlm.nih.gov/pubmed/26769168); 10 Schoeni *et al.* 2015 [www.ncbi.nlm.nih.gov/pubmed/26474271](http://www.ncbi.nlm.nih.gov/pubmed/26474271); 11 Thomas *et al.* 2010 [www.ncbi.nlm.nih.gov/pubmed/19960235/](http://www.ncbi.nlm.nih.gov/pubmed/19960235/); 12 Aldad *et al.* 2012 [www.nature.com/srep/2012/120315/srep00312/full/srep00312.html](http://www.nature.com/srep/2012/120315/srep00312/full/srep00312.html); 13 Divan *et al.* 2012 [www.ncbi.nlm.nih.gov/pubmed/21138897](http://www.ncbi.nlm.nih.gov/pubmed/21138897); Divan *et al.* 2008 [www.ncbi.nlm.nih.gov/pubmed/18467962](http://www.ncbi.nlm.nih.gov/pubmed/18467962); 14 Some studies in submission to Science & Technology Committee Inquiry into Early Years [https://cdn.website-editor.net/2479f24c54de4c7598d60987e3d81157/files/uploaded/Early\\_Years\\_Inquiry\\_EY10062.pdf](https://cdn.website-editor.net/2479f24c54de4c7598d60987e3d81157/files/uploaded/Early_Years_Inquiry_EY10062.pdf); 15 Rev Environ Health <https://doi.org/10.1515/reveh-2016-0060>; Talk [https://cdn.website-editor.net/2479f24c54de4c7598d60987e3d81157/files/uploaded/S\\_Starkey\\_Presentation\\_5th\\_November\\_2018.pdf](https://cdn.website-editor.net/2479f24c54de4c7598d60987e3d81157/files/uploaded/S_Starkey_Presentation_5th_November_2018.pdf); 16 Review, male reproductive health [www.ncbi.nlm.nih.gov/pmc/articles/PMC6240172/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC6240172/); 17 <https://ehtrust.org/new-publication-children-absorb-2-5-times-higher-doses-of-microwave-radiation-than-adults-from-virtual-reality-systems/>

### Mental health and behaviour

- Spanish study (9-11 year old boys) found significant associations between radiofrequency exposures at home (highest point by front door ≥ median; 1.2 V/m) and: anxious/depressed behaviours, aggressive behaviour, ADHD (Attention Deficit Hyperactivity Disorder), poorer verbal expression, lower comprehension skills and lower IQ<sup>9</sup>.
- Swiss study of 12-17 year olds found figural memory (remembering symbols) was worse for the 25% children who used wireless devices the most<sup>10</sup>.
- German study (8-12 & 13-17 year olds) found highest 25% of measured radiofrequency exposures over 24h were associated with increased conduct problems<sup>11</sup>.
- Mice exposed during pregnancy to mobile phone-like signals had hyperactive offspring with impaired memory and altered brain development<sup>12</sup>; children had increased risk of ADHD and behavioural problems when mothers used a mobile phone during pregnancy<sup>13</sup>.