

How do cell phones affect young brains?

March 18 2011, By Julie Deardorff

Cell phone safety warnings are generally designed for a large man with a big head who talks less than half an hour a day.

The average toddler's head, however, weighs about half as much and is far more susceptible to the [microwave radiation](#) the phone emits, said environmental health expert Devra Lee Davis, founder of the Environmental Health Trust, which campaigns for safer [cell phone](#) use.

As the debate over cell phones and cancer continues to rage, concern is growing over the effects of the phones - as well as devices such as the iPad - on [children](#).

A recent study published in the [Journal of the American Medical Association](#) [found that pressing a cell phone to the ear](#) for 50 minutes altered the brain activity in 47 adult volunteers.

The study doesn't answer the million dollar question: whether the change in [brain activity](#) causes any harm.

The wireless industry group says no research has proven cell phones to be dangerous.

The National Cancer Institute, meanwhile, says there is no consistent link between cell phones and cancer.

But the NCI also notes that there's currently no data on cell phone use and risk of cancer in children and that children may be at a greater risk

because their nervous systems are still developing at the time of exposure.

Meanwhile, cell phone use by children and [adolescents](#) is increasingly rapidly.

Experts worry that children's brains, encased in a thinner skull, may be more vulnerable to the effects of the radiation emitted by the phones.

Dr. Nora Volkow, the lead author of the JAMA study, said modeling studies have shown that a child's brain would absorb more radiation than those of adults. But Volkow said she's unaware of studies that have looked at the different developmental effects.

Some studies have suggested that the radiation can cross or affect the entire brain of children, who are still developing, versus a particular area in adults," said Dr. Stephanie Wagner, co-medical director of the neuro-oncology program at Indiana University Health and the IU Simon Cancer Center in Indianapolis.

But studies looking at the effects of electromagnetic radiation in children and the risk of epilepsy and behavioral problems such as attention deficit disorder and aggressive behavior showed conflicting results, Wagner said.

Still, why take a chance, Volkow said.

She suggested that parents "teach their children to use their cell phones with a wired earphone and/or use the speakerphone mode and to avoid putting their cell phones directly on their ear."

Concerned?

If so, try these tips, starting with the most drastic, to limit exposure.

Avoid white noise baby apps. Some children are falling asleep to white noise played from iPhones or Blackberries under their pillows. But the phones must stay on for the app to work. "A cell phone is a two-way microwave radio," said Davis. "That means infants stay asleep with their brains being radiated by the phones all night long."

Don't let toddlers or young children use cell phones. Teenagers should limit use to head sets or texting to keep the antenna away from the brain, said Wagner. Or shift the phone between ears.

Review SAR levels. The Specific Absorption Rate (SAR) is a measure of the amount of radio frequency (RF) energy absorbed by the body when using the handset. Before you buy your child a phone, search the government's cell phone database (fcc.gov/cgb/sar).

Follow the "one-inch" rule. Most cell phone manuals advise holding the phone "at least one inch" away from the head.

Don't carry a cell phone on your body. Place the phone inside a bag or some type of holster; this will help block the radiation from reaching the body.

Limit phone use when the signal is weak. The radiation increases as the device searches for a signal.

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