

## Can mobile phones damage our health?

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Electromagnetic radiation from the mobile phone as well as base tower has been implicated as a health hazard.

Some studies have indicated a link between cell-phone radiation and cancer, lower bone density, infertility in men, and changes in brain activity, while other studies have shown no adverse health effects associated with cell-phone use. This is because not enough studies have been carried out .

The International Agency for Research on Cancer (IARC) is part of the World Health Organization (WHO). Its major goal is to identify causes of cancer. The IARC has classified RF fields as “possibly carcinogenic to humans,” based on limited evidence of a possible increase in risk for brain tumors among cell phone users, and inadequate evidence for other types of cancer.

The rate at which radiation is absorbed by the human body is measured by the Specific Absorption Rate (SAR) and its maximum levels for modern handset is set between 1.6 to 2 W/Kg averaged for 1 gram tissue. If the SAR level is above the limit, it may cause both Thermal and Non thermal effects on the body. Thermal effect of microwave is the dielectric heating in which any dielectric material such as living tissue is heated by rotations of polar molecules (molecules which vibrate near magnets) such as water.

Thermal effect causes-

Burning sensation in neighbouring tissue like ear and scalp, alteration of mood and disturbance of concentration with confusion and memory loss, exhaustion and loss of sleep, ringing sounds in the ears, early cataract in the eyes, changes in levels of brain hormones like dopamine and serotonin responsible for behaviour and sleep.

Non thermal effects-

These include changes in bio-cycles (sleeping, waking ,eating etc), metabolism, sperm production, abnormal foetal

developments, miscarriage and non specific effects like burning and tingling sensations, fatigue, sleep disturbances, dizziness, loss of mental concentration, reduction in reaction time, memory retentiveness, tachycardia etc.

Heating Microwave effect causes-

1. Heating of the fluids in the ear tissues, an effect characterised by clicks and Buzzing sound in the head,
2. The brains cooling system can easily remove heat , but prolonged heating effect can alter brain functions and hearing ability.
3. Auditory illusion(hearing sounds when none exist as a result of microwaves causing current formation in the hearing area of the brain), (may happen if using ear phone or Bluetooth for long time esp for music).
4. Pain in the ear without any specific reasons like infection.

UAMS audiologist Dr. Allison Catlett Woodall says that according to a recent study, cell phone use exceeding 60 minutes per day could result in lasting damage such as high frequency hearing loss, however a large indian study using otoacoustic emissions came to the conclusion the damage is not in the cochlea but may be in the ear drum, hearing nerve or hearing center in the brain.

People in rural areas far from towers are at a higher risk as the phone gives out more radiation to stay connected with the tower.

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