Phone Radiation

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Purpose of Study

The purpose of phone radiation is to see how it impacts humans health.

Introduction

- My topic is based on phone radiation and if it can form cancer. Globally about 5 million people around the world use cell phones. When a person's phone near their body it absorbs 50% of the transmitted radio frequency (RF) energy.

Background Info

- Cancer takes 20-30 years to develop and cell phones studies have monitored periods of 10 years or less.
  - To absorb less energy emitting from your phone you should avoid body contact with your phone (10 millimeters of space) your cell phone's maximum SAR is 1.6 watts per kg.

Radiation Types

- Radiation is the passage of energy through a medium. Radiation can be characterized by the levels of the energy that pass through:
- Ionizing radiation - radiation with enough energy to change the atom structure (such as X-ray radiation).
- Non-ionizing radiation - radiation with not enough energy to change the atom structure. For example, electromagnetic radiation.

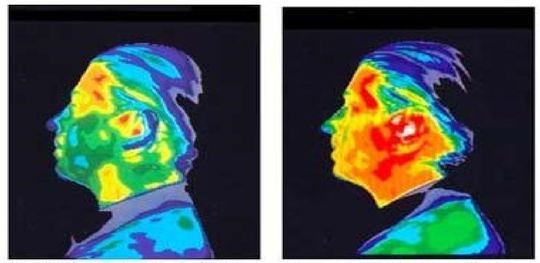
Discoveries and Innovations

- There is no evidence that non-ionizing radiation (emitted from phones) can increase a cancer risk in humans. However ,according to cancer.gov exposure to ionizing radiation (emitted from things like x-rays) is known to increase the risk of cancer. What is ionizing radiation? Ionizing radiation is a type of energy released by atoms in the form of electromagnetic waves.people are exposed to natural radiation sources including hand-made sources everyday. Natural radiation comes from almost 60 naturally-occurring radioactive materials found in soil,water and air, and human made sources, such as medical devices including x-ray machines. Everyday people inhale radionuclides from these natural resources. According to the world health organization on average, 80%of the annual dose of radiation a human receives is due to naturally occurring terrestrial and cosmic radiation scoures.

Applications in Medicine

- As stated by the national cancer institute," there is currently no consistent evidence that non-ionizing radiation increases cancer risk in humans".
  - However ionizing radiation is able to increase the chance of cancer in humans by breaking up DNA and mutating cells into something that can become a type of cancer.
- High exposure to radiofrequency radiation resulted in tumors in tissue around the nerves in the hearts of male rats, but not of female rats or male or female mice, according to preliminary conclusions of two studies.
- According to Dr. John Buchner, Cell phone technologies are constantly changing, and these findings provide valuable information to help guide future studies of cell phone safety."

Data



Thermographic Image of the head with no exposure to harmful cell phone radiation.

Thermographic Image of the head after a 15-minute phone call. Yellow and red areas indicate thermal (heating) effects that can cause negative health effects.

Figure 1: This is a thermographic image of a person before and after expose to phone radiation

Conclusion

- Phone radiation starts in your ears when your phone overheats.
- Just 15 minutes on your phone can cause negative health effects.
- Ionizing radiation is able to increase the chance of cancer in humans by breaking up DNA and mutating cells into something that can become a type of cancer.

References

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- https://www.cancer.gov/about-cancer/causes-prevention/risk/radiation/cell-phones-fact-sheet
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