

Determining an Association Between Non-Ionizing, Non-Thermal Radiation Emitted from Cellular Phones and the Growth of Brain Tumors: A Meta-Analytic Approach

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The public has become increasingly interested in the possibility that exposure to non-ionizing radiation from cellular telephones may be causing brain cancer. Many studies have investigated this topic but yield inconsistent results. It was determined that there was a need to compile the current pool of literature and deduce an overall outcome using a meta-analytic approach. Because there is a lack of knowledge on the effects of non-thermal radiation emitted from cell-phones, it became the central focus of this study.

Eight total meta-analyses were ran on nine peer-reviewed articles collected from databases including PubMed, ProQuest and MEDLINE. Each underwent a vigorous assessment of bias prior to analysis, making this study unique from others of its kind. Using Review Manager software, the analyses revealed a significant increase in brain tumor development due to regular use of cellular phones (odds ratio 1.13; 95% CI of 1.08-1.18). Additionally, there was a significant correlation in the side of the head the phone was preferably held and the side of the head gliomas and all other brain tumors formed (OR 1.31 and 1.17; 95% CI of 1.11-1.55 and 1.04-1.31, respectively). However, there was no significant increase in risk of any duration of cell-phone use in formation of acoustic neuroma or glioma tumors and thus no correlation between where acoustic neuromas formed and the side of head the cell-phone was typically held (OR 1.06 and 1.00; 95% CI of 0.92-1.21 and 0.89-1.12, respectively).