

Brain activity while cooking resembles early-stage Alzheimer's, finds new research

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Exposure to nanoparticles during cooking causes changes to brain activity similar to that observed in early-stage Alzheimer's disease, finds new research from Nazarbayev University School of Engineering and Digital Sciences (NU SEDS (<https://seds.nu.edu.kz/>)).

Mehdi Amouei Torkmahalleh, Assistant Professor at NU SEDS, and colleagues investigated the brain activity of individuals before, during, and after exposure to ultrafine particles from cooking. Ultrafine particles, which can be found in cooking fumes, are incredibly small and able to penetrate the human body.

Participants were present during the frying of a chicken drumstick on a gas stove and therefore exposed to cooking ultrafine particles. Brain activity was recorded using an electroencephalograph (EEG) before cooking, at the end of cooking, and 30 minutes after cooking. Ultrafine particle concentrations in the air were constantly monitored, which reached peak levels during frying.

They found that beta waves of the brain decreased during exposure to the ultrafine particles, similar to people with neurodegenerative diseases. Also, theta/beta wave ratio of the brain increased during and after exposure, similar to that observed in early-stage Alzheimer's disease. Brain activity for most would return to normal within 30 minutes.

Professor Torkmahalleh says,

“Brain responses after long-term exposure may deteriorate with time and, after sufficient long-term exposure, never revert to pre-exposure levels leading to a similar status to neurodegenerative disease. This is a novel hypothesis for our current and future research studies. This suggests that people chronically exposed to cooking aerosol might progress towards Alzheimer's.”

The changes to brain wave patterns during and shortly after exposure could be due to the ultrafine particles from the cooking fumes reaching the brain through the nose. The researchers suggest using respirators or sufficient ventilation during cooking to reduce potential risk of neurodegenerative disease.

These findings were published in Indoor Air Journal.

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For more information, a copy of the research paper, or to speak with Professor Torkmahalleh, please contact Kyle Grizzell from BlueSky Education on +44 (0) 1582 790709 or kyle@bluesky-pr.com