

## ‘Slowed Brain-activity’ in frequent mobile phone users

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11/9/2007 – According to a recently published study, frequent mobile phone users demonstrated slowed Brain function. This study is the first study investigating the long term effects of mobile phone use on brain function. It was also found that frequent mobile phone users showed better focused attention, which can be explained as a learning effect related to making more phone calls in distractive surroundings. No firm conclusions can be drawn as to whether these effects are to be considered an adverse health effect or not, but data have already been collected from more than 20.000 people to replicate this study and further investigate the adverse health effects.

In the September issue of the International Journal of Neuroscience a study will be published on the long term effects of Mobile Phone use on brain function. Earlier studies have mostly investigated the acute effects of mobile phone use on brain function. However, this study employed an epidemiological approach to investigate the long-term effects of mobile phone use on brain function. In this study data was used from 300 people of which 100 were ‘frequent mobile phone users’, 100 ‘non-mobile phone users’ and an ‘intermediate group’ of 100 people. Differences in brain activity (measured using QEEG or quantative EEG), Neuropsychological functions such as attention, memory and executive function and personality traits were assessed. The results show that frequent mobile phone users score higher on extraversion. Furthermore, frequent mobile phone users showed improved focused attention. This was explained by a learning effect due to making more phone calls in busy environments, whereby people learn to focus better on the phone call and filter out irrelevant environmental information. However, the brain activity from frequent mobile phone users shows more slow activity (increased Delta and Theta) and a slowing of the Alpha Peak Frequency. These effects could not be explained by the differences in personality and focused attention. “In Alzheimer’s dementia you also find a severely slowing of brain activity.

However, the slowing found in this study, with mobile phone users, can still be considered within ‘normal’ limits” according to Martijn Arns, the main investigator. “The frequent mobile phone user group used their mobile phone - at the time of data collection - only 2.4 years on average which can currently be considered as a short time. Therefore, it is to be expected that the observed effects in this study can be more severe with prolonged mobile phone use” according to Martijn Arns.

The ‘Brain Resource International Brain Database’ was employed for this study, which currently contains data more than

20.000 people, on the basis of which this study can be replicated in a cost-effective and time-efficient manner. Future studies should point out whether this effect can be replicated in larger groups, with prolonged mobile phone use and whether this slowed brain activity is to be considered as an adverse health effect or not.

This study was carried out by researchers from Brainclinics Diagnostics and the Radboud University department of Biological Psychology both from Nijmegen (the Netherlands), the Institute of Psychiatry (London) and the Brain Resource Company Ltd. (Sydney).

For more information also see [www.brainclinics.com](http://www.brainclinics.com)

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**About Brainclinics Diagnostics**

Brainclinics (BC) is specialized in Personalized Medicine, diagnostic services and treatment of brain related disorders (such as ADHD and Depression). Brainclinics carries out applied brain research using techniques such as QEEG, neuropsychological assessments (IntegNeuro) and rTMS for depression. This applied brain research serves the purpose of personalizing treatment and diagnosis in order to get more targeted and efficacious treatment. Brainclinics only employs evidence-based methods for assessments and treatment and BC is also intensively involved in Applied Neuroscience and Applied Brain Research. Brainclinics is closely affiliated with the Brain Resource Company and also uses the International Brain Database for it's diagnostic services and research.

**[You can find this press release here](#)**