

ISEE 2017 Abstract Submission Form



Symposium and Workshops summary submission deadline 23 February 2017

Oral and Poster submission deadline: 23 March 2017

Instruction

- ✓ The abstract must be typed into this Abstract Submission Form in English.
- ✓ **Title** should be centred, short, specific, and informative, with a font size of **12 pt. Arial**.
- ✓ **Author information** should include first name, second initial, surname and affiliations with a font size of **8 pt. Arial**. Up to 10 authors are allowed. Presenting authors' names should be **bold** and presenting authors **should be denoted with asterisks**.
- ✓ **Affiliation** should be Organisation, Town/City, Country – example: School of Public Health and Community Medicine, University of New South Wales, Sydney, New South Wales, Australia
- ✓ The abstract text should include “Background/Aim”, “Methods”, “Results” and “Conclusions”.
- ✓ **The abstract** is restricted to 300 words (not including the title, author information and affiliations) and tables, graphs or figures are **not allowed**. It should be written with **9 pt. Arial** as font.
- ✓ Do NOT CAPITALIZE LETTERS.
- ✓ This abstract will be published as submitted in: Abstracts of the 2017 Epidemiology (ISEE). Research Triangle Park, NC: Environmental Health Perspectives, without modification.

Presentation preference (Select one checkbox)

- Symposium summary: *Title Symposium (please overtype this)*
- Pre Conference Workshop summary
- Oral (Symposium) : *Title Symposium (please overtype this)*
- Oral (General Sessions)
- Poster (General Sessions)

Decreases in adolescents' figural memory performance associated with cumulative individual radiowave brain dose over one year.

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Background/Aim

The potential impact of microwave radiofrequency electromagnetic fields (RF-EMF) emitted by wireless communication devices on neurocognitive functions of adolescents is still discussed. In a previous longitudinal analysis we found changes in figural memory scores associated with higher cumulative RF-EMF brain dose in adolescents. This study aimed on following up these results using a new study population and a new approach to control for confounding from media usage itself.

Methods

Individual RF-EMF brain dose for each participant (n=842) was modelled using objective data from mobile phone operators, personal RF-EMF measurements, questionnaire data and geospatial modelling. Multivariable linear regression models were fitted on memory score changes over one year and cumulative RF-EMF brain dose as well as media usage either related or unrelated (negative exposure controls) to RF-EMF exposure. An additional laterality analysis for right ear vs. left ear/no preference phone callers was conducted since memory functions are known to be lateralized in brain hemispheres. To control for confounding of media use behaviours a stratified analysis for different media use patterns was conducted.

Results

We found decreased figural memory scores with higher cumulative RF-EMF dose score change (-0.22, 95% CI: -0.47 to 0.03) per IQR in the whole sample and in a network operator recorded sample (-0.26, 95% CI: -0.42 to -0.10). No association was seen with media usage unrelated to RF-EMF. RF-EMF brain dose was negatively correlated with figural memory in right side users (-0.39, 95% CI: -0.67 to -0.10). Using operator recorded data, verbal memory score was impaired in left side users.

Conclusions

The results support a potential adverse effect of RF-EMF brain dose on adolescents' cognitive functions. Results of the laterality analysis are compatible with the involved brain hemispheres for figural (right side) and verbal (left side) memory.

