

Press Release

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Age-related hearing loss can lead to lower body mass index and total body fat

New study from the University of Oulu sheds light on the complex interactions between noise exposure, hearing loss and body constitution.

Environmental noise has emerged as a critical public health concern, with prolonged exposure posing risks such as hearing loss. Observational studies have suggested a potential association between long-term exposure to traffic noise and the risk of obesity. In 2019, the [World Health Organization environmental noise guidelines for the European region](#) rated the evidence for the association between transportation noise and obesity as low or very low quality and emphasised the importance of studying hearing-related outcomes associated with noise exposure.

Addressing this complex interplay, researchers in the LongITools project embarked on a genetically informed study led by doctoral researcher [Yiyan He](#). The study aimed to unravel the causal relationship between body constitution and hearing loss, posing the question: Is hearing function a key factor to consider in understanding the link between noise exposure and obesity?

Utilising data from publicly available genome-wide association studies (GWAS) in repositories such as the UK Biobank, FINNGEN, and the Genetic Investigation of Anthropometric Traits (GIANT) consortium, the study focused on participants with mean ages ranging from 52 to 63 years.

The findings, presented in the study, challenge the notion that an increase in adiposity-related measures directly causes hearing loss. However, the research did reveal a noteworthy association: age-related hearing impairment could lead to a lower BMI and reduced body fat percentage in the European-descent adult population. This suggests a unique relationship where age-related hearing impairment may influence body weight and fat.

Lead researcher and author, Yiyan He, commented on the implications of the study, stating, "Our research provides evidence that older individuals with hearing problems may experience weight loss and reduced fat. This poses challenges for those dealing with hearing loss and undernutrition simultaneously. Increased nutritional support is crucial for this vulnerable group."

The study was published in Scientific Reports (Nature Publishing Group) on October 27, 2023: He, Y., Karhunen, V., Pulakka, A. et al. A bidirectional Mendelian randomisation study to evaluate the relationship between body constitution and hearing loss. *Sci Rep* 13, 18434 (2023). <https://doi.org/10.1038/s41598-023-44735-x>

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Notes to editors:

Press contact: Claire Webster, email claire.webster@betatechnology.co.uk, Phone +44 1302 322633

Coordinator contact: Professor Sylvain Sebert, email sylvain.sebert@oulu.fi, Phone + 358 50 3440842, Teija Juola, email teija.juola@oulu.fi, Phone +358 50 4666 137

University of Oulu Press Office, Meri Rova, email meri.rova@oulu.fi, Phone +358 50 4643361

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Paper: [A bidirectional Mendelian randomisation study to evaluate the relationship between body constitution and hearing loss.](#)

About LongITools

[LongITools](#) is a five-year research project, which commenced on 1st January 2020, with a total grant of €11,997,448 from Horizon 2020. It is also one of nine projects in the [European Human Exposome Network](#). To keep up to date with the project's progress please follow @longitools on X or LongITools on LinkedIn.

Partners:

- University of Oulu, Finland (Project Coordinator);
- Ab.Acus, Italy;
- Academic Medical Center, Netherlands;
- Beta Technology Ltd, UK;
- Chalmers University of Technology, Sweden;
- CyNexo, Italy;
- Erasmus Medical Center, Netherlands;
- Imperial College London, UK;
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About Horizon 2020

<http://ec.europa.eu/programmes/horizon2020/en/what-horizon-2020>