

## **Dataset for: "Disentangling the effects of hearing loss and age on amplitude modulation frequency selectivity"**

This file describes the contents of the dataset.

The dataset contains data for 3 young and 10 older listeners with hearing impairment (young and older HI listeners).

The data collected were:

- Population data: age, tested ear, presentation level, and reverse digit span score
- Audiograms
- Hearing threshold at the test frequency
- Amplitude modulation detection thresholds
- Masked-threshold patterns (MTPs)

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### **Population Data**

Dataset giving the population information for the 13 participants (*tp*), split into young HI and older HI (*group*), tested in the study. The data summarizes the participants' *age*, tested ear (*ear*), and presentation level (*level*), as well as their Reverse Digit Span score (*rds\_score*). The age is given in years, the presentation level is given in dB Sound Pressure Level (SPL), and the reverse digit span score is given on a normalized scale from 0 to 1.

### **Audiogram**

Audiometric thresholds (*thresh*) were collected for 13 participants (*tp*), split into young HI and older HI (*group*), at frequencies (*freq*) of 0.125, 0.25, 0.5, 1, 2, 3, 4, 6, and 8 kHz. The thresholds are given in dB Hearing Level (HL).

### **Hearing Threshold**

Hearing thresholds collected at the test frequency (2.8 kHz) for all listeners. 13 participants (*tp*), split into young HI and older HI (*group*) were tested. The thresholds (*thresh*) were measured across at least 3 repetitions (*repetition*) for each listener. If the standard error across repetitions exceeded 2 dB, additional repetitions were added until that limit was met. The thresholds are given in dB Sound Pressure Level (SPL).

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### **AM detection**

Amplitude modulation detection thresholds collected with 13 participants (*tp*), split into young HI and older HI (*group*). Detection thresholds (*thresh*) were collected at four different target modulation frequencies (*fmod*) of 4, 16, 64, and 128 Hz. At least three repetitions (*repetition*) were collected for each condition. If the standard error across repetitions exceeded 2 dB, additional repetitions were added until that limit was met. The thresholds are given for the target modulation depth on a dB scale:  $M = 20\log_{10}(m)$ , where  $m$  is the modulation depth on a linear scale.

### **Masked-Threshold Patterns (MTPs)**

Masked-threshold patterns (MTPs), collected with 13 participants (*tp*), split into young HI and older HI (*group*). Masked thresholds (*thresh*) were collected at four different target modulation frequencies (*fmod*) of 4, 16, 64, and 128 Hz, and five to seven different masker-modulation center frequencies (given as octaves relative to the target modulation frequency, *mask\_oct*) at -5, -4, -2, -4/3, -2/3, 0, +2/3, +4/3, and +2 octaves. At least three repetitions (*repetition*) were collected for each condition. If the standard error across repetitions exceeded 2 dB, additional repetitions were added until that limit was met. In case a threshold was not obtainable in one of the repetitions, the *thresh* entry specifies "NaN". The thresholds are given for the target modulation depth on a dB scale:  $M = 20\log_{10}(m)$ , where  $m$  is the modulation depth on a linear scale.

Masked thresholds for TP07 could not be obtained for the 4-Hz target modulation frequency and masker modulations of +2/3 and +4/3 octaves. Hence, the 4-Hz MTP for TP07 was considered uncomplete and disregarded.

### **Ethical statement**

All listeners were financially compensated for their time and gave written informed consent. Ethical approval for the study was provided by the Science-Ethics Committee for the Capital Region of Denmark (reference H-16036391).

### **Citation and links:**

*Cite this dataset:*

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*Authors and affiliations:*

Jonathan Regev<sup>1, a</sup>, Helia Relaño-Iborra<sup>1</sup>, Johannes Zaar<sup>1,2</sup>, and Torsten Dau<sup>1,3</sup>

<sup>1</sup> Hearing Systems Section, Department of Health Technology, Technical University of Denmark, Kongens Lyngby, 2800, Denmark

<sup>2</sup> Eriksholm Research Centre, Snekkersten, 3070, Denmark

<sup>3</sup> Copenhagen Hearing and Balance Center, Copenhagen University Hospital, Rigshospitalet, Copenhagen, 2100, Denmark

<sup>a</sup> Email: [joreg@dtu.dk](mailto:joreg@dtu.dk)  
ORCID: <https://orcid.org/0000-0002-2744-941X>

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