Authors: Frederique J Vanheusden  
 Steven L Bell  
 Michael A Chesnaye  
 David M Simpson

Affiliations: Institute of Sound and Vibration Research, University of Southampton, United Kingdom

Category: Poster

Topic: Auditory middle and long-latency responses?

Additional topic: Auditory cognitive and event-related potentials?

**Exploration of inter-individual variability in cortical responses to natural English sentences**

**Objectives (250 characters):**

Grand average cortical responses to speech have shown the possibility to analyse perceived intelligibility. Cortical responses to sentences are explored to determine their variability amongst subjects and therefore their applicability in clinic.

**Methods (250 characters):**

EEG responses to 100 repeats of three English sentences were recorded for 16 subjects with normal hearing thresholds. Responses were detected using a Hotelling’s T2 test on 100 ms low-pass filtered (30 Hz) segments (two 50 ms features per segment).

**Results (250 characters):**

Participants showed a clear response at segments including the stimulus onset (p<0.01). Later segments showed strong variability in detection between participants, with less significant responses and more repeats needed compared to onset detection.

**Conclusion (250 characters):**

Onset responses to natural sentences can be detected within 100 repeats (100 s), which is relevant for clinical use. The possibility of detecting robust responses beyond the onset at an individual level need to be further investigated.

**Keywords (maximum 5):** Cortical responses, objective response detection, inter-individual variability