



BSA eConference **GLOBAL** 2019 CONNECTIONS

e-Conference Handbook

POSTERS BY TOPIC IMPLANTS, SSD & OTOTOXICITY

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TITLE: UNILATERAL HEARING LOSS: CHARACTERISING
THE DEFICIT IN REAL-WORLD ENVIRONMENTS

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ABSTRACT:

AIM: TO CHARACTERISE THE DEFICIT EXPERIENCED BY ADULTS WITH UNILATERAL HEARING LOSS (UHL) COMPARED TO NORMAL HEARING (NH) LISTENERS USING NOVEL BEHAVIOURAL AND SELF-REPORT MEASURES IN AN AMBISONIC (FULL-SPHERE SURROUND SOUND) REALISTIC ENVIRONMENT.

METHODS: ADULTS WITH UHL (N=16), DEFINED AS PURE-TONE AVERAGE ACROSS 0.5-4 KHZ (PTA) \geq 70 DB HL IN ONE EAR AND NORMAL HEARING IN THE OTHER, AND 16 ADULTS WITH NH (PTA \leq 20 DB HL) IN BOTH EARS WERE RECRUITED. PERFORMANCE WAS COMPARED IN SIMULATED REAL-WORLD LISTENING CONDITIONS USING A 41 LOUDSPEAKER 3D SPHERICAL ARRAY TO RECREATE AN IMMERSIVE AND REALISTIC NOISY CAFÉ ENVIRONMENT. A NOVEL TEST OF REALISTIC SPEECH COMPREHENSION, THE NAL-DYNAMIC CONVERSATIONS TEST (NAL-DCT), AS WELL REACTION TIMES (RT) TO ASSESS LISTENING FATIGUE AND HEAD TRACKING (HT) WERE CONDUCTED. SELF-REPORT QUESTIONNAIRES (SSQ12 AND SPARQ) AND ECOLOGICAL MOMENTARY ASSESSMENT (EMA) OF FUNCTIONAL REAL-WORLD PERFORMANCE WERE ALSO EVALUATED.

RESULTS: SIGNIFICANT DIFFERENCES WERE SHOWN BETWEEN THE UHL AND NH PARTICIPANTS, WHERE THOSE WITH UHL HAD POORER RESULTS COMPARED TO THE NH LISTENERS FOR ALL MEASURES. THE RT IN NOISE AND TWO EMA SURVEY QUESTIONS (NOISE INTERFERENCE WITH LISTENING ABILITY, MISSING THE START OF WHAT IS BEING SAID WHEN CONVERSATION SWITCHED BETWEEN TALKERS) WERE STRONGLY CORRELATED TO THE NAL-DCT SCORE. IN COMBINATION, THESE VARIABLES RESULTED IN A RELIABLE MODEL TO PREDICT THE NAL-DCT SCORE.

CONCLUSIONS: A BETTER UNDERSTANDING OF UHL DEFICIT IN THE REAL-WORLD ENVIRONMENTS HAS LED TO A POTENTIAL MODEL TO PREDICT REALISTIC SPEECH COMPREHENSION AND LAYS THE GROUNDWORK FOR FUTURE RESEARCH.