Reliability of the Minimum Masking Level as an Outcome Variable in Tinnitus Clinical Research

Objectives: The Minimum Masking Level (MML) is the minimum intensity of a stimulus required to just totally mask the tinnitus. Treatments aimed at reducing the tinnitus itself should attempt to measure the magnitude of the tinnitus. The objective of the present study was to evaluate the reliability of the MML. We used three noise types; a 1/2 octave narrow band noise, speech shaped noise, and a high-frequency emphasis noise. We were additionally interested in the relationship between the MML and tinnitus loudness estimates and the Tinnitus Handicap Questionnaire.

Methods: We enrolled tinnitus patients who reported stable tinnitus. After practice session, patients returned for the first visit and the second visit

Results: Differences among the noise types were small. The within-session standard deviation averaged across subjects varired between 1.3 and 1.8 dB. Across the two sessions, the Pearson correlation coefficients ranged was $r = 0.84$. There was a weak relationship between the dB SL MML and loudness, and between the MML and the Tinnitus Handicap Questionnaire. A moderate correlation ($r = 0.44$) was found between the Tinnitus Handicap Questionnaire and loudness estimates.

Conclusions: We conclude that the dB SL MML can be a reliable estimate of tinnitus magnitude, with expected standard deviations in trained subjects of about 1.5 dB. It appears that the dB SL MML and loudness estimates are not closely related.