

## ACOUSTICS2008/1558 Improvement of speech recognition thresholds by spectral modulation enhancement

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Our previous studies have shown that vowel identification in noise was significantly improved by spectral enhancement resulting from modifications in the spectral modulation domain. The present study investigates whether spectral enhancement results in improved speech recognition in background competition. Speech recognition thresholds (SRT) were measured in a long-term speech shaped (LTSS) noise and in multi-talker babble using NU-6 words with and without spectral enhancement for young normal-hearing listeners. Results indicated that SRTs were significantly reduced, by 2.2 dB, in LTSS noise and in babble when speech sounds were spectrally enhanced between 2.0 and 2.5 cycles/octave, while no significant changes in SRTs occurred for enhancement between 1.5 and 2 cycles/octave or between 1.5 and 2.5 cycles/octave. Spectral modulation transfer functions were also measured for each listener. Linear regression analyses showed that SRT improvement was moderately correlated with modulation detection thresholds at a spectral modulation frequency of 0.5 cycles/octave. Thus, it appears that better modulation detection at low spectral modulation frequencies is associated with greater improvement in word recognition in background competition.