In April 2012, the Journal of the Association for Research in Otolaryngology (JARO) published the results of a clinical study done at University of California, Irvine. The following is a summary of the key points of that paper, with a link to the abstract at the end of the summary.

**Research Article: Temporary Suppression of Tinnitus by Modulated Sounds**

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Based on a previous observation that “tinnitus can be temporarily abolished by low-rate electric stimulation from a cochlear implant” (Zeng et al. 2011) the authors sought to determine whether a corresponding acoustic stimulation would suppress tinnitus in subjects without cochlear implants. Authors state, “We concentrated on a low-rate amplitude and frequency-modulated sounds...We hypothesized that the externally driven synchronized neural activity generated by these low-rate modulated stimuli will reduce tinnitus-related neural hyperactivity in the central auditory pathways, thereby providing temporary suppression of tinnitus.”

- 20 subjects with chronic tinnitus listened to 5 types of sound comprising 17 individual external sounds, presented randomly, for a total of 340 trials.
- Sounds included both traditional, unmodulated and dynamically modulated stimuli.
- Sounds were presented to the patient at a volume that was lower than the patient’s tinnitus perception volume.
- 90% of subjects experienced at least some suppression (reduced loudness with a sound presented at a lower volume than the patient’s tinnitus perception) with at least one of the stimuli.
- Greatest suppression was achieved with amplitude modulated tones with frequencies near the tinnitus pitch (S-Tones®).
  - S-Tones were four times more likely to provide relief than white noise.
- 35% of patients experienced 70% or better reduction in tinnitus perception; 35% of patients experienced 30-50% reduction; 30% of patients saw less than 30% reduction.

No adverse events were reported.

Study results “provided evidence that modulated sounds, particularly low-rate amplitude-modulated tones with a high carrier frequency in the tinnitus pitch range, are the most effective in reducing tinnitus loudness.” Further studies are needed and studies are on-going.

Link to Abstract: [http://www.springerlink.com/content/fk1126x5l228051h/](http://www.springerlink.com/content/fk1126x5l228051h/)