The pitch of amplitude-modulated electrical stimuli in cochlear implantees

Colette M. McKay, Hugh J. McDermott, Graeme M. Clark

Dept. of Otolaryngology, The University of Melbourne & The Australian Bionic Ear and Hearing Research Institute, 383-388 Albert Street, East Melbourne 3002, Australia

The ability of cochlear implantees to detect amplitude modulation of pulsatile electrical stimulation, suggests that some speech feature information may be conveyed effectively by this means. For example, modulations at the fundamental frequency of speech may provide a voice pitch percept to implantees, particularly in speech processing strategies which generate constant-rate stimulation. The pitch evoked by sinusoidally modulated current pulse trains on a single electrodes has been studied. Modulation frequencies of 100, 150 and 200Hz, and carrier pulse rates varying from 200 to 1200Hz, were used. The results showed that the pitch of the stimulation was related to the modulation frequency, provided that either the carrier rate was a multiple of the modulation frequency, or the carrier rate was sufficiently high (at least four times the modulation frequency for the stimuli studied here). Furthermore, when the modulated stimuli were matched in pitch to non-modulated pulse trains, it was found that the rate of the matched non-modulated stimuli was close to but somewhat higher than the modulation frequency. This difference depended on the carrier rate and varied among subjects.

University Library

A gateway to Melbourne's research publications

Minerva Access is the Institutional Repository of The University of Melbourne

Author/s:
McKay, Colette M.; McDermott, Hugh J.; Clark, Graeme M.

Title:
The pitch of amplitude-modulated electrical stimuli in cochlear implantees [Abstract]

Date:
1993

Citation:
McKay, C. M., McDermott, H. J., & Clark, G. M. (1993). The pitch of amplitude-modulated electrical stimuli in cochlear implantees [Abstract]. In Third International Cochlear Implant Conference.

Persistent Link:
http://hdl.handle.net/11343/27338

File Description:
The pitch of amplitude-modulated electrical stimuli in cochlear implantees [Abstract]