

Place pitch perception with multiple electrode cochlear implants: the use of concurrent activation of nearby electrodes to produce additional pitch percepts.

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In multiple electrode cochlear implants, each electrode produces a pitch percept which is usually related monotonically to its distance from the round window. The number of these pitch percepts is limited by the number of usable electrodes and their discriminability, varying up to a maximum of 22 for the mini-system 22 implant but sometimes significantly less. A study on two implanted subjects in which the pitch of pulse trains on two concurrently activated nearby electrodes was compared with the pitch produced when each of the electrodes was activated on its own, showed that the pitch of the concurrently activated electrodes was different from each component electrode and was placed in an intermediate position. Furthermore the pitch of the concurrent stimulation could be altered by adjusting the relative current levels on the two component electrodes. This may partly explain the improvements, particularly in vowel discrimination, obtained with the SMSP strategy described in the accompanying paper.



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