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**Binaural jitter improves sensitivity to interaural time differences
in electric and acoustic hearing**

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Cochlear implant (CI) listeners are often sensitive to fine structure ITD at low pulse rates, but their sensitivity declines at higher pulse rates which are required for speech coding. We hypothesized that this limitation is related to the binaural adaptation phenomenon [Haftner and Dye, *J. Acoust. Soc. Am.* 73 (1983) 644-651], associated with periodic stimulation. With five CI listeners, we tested the effect of introducing binaurally-synchronized jitter (binaural jitter) in the stimulation timing, assuming that this reduces the periodicity in the neural response and thus avoids binaural adaptation. Pulse rates from 400 to 1515 pulses per second (pps) were tested. In addition, we performed a similar experiment with normal-hearing (NH) listeners using bandpass-filtered acoustic pulse trains and testing the pulse rates 600 and 1200 pps. The CI listeners showed large improvements in ITD sensitivity from binaural jitter at high pulse rates (800 - 1515 pps). The NH listeners also showed large improvements from binaural jitter. The results are consistent with the hypothesis that random temporal variation reactivates the adapted binaural auditory system. Thus, binaurally-jittered stimulation improves the access of bilateral CI listeners to ITD information. Partly supported by the Austrian Science Fund, FWF, project number P18401-B15