markedly reduced in amplitude to unvoiced compared to voiced signals. The effects of the initial consonants' intensity, duration, and proximity to the vowel were defined. It is the initial unvoiced 10–20 ms portion that is responsible for the attenuation of the vowel-evoked N100 component. This attenuation persists even when the consonant is attenuated 20 dB relative to the vowel's intensity; the attenuation persists with as much as a 150-ms silent period inserted between the consonant and vowel. "Noise masking" as the basis for the unvoiced consonants ability to attenuate vowel evoked potentials were evaluated using a brief noise burst to mask tone evoked potentials; there was little similarity between the two paradigms suggesting that noise masking is not the mechanism accounting for the effects. The N100 component in human reflects auditory cortical processes that are sensitive to simple phonemic features of language is proposed (i.e., voicing versus unvoicing).

10:15–10:30

Break

10:30

2PP8. Neuronal contributions to auditory brainstem potentials (ABR).
A. Starr and M. Zaaroor (Dept. of Neurology, Univ. of California, Irvine, CA 92717)

ABRs were studied in cats for up to 45 days after kainic acid injections into the superior olivary complex (SOC) or cochlear nucleus (CN), which destroyed neurons while sparing fibers of passage and the terminals of axons of extrinsic origin. With destruction of the CN neurons, there was a loss of components P2 (III), and P3 (IV) and only a modest attenuation and prolongation of the latency of components P4 (V) and P5 (VI). Unexpectedly, to stimulation of the ear contralateral to the injection side, waves P2 (III), P3 (IV), and P4 (V) were also attenuated and delayed in latency. The sustained potential shift from which the components arose was not affected. Following bilateral SOC destruction, there was a moderate attenuation of wave P2 (III), and a marked attenuation of up to 80% of P3 (IV), P4 (V), P5 (VI), and the sustained potential shift. No component of the ABR was totally abolished. The results are compatible with multiple brain regions contributing to the generation of the components of the ABR beginning with P2 (III) and that components P3 (IV), P4 (V), and P5 (VI) and the sustained potential shift depend particularly on the integrity of the neurons of the SOC bilaterally.

10:45

2PP9. Some aspects of time, stimulus complexity, and gender in 40-Hz EEG responses.
Ernest M. Weiler, Amy Grayson, David Sandman (Psychoacoustics, Commun. Disorders, Mail #379, Univ. of Cincinnati, Cincinnati, OH 45221), and Joel Warm (Univ. of Cincinnati, Cincinnati, OH 45221)

The present study investigated 40-Hz EEG responses of 17 listeners who received ipsilateral and contralateral story and click stimuli. An initial comparison between loudness adaptation and 40-Hz activity failed to show any change in central activity corresponding to change in loudness judgments. For the complete sample of listeners, a significant interaction was found between stimulus complexity, ear, and 40-Hz response quadrant. Subsequent investigation of gender differences across the temporal region suggests an extension of conclusions offered recently by Kimura. Implications will be discussed.

11:00

2PP10. Frequency selectivity in noise-exposed chinchillas.
Robert I. Davis, Roger P. Hamernik, George A. Turrentine, and William A. Ahroon (Auditory Res. Labs., SUNY at Plattsburgh, 107 Beaumont Hall, Plattsburgh, NY 12901)

Evoked-potential tuning curves (TCs) were recorded from chronic electrodes in the inferior colliculus of 102 chinchillas before and after acoustic overstimulation in order to relate the effects of changes in frequency selectivity to the condition of the cochlea. Pre- and post-exposure measures of auditory threshold and masked thresholds (simultaneous tone-on-tone paradigm) were obtained at 0.5, 1, 2, 4, 8, and 11.2 kHz. The three TC variables Q 10 dB, and the low- and high-frequency slopes were compared in two different groups of chinchillas: (1) animals ($N = 54$) with cochleas that showed distinctly normal and lesioned regions, and (2) animals ($N = 48$) that had near-normal thresholds, but either had lesions that were not manifested in the threshold measures or had nearly normal sensory cell populations. In the first group, the TCs measured from normal regions of the cochlea, in general, showed no statistically (t test) significant decreases in the group averaged low- or high-frequency slope, i.e., upward or downward spread of masking, for lesions located either apical or basal of the CF, respectively. In the second group, no significant differences in the TC variables were found in lesioned and nonlesioned cochleas with little or no PTS. These results show that (1) the quality of tuning is not necessarily altered in normal regions of the noise damaged cochlea, and (2) the TC cannot be considered as a reliable measure of sensory cell damage when the amount of PTS is small. [Research supported by NIOSH and USAARL.]

11:15

2PP11. Recovery of auditory threshold following exposures to pure tones.
I. M. Young, L. D. Lowry, and H. Menduke (Dept. of Otolaryngol., Jefferson Med. College of Thomas Jefferson Univ., Philadelphia, PA 19107)

Recovery from temporary threshold shift (TTS) was measured for a subject with normal hearing following exposures to pure tones 250 and 1000 Hz. The intensity of the exposure tones was 125 and 123 dB SPL and duration was 30 and 21 min for 250 and 1000 Hz, respectively. Bekesy audiometer was used to obtain TTS and recovery at continuously variable frequencies between 100–10 000 Hz. Recovery of auditory threshold was measured at selected frequencies from 1 min to 47 h after an exposure to 250 Hz and from 1 min to 51 days after an exposure to 1000 Hz. Results indicated that (1) there was the greatest TTS at frequencies around 1/2 octave above the exposure frequency, (2) there was steady progression of recovery to pre-exposure threshold at all selected frequencies, and (3) recovery was neither a simple linear nor monotonic process.