

# JAAA CEU Program

Volume 28, Number 9 (October 2017)

Questions refer to Spitzer and Hughes, “Effect of Stimulus Polarity on Physiological Spread of Excitation in Cochlear Implants,” 786–798.

## Learner Outcomes:

Readers of this article should be able to:

- Compare the effectiveness of cathodic leading stimuli with anodic leading stimuli when electrically evoked compound action potentials are used to estimate spread of excitation functions from individuals with cochlear implants.
  - Discuss how more effective stimulation of the auditory nerve resulting from changes in phase of stimulating pulses of cochlear implants might improve coding strategies.
1. Using the forward masking method, the electrically evoked compound action potential (ECAP) is usually largest when masker and probe are delivered to:
    - a. electrodes close to each other
    - b. electrodes far apart from each other
    - c. the same electrode
  2. When the auditory nerve has been degenerated, which portion is preferentially stimulated by anodic-leading stimuli?
    - a. central axon
    - b. peripheral processes
    - c. soma
  3. For most participants in this investigation, the recording electrode was \_\_\_\_ electrode position(s) apical to the location of the probe electrode.
    - a. one
    - b. two
    - c. four
  4. Which electrode region was designated as “middle”?
    - a. electrodes 9–13
    - b. electrodes 8–12
    - c. electrodes 9–14
  5. The peak for the cathodic-leading condition occurred at electrode:
    - a. ten
    - b. eleven
    - c. sixteen
  6. The median ECAP amplitude for anodic-leading pulses was \_\_\_\_, whereas the median ECAP amplitude for cathodic-leading pulses was \_\_\_\_.
    - a. 38.0  $\mu\text{V}$ , 77.9  $\mu\text{V}$
    - b. 108.4  $\mu\text{V}$ , 27.2  $\mu\text{V}$
    - c. 77.9  $\mu\text{V}$ , 38.0  $\mu\text{V}$
  7. Less effective masking would result in:
    - a. fewer neurons responding to the probe in the masked probe condition
    - b. more neurons responding to the masker in the masked probe condition
    - c. more neurons responding to the probe in the masked probe condition
  8. Based on current theories, similar SOE patterns for anodic-leading and cathodic-leading stimuli might suggest:
    - a. a greater degree of neural survival
    - b. a lesser degree of neural survival
    - c. no indication of neural survival
  9. Which stimulus likely creates neural excitation as measured by the forward-masking method?
    - a. a combination of the probe and the masker
    - b. only the masker
    - c. only the probe
  10. What is NOT mentioned as a potential clinical implication of the study results?
    - a. anodic-leading stimuli may use less battery power
    - b. fewer non-auditory percepts may occur when anodic-leading stimuli are used
    - c. anodic-leading stimuli may have a better sound quality



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