
Learner Outcomes
Readers of this article should be able to:
• Understand that both auditory sensitivity and neurocognitive skills contribute to speech-recognition differences among postlingually deafened adult cochlear implant (CI) users.
• Consider that auditory spectral resolution may play the most important and limiting role for low-performing CI users.

CEU Questions
1. Which factor is not associated with differences in spectral resolution and speech recognition in postlingually deafened adult CI users?
   A. Patient’s residual hearing
   B. Patient’s gender
   C. Patient’s duration of deafness

2. What is meant by “top-down” processing in the context of CI users?
   A. The capacity of individual CI users to make use of neurocognitive processes and language knowledge to understand the degraded sensory information
   B. Differences in sensory input related to the CI device
   C. Effects of adverse listening conditions on CI users

3. Compared to high-performing CI users, low-performing CI users are more susceptible to:
   A. Sources of signal degradation, including noise and speech variability
   B. Practice effects associated with repeated assessments
   C. Hard-device failures

4. The Perceptually Robust English Sentence Test Open-set (PRESTO) materials have been shown to:
   A. Be less challenging to recognize than sentence materials with lower talker variability
   B. Minimize talker variability by incorporating fewer talkers, genders, and regional accents
   C. Yield large individual differences in performance related to several neurocognitive skills

5. Results from this study showed that the high-performing and low-performing CI groups were primarily discriminated by which scores?
   A. Spectral-Temporally Modulated Ripple Test (SMRT)
   B. California Verbal Learning Test, Version II (CVLT)
   C. Test of Word Reading Efficiency, Version 2 (TOWRE)

6. In the cohort of CI users in this study, which variable was most predictive of the CI users’ performance on PRESTO?
   A. Verbal learning and memory
   B. Lexical/phonological processing speed
   C. Auditory spectral resolution

7. Neurocognitive abilities also contributed to discriminating between high- and low-performing CI groups, as evidenced by results on which assessment of nonverbal reasoning?
   A. TOWRE
   B. Raven’s Progressive Matrices Test
   C. CVLT

8. Overall results suggest that:
   A. Only auditory spectral resolution contributes to discriminating between high- and low-performing CI groups
   B. Only neurocognitive skills contribute to discriminating between high- and low-performing CI groups
   C. Both neurocognitive functioning and auditory spectral resolution contribute to discriminating between high- and low-performing CI groups

9. With reduced sensory input, listeners tend to use perceptual strategies relying on:
   A. “top-down” processing
   B. “bottom-up” processing
   C. Guesswork

10. The ability to engage neurocognitive resources to compensate for a degraded signal is likely to be:
    A. Reduced for CI users with the best spectral resolution
    B. Reduced for CI users with poor spectral resolution
    C. Not related to a CI user’s spectral resolution
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Education Department, JAAA
American Academy of Audiology
11480 Commerce Park Drive, Suite 220
Reston, VA 20191

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