

# Assessing Auditory Comprehension in Persons with Mild-Moderate Aphasia

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## Abstract

Challenges in auditory comprehension ability are some of the most crippling aspects of aphasia. The degree to which auditory comprehension is impacted by aphasia is variable, can be inconsistent, and may depend on the severity of the neural damage. 'High-level' aphasic patients can be dismissed or go unnoticed due to ignorance of symptoms, passing scores on standardized assessments, and the frequent, inconspicuous nature of a mild-moderate diagnosis. Understanding deficits in mild-moderate aphasia related to auditory comprehension could aid in choosing beneficial communication modalities for conversation partners to use during intervention, interactions, and daily activities.

### Learner Outcomes

- Viewers will be able to summarize the etiology and symptomatology of mild-moderate aphasia.
- Viewers will be able to identify the prevalence of auditory comprehension for communication and the effects of deficits related to lifestyles of mild-moderate aphasics.
- Viewers will be able to apply recommendations for successful interactions with/for mild-moderate aphasics.

## How Does Mild-Moderate Aphasia Present Itself?

**Aphasia** is an acquired neurogenic disorder resulting from brain injury and resulting in impairments in spoken language expression/comprehension, reading comprehension, and written expression (4).

Studies suggest that around 2.5 million Americans are currently living with aphasia (9).

While often difficult to differentiate between, mild and moderate aphasia are considered 'high-level' aphasia types, most commonly characterized by word-finding deficits and decreased processing speed.

The outward symptoms of mild-moderate aphasia vary. Many living with this condition report deficits feeling more severe than they appear.

- Mild aphasics experience communication difficulties 25% of the time (Sutton, 2022).

Recent studies suggest these individuals demonstrate abnormal performance on discourse measures, including communication speed, vocabulary access, utterance productivity, information content, and word error frequency (Cavanaugh & Haley, 2020).

Cognitive deficits are likely at play for those with mild-moderate aphasia; limited research suggests that mild-moderate aphasias may demonstrate difficulties with shifting attention, verbal/nonverbal working memory, and generation and concept formation – all of which contribute to deficits in repair.

## How Mild-Moderate Aphasia Affects Auditory Comprehension

**Auditory comprehension (AC)** is the ability to understand and accurately process language. Communication and comprehension breakdowns occur as a result of deficits in auditory comprehension due to:

- ✓ Challenges in the use of phonological and semantic processes for discriminating sounds/words and deciphering word meanings
- ✓ Retention and processing deficits

AC impairments for people with mild-moderate aphasia include, but are not limited to:

- **Slow rise times** (reduced understanding of the final components of spoken messages)
- **Accumulation of noise** (the auditory system becomes overwhelmed with the length and complexity of spoken messages)
- **Information capacity** (difficulty receiving and processing information simultaneously as well as retaining that input)
- **Challenges in word-finding/understanding word meaning**
- **Trouble following multi-step directions**
  - Attention deficits present might restrict the ability to orient to, sustain focus of, or selectively attend to one or more tasks (Marshall & English, 2004)
- **Decreased processing speed/delayed processing**
  - Auditory processing encompasses both the comprehension of a spoken message and its retention in memory (Marshall & English, 2004)
- **Poor engagement in complex conversations where high levels of language are required** (i.e. arguments or negotiations)

### Critical Cerebral Areas Involved



Neurosurgery Wiki, 2019

Single-word/sentence comprehension is associated with the *left mid-posterior temporal cortex*, with a common overlap in the *left posterior middle temporal gyrus*

Tasks involving picture/object stimuli are associated with more inferior temporal cortical regions, while sentence level tasks (which likely engage verbal working memory) tap into more superior temporal and inferior parietal cortices (7)

## Acknowledgements



## How AC Deficits Influence Quality of Life/Effective Communication

Difficulty understanding language can be a barrier to full societal participation, inducing anger, frustration, social isolation, and depression.

Restrictions on daily participation can influence relationships and social networks, thereby reducing quality of life and overall communication satisfaction.

Many with mild-moderate aphasia report improved confidence with familiar conversation partners, but reduced communication effectiveness with those who 'lack an understanding of aphasia' or provide feedback that is misaligned from an aphasic individual's own view of their capacity (Cavanaugh & Haley, 2020).

Recovery from mild-moderate aphasia varies widely and factors predicting recovery are not generally understood.

- ✓ Recent findings suggest chronicity was predictive of auditory comprehension recovery, indicating mild-moderate aphasic patients can continue to show spontaneous improvement beyond one-year post stroke (Lwi et al., 2021).

## The SLPs Role In Encouraging Successful Communication for/with Mild-Moderate Aphasia

During intervention, the SLP should:

- Acknowledge the desires of PWA to define therapeutic goals, collaborate with clients to resume relevant activities, and close the gap between what they want, need, and can currently do (Knollman-Porter et al., 2019)
- Motivate active participation in more complex psychosocial settings
- Increase demands on attention, linguistic precision, clarity, and efficiency during conversations

When interacting with a PWA and AC deficits:

- **Reduce verbal demands**, limiting the overuse of neural resources
- **Face-to-face communication**, allowing for auditory/visual information integration from articulation cues
- **Increase message saliency** by increasing volume of stressed words or modifying pitch to emphasize portions of messages
- **Reduce speaking rate and utilize within-sentence pauses** to compensate for decreased processing time and facilitate better comprehension
- **Provide added response time** before allowing PWA to respond and/or ask PWA to verify what was said
- **Use supplementary cues**, both visual and manual, to enhance auditory comprehension.

## Conclusion

Individuals with mild-moderate aphasia may pass aphasia batteries, but continue to exhibit language deficits in communication. SLPs should remain aware of the impact of subtle language impairments and consider how those deficits influence personal identity and environmental factors related to life participation and communication confidence.