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ASHA CEUs

Information and

Notes Pages

"Acquired Apraxia of Speech: Basics and Beyond"

APPROVED PROVIDER ASHA CONTINUING EDUCATION AMERICAN SPEECH-LANGUAGE-HEARING ASSOCIATION

LingraphiCARE America is approved by the Continuing Education Board of the American Speech-Language-Hearing Association (ASHA) to provide continuing education activities in speech-language pathology and audiology. **See course information for number of ASHA CEUs, instructional level and content area.** ASHA CE Provider approval does not imply endorsement of course content, specific products or clinical procedures.

This course is offered for 0.1 ASHA CEUs (Intermediate level; Professional area).

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Complete a 0.1 ASHA CEU Course

Speech-language pathologists (SLPs) are invited to participate in a one-hour ASHA-approved course offering, "Acquired Apraxia of Speech: Basics and Beyond" To be eligible to receive 0.1 ASHA CEUs (Intermediate level), please see the guidelines below.

For more information about ASHA's most up-to-date eligibility criteria, go to the FAQ section of the ASHA CE website: http://www.asha.org/CE/FAQs/.

Course Description:

This course provides a list and description of a variety of approaches to treating acquired apraxia of speech. The use of Video Assisted Speech Technology (VAST™), a technique that is available in Lingraphica's SmallTalk video apps and TalkPath therapy software, is one of them.

Learning Outcomes:

By completing this course, participants will be able to:

1. Use discriminating diagnostic tasks to determine an entry point for treatment of adult acquired apraxia of speech
2. Demonstrate the ability to adapt the principles of motor learning to individualized treatment plans for individuals with acquired apraxia of speech
3. Understand restorative and compensatory therapeutic approaches to treatment of adult acquired apraxia of speech

Additional courses in the Evidence-Based Practice track include:

- Bridging the Gap: Quality of Communication Partner Training in AAC
- Improvements in Chronic Global Aphasia With Advanced Therapy and Home Practice
- Improvements in Chronic Conduction Aphasia With Therapy and Online Home Practice
- AAC Technology Design for Persons with Aphasia
- Maximizing Patient Outcomes by Leveraging Clinical Data from Online Therapy

Processing:

Online course completions are reported to ASHA quarterly. Please allow eight to ten weeks for processing. Lingraphica will issue a certificate of participation to each SLP who completes a CEU course.

For more information, or to start a device trial, contact: **continuinged@lingraphica.com**

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Adult Acquired Apraxia of Speech: Basics & Beyond

Your webinar leader:
Darlene Williamson, M.A., CCC-SLP

Founder and Executive Director, Stroke Comeback Center
President, National Aphasia Association

Financial Disclosure

Darlene Williamson is the Founder and Executive Director of the Stroke Comeback Center.

She has no financial relationship with Lingraphica or the National Aphasia Association, where she serves as President.

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Learning Objectives

Participants will be able to:

- Use discriminating diagnostic tasks to determine an entry point for treatment of adult acquired apraxia of speech.
- Demonstrate the ability to adapt the principles of motor learning to individualized treatment plans for individuals with acquired apraxia of speech.
- Describe restorative and compensatory therapeutic approaches to treatment of adult acquired apraxia of speech.

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Our Goals for Today

- Define AoS – characteristics, diagnosis
- Review motor learning principles
- Discuss therapeutic approaches
- Build basic motor memory
- Apply script training to AoS

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The Apraxia Family

- Oral apraxia
- Limb apraxia
- Buccofacial apraxia
- Vocal apraxia
- Dressing apraxia
- Gait apraxia
- Constructional apraxia
- Ideomotor apraxia
- Conceptual apraxia
- Apraxia of Speech (aka Verbal Apraxia)

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Definition of AoS

"Impairment in the capacity to **select**, **program**, and/or **execute** the positioning of the speech musculature for the volitional production of speech sounds."

(Wertz et.al. 1991)

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Dissecting this definition

- **Selection:** neurologic impairment of the motor-sensory substrates necessary to transform phonologic information into accurate speech movements
- **Programming**: articulatory variability reflects that it is NOT due to linguistic knowledge or sensory impairment, but to an intermediate stage of speech production
- **Execution**: difficulty reaching articulatory targets

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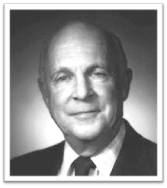
AoS Historical Perspective



In 1965, Frederick Darley first proposed use of the term to distinguish language impairment in aphasia, movement disorder in dysarthria, and this third category of planning & programming.

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Darley's characteristics of AoS

- Groping for correct positioning of articulators
- Clumsiness in finding correct patterns of movement in polysyllabic words
- Near-misses phonemically
- Retrials
- Without reduction in auditory comprehension
- Without disability in written expression

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Apraxia vs Aphasia vs Dysarthria

AoS co-occurs with aphasia and/or dysarthria, but the observable symptomatology is not due to muscle weakness or language deficit.

Aphasia: LANGUAGE deficit
Dysarthria: motor EXECUTION
Apraxia: motor PLANNING

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Distinguishing Apraxia from Dysarthria

Dysarthria

- All processes of speech affected
- Change in muscle tone
- Speech errors consistent/predictable
- No instances of clear speech
- Errors – distortions
- Rate: slow/labored
- Intelligibility ↓ as rate ↑

Apraxia

- Articulation is affected
- Muscle tone not affected
- Errors are inconsistent/unpredictable
- Well-articulated speech occurs
- Errors – substitutions, repetitions, additions, prolongations
- Rate: affected by stopping & starting
- Intelligibility ↑ as rate ↓

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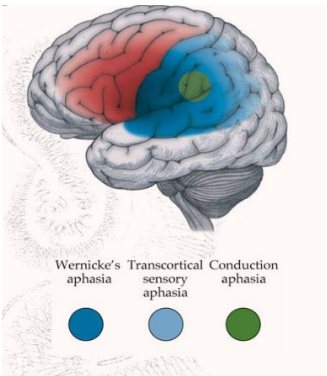
Distinguishing AoS from Fluent Aphasia



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Nonfluent Aphasia vs. AoS: Do Your Due Diligence

- Standardized aphasia measures
- Apraxia batteries
- Apraxia of Speech Rating Scale (ASRS: Strand, Duffy, Clark, Josephs, 2014)
- Probes

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Diagnosing Apraxia is a Process

Collect all the diagnostic information with the view that:

- There is a high likelihood that there is both aphasia and apraxia
- Your diagnostic information will be used as an entry point both restoratively and as a compensatory strategy

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Auditory Discrimination Probe

SAME or **DIFFERENT**

- make – take
- pot – hot
- cat – cat

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Grapheme To Oral Positioning/Movement

Present a written phoneme and ask the individual to *"MAKE THE SOUND"*

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Auditory – Grapheme Probe

Present a verbal phoneme and ask the individual to *"POINT TO (or write) THE SOUND."*

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Imitative Probe

Say "V"

Say "Van"

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Picture Probes

- Can the individual spontaneously produce the word?
- Can the individual produce the initiating phoneme?
- Can the individual position their articulators to produce the initiating phoneme?

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Oral Reading Sample (If Possible)

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Synthesizing Your Diagnostic Information

If it *walks* like a duck, *quacks* like a duck, and *looks* like a duck…..maybe it's a duck!

If it *moves* like apraxia, *sounds* like apraxia, and *looks* like apraxia, you are likely looking at apraxia.

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If It *Moves* Like AoS

- Automatic speech tasks are often fluent and accurate (count 1-20; count backwards 20-1)
- Words of increasing length fall apart
- Oral reading might facilitate speech production

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If It *Sounds* Like AoS:

- Rate is slow and nonfluent
- There is equalization of stress/monotone
- There are instances of error-free production

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If It *Looks* Like AoS:

- Repeated trials show a breakdown
- Observe awareness/dissatisfaction and attempts at self correction
- Observe groping behavior

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Diagnostic Summary

- Know your client's language capabilities
- Observe your client's motor speech performance
- Most importantly: what are the functional needs of your client?

MEET YOUR CLIENT WHERE THEY ARE:
FACILITATE AND COMPENSATE

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At The Core Of AoS Treatment: Principles of Motor Learning (PML)

These principles are conditions that are applied to an existing treatment with the goal of optimizing the benefit of the treatment.

TWO CLASSES OF PML:

- Conditions of practice
- Feedback variables

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PML: Conditions of Practice

Practice Intensity: a high number of repetitions

Practice Variability: builds motor information about possible conditions

Complexity of the task

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PML: Conditions of Practice

BLOCKED vs. RANDOM practice schedule

In limb domain, ***blocked practice*** of movements helps to learn the movement

Random practice helps to retain the motor memory.

Little evidence thus far in AoS…

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PML: Conditions of Practice

BLOCKED: All trials of a task are bunched together in a session.

Example: imitation of words beginning with the same phoneme (multiple repetitions of the same word)

Results:

- Frequently results in fast acquisition
- May increase perseveration
- Might jeopardize retention

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PML: Conditions of Practice

RANDOM: Multiple tasks are introduced in variable order

Example:

vary the stimulus (plosive, fricative, etc.)
vary the mode (imitation, question)
vary rate of response

Results:

- Increases active processing
- Decreases likelihood of perseveration
- Forces greater attention

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PML: Conditions of Practice

- Blocked practice may be better in the early stages of treatment
- Blocked practice better with individuals with emotional lability
- Random practice is less applicable with complex phonetic contexts

Choose a practice schedule that best suits the individual.

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PML: Conditions of Practice

COMPLEXITY OF TASK

- Limited research evidence in this area
- Traditional approaches to speech treatment suggest a progression from easy to more difficult skills, but some preliminary data shows possible support for training more complex targets
- Individuals with AoS may produce sounds in a sentence better than in single words, and especially better than in isolation.

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PML: Feedback Variables

Frequency

Timing

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PML: Frequency Of Feedback

- Scheduled feedback is necessary to effect any significant change in motor learning
- Acquisition is better with 100%; less frequent feedback promotes retention
- Can provide knowledge of results (“good”) or knowledge of performance (“close your lips”)
- Visual feedback via a mirror is typically not essential in establishing accurate motor movements

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PML: Timing of Feedback

Immediate feedback can be applied during acquisition, and it builds confidence, but should be faded as soon as possible

Delaying feedback for ~4 seconds may help retention

One of the signature features of AoS is self-awareness of errors

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PML In Practice

Remember that the **Principles of Motor Learning** are just that……principles. Not a method.

They can and should be considered and infused into any treatment for AoS.

Treatment for AoS should be a combination of RESTORATIVE & COMPENSATORY.

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Treatment of AoS

The core treatment feature in AoS is purposeful planning of movements

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Brief Overview Of Some Therapeutic Approaches

- Phonetic derivation
- Progressive approximation
- Phonetic placement
- Phonetic contrasts/minimal pairs
- Key word
- PROMPT
- Melodic Intonation Therapy (MIT)
- Eight-step task continuum

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Keys to Treatment
(a la Jay Rosenbek)

Intensive drill, using:

- the right method
- the right stimuli
- the right structure
- the right amount of practice
- the right type and schedule of feedback

AND

The individual must:

- Need and want to talk
- Have sufficient cognitive linguistic support for improved motor performance
- Have an enriching environment

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My Personal Approach to Treatment for AoS

RESTORATIVE TREATMENT

Mind Over Matter:

System of building oral motor control over phonemes required for speech production combined with a philosophy of treatment to accompany the repetitive practice approach

Piloted with a number of single subject trials

Incorporates the principles of motor learning

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Building Basic Motor Memory

- Phonemes are sequentially introduced by visibility, ease of motor production, and individual capability
  - 10 core vocabulary words
  - Words with phonemic value
  - Words with semantic value
  - Initial phoneme loaded phrases
- Digital photo of individual created and used as a visual cue (or a "canned" photo could be used)
- Clients can practice independently (and endlessly) matching their oral posture and their production

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Mind Over Matter

/B/ PRESS LIPS TOGETHER KEY WORD: BYE

BYE	BOMB
BAY	BIB
BEE	BEAM
BOW	BUMP
BOY	BABY

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Building Basic Motor Memory

- Initially, users can listen and repeat, then..
- Establish a predictive practice routine
  - Look at the graphic representation of the word
  - Think meaning
  - Focus on the first sound in the word
  - Try to produce the initial phoneme
  - Attempt to say the word
  - Make necessary corrections
  - *Store the information for future use!*

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Why this approach?

- Progress through a predetermined order of phonemes, or determine a point of entry by probing most easily produced phoneme groups
- Incorporates traditional approaches with independent practice
- Adheres to the PML: it satisfies both the conditions of practice and the feedback variables
  - Intensity of Practice: unlimited # of repetitions
  - Variability: all variations in context provided
  - Practice schedule: can be blocked or random
  - Complexity of target stimuli can also be controlled and varied as appropriate
  - Feedback: both Frequency & Timing controlled

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Why this approach?

Most successful when the severity of the apraxia is less, or with less aphasia co-existing

Users must accept that it is methodical and effortful, and it has been successful!

Has also been effectively used in groups:

- Functional use
- Peer feedback
- Group dynamics & pragmatics

This approach is static and restorative

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Script Training in AoS

- Intended to provide instances of fluent speech
- Typically limited to a few practiced, re-automatized phrases on personal topics
- Initially developed by Holland & colleagues
- Reading has been used as the primary modality for script production in these studies and the primary diagnosis for participants is aphasia
- Recent study by Youmans, Youmans & Hancock included the principles of motor learning to determine long term retention of acquired scripts – also successful outcomes with positive retention of the scripts

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A Combined Approach

- AoS should be treated using visual and auditory cueing
- Principles of Motor Learning should apply
- The environment is a critical piece
- Script training has been successful
- Technology allows for putting these conditions together and …
- the result is Video Assisted Speech Technology (VAST™)

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VAST™

- Using audio and visual feedback to speak with what is being said and heard
- Standard techniques for AoS expanded to a video format; combined with aphasia scripting techniques, and taken to a mobile platform
- Initially with familiar serial tasks (counting, days of the week) expanded to word combinations: rhyming words, contrasts, compound words, word-to-sentence; evolved into a variety of contexts – both Functional & Therapeutic

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Who can use VAST?

Any level of AoS – Key Words and introductory level exercises for those learning to use the technique and for individuals with significant AoS

Those who have worked through much of their AoS but need/want practice with prosody (applies to dysarthria also)

Anyone with AoS could/should try VAST (being used successfully with Childhood AoS)

The best candidates are those with the least number of other concurrent negative factors, and those who fit the criteria of needing and wanting to talk, have an enriching environment, and have sufficient cognitive linguistic performance

Lingraphica has a whole family of apps that use VAST™

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What Evidence Is There That The VAST™ Technique Works?

- Confidence in using the technique appears to be a larger contributor to success than the amount of practice
- All levels of severity can use the technique, but those individuals with more severe AoS have diminished intelligibility
- The ability to produce personal information generalized after practicing the video scripts
- Improved articulatory precision and ease of production, indicating a therapeutic value in using scripting
- Research by Julius Fridriksson, PhD, at the University of South Carolina under conditions of neuroimaging

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Summary and Key Take-Aways

Good diagnosis leads to good treatment: arguably distinguishing a Broca's aphasia from apraxia is one of the most difficult diagnostic decisions

Don't fear apraxia – don't run away from it & please don't lean on serial, automatic tasks

Adopt a person-centered approach; not only with vocabulary/utterances/ therapeutic materials, but in the totality of your treatment:

A. Motor speech responses are more likely to appear in contexts resembling the context in which they were acquired. Treatment involving only the individual and the clinician are least likely to generalize. Get out of the clinic!

B. Enriching and expanding the environment must be considered: increases plasticity and therefore learning and retention

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Key Take-Aways

C. Sleep influences retention: better sleep, better retention (ask during diagnostic assessment)

D. ALWAYS consider an individual's wants, needs, environment in prescribing treatment

It's not one size fits all – every treatment approach should have enough flexibility to meet individual needs

Your approach should vary based on the severity of the presentation

Consider the PML ahead of time and build them into your approach

Consider multi-modal, complementary treatment

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Consider Complementary Approaches

1. Exercise influences performance: try to encourage physical movement
2. Using gestures with the left hand as an accompaniment to motor speech attempts can promote learning
3. Music and music therapy
4. Art
5. Meet your clients where they are; observe and really listen to their attempts at speech; learn from them and build on them

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Questions & Answers

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