

Acquired apraxia of speech (AOS) is a motor speech impairment caused by disruption to speech motor planning/programming centers of the brain. Although it often co-occurs with aphasia, the phonetic-motoric nature of the disorder necessitates that AOS must be treated as a motor impairment, and not a language impairment. A systematic review of AOS treatment research published Ballard and colleagues in 2015 (Ballard et al., 2015) found that current best evidence supports the use of articulatory-kinematic approaches to treating AOS, with modest evidence supporting rate/rhythm approaches. A summary of these approaches and supporting evidence are as follows:

Articulatory-kinematic approaches focus on improving articulatory accuracy. These approaches utilize placement techniques, integral stimulation (i.e., a multi-modal imitation approach where the patient is prompted to “watch me, listen to me, do as I do” (Rosenbek, Lemme, Ahern, Harris, & Wertz, 1973)), and the provision of visual feedback.

- Sound production Treatment (SPT) has received support from several studies (Ballard et al., 2015; Wambaugh, Kalinyak-Fliszar, West, & Doyle, 1998; Wambaugh & Mauszycki, 2010; Wambaugh, Mauszycki, & Ballard, 2013; Wambaugh, Nessler, Wright, & Mauszycki, 2014). SPT incorporates principles of motor learning (PML (Maas, Robin, Wright, & Ballard, 2008)), clinician modeling, and feedback regarding articulatory placement. Patients are also given ample opportunities to produce target items. The four steps in the response-contingent design are as follows (see Wambaugh and Mauszycki (2010) for details):

Step 1

- SLP says a word*, pt repeats. If correct, pt repeats 5x and SLP moves on to next word.
- If incorrect, SLP provides a minimal pair. If unable to produce target word following minimal pair instruction and integral stimulation, SLP moves to step 2 with target word.
- *note that targets are identified based on an inventory of patient errors

Step 2

- SLP shows the pt a visual of the first letter of the target word, says the target word, and asks the pt to repeat. If correct, repeat 5x and move to next item.
- If incorrect, SLP moves to Step 3.

Step 3

- SLP uses integral stimulation, asking patient to “watch me, listen to me, say it with me.” If correct, repeat 5x and move to next item.
- If incorrect, SLP moves to Step 4.

Step 4

- SLP provides pt with articulatory placement cues. If correct, repeat 5x and move to next item.
- If incorrect, SLP goes to next item, beginning back at Step 1.

Combined Aphasia and Apraxia of Speech Treatment (CAAST) has also been developed for those with AOS and aphasia. CAAST incorporates aspects of SPT and response elaboration training to 1) elicit longer utterances and 2) target speech intelligibility (Wambaugh, Wright, Mauszycki, Nessler, & Bailey, 2018; Wambaugh, Wright, Nessler, & Mauszycki, 2014). CAAST is a relatively new treatment, but because AOS rarely occurs without aphasia, this option may be effective for patients with both impairments.

- Script training approaches also incorporate aspects of SPT and have been shown to increase speaking rate, decrease speech errors, and increase speaker confidence (Youmans, Youmans, & Hancock, 2011). Youmans et al. (2011) provide a step-by-step approach to script training with AOS.

Rate/rhythm approaches focus on prosodic intonation patterns to facilitate production in speakers with AOS. These approaches incorporate melody, rhythm, and stress. Such approaches may include metronome pacing, choral singing, and rhythmic hand tapping.

- Metronomic pacing treatment has been shown to improve speech rate and fluency in speakers with AOS (Brendel & Ziegler, 2008; Mauszycki & Wambaugh, 2008). In a study that used metronome pacing and hand tapping, Mauszycki and Wambaugh (Mauszycki & Wambaugh, 2008) also showed that this approach may improve articulatory accuracy for trained words. Mauszycki and Wambaugh's article provide step-by-step instructions for a metronomic pacing session. [EDITOR'S NOTE: the metronome use described here should not be confused with the product "Interactive Metronome (www.interactivemetronome.com)", which does not appear to be theoretically or empirically supported for use in any intervention, including for AOS.]
- Melodic Intonation Therapy (MIT (Albert, Sparks, & Helm, 1973)) utilizes a hierarchy of humming, singing in unison, and independent singing, along with tapping, to increase speech production in non-fluent speakers with aphasia. Ideal candidates are those with unilateral LH damage, limited speech output, poor repetition, reduced articulation abilities, and some evidence of improved production when singing (Helm-Estabrooks, Nicholas, & Morgan, 1989). Norton and colleagues provide a concise summary of its protocol and research support (Norton, Zipse, Marchina, & Schlaug, 2009).

Apps for AOS

Speak in Motion offers a Visual Assisted Speech Therapy (VAST™) approach to improving speech production in individuals with non-fluent aphasia and/or AOS.

Tactus Therapy also has an AOS treatment app that incorporates VAST™. Research has suggested that the use of an external audiovisual speech model, like the one used in VAST, improves production in those with non-fluent aphasia (Fridriksson, Basilakos, Hickok, Bonilha, & Rorden, 2015; Fridriksson et al., 2012). Visit the Tactus site for additional details: <https://tactustherapy.com/app/apraxia/>

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Additional Resources:

<https://www.asha.org/PRPSpecificTopic.aspx?folderid=8589942115§ion=Treatment>

<http://www.speakinmotion.com/>

<https://tactustherapy.com/app/apraxia/>