

Childhood Apraxia of Speech A Multi-Sensory Approach to Achieving Speech Outcomes

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Disclosures

- I receive salary compensation for my role with Apraxia Kids.
- I am co-author of the book "The SLP's Guide to Treating CAS" by Hammer and Ebert, published 2018 by Speech Corner
- I have been doing this a VERY long time, and have a picture to prove it! [picture]

Apraxia Kids www.apraxia-kids.org

- CASANA Speech Center (Videos)
- Apraxia Boot Camps 2011, 2012, 2014, 2016
- Live and On-Demand webinars
- iPad program (2018 deadline 6/1) – expanded with Tobii-Dynavox Indi choice
- 2016 Intensive Training - School-based
 - 2018 Thurs Oct 18th – Saturday Oct 20th

Financial Help for Families

- Small Steps in Speech
 - www.smallstepsinspeech.org
 - Last chance by June 1st
- United Health Care Children's Foundation grants www.uhccf.org (\$7,500 max)

ASHA
www.asha.org

- ASHA practice portal for CAS
 - on.asha.org/pp-cas
- AdHoc committee on CAS 2003-2007
- Produced position statement and technical report on CAS

**ASHA AdHoc Committee's
2007 3 Consensus Features**

- Inconsistent errors on consonants and vowels in repeated productions of syllables or words
- Lengthened & disrupted coarticulatory transitions between sounds & syllables
- Inappropriate prosody, especially in relation to lexical or phrasal stress

Additional Critical Features

- Vowel errors
- Inconsistent voicing errors (Tx)
- Groping but...
- Lack of vowel/consonant variegation
- Early report of lack of cooing/babbling
- Presence of a "go to" production
- History of "pop out" words

ASHA AdHoc Committee's Definition of CAS

- "Childhood apraxia of speech (CAS) is a neurological childhood (pediatric) speech sound disorder in which the precision and consistency of movements underlying speech are impaired in the absence of neuromuscular deficits (e.g. abnormal reflexes, abnormal tone)."

Describing CAS to a parent

- How would you describe CAS to a parent?
- [Audience participation]

Evaluation Questions

- Should we be cautious about over-diagnosis?
- How young is too young to diagnose childhood apraxia of speech (CAS)?
- Overby/Caspari study
- Childstones app by Eli Adler
- [Video - Lilah, age 2]

Evaluation Questions

- Do you have to be an apraxia “expert” to make a CAS diagnosis?
- Can a child be diagnosed with apraxia if he/she is nonverbal? [GF example]

Evaluation Questions

- What is the best test to use?
- No “gold standard” – hoping for publishing of the DEMSS soon (ages 36-79 months)
- “Dynamic Evaluation of Motor Speech Skill”
- Speech sound production formal assessments now including multi-syllable words, vowels, word repetition, and motor-speech tasks.
- On selected reference list, see article by McCauley and Strand.
- Warren Dudar informal assessment [Handout]

Evaluation Questions

- Is pure apraxia of speech rare?
- Yes - Most have other challenges including reading, written language, spelling, and word recall.
- Many also have other challenges such as fine motor deficits, attention weaknesses, ENT issues.
- Snoring/Sleep Deprivation impact
- Partial or lateral adenoidectomy

“Making Sense of Interventions for Children with Developmental Disorders”

- Caroline Bowen and Pamela Snow, 2017
- “Pseudo-science” is rampant!
- Example- “Mouth exercises improve speech clarity.” In parts of North America, up to 85% of (SLPs) purchase “oral-motor tools and toys.”
- Despite irrefutable evidence, some parents are still afraid to give their children MMR shots.

Evaluation Questions

- Can children have mixed features?
- Yes – Common to see mixed CAS and phonological error patterns.
- [Handout – Comparison Chart]
- Autism & CAS (video modeling – Teresa Cardon, Utah Valley University) FREE ebook!
- [William, age 3 years 5 months]
- Down Syndrome & CAS
- [Mason, age 5 years 2 months]

Evaluation Questions

- Are there different levels of severity?
- Yes – but helps to divide into CAS severity and communication severity
- Some break down only at certain levels of complexity.
- Word/Sentence Complexity breakdown [Videos - Caleb, age 8]

Multi-syllable word Therapy Techniques

- ReST (Rapid Syllable Transition) program for 4-12-year-olds, Tricia McCabe, University of Sydney, Australia [Read description] <http://sydney.edu.au/health-sciences/rest/>

Can CAS totally resolve?

- Pilot study with three 16-year-olds.
- One had “resolved apraxia”
- One had resolved mild articulation deficit
- One had normal speech and language
- Put through a battery of extremely challenging speech-motor tasks.
- Study conclusions

Therapy for CAS What have I learned?

- No single program works for all children.
- Children with apraxia did not read the manual on "How You Develop Speech"!
- It's not just about the number of repetitions [school therapist feedback]
- We must involve families and teachers!
- We still have a long way to go!! [University training, NSOMEs and CAS]

Do oral-motor "exercises" help in CAS Treatment?

- Greg Lof, Boston researcher, talks about NSOMEs as they relate to CAS.
- Is it a "strength" issue and even if so, can we build "strength" for the tongue, lips, etc?
- How much potential articulator "strength" is needed anyway for speech? (In one study, children with SSDs had stronger tongues!)
- Need to work on AGILITY not strength.

How do we communicate CAS information with teachers?

- 1-page information flier for teachers of preschool-age children with CAS available on the Apraxia-Kids.org website.
- Can be modified and personalized.
- CASANA Card Decks

How does CAS therapy differ from phonological/artic tx?

- Foundation in Principles of Motor Learning.
- Pancake examples

How does CAS therapy differ from phonological/artic tx?

- “Developmental” guidelines don’t dictate sound choice most of the time.
- More attention is paid to movement sequences than to isolated sounds. The syllable is the starting point in therapy. [“sh” to vowel demo]
- Need to facilitate **transition points**
- Example – use of string and transition points
- [Video – Olavo, age 8-6]

What does “multi-sensory” mean in my approach?

- Using any sensory and motor input available to enhance verbal skills. (could also be called multi-modality)
- [Video-Ben, age 3]

What does a “multi-sensory” approach include?

- ▶ Foundational aspects of Dynamic Temporal and Tactile Cueing (DTTC)
- ▶ Hierarchy of support includes:
(1) simultaneous production (2) immediate repetition (3) delayed imitation (4) question prompt

What does a “multi-sensory” approach include?

- ▶ Touch cues, visual/verbal prompts, PROMPT, PECS, AAC devices, and sign language.
- ▶ Sign language can:
(1) be held to the face
(2) be paired with visual/touch cues
(3) be used later to prompt functions

Don't abandon sign language...

- ▶ because the child's fine motor planning and precision are impaired/weak.
- ▶ because the child does not like to sign.
- ▶ because it is hard to learn.
- ▶ because the child starts to talk.

What about AAC boards/devices?

- Low tech to high tech can be used.
- Excellent article on AAC in the February 2017 ASHA Leader by Lisa J. Lawrence (“Tapping Into the ‘Augmentative’ of AAC”)

How do we incorporate the use of pictures into therapy?

- 4-D pictures from octagonstudio.com/4d
- [Video demonstration]
- Use strategies to sequence pictures for building an airport runway, a road, or a path to obtain a snack!
- [Video - Jonah, age 4]

What does “multi-sensory” help facilitate?

- Helps child to experience sound sequences and suprasegmental features while engaged in motor activity.
- [Video - Connor, age 3]

How do we deal with the subtle, residual errors?

- Bring “power” or “punch” to them.
- Distract child from the challenge of sound precision/sequencing.
- [Video - Sean, age 6-9]

If children have minimal speech, how do we get started?

- [Handout – “The Big Book of Exclamations” by Teri Peterson with new 2nd Edition called “Talk With Me”]
- Teaching “out” [audience participation]
- [Ned’s Head]

Does it help to use “catchy” names for sounds?

- Enhances fun with sounds, but try to incorporate placement/manner cues.
- [Handouts - Verbal/Visual Cues and Parent Fill-in for home usage]
- SLP’s creative addition with photos
- “Friendly Sounds” Demo
- [Video - Andon, age 4-3 part way through Friendly Sound concept introduction and then during play]

What should I consider in selecting speech targets?

- Margaret “Dee” Fish in “Here’s How to Treat Childhood Apraxia of Speech” - not just nouns, but verbs and expressions
- Teach CONTROL/POWER words beyond “no”. [audience participation]
- “No help” not just “Help me” and “I do it” for fostering independence and control

What should I consider in selecting speech targets?

- Target final **voiceless** consonants.
- Use child and therapy goal-determined strategies like fun frustration phrases [“Oh milkshake!”].
- Individualize “I” phrase word choice based on sound repertoire and co-articulation (e.g. “I pick, I need, I see, I choose” in place of “I want”).

What about vowel modification?

- Will be quite challenging – parents move quickly through vowels.
- Turtle vowels from “Easy Does It for Apraxia”
- Pam Marshalla “Place Cues” on YouTube
- Prolong in DTTC and “Time to Sing”
- Use sound names like “smile sound for “ee”, surprise sound for “oa”, and hit hand with hammer sound for “ow”! (St Louis Childrens)

How do we address the suprasegmental features?


- First of all, address throughout therapy.
- Use music ["Time to Sing" and others]
- Use Mo Williams "Elephant and Piggy" series of books
- "Bee-bim Bop" book by Linda Sue Park has a Korean recipe for this dish!
- Prolong vowels and exaggerate stress.
- Target increased inflectional variation through use of puppets, character figures...

What are common parent suggestions I give?

- Avoid the use of "Say..." and replace with just the word or "You could tell me (pause)..."
- Adopt a "Rule of 3" especially for students with attentional weaknesses or low cognitive ability.
- Use "Start with..." as a supportive cue.
- Repeat back unclear utterances at times.

Ideas I picked up from parents, therapists and students

- Squirt laminated pictures at bath time.
- Paint a fingernail after so many reps.
- Pop bubble wrap under table for /k/ (student idea)
- Use wipes container for mouth to feed cards. (make "monster" face)
- "Earn" cotton balls for snowball fight.
- Toss confetti into the air!



How do we incorporate new technology?

- ▶ Use apps (e.g. V-Lingo, Voice Changer)
- ▶ Erik Raj Creative Use of Apps [Handout]
- ▶ Computer visual feedback (TheraVox; Electropalatography, Ultrasound)



THANK YOU!!

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