

APRAXIA

Challenges & Treatment

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CHALLENGES

- ❖Lack of a “gold standard” to diagnose DAS
- ❖Diagnosis by default
- ❖Diverse and contradictory criteria
- ❖Over-reliance on standardized tests
- ❖Inadequate tests
- ❖Differentiating DAS from other disorders

Gold Standard

In current research diagnostic criteria (a feature or set of features) vary from study to study. Often clinicians devise their own criteria that differ from one person to the next.

Diagnosis by Default

Children are often labeled as having apraxia if they have not yet developed language or have not learned to produce sounds and words at the expected rate. If a child has not yet begun speaking it is not possible to assess their ability to produce and sequence sounds and syllables.

Diverse Criteria

Some therapists use a checklist approach and may rely more heavily on some characteristics than others or may base their diagnosis on the total number of characteristics. The use of variable criteria could mean that the same child would receive a different diagnosis depending on how many and which characteristics a given therapist used.

Over-reliance on Standardized Tests

There is a large difference in the number of items from one test to another. The complexity of tasks and types of judgments to be made vary widely. Few of these tests are appropriate for very young children. Some children may not be developmentally ready for the tasks required on these tests.

Inadequate Tests

Therapists often rely on standardized language scores and/or standardized single-word articulation tests to qualify a child for therapy. Language tests do not rule in/rule out DAS. Single-word articulation tests do not challenge a child’s speech motor system and do not represent intelligibility in connected speech.

Differentiation from other Disorders

- ❖ Articulation Disorder
- ❖ Phonological Disorder
- ❖ Dysarthria
- ❖ Oral Motor
- ❖ Language Disorder

Articulation Disorders

An articulation disorder occurs when a child produces sounds, syllables, or words incorrectly so that listeners do not understand what is being said or pay more attention to how the words sound than to what they mean. Errors include substitutions, omissions, distortions, and additions.

Characteristics of Articulation Disorders

- ❖ Errors in the manner and placement
- ❖ Sound substitutions: [w] for [l]
- ❖ Sound omissions: [ca] for [cat]
- ❖ Sound distortions: lateral [s]
- ❖ Sound additions
- ❖ May have oral motor weakness
- ❖ Consistent errors
- ❖ Not situational
- ❖ No significant difference in language skills
- ❖ Rate, rhythm, pitch, loudness, and stress typically normal
- ❖ Normal voice quality

Phonological Disorders

Phonological Processes are the systematic simplification by children of the production of adult model articulation. A phonological disorder is an abnormal development of these processes or a delay in the elimination of these processes. It may occur with other communication disorders.

Characteristics of Phonological Disorders

- ❖ No weakness or incoordination of speech musculature
- ❖ No difficulty with involuntary motor control for vegetative functions
- ❖ Consistent errors grouped in categories
- ❖ Omissions more likely in final position. Vowel distortions not common
- ❖ Errors consistent as complexity increases
- ❖ Not situational
- ❖ Sometimes difference in receptive/expressive language
- ❖ No disruption of rate, rhythm, or stress
- ❖ No inflectional range limitations
- ❖ Age appropriate voice quality

Dysarthria

Dysarthria: a neuromuscular impairment as a result of brain damage (disease or head injury) that may affect respiration, articulation, voice, and fluency. Speech may be slow, weak, imprecise, or uncoordinated.

A primary factor in distinguishing apraxia from dysarthria is the presence or absence of vegetative impairments. Vegetative deficits are more severe in dysarthric children. Like apraxia this is more difficult to assess in very young children, as they may not be able to participate in adult oriented assessment tasks.

Characteristics of Dysarthria

- ❖ Decreased strength and coordination of speech musculature
- ❖ Difficulty with involuntary motor control for chewing, swallowing, etc.
- ❖ Articulation errors are consistent
- ❖ Errors are generally distortions
- ❖ Less precision in connected speech
- ❖ Not situational
- ❖ No significant difference between receptive and expressive language
- ❖ Rate, rhythm, and stress related to type of dysarthria
- ❖ Monotone voice; difficulty with pitch and loudness
- ❖ Voice quality may be hoarse, harsh, hypernasal, etc.

Oral Motor

Oral-motor weakness may co-exist with motor-speech programming issues (DAS). Speech may sound imprecise even when all consonants and vowels are well articulated. The child may need to engage in oral-motor exercises to strengthen the articulators.

Characteristics of Oral-Motor Weakness

- ❖ Poor tongue/jaw separation
- ❖ Poor tongue elevation/lateralization
- ❖ Poor tongue extension/retraction
- ❖ Poor jaw grading
- ❖ Poor lip rounding/retraction

It should be noted that oral motor exercises work on non-speech movements which are controlled at different nervous system locations than are speech movements. “The vast majority of legitimate research shows no changes in speech sound production because of non-speech oral motor exercises. In order for there to be positive transfer of one behavior (i.e. the exercise) to another behavior (i.e., speaking) the task must be identical. Oral motor exercises are NOT identical to the movements required for speech” (Lof, G. 2004)

Language Disorders

Expressive language disorders may also co-exist with apraxia. When a child is unable to produce phonemes or combine phonemes to produce words, their expressive language may be delayed. If this occurs treatment should focus on both the motor-speech programming and expressive language skills. Receptive language skills are generally normal or at least much higher than expressive language skills.

Apraxia and Autism

Apraxia and autism may co-exist, however it is difficult to assess, especially in very young, nonverbal children. Clinical evidence suggests that motor speech impairments

can be a significant factor inhibiting the development of speech in some children with autism. (Prizant, B.)

- ❖ Child may not be able to follow adult oriented assessments
- ❖ Hypersensitivity of the oral mechanism
- ❖ Sensory related issues
- ❖ Restricted diets

All of these issues make it difficult to adequately assess apraxia in autistic children.

- ❖ Is the child able to communicate meaningfully through nonspeech symbolic systems?
- ❖ Does the child exhibit classic symptoms of oral motor problems?
- ❖ Does the child have symptoms that are consistent with developmental apraxia of speech?

A Word About Prosody

One of the most common characteristics of apraxia is disordered prosody. Prosody refers to intonation, stress pattern, loudness variations, pausing, and rhythm. Articulatory effort and speech errors interfere with prosody. It is also noted that children who lack early babbling did not have the opportunity to practice/achieve rhythmic organization. Prosody may improve as speech becomes more automatic.

Characteristics of Disordered Prosody

- ❖ Decreased intonation patterns/monotone
- ❖ No alternation between strong and weak syllables
- ❖ Increased rate of speech
- ❖ Choppy sounding
- ❖ Robot sounding/slow rate
- ❖ Misplaced stress

Some speech therapy techniques often encourage accurate articulation at the expense of prosody. Overemphasis on target can cause misplaced word stress. Decreasing rate can cause a slow rate of speech. Tapping out syllables can cause the child to sound robotic.

TREATMENT

There are numerous therapy techniques that are used with children with apraxia. While not all clinicians agree on which of these techniques to use, the one thing that they do agree on is frequency and intensity of services.

- ❖ Children with apraxia require 81% more individual treatment sessions than children with severe phonological disorders (Campbell, T 1999)
- ❖ Children with DAS need intensive services longer. Young children benefit from frequent shorter sessions. (Skinder-Meredith, A. 2001)
- ❖ Sessions should be frequent and long enough to allow practice that is needed. Distributed practice will result in better motor learning. (Strand, E & Skinder, A. 1999)

- ❖ Children with DAS require a great deal of professional service, typically done on an individual basis. (Hall, P., Jordan, L., & Robin, D. 1993)
- ❖ We recommend therapy as intensively and as often as possible. (Velleman, S.)

Considerations

- ❖ Age and maturation of child
- ❖ Cognitive abilities
- ❖ Ability to maintain attention
- ❖ Possible dual diagnoses
- ❖ Other deficit areas
- ❖ Individualized treatment plans
- ❖ Parental Involvement

Factors to Include in Treatment

- ❖ Movement patterns and building proper elements should be emphasized. Activities should focus on the oral-motor planning system planning how to get from one articulatory position to another.
- ❖ Activities should have both lower and higher communication pressure.
- ❖ Monitor and treat language symptoms.
- ❖ Address prosody
- ❖ Include movement activities

- ❖ The technique we choose to use with a child is not as important as the intensity of services and having the focus of therapy on learning correct motor movements.
- ❖ A thorough assessment will point out a child's strengths and weaknesses and from that information a therapy plan is devised.
- ❖ Treatment should be modified to address changing needs.
- ❖ Specific programs should be fit to the child rather than having the child fit the program.

❖ Successive Approximation (Nancy Kaufman, M.A.)

❖ Integral Stimulation (Edythe Strand, Ph.D.)

❖ Apraxia Uncovered (Pam Marshalla)

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