



The Childhood Apraxia of Speech Association of North America (CASANA)

The mission: To strengthen the support systems in the lives of children with apraxia, so that each child has their best opportunity to develop speech

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Apraxia? Dyspraxia? Articulation? Phonology? What Does It All Mean?

by Nancy Lucker-Lazerson, M.A., CCC-SLP

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(updated by the author October 2003)

Your two-year-old says no words, makes some sounds, yet he understands everything you say. Your five-year-old speaks in what appear to be sentences, but all you hear are vowel sounds. Your seven-year-old lisps, and says "wabbit" instead of "rabbit". And your three-year-old talks non-stop, but no one can understand a word that he says. So what do you do? If you bring your child to a speech-language pathologist (SLP), the first two children would probably be diagnosed as having oral-motor planning deficits, or Childhood Apraxia of Speech (CAS). The third child has an Articulation disorder, and the fourth child has a Phonology disorder. Now that you know that, what does it all mean?

ORAL-MOTOR SPEECH DISORDERS

Childhood Apraxia of Speech is a deficit in the ability to plan the motor movements for speech and is considered an oral motor planning disorder. Children with CAS have difficulties transmitting the speech message from their brain to their mouths. Children with significant weakness of the lips, tongue, and jaw may be diagnosed by a neurologist as having Dysarthria. Many children with cerebral palsy and multiple sclerosis have Dysarthria. CAS is usually of unknown origin. Whether or not we know the cause, SLPs can treat the disorder.

Oral-motor disorders are diagnosed by the SLP directly observing the child and completing an examination of both the child's speech and oral mechanism. The oral mechanism exam involves the SLP asking the child to do a variety of tasks (such as pursing lips, blowing, licking lips, elevating tongue, etc.), looks inside the child's mouth, observes the child eating, and listens to the child talk. The therapist will also listen for the child's ability to produce rapid oral movements. A diagnosis of CAS involves consonant and vowel distortions, distorted sound substitutions, errors consistent in type and place, and prosodic errors (prosody refers to pitch, rate, and rhythmic features of speech).

Some other behaviors seen in CAS include groping, perseverative errors, and increasing errors as the length of utterance increases. The SLP will determine how "intelligible" the child is (how much of what the child says can other people understand?), and may complete a formal test (like the Kaufman Speech Praxis Test). Like a detective, a good diagnostician looks at many variables before making a diagnosis.

For children who have CAS, therapy should address the movement patterns in syllables, progressing from the simple (one-syllable words with similar sounds at the beginning and end, like "pop" "mom" and "cake") to the complex (multi-syllabic words with many different sounds). There may also be a need to teach more functional responses (e.g. *yes, no, I want, I dont want, I need*, etc.). In more severe cases of CAS, a child may require an alternative/augmentative form of communication, such as sign language, a communication board, or an AAC (Augmentative/Alternative Communication) device. These are not intended to replace oral speech, but in fact, to facilitate it and to provide the child with a means of communicating with others. Therapy also needs to address prosody. Frequent drill and repetition is required for therapy to be successful. Intense, individual therapy is ideal for CAS. Group therapy is not recommended for CAS, and children with moderate to more severe deficits will require therapy for a number of years.

ARTICULATION DISORDERS

When a child has a simple lisp (producing [th] instead of [s], like "thing" instead of "sing" or "yeth" instead of "yes"), substitutes [w] for [l] or [r], or other similar errors, they are demonstrating an articulation disorder. Articulation refers to the manner in which a child produces a sound and the placement of the tongue, lips, and teeth. Common articulation errors are those listed above, in addition to [f] for [th] ("fum" for "thumb"), [l] for [y] ("lelo" for "yellow"). Traditional thinking has been that some articulation errors are developmental in nature (e.g. s, l, r) and that children may not be ready to address them in therapy until a specific age (typically 7 or 8). However, however, current research has disproved the idea of developmental norms for articulation, and in fact, current best practice involves starting treatment with the more difficult sounds. In addition, the earlier therapy begins, the more successful it will be. Articulation errors may not significantly reduce the child's ability to be understood.

Articulation therapy consists of drill exercises and various cues to help the child correct their sound productions. These cues may be verbal (e.g. tell the child where to place his tongue) or visual (having the child look at the therapist's mouth or in a mirror) or tactile (i.e. touch; e.g. having the child slide their finger down their arm when making the [s] sound). Frequent practice is essential for articulation therapy to be successful.

PHONOLOGICAL DISORDERS

Phonology is the sound system of language. The phonology of language tells us how sounds fit together in words. Children who have phonology disorders have not learned the rules for how sounds fit together to make words, and use certain processes to simplify words. Phonology disorders are related to language and reading and are now seen as a language-based disorder. Children with phonology disorders are frequently unintelligible; often, their parents are the only ones who can understand them, and even they have difficulties. Children with these disorders are at a very high risk for later reading and learning disabilities, and should be treated with intensive speech therapy as soon as they are diagnosed, as early as age 3.

A phonology disorder is most commonly diagnosed using the Assessment of Phonological Processes by Barbara Hodson. This test analyzes (by hand, or through a computer program) the patterns that a child is producing as they say 50 words. A phonological analysis can also be completed informally. There are other tests for phonology

available, but the Hodson is the most widely used.

There are many different phonological processes which SLP's see and treat. One of the most common is called "cluster reduction". Children who use this process will take a sound blend (like [bl] [sp] or [tr]) and omit one of the sounds: "blue" becomes "boo", "spoon" becomes "poon", and "tree" becomes "ti". Another common process is called "velar fronting". Children who use this process substitute sounds produced in the front of the mouth (t, d, n) for sounds produced in the back of the throat (k, g). In this instance, "duck" becomes "guk", "car" becomes "tar", "go" becomes "do" and "can" becomes "tan".

Therapy for phonological processes involves making the child more aware of the correct sound patterns (rules) and drilling the new patterns. Awareness is frequently achieved through what is referred to as "auditory bombardment"; using an amplifier and headphones, the therapist will repeatedly say words using the correct patterns. One popular therapy technique for remediating phonology disorders is called "cycling", developed by Barbara Hodson. In this approach, auditory bombardment is used, and children work on a specific process for a period of time, then move onto the next process, and so on. Once through all of the processes that need remediating, the cycles are repeated again and again. Another very effective technique is called "minimal pairs". In this technique, the therapist will present a pair of words to the child that addresses the incorrect sound pattern and enables the child to first discriminate, and later produce, the differences between sound patterns; e.g. if the child is omitting sounds in blends, a pair might be "Kate"/"skate" or "cool"/"school". If velar fronting is the problem, then a pair of words might be "tar"/"car" or "tan"/"can". A good therapist will use a variety of techniques in order to maximize therapy time.

The most important thing to remember about speech production disorders is that therapy can, in most cases, make a huge difference. The earlier and more intensive the intervention, the more successful the therapy. Group therapy can be effective for articulation disorders and some phonology disorders, but children with CAS really need the intensive, individual therapy.

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