

Clinical Exchange

A Letter to the Parent(s) of a Child With Developmental Apraxia of Speech

Part IV: Treatment of DAS

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Dear Parent(s):

You took an important step when you had your child's speech evaluated. This allowed the speech-language pathologist to describe your child's communication difficulties, make a diagnosis, and develop recommendations concerning what to do next. Frequently, when the diagnosis of developmental apraxia of speech (DAS) is made, the recommendations will include therapy, often on an intensive basis.

There are various therapy approaches that the clinician may use to treat DAS, but no single approach has been proven to be the most effective. The therapy methods a clinician selects reflect his or her understanding concerning the nature of DAS. Some professionals regard DAS as a problem in the overall development of the child's language, with specific difficulties in using the system of "rules" that govern how speech sounds are ordered and used. Others believe that DAS is a problem within the "motor-programming" system for speech that allows for the correct, accurate, and automatic sequencing of speech sounds and syllables. There are also suggestions that the disorder of DAS may be the result of both language and motor-programming difficulties, or that there may be several

different forms of developmental apraxia. The basic approaches used by speech-language pathologists in their work with children exhibiting DAS are summarized in Table 1.

Speech-language pathologists who view DAS as a disorder in language learning may elect to use techniques called "linguistic approaches" to help the child learn the sounds and the "rules" about when sounds and sound sequences are used. Often, this involves targeting "phonological processes," which are systematic errors in the rules of how speech sounds are to be used in talking. One such process is "fronting," when speech sounds normally made in the back part of the mouth are substituted by those made at the front of the mouth. Thus, "cat" becomes "tat," and "pig" becomes "pid." Linguistic approaches are most commonly used with preschool and very early elementary-aged children because their language and speech skills are still developing. Linguistic approaches may also be used with young children in a "diagnostic therapy" format. In this case, the clinician is trying to determine what type of speech problem the child is exhibiting. If the child makes

ABSTRACT: Three previous letters written to the parent(s) of children with developmental apraxia of speech (DAS) described the speech characteristics of DAS, the nature and causes of the disorder, and problems that often co-occur with DAS. This final letter discusses the treatment of DAS and includes an appendix of publications for a more complete review of this aspect of the problem.

KEY WORDS: developmental apraxia of speech, linguistic approaches, motor-programming, AAC

Table 1. Basic approaches to remediation of DAS.

- Linguistic approaches: Children learn how to make speech sounds and learn the rules determining when the sounds and sound sequences are used in the language.
- Motor-programming approaches: Motor learning principles are used to help the child acquire skills to accurately, consistently, and automatically make sounds and sequences of sounds.
- A combination of linguistic and motor-programming approaches
- Treatment approaches that include specific sensory and gestural cuing techniques

gains using a linguistic approach, the problem may lie in the rules governing sound use (i.e., a phonological disorder); however, if progress is poor, other explanations need to be explored.

Other speech-language pathologists will use “motor-programming” techniques that seem to help the child acquire the skills needed to accurately, consistently, and automatically make sounds and sequences of sounds. These clinicians incorporate principles of motor learning, which include the need for many repetitions of speech movements that progress very systematically, carefully, and slowly through increasingly more difficult speech tasks. The sequences and transitions of motor movements needed to correctly, consistently, and automatically produce a speech sound or combinations of sounds is stressed.

Linguistic and motor-programming approaches may be combined to maximally benefit many children diagnosed with DAS. In addition, supplementary techniques may be added into a child’s therapy program to help the child make a particular speech sound by itself or to combine the sound with others into syllables or words. These techniques often involve the use of the child’s “senses,” such as vision, touch, and being touched, as well as the use of gestures to help cue the child, or for the child to cue him- or herself, about some aspect of the speech sound he or she is to make.

Other speech goals may also be targeted in your child’s overall therapy program, including correct use of vowels, prosody (i.e., the melody and rhythm of speech), and nasality. Thus, your child will likely be working on a number of speech goals at any point in time. The speech-language clinician will need to carefully individualize therapy goals and techniques so that all of the child’s needs are met while challenging the child to learn and generalize new speech skills. As well, many children with DAS have language goals included in their total therapy programs that may address such areas as the correct use of grammar, development of vocabulary, and learning how to use language for interacting with others.

Experience has shown that children with DAS progress slowly in the treatment process. Because of this, these children need treatment sessions that provide intense training several times a week. Even so, you can probably expect your child to need a great deal of therapy, extended over a number of years. Thus, to achieve maximal communication efficiency, therapy is likely to continue throughout the school years on as intensive a basis as possible.

Children with DAS often require a team of professionals who contribute their diagnostic and remedial expertise to benefit the children. The members of this professional team should be able to address all of your child’s needs—DAS as well as any associated or co-occurring problems. This team may include the speech-language pathologist, classroom teacher, special education personnel, psychologist, physical therapist, occupational therapist, and, perhaps, physicians. You must also be included in the decision-making and your child, depending on his or her age and maturity, should also be involved in any treatment decisions.

Many parents express concerns about what the future holds for their child after the diagnosis of DAS has been made. I have had the opportunity to follow children with DAS into

their mid-20s. As a result of these experiences, it appears that we need to think of DAS as a lifelong communication problem. The eventual results are affected by a number of factors. The most important factors may well be the severity of the problem itself, and the type and length of the remedial services the child receives. Our goal for all children with DAS is to achieve the best possible communication skills that the child is capable of producing. This involves both speech and language skills. However, the attainment of *totally* “normal” speech skills may be unrealistic.

For children with severe DAS, the speech-language pathologist strives to achieve the best intelligibility, or “understandability” possible, even though there still may be errors in the speech, language, and prosody. With some children exhibiting very severe DAS, there are concerns about whether oral communication will be a reasonable goal, and alternative means for the child to express him- or herself should be considered. These alternative means might include the learning and use of manual communication or “signing,” the use of an assistive language notebook with drawn or written words he or she can show his or her communication partners, or the use of an electronic assistive communication device.

Children with less severe DAS may well reach a level where they seem to make few, if any, speech errors. However, the child and the family need to be counseled that they should not be surprised if DAS-type errors occur occasionally, particularly when the child (and later the teenager and adult) is in a stressful speaking situation, is in a situation requiring a great deal of talking, or is tired.

Yes, DAS requires a great deal of effort to treat—effort required of the child, the speech-language pathologist, and you, as the parent(s). Your positive support and active interest in the overall therapy process, as well as your child’s specific therapy program and goals, will help your understanding of the disorder and the progress your child may make in modifying the speech disorder.

I hope that this letter, and the others in this series, have been helpful to you. DAS is clearly a challenging communication problem for all who confront it—parent(s), child, and professionals alike. With each passing year, the knowledge base concerning DAS, and the children with DAS, is expanding, although, admittedly, there is much yet to learn. We will all need to work together to achieve the best outcome for your child and all children who have this communication disorder.

Sincerely,

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APPENDIX

If you would like to further explore remediation options for DAS, the following references may be of help.

Crary, M. A. (1993). Intervention strategies: Making changes that matter. In M. A. Crary, *Developmental motor speech disorders* (pp. 199–229). San Diego, CA: Singular.

Therapy techniques used with children with motor speech disorders are reviewed historically. Also, more recently developed techniques are described and analyzed for possible application within a “motolinguistic” approach.

Hall, P. K. (1995). Childhood articulation disorders of neurogenic origins. In M. M. Leahy, *Disorders of communication: The science of intervention* (2nd ed., pp. 121–137). London: Whurr.

This chapter reviews a number of therapy approaches appropriate for children with DAS, including signing and the use of augmentative and alternative communication systems.

Hall, P. K., Jordan, L. S., & Robin, D. A. (1993). Remediation: Motor-programming approaches to DAS. In P. K. Hall, L. S. Jordan, & D. A. Robin, *Developmental apraxia of speech: Theory and clinical practice* (pp. 121–137). Austin, TX: PRO-ED.

Features and issues involved in motor-programming approaches to therapy with children exhibiting DAS are presented, as is an example of an intervention program based on motor-programming principles.

Hall, P. K., Jordan, L. S., & Robin, D. A. (1993). Remediation: Specific remedial techniques. In P. K. Hall, L. S. Jordan, & D. A. Robin, *Developmental apraxia of speech: Theory and clinical practice* (pp. 139–164). Austin, TX: PRO-ED.

Specific multisensory, tactile, and gestural cuing techniques are described, as are techniques that may be helpful for the remediation of vowels and diphthongs (pp. 139–164).

Hall, P. K., Jordan, L. S., & Robin, D. A. (1993). Specific issues associated with the communication remediation of children with DAS. In P. K. Hall, L. S. Jordan, & D. A. Robin, *Developmental apraxia of speech: Theory and clinical practice* (pp. 165–176). Austin, TX: PRO-ED.

This chapter includes information about augmentative and alternative communication possibilities, such as sign and aided communication techniques, for the communication remediation of children with DAS.

Square, P. (1994). Treatment approaches for developmental apraxia of speech. *Clinics in Communication Disorders* 4(3), 151–161.

A framework for treating motor speech disorders, including DAS, is provided.

Strand, E. A. (1995). Treatment of motor speech disorders in children. *Seminars in Speech and Language*, 16(2), 126–139.

This article is a comprehensive view of treatment. It includes discussions of theoretical issues, as well as treatment principles and suggestions for devising individualized treatment approaches for children with DAS.

Velleman, S. L., & Strand, K. (1994). Developmental verbal dyspraxia. In J. E. Bernthal & N. W. Bankson (Eds.), *Child phonology: Characteristics, assessment, and intervention with special populations* (pp. 110–139). New York: Thieme Medical.

Treatment suggestions, specific to the age of the child with DAS, from the “very young child” to “older children,” are presented, as is a discussion in the use of augmentative communication systems.

Yorkston, K. M., Beukelman, D. R., Strand, E. A., & Bell, K. R. (1999). Treatment of developmental and acquired apraxia of speech. In K. M. Yorkston, D. R. Beukelman, E. A. Strand, & K. R. Bell, *Management of motor speech disorders in children and adults* (2nd ed., pp. 543–583). Austin, TX: PRO-ED.

This chapter explores the principles of motor learning and their application in the treatment of apraxia, including DAS.