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## Chapter 2: Management of developmental verbal dyspraxia - a review of the literature

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### Therapy approaches

Just as there have been numerous papers written on the theoretical aspects of developmental verbal dyspraxia, there have also been many attempts to propose therapy approaches and strategies for managing the condition. The confusions over the existence of the disorder and its exact presentation have both helped and hindered management. What distinguishes one therapy approach from another is the author's theoretical understanding of the condition: as a motor programming/planning disorder or as a phonological/linguistic disorder or as a combined motor/linguistic disorder (see theoretical review). Principles from a number of sources have been included e.g. management of adults with acquired apraxia of speech, management of other motor speech disorders e.g. dysarthria, management of functional articulation disorders and management of phonological disorders.

*The Nuffield Dyspraxia Programme (1985; 1992) was produced as a clinical tool to address the speech difficulties of those children attending the Nuffield Hearing and Speech Centre, thought to have dyspraxic difficulties. Although no specific theoretical framework was adopted, the authors were clearly influenced to some extent by the accepted theoretical views and management advice of the time (late 1970s and early 1980s). In this review of the literature on management approaches, reference will be made to the Nuffield Dyspraxia Programme and its design, where appropriate, as well as to the clinical work at the Nuffield Hearing and Speech Centre and at the Nuffield Speech and Language Unit.*

### A focus on speech production

**Macaluso-Haynes (1978)** reviewed therapy approaches from the available literature of the time and summarised them into the following headings:

Concentrated drill on performance, both in imitation and on command, of tongue and lip movements.

Imitation of sustained vowels and consonants followed by production of simple syllable shapes (e.g. CV, VC, CVC).

Movement patterns and sequences of sounds – focus should not only be on the production of sounds in isolation; the clinician should attempt a rapid transition from individual vowels and consonants to the production of syllables and words.

Avoidance of auditory discrimination drills – these are not generally necessary as most children with apraxia do not have specific auditory discrimination difficulties.

Slow rate and self-monitoring – heightening of self-monitoring skills and a slower rate (often utilizing an even stress pattern) help to increase intelligibility.

Core vocabulary – the introduction of a core set of simple words that the child can articulate accurately (or nearly accurately) can help develop intelligible verbal communication.

Carrier phrases – the introduction of “filler” type carrier phrases” e.g. “I want a ...”; “I see the ...” can help to extend sequencing efforts.

Rhythm, intonation and stress paired with motor involvement (e.g. foot/finger tapping) – singing, incorporating rhythm and stress, has been found helpful in facilitating motor sequencing.

Intensive, frequent and systematic drill – ideally, daily drill sessions are advised to develop habituation or accurate motor planning for speech.

Oro-sensory perceptual awareness – multisensory stimuli should be used to increase awareness of the orosensory mechanism. Icing, brushing, rubbing, touching and deep pressure and resistance techniques should be employed. Principles from Proprioceptive neuromuscular facilitation (PNF) can be useful to improve sensori-motor patterning and feedback.

Physical therapy – for children who also have generalised motor difficulties, collaborative working with physiotherapists and occupational therapists is advised to work on general motor planning and co-ordination.

**Macaluso-Haynes’ (1978)** review illustrates that the prevailing view of the time was that developmental verbal dyspraxia was a motor programming or planning disorder. The therapy approaches advocated were therefore essentially “bottom-up” in focus i.e. aimed at improving the execution of speech. As Crary (1993) p200 explains: “Initial emphasis is placed on non-speech oral movements and/or single consonant or vowel production and the clinician and child attempt to build a complex and functional speech production system from that therapeutic groundwork.”

*The Nuffield Dyspraxia Programme (1985; 1992) shares many of these bottom-up features e.g. work on lip and tongue movements and orosensory awareness, single sound production, transition from single sounds to words of gradually increasing complexity, drilling techniques, control of prosodic features, development of a core vocabulary etc.*

Ten years later **Pannbacker (1988)** carried out an updated review of the literature on treatment approaches and intervention strategies advised for developmental verbal dyspraxia. Although many of the approaches continued to reflect a motor programming/bottom-up approach, there was an increasing focus on a manual component being included in treatment regimes. There was also recognition by a few authors of the linguistic difficulties shown by children with developmental verbal dyspraxia and the need to include syntactic work in therapy regimes (Aram and Nation 1982; Ekelman and Aram 1984), and of phonological approaches (Crary 1984).

Another therapy approach given attention in the literature involves using augmentative communication:

## **A focus on manual communication**

Different approaches have been devised: (a) the use of signing systems and/or gestures (Jaffe 1984; Harlan 1984; Helfrich-Miller 1987) and (b) the use of tactile and gestural cues (Chumpelik 1984; Posnik et al. 1984; Klick 1985; Shelton and Garves 1985).

Brief reviews of some of these approaches follow:

### **Jaffe (1984) Total Communication**

"Total Communication, speech combined with all modes of communication, but primarily manual communication, may be a viable treatment approach with some apraxic children. Jaffe proposes extensive use of manual sign language and the manual alphabet treatment programmes for children with moderate – severe developmental verbal dyspraxia. In the early stages, sign language can be the major communication system, and in the later stages, signs and finger spelling can augment verbal communication.

### **Harlan (1984) A dual approach to therapy**

A single case study is presented of a young child, Mark aged 2.7 years, diagnosed as having developmental verbal dyspraxia. A dual therapy approach was shown to be effective, combining the introduction of manual signs (American Sign Language) with an oral, traditional therapy approach.

This paper also illustrates the importance of early intervention and the involvement of parents in therapy (See Service delivery issues this chapter).

**Strand and Skinder (1999)** recommend augmentative communication for children with DAS. They advise that signing is appropriate providing there is a suitable signing environment. Otherwise natural gesture, picture exchange systems and communication books may be more appropriate.

*The Nuffield Dyspraxia Programme does not specifically involve the use of signing as in the approaches advocated above. However, clinical experience from work at the Nuffield Hearing and Speech Centre and particularly at The Nuffield Speech and Language Unit supports the helpful role that signing can play in a remediation programme for a child with developmental verbal dyspraxia. At the Unit, Paget Gorman Signing is introduced to all the children and is used on an everyday basis by the staff. In line with findings in the literature (Moore 1980; Harlan 1984) signing has been shown to increase communication, improve verbal output and to be dropped spontaneously when speech becomes functional for the child (Harris and Vanderheiden 1980).*

### **Chumpelik (1984); Square-Storer and Hayden (1989) PROMPT**

"Prompts for Restructuring Oral Muscular Phonetic Targets" is a therapy approach involving the use of tactile cues to help the child reshape individual and connected articulatory phonemes. Each of the English phonemes (consonants and vowels) has its own individual prompt, given by the clinician touching specific places on the child's face and neck. The aim of the prompts is to provide locations/end-points to be reached by the articulators in producing a sound or a sequence of sounds. One of the important aspects is that prompts are dynamic rather than static, providing the child with information on both the timing and manner of articulation. For example, the prompt for /k/ involves the clinician applying pressure over time to help the child elevate the back of the tongue.

This therapy approach requires speech and language therapists to receive training before attempting to use it and relies on good knowledge of anatomical structures and of physiological phonetics.