Introduction

What is Dysarthria?

Rosenbek and LaPointe (1985) describe dysarthria as "a group of related motor speech disorders resulting from disturbed muscular control over the speech mechanism." Their research points to five areas of speech production that may be affected by dysarthria:

- respiration
- phonation
- resonance
- articulation
- prosody

Darley (1983) defines dysarthria as "a group of speech disorders involving any or all of the basic motor speech processes—respiration, phonation, resonance, articulation and prosody—resulting from disturbances in muscular control due to damage to the central or peripheral nervous system, always evidenced by some degree of weakness, slowness, incoordination or alteration of muscle tone of the speech apparatus."

Dysarthria can involve problems with muscular control such as paralysis, weak muscles, spastic muscles with too much tone or tightness, flaccid muscles with too little tone, or incoordination. The muscles may also:

- overshoot (move too far)
- undershoot (not reach target)
- move in the wrong direction
- move with too little strength
- move at the wrong time in a sequence

Dysarthric speech has been described as sounding "slurred, unclear, jerky" or "clumsy." Several characteristics typically mark dysarthric speech:

- There is little difference in articulatory accuracy between automatic and volitional speech.
- Substitution errors are infrequent, and speech is characterized more by phonetic distortions and omissions.
- Consonant clusters are frequently simplified. There is generally no difficulty with initiation of speech (except in some cases of hypokinetic dysarthria).
- Audible and silent groping of the articulators to locate target articulatory placements is rare.
- Error type is consistent when the individual is asked to repeat the same utterance.

Introduction

Darley, Aronson and Brown (1975) identified several types of dysarthria. The list below describes these types and some of the neurological diseases or disturbances that may cause them.

1. Flaccid dysarthria occurs in bulbar palsy or brainstem disorders. It affects the lower motor neuron, and speech movements are weak.
2. Spastic dysarthria occurs in pseudobulbar palsy and affects the bilateral upper motor neuron. Spasticity is exhibited.
3. Ataxic dysarthria occurs in cerebellar disorders. Speech is incoordinated.
4. Hypokinetic dysarthria occurs in dystonia and chorea and affects the basal ganglia. Speech movements appear rigid, and the client shows a reduced range of motion.
5. Hyperkinetic dysarthria also affects the basal ganglia and can occur in Huntington's disease, athetosis and dystonia (among others). The client exhibits either abrupt, jerky, involuntary movements or slow, writhing involuntary movements.
6. Mixed dysarthrias result from disorders of multiple motor systems and are associated with diseases such as amyotrophic lateral sclerosis (ALS) and multiple sclerosis (MS). Also, because of the diffuse nature of most traumatic brain injuries (TBI), clients with TBI often have mixed dysarthrias.

Yorkston (1996) wrote that dysarthria can also be defined by its etiology and the course of the disease. Dysarthria may be congenital, developmental or acquired. It is important to know the course of the disease, since that will affect the prognosis. Yorkston indicates that some of the more common etiologies are traumatic brain injury, cerebral vascular accident, tumors, falls, assaults, Parkinson's disease, multiple sclerosis and cerebral palsy.

It is helpful for you as a therapist to know the specific types of dysarthria and their symptoms, but you should direct your treatment to the affected areas of each individual client— articulation, respiration, phonation, prosody or intelligibility.

Prognosis

Some dysarthrias follow an acute event such as head trauma or stroke and respond well to therapy. Others are related to degenerative diseases, and therefore the prognosis will not be as good. For example, a client who is recovering from a stroke will probably have a more favorable prognosis than a person who has a degenerative disease, such as multiple sclerosis.

Principles of Therapy

Rosenbek and LaPointe (1978) stated that "The goal of essentially all dysarthria therapy is not normal speech but compensated intelligibility."

Darley, Aronson and Brown (1975) describe five fundamental principles that should be the basis of your therapy:

- Compensation—the client learns to maximize the use of her remaining potential.
- Purposeful Activity—the client learns to do purposely what was previously automatic.
- Self-monitoring—the client learns to monitor and critique her own speech.

- Starting early after onset—the client starts to monitor, practice and compensate as soon as possible before she adopts inefficient speech habits that are hard to eradicate.
- Motivation—the clinician should encourage the client to persevere. Dysarthria therapy consists of structured exercises that should be systematically practiced every day. Clients must be kept motivated to consistently use the techniques they have learned.

Therapy Goals

This book will only discuss behavioral management of dysarthria. However, in cases where the client is not progressing, you may wish to consider medical and/or prosthetic intervention. A consultation with members of the medical team will provide your client with information on appropriate options.

The goals of dysarthria therapy are as follows:

1. Improve muscle tone and strength
2. Improve posture
3. Improve respiration
4. Improve phonation
5. Improve resonance
6. Improve articulation
7. Improve prosody
8. Improve intelligibility
9. Improve relaxation
10. If necessary, provide alternative modes of communication

During therapy, clients should work on both phonetic drills and conversational speech in order to achieve carryover. Visual and verbal feedback are essential to reinforce therapy goals. For example, the therapist may ask the client to look at his mouth in a mirror while speaking. This visual feedback shows him where his articulators are in relation to each other. He can see that the tongue is slightly protruding between the teeth for "th" or that his lips come together for "m." During a conversation, it is helpful for him to watch the speaker's mouth. This, too, provides a helpful visual model for the person with dysarthria.

Verbal feedback from the therapist or listener is important as well. It lets the client know whether his messages are understood, meaning that his speech was intelligible. It also helps him learn to monitor his own speech. In addition, positive feedback about his intelligibility will improve the client's self-esteem.

Introduction

Structuring Therapy Sessions

Treatment should be frequent, especially in the acute stages of rehabilitation. Daily therapy sessions are best, though this is not always possible due to reimbursement and time constraints.

Present the tasks from easiest to hardest, and end therapy sessions with tasks that ensure success. When 90 percent or more of responses are acceptable, move on to more difficult exercises (Brookshire, 1992).

Duffy (1995) recommends designing therapy sessions to keep error rates low, as high error rates tend to promote failure. He suggests starting with a task which the client can perform 60 to 80 percent correctly. The client then can achieve some degree of success consistently, but he must still exert effort to succeed.

Therapy may be most productive early in the day, before the client begins to tire. You may also want to schedule speech therapy prior to physical or occupational therapy sessions. It has been my experience that physical exercise prior to speaking tasks often has a negative impact on the individual's performance.

Individual therapy is generally beneficial early in treatment, as the patient has the opportunity to give the maximum number of responses, and therapy can focus on specific aspects of performance. Group therapy may be beneficial for clients who have milder dysarthria or for those in later stages of treatment. Group sessions provide a forum to work on carryover of skills, compensatory strategies and self-monitoring of speech within the group.

At the beginning of the chapters on oral-motor exercises, resonance, phonation, relaxation, respiration, articulation and prosody is a section describing treatment rationales and methods. Please refer to those sections for more specific information.

For clients with visual difficulties, it is often helpful to enlarge the exercise sheets on a copier. All pages marked with the line "Reproducible. Copyright © 1999 Imaginart International, Inc." may be freely reproduced for your clients in any size.

After the *Case Example* on page 5, there is a section of *Resources* which includes an easily understood handout on dysarthria for you to give to clients, families and caregivers. In addition, you will find a handout of strategies to improve your client's speech, a checklist to be used by clients to monitor their own speech, and an augmentative communication board.

I created the *Dysarthria Treatment Manual* to provide you with a comprehensive resource to treat clients with dysarthria. My own clients have successfully used all of these exercises in therapy, and I am confident that you will find this manual to be a valuable resource as well.