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**Clinician's Corner**

## What Does NDT Offer the Speech/Language Pathologist?

By Ann E. Heavey, MS, CCC-SLP, ATP

Postings on the listserv of the American Speech-Language-Hearing Association Div. 13 have recently been quite lively regarding the area of pediatric feeding and swallowing. Varieties of topics are discussed ranging from the neonatal intensive care unit (NICU) to adult issues, as well as treating individuals with various diagnoses including central nervous system (CNS) dysfunction.

Working with an individual with CNS impairment can be exceptionally challenging. Acquiring a knowledge base of cerebral palsy (CP) and stroke is critical to treatment. Neuro-Developmental Treatment (NDT) courses provide specific information on CP and stroke from a gross and fine motor, sensory, oral motor/respiratory movement perspective.

One posting on the listserv was from a therapist with adult swallowing experience who had just accepted a position in a pediatric clinic. The therapist was evaluating and treating many diagnoses that involved feeding and swallowing and feeling very overwhelmed. I was delighted at the response she received! It was suggested she attend courses that teach the NDT problem solving approach.

So, what does the NDT approach offer the Speech-Language Pathologist (SLP) who treats individuals with CNS dysfunction? Actually, it provides an abundance of detailed information as well as hands-on experience in treating both children and adults. Neuro-Developmental Treatment is an advanced therapeutic approach in working with people who have CNS insults that create difficulties in controlling movement. Therapeutic emphasis is placed on functional outcomes so that the client can become as independent as possible. Have you ever asked yourself, "Why are my clients talking during physical therapy (PT), but they don't talk with me?"; or, "After occupational therapy

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(OT), my client sits so much taller to eat and drink, what did the OT and PT do?" What are NDT-trained physical and occupational therapists doing that we non-NDT-trained SLP's are missing?



Taking an NDT course is like taking a journey into a world where the individual with a disability is viewed as a whole being. The course is organized and overseen by a coordinator instructor (CI), and courses are taught by PTs, OTs, and SLPs with possible additional instructors in special topics such as neurophysiology. Each course highlights an in-depth analysis of the biomechanics of typical and atypical motor skill acquisition. NDT as it relates to oral motor/feeding/ respiration/speech is taught by the speech instructor; shoulder girdle/sensory systems/fine motor is taught by the OT instructor; and gross motor/movement is taught by the CI.

There is an integrated approach to each presentation of motor skill acquisition, combining SLP, OT, and PT, which provides the foundation for skills. Course participants are taught the inter relatedness of all aspects of motor development. For example, the refined oral motor skills of suck-swallow combined with breath control and synchrony, feeding, and early sound production, are supported by the development of trunk control and stability and upper and lower extremity control. In an NDT course, you will learn a problem-solving method of enhancing your observational skills. This will allow you to understand why you want to tilt the pelvis forward to gain spinal extension for improved postural control so that an individual can breathe or eat more effectively, or why it is important for a child or adult with hemiplegia to be symmetrical in order to have better active control of the involved side during swallowing. Knowledge such as this is expanded upon in the NDT course during the examination and evaluation of the client.

NDT courses thoroughly define each type of cerebral palsy, whether from a gross, fine, or oral-motor/respiratory movement perspective. You will learn how the impairments underlying spasticity, hypotonicity, athetosis, dystonia, and ataxia impact speech, drinking, chewing, or suck-swallow-breathe synchrony. How do you treat an infant with hypotonicity who presents with minimal head control to achieve a rhythmical suck-swallow pattern?; a child with athetosis who never stops moving?; the adult who experiences a stroke and is unable to call his wife in another room?; the child with increased muscle stiffness, an immobile rib cage and open jaw?; or the individual with ataxia who drools? As an SLP, where do you begin? Taking an NDT course will provide you with a method to answer these questions.

NDT utilizes an adapted version of the enablement model (based on the ICF Model-WHO, 2001) to assess function and disability. The NDT approach involves viewing the individual as a whole person considering the entire body structure and function.

Observation of an individual's abilities to eat, drink, swallow, speak and communicate is considered. Fine motor, sensory processing, gross motor and movement skills are also observed in a functional context. Areas of focus are an individual's functional activities and limitations in performing these activities; effective and ineffective posture and movement; and impairments of body systems (i.e. sensory system, neuromotor system, musculoskeletal, respiratory, gastrointestinal). Social participation barriers or restriction in these functions in a specific environment are analyzed. For example: when observing a client eating a meal, the position of the pelvis, spine, and shoulders are noted due to the impact on feeding function.

Knowledge of these variables assists in generating functional goals. NDT involves examination of posture and movement. This involves looking at alignment of the head, neck, jaw, spine, shoulders, ribs and pelvis. Biomechanical information involving the base of support and center of mass contributes to an understanding of the causes of an atypical feeding pattern. Postural tone and its impact on stability and/or mobility for function are noted. Observation of movement is necessary in order to determine how postural stability and mobility are generated. Particular attention is paid to trunk movements, including flexion, extension, lateral flexion, lateral weight shifting, and trunk rotation. Rotation involves the thoracic spine to which the ribs attach and is very important for respiration and phonation. Why should an SLP know this? In the field of speech-language pathology, it is critical that we look at feeding and swallowing and coordinating these functions with breathing, noting symmetry/asymmetries; shortened or over lengthened muscles; and muscle synergies.

In an NDT course, each system is defined and analyzed for a potential impairment. This involves specific information about the neuromotor, sensory musculoskeletal, respiratory, and gastrointestinal systems. Analysis of each system can provide an in depth view of the client and a prioritization of system impairments and treatment planning. The anatomy and kinesiology of the body as a whole and application to discipline specific impairments for a functional outcome are discussed. This is invaluable as it enhances assessment analysis, establishment of functional goals, and treatment skills.

Each instructor presents discipline-specific content. The SLP Instructor presents typical oral and respiratory skill acquisition, atypical motor patterns, kinesiology and biomechanics of the oral motor and respiratory system, treatment labs, treatment planning, and functional goal writing.

The NDT approach has a theoretical basis that is scientifically supported by the Neuronal Group Selection Theory (Edelman 1987) which looks at the human body and how neurons are organized and compete to make connections as an individual experiences movement and selects and strengthens responses, resulting in neurological maps of behavioral function. NDT incorporates motor control and motor learning theories.

A critical element of the course, unique to NDT, is the direct “hands-on” treatment with a client. Throughout the course, two therapists are given one client to assess and treat. Instructors provide ongoing feedback to participants regarding goals, handling, and implementation of treatment strategies. Strategies utilized to facilitate or inhibit movement are taught during labs. These strategies are taught throughout the course.

So, if you are an SLP currently treating children or adults with CNS dysfunction, I challenge you to take a course. Talk with a colleague who has taken a course. Many courses are being offered in various formats from straight 8 weeks to Alternative formats: 4 week/ 4 week split to a one week and 3 day weekend format for 9 months. Adult courses are taught in 3-week courses also offered in varying formats. Visit the course listing on the NDTA website.

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