

From NDTA Network on the Net, 2006

CLINICIANS CORNER

So Is NDT Just Everything, Then?

The Answers to Three Questions Pinpoint the NDT Approach

By Marcia Stamer, PT

As an NDTA instructor, I learn a lot myself while teaching others. The participants who take the courses I teach have ways of asking questions, describing the children they treat, or discussing their observations of the children we all see during the course that force me to pause and consider the best wording for my response. In having to do this, I am forced to organize and articulate my own observations, opinions, and explanations. Later, I often (obsessively) reflect on my answers to see if I can think of better explanations.

So here are a few of my recent questions:

- 1 You talk about guided weight shifting with graded handling; everyone already knows about that. What's so different about weight shifting and NDT?
- 2 You would use a treadmill with a child with CP in NDT? I thought NDT was all about handling patients. I guess NDT just includes everything now, huh?
- 3 You are teaching us about some of the systems theories of motor control. What does that have to do with NDT? I heard that NDT is an outdated approach and the systems theories now replace it.

Well, those are good questions! Except if you are the one trying to answer them on the spot. But since this is a written response, I have a little more time for thought. So here goes:

- 1 What about NDT and weight shifting? There is definitely an historical perspective to consider in developing the NDT approach to treatment. Mrs. Bobath often talked about her own changing ideas on how to evaluate, assess, and treat (Bobath, 1979). She talked about how she first looked at reflexes, later studied normal development and movement, and further studied movement in depth when she looked at balance reactions and how children learned to move in and out of positions. She developed some of her treatment ideas over time, including how to help people with neurological disabilities make position changes. This included a detailed analysis of weight shifting as one part of the desired movement.

The NDT philosophy and principles of treatment have always emphasized careful posture and movement analysis. Treatment ideas and techniques have resulted from this analysis, including techniques that are specific to weight

shifting. Weight shifting is involved in large positional changes, but also in movements that we may not be as familiar with, such as what happens in the entire body when you are sitting on a chair with no armrests, then turn to look at a person coming in the door about 130 degrees to the left of facing straight forward? What happens to your entire body when you lift your arm to fix the hair that blew in your face while you are sitting on a 10-foot-high stone wall that is only 12 inches wide where you are sitting? These may be some of the weight shifts that we analyze and treat in our patients.

Because the NDT approach has been analyzing weight shifting for many years, it is quite possible that many of its basic tenets and principles of assessment and treatment have become viewed as mainstream or traditional knowledge. This is not to say that NDT “owns” the concept of facilitating weight shifting in treatment, but rather that the sources of ideas of many treatment approaches and the development of treatment ideas can become fuzzy. The NDT approach gives therapists a thorough understanding of when and why their patient needs to shift weight at a particular time, and also gives them the handling skill to grade the assistance and direction of that weight shift at the precise time in the movement if their patient needs that assistance.

2 How about NDT and the treadmill? Well, contrary to a seemingly prevalent belief, NDT is not about specific techniques. It is not a treatment regimen. It is not a set of handling skills. “NDT is a problem-solving approach to the examination and treatment of the impairments and functional limitations of individuals with neuropathology, primarily children with CP and adults with stroke or traumatic brain injury (TBI). A thorough examination and evaluation is the basis for treatment” (Howle, 2002). Techniques are only tools that the therapist creates to help treat and/ or manage the impairments and functional limitations once they have been identified. Therefore, the techniques could include a careful set up of the environment, any newly created or previously known play idea, the careful choice of verbal directions and feedback, or any piece of equipment. The important point here is that the technique is selected only after the therapist evaluates the patient and continuously assesses the patient’s response to treatment.

In the case of the treadmill, the therapist who uses an NDT approach may decide that the use of a treadmill in today’s treatment session would be a good tool to assist the addition of lower trunk rotation into the step length. The therapist notes the potential of the patient to use this rotation, but also notes that the patient uses it only with cognitive attention and at very slow speeds. The therapist knows that the addition of lower trunk rotation to the step often results in a longer step length, and that a longer step may mean more energy-efficient

walking for the specific functional goals set for the patient. Using this movement synergy more automatically and at variable speeds is likely to mean functional change. So the therapist tries the treadmill, starting at a slow speed.

Perhaps hands-on assistance is given over the musculature of the abdominals, both to assist the movement and to give sensory cues to enhance the patient's awareness of the movement desired. The hands-on contact also allows the therapist to feel if the patient is activating the abdominal muscles, and for how long. Perhaps hands-on assistance is not needed. In either case the therapist continuously assesses the walking pattern and efficiency, giving physical and/or verbal cues if needed.

Speed may or may not be increased, depending on the patient's walking performance. Distance and heart rate may be monitored. Then the therapist will ask the patient to use the newer, more complex movement synergy in a more functional situation, followed by a home program that allows the patient to practice a successful portion of the movement. The therapist considers the long term consequences of the less-skilled versus a more-skilled movement. If the work on the treadmill was not successful, the therapist analyzes why this was so, and what to do next in treatment and with home management.

So my answer to the participant's question is yes, I may use the treadmill when I use the NDT approach to treatment, following the rigorous examination and assessment skills I learned with this approach. I constantly ask myself if what I am doing in treatment is working, and if so, what to do next—and if not, what to do instead. NDT is not everything; it is not indiscriminant use of equipment or handling skills or simply practice of a function without regard to its impact on related or future function.

3 Why would NDT instructors teach about the many systems theories of motor control? Why would they teach about motor learning? Why teach Neuronal Group Selection Theory? "These theories are not a part of NDT, at least not what I heard about NDT," a course participant might say. It is certainly true that Mrs. Bobath didn't talk about any of this—and no one else did either before the 1980s! Dr. and Mrs. Bobath began explaining their ideas for how normal and abnormal movement developed and was controlled in the context of their time period, beginning in the 1940s. At the time that they first began challenging the status quo and explaining their understanding of posture and movement control, the only theoretical structures available involved reflex and hierarchical organizations of posture and movement. So they tried to fit what they observed and learned into the existing theories.

This presented a huge problem for them, as they were, indeed, trying to explain how many body systems contributed to the learning of posture and movement (Bly, 1991). For example, they repeatedly insisted that posture and movement learning and refinement involved various sensory systems (Bobath, 1971). They talked about movements as “patterns” or synergies, and identified synergies that were “normal” (functional) or “abnormal” (dysfunctional) (Bobath and Bobath, 1964). They talked about practice (motor learning), and felt it was very important to include families in treatment (Howle, 2002). Sound familiar? Isn't that today's emphasis? But because they weren't using the same words we use today to describe posture and movement, those who look hurriedly through their writings might only see that they talked about reflexes and hierarchical organization of movement.

NDT instructors were thrilled when we started hearing the “new” theories, beginning in the early 1980s. Finally there were better ways to describe what the Bobaths were trying to say and what we also believed about evaluation and treatment. We could refine the original theories of the Bobaths, updating their ideas, and seek more in-depth information to add to the original NDT approach. There was no need to throw the baby out with the bath water. Mrs. Bobath's core ideas still held true: rigorous observation of posture and movement, careful alignment of body segments and joint position before asking patients to move, constant analysis of how the patient moved throughout the entire treatment session, the contribution of the sensory systems to movement, family involvement in treatment, and home programming.

Our explanations, theories, and hypotheses about why this all happened were greatly modified, but the basic tenets of evaluation and treatment still held. As inquisitive people ourselves, we loved the challenge of thinking and explaining in greater depth.

What I tell my course participants when I teach about the NDT approach is that the theories that support (or refute) the basic tenets of the NDT philosophy will continue to change dramatically if the past 25 years are any indication. We will have to constantly ask ourselves if the theories that attempt to explain human motor control, motor learning, and motor development still support what we believe in the NDT approach. So far, the newer theories further support the NDT approach and Mrs. Bobath's most deeply held beliefs.

Marcia Stamer, PT, is an NDTA coordinator-instructor who lives in Silver Lake, Ohio. She currently works as a consultant, teaching short courses. She can be reached at 330-923-0696 or at Paul-Stamer@att.net.

References:

Bobath, B, and Bobath, K. Excerpts from a Speech by Karel and Berta Bobath at Curative Workshop, 1979.

Howle, Janet. Neuro-Developmental Treatment Approach: Theoretical Foundations and Principles of Clinical Practice. 2002: NDTA, Laguna Beach, CA.

Bly, Lois. A Historical and Current View of the Basis of NDT. Pediatric Physical Therapy, 1991:131-135.

Bobath, B. Motor Development: Its Effect on General Development and Application to the Treatment of Cerebral Palsy. Physiotherapy, 1971; 57:526-532.

Bobath, K., and Bobath, B. The Facilitation of Normal Postural Reactions and Movements in the Treatment of Cerebral Palsy. Physiotherapy, 1964; 8: 246-258.