

Neuro-Dynamic Therapy

Working as an Occupational Therapist in the field of Traumatic Brain Injury for the past 12 years has taught me to take an open, eclectic approach to client treatment. However, one theory which heavily influences my clinical treatment is Neuro-Dynamic Therapy (NDT), also known as Neuro-Developmental Therapy.

Overview of NDT

NDT is a form of movement therapy that has its roots in Berlin, Germany. Dr. Karel Bobath (a physician) and his wife Berta Bobath (a physiotherapist) developed the techniques largely through their work with children who had cerebral palsy. The Bobaths observed that when these children were positioned, moved, and guided in certain ways, much of the abnormal muscle tone and reflex activity was decreased, allowing them the ability to experience more normal movement and interact with their environment to a greater degree.

The words “Neuro-Dynamic Therapy” refer to the idea that the theory is related to neurological impairment (though it is not appropriate for treatment of spinal cord injuries); dynamic in that it is ever-changing, providing the patient with increasing potential and therapy in that the movement is therapeutic activity, not activity therapy. Some of the key concepts of the framework are that it is effective and outcome oriented, it is inclusive and evolving and it is functionally based. It encompasses the idea that all aspects of the person (sensory/perceptual, emotional, psychological, cognitive and physical) must be considered during recovery and treatment.

Some traditional approaches to rehabilitation have principles and techniques that are strictly adhered to, and when progress isn't made, the patient is considered “plateaued.” NDT relies on three main problem solving sequences which sets it apart from other approaches. The NDT problem-solving sequences relate to regaining normal movement and integrating it into functional activity, taking advantage of physiological principles of musculoskeletal movement and function, and establishing carry-over or generalization of therapy. When an NDT certified therapist observes that a particular approach isn't working, they know to abandon that direction and use creativity and novel ideas paired with the concepts and tenets of NDT until the intended outcome is obtained.



Overview of an NDT Course

NDT requires special certification. This certification is obtained by completion of a rigorous training course. Currently, NDT certification is offered separately for practitioners working with children and adults. The course provides 98 hours of instruction and consists of lecture, discussion and “labs” which are intensive practice sessions to learn handling techniques and to develop a sense of how to utilize the concepts. Additionally, the clinicians evaluate and treat patients with a variety of neurological diagnoses.

The practice of NDT utilizes straightforward principles, to help patients gain or regain normal movement. It requires an extensive understanding of anatomy, kinesiology, human function and creativity of the therapist to integrate all of these components. Another factor is in the clinician's ability to instill confidence in the client.

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NDT in Practice

After becoming NDT certified, I immediately noticed a difference in my ability to assess a client. Prior to taking the course I could not always determine immediately how to proceed. NDT principles have given me a broader range of treatment tools and the progression of therapeutic activity is much clearer. Here are some examples.

Client W

W had great difficulty sitting unsupported mat side because of her poor posture (rounded shoulders, slumped forward posture). When assisted to the edge of the mat to sit unsupported, she would roll to her back, unable to hold herself upright. Before learning NDT handling techniques, I tried to use stretches to increase thoracic extension and anterior pelvic tilt but they did not work.

Two NDT stretches were very effective in correcting her sitting posture - one for mobilizing her pelvis toward anterior tilt (straightening her spine) and one for thoracic extension (shoulders back). The anterior pelvic tilt stretch involved having W sit matside and use a sheet rolled up and placed around her posterior pelvis then looped around my low back while I stood in front of her. From this position I was able to gently rock backwards while supporting her shoulders which provided a strong stretch to her lower back and pelvis that I had been unable to achieve using other methods and positions. Another great benefit of this technique was that it provided better leverage for me which meant that I was not straining during the stretch.

The thoracic stretch involved finding the area of greatest flexion in her spine, then placing my hand and applying downward pressure while using my other hand to provide upward pressure to her sternum and upper chest. When my left hand was on her back, I used my left leg to provide assistive pressure to my left arm in stretching her back toward extension. This combination of movements provided more true thoracic extension than I had been getting using other non-NDT stretches. This provided a very intensive, effective stretch, which was comfortable for W and efficient for me to perform. After about three weeks, she was provided with the range of motion necessary to use her available trunk and postural muscles to sit upright unsupported. After achieving the increased range of motion in her pelvis and back, I provided activities to W

to facilitate active thoracic extension and pelvic tilt so she would incorporate the movement and positioning with less assistance from me and more from her own desire to participate in the activity.

Camille

I have also noticed a change in my thinking as an observer of human movement outside of therapy. I recently took my 2 1/2 year old daughter ice skating for the first time and found myself using NDT handling techniques to provide her with the support and balance that she needed to stay upright on the ice. My husband initially tried teaching her to skate by holding her under her arms – often resulting in the two of them losing their balance. I convinced my reluctant husband to try a simple NDT principle - place his right hand and wrist under her left arm to stabilize her upper body and use the left hand to stabilize her pelvis. By placing hands in these positions, he countered the movements which occur during a backward fall while skating. When Camille was provided with stability paired with the freedom to move, she was able to make the first rudimentary “skating” steps. Once he tried, he was immediately able to assist her to maintain an upright posture on the ice. He was very surprised and marveled that NDT principles are effective with people without neurological disturbance, but learning new, complex motor tasks.

Client L

My colleague Payal Desai, PT, NDTC notes she has a better understanding of neurology and how it impacts the musculoskeletal system, as a result of the certification. She feels that becoming NDT certified helped her adopt “a more functional approach to treatment rather than just performing isolated stretch and strengthening activities.” She cites a client, L, who was steadily plateauing during treatment prior to becoming NDT certified. After certification, Payal feels that she has a greater ability to be creative in therapy and is more able to design functional, which was a motivating factor for L, who has demonstrated renewed progress toward her goals.

Client J

Another colleague of mine stated that after completing the course she became “more holistic in both evaluation

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and treatment of clients, focusing more on other areas of the client's life and function" than just on the presenting problem. Monal Patel, OTR, NDTC also recalls observing improvement in her client, J, who was able to achieve a greater range of motion in his affected shoulder after she utilized NDT handling techniques for stretching and tone management.

Becoming NDT certified has been a dream of mine. Since becoming certified I have realized that it has a substantial affect on my practice as an OT and it has gone beyond my expectations. It has affected me in ways greater than I would ever have expected and has been one of the best experiences that I have had, professionally and personally.



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