

## THERAPY TALK

# Wearable Therapy

## TheraTogs™ Embodies Key NDT Principles

By Nancy Dilger, MA, PT, PCS

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The problem that started it all was all too familiar to NDT therapists: the typical fall-off of adequate practice between therapy sessions—practice that is critical to training a child with complex neuromotor dysfunction to move as efficiently as possible. After decades of frustration with the limited carry-over of therapy session success, TheraTogs inventor and company founder, Beverly Cusick, PT, MS, who has completed NDTA's 8-Week Pediatric and Baby Treatment courses, was moved to start a broad search for suitable materials and patterns that could be used to create a live-in, wearable solution.



**Fig. 1.** (above, left) Sensory Processing Disorder. The SI System. **Fig. 2.** (above, right) Level V mixed CP; The Full Body System with trunk extension strapping.

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“What I really wanted,” notes Cusick “was a way to give our patients Velcro-sensitive ‘skin’ so that we could strap on external muscle wherever they needed it.” After a five-year search and development effort, the original TheraTogs systems were launched at American Academy of Cerebral Palsy and Developmental Medicine (AACPDM) in 2002.

The concept of TheraTogs strapping for neuromotor training or re-education is founded in the treatment principles put forth in Neuro-Developmental Treatment, in Sahrman's Muscle Balance Theory, and in the current principles of motor learning and neural plasticity that foster therapeutic approaches featuring extensive, purposeful practice. By living in a well-designed TheraTogs system, the wearer experiences thousands of repetitions in corrected functional context – repetitions that are essential for optimum neuromotor re-education and optimum skeletal modeling in infants and young children.



**Fig. 3.** (above, left & right) Level III Diplegic CP; The Full Body System with shoulder retraction and kyphosis-reduction strapping.

TheraTogs systems gently and comfortably support sensorimotor training objectives that are immediately recognizable to NDT clinicians:

- Cozy tactile input and compression for postural support and increased body awareness
- Improved resting alignment from which to initiate movement
- Improved functional alignment from which to experience movement.
- Resistance to undesirable movement patterns, and assistance with gaining desirable movement patterns

If the desired change in posture, joint alignment, or stability is attainable with unforced handling, then a TheraTogs strapping application can be expected to effect the same change and to support the treatment objective. The younger the child, the more dramatically TheraTogs can influence sensorimotor development. The heavier a

postural or movement correction problem is in your hands, the more difficult it is for TheraTogs to accomplish the same correction. Successful therapeutic handling techniques, and the sound application of kinesiological and biomechanical principles, drive the strapping plan.



**Fig. 4.** (above, left) Level IV Dystonic/Spastic CP. The Full Body System with wide trunk extension assist strapping. **Fig. 5.** (above, right) Infants, the Best Users! The Full Body System with medial rotation wraps on thighs and abdominal strapping.

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TheraTogs are designed to be custom-fitted by the attending clinician to support daily care and positioning goals, sensorimotor training, neuromotor re-education, postural retraining, and rehabilitation following surgery. For children under three years old, findings obtained from a thorough postural and musculoskeletal assessment provide logical targets for any strapping application.

“We offer a two-day training course in developmental orthopedics that ends with a TheraTogs application lab,” says Cusick, “and we consistently find that NDT-trained clinicians are at the head of the class in terms of determining strapping applications.”

TheraTogs can be used to improve posture or functional performance during a therapy session, to reduce the postural workload that is often expected of foot and ankle orthoses, and to improve the existing biomechanical and kinesiological conditions during prescribed strengthening exercises. Used to support positioning during sleep, TheraTogs have also brought welcome rest to weary families of wakeful children with CNS dysfunction. “The calming influence of TheraTogs garments on many children with autism spectrum disorders has been a delightful surprise, as well,” says Cusick.

The most dramatic example

of TheraTogs' effectiveness is the AtaxiTog system, which uses a unique strapless design to provide truncal stability and "grounding" specifically for patients with ataxic gait. The AtaxiTog is based on the same principles as alternative modalities such as weighted vests—but provides a more comfortable, more discreet solution.

Most recently, the company has been field-testing various configurations and applications to meet the unique needs of children with Obstetric Brachial Plexus Injury (OBPI). Considering the complex sensory, neuromotor, and musculoskeletal issues that accompany the diagnosis of OBPI, TheraTogs provide a versatile and effective array of management strategies.

"I'm very excited about the prospects of using TheraTogs as live-in therapy to guide the postural and functional development of infants and children with OBPI," noted Cusick. Research in the U.S. and internationally is now underway to document TheraTogs' biomechanical and sensorimotor effects and to identify ways to improve the functions and materials of the product. This research will also support ongoing efforts to obtain expense reimbursement by a growing list of state agencies and private payors.

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