

Benefits of LYCRA



Children with sensory disorders respond to Lycra, a durable, versatile fabric.

In an occupational therapy clinic in Washington State, a gravitationally insecure child climbs into a suspended four-pointed swing with multiple layers of Lycra®. As he moves through different layers, he is improving strength, balance and motor-planning skills.

A younger and more involved child, with few opportunities for exploring movement, is placed into a stand-alone structure constructed of Lycra almost daily for several months in a rehabilitation center in Mexico. He learns to bring his head, eyes and hands to mid-line, facilitating the eye-hand coordination necessary for manipulating toys.

What is Lycra?

Lycra is a trademarked product of DuPont for Spandex (elastane) fiber. The fabric's properties vary based on the percentages of elastane used in the fiber – e.g., 80% cotton and 20% Spandex.¹

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While some commercial therapy Lycra products are costly, many occupational therapy practitioners fabricate their own therapeutic equipment. For example, Rosemary White, OTR/L, owner of Pediatric PT & OT Services in Seattle and Pacific NW Pediatric Therapy in Portland, Ore., created a swing from 3-4 layers of 60-inch double-width Lycra sewed together with an overlock stitch on a sewing machine, then stretched and suspended from four points.

Irene Ingram, OTR, owner of Therapeutic Designs and Services in Hartsville, S.C., buys fabric remnants at a much lower cost than the commercial companies, and makes tunnels from Lycra for families to use in home programs.

Therapeutic Value

Lycra materials are widely used to facilitate children's adaptive interactions with their clinic, school and home environments, and contribute to positive motor, social and emotional outcomes through participation in the occupational performance domain of play.² Suspended swings, sheets/blankets, ropes, tunnels and compression clothing made from Lycra are just some of the many products that have been used in the delivery of pediatric sensory integration interventions.

Occupational therapy practitioners have designed individualized activities to facilitate these essential components of function for family-developed goals:

- Integration of primitive reflexes through elongation, activation, strengthening and grading of multiple muscle synergies throughout the body, especially in the core, to achieve refined three-dimensional movement;
- Strength and stability of the shoulders, arms and hands through grasp, weight-bearing and weight-shifting, and of the pelvis, knees and feet through weight-bearing;
- Dynamic stability with controlled mobility throughout the body, preventing fixing/holding or compensatory patterns;
- Balance and coordination through integration of vestibular and somatosensory input with each action; and
- Depth and variability of respiratory functions to support posture, self-regulation, alertness and vocalizations.

Interviews With Experts

Six occupational therapy practitioners specializing in the treatment of children with sensory processing disorders and physical disabilities agreed to be interviewed about why and how they use Lycra materials and equipment in their practices. The co-authors recorded and transcribed the telephone interviews and then coded the texts to extrapolate common themes and to link types of products with therapeutic activities currently used.

A frequent comment from therapists was that Lycra has become one of their favorite therapy tools for infants and children of different degrees of disability because it provides a wide range of therapeutic opportunities, from providing a cocoon-like space in which they feel extremely safe to a challenging environment where they are self-motivated to explore new movements. When asked the following questions, therapists replied:

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When did you start using Lycra and why?

OTs reported that they have used Lycra in their clinics, in clients' homes, and in a school context for many years. Introduced to it at continuing education events or by other therapists at their place of employment, they appreciate how it lends itself to versatile, therapeutic, and play-based activities.

Which activities with Lycra are favorites of yours, as well as children's?

Almost all agreed that their favorites were always the activities that provided opportunities for that just-right challenge while having fun. According to Angela Schoeppach, MA, OTR/L, director of rehabilitation at NorthLakes Community Clinic in Ashland, Wisc., children seem drawn to the suspended sheets and enjoy climbing in, exploring movement, and moving from layer to layer. It can be adapted in many ways for different needs.

For a child who is gravitationally insecure, Nancy Lawton-Shirley, OTR/L, owner of Points of Stillness in Hudson, Wisc., hangs one layer that almost touches the ground, puts some pillows in it, and introduces the child to a comfortable and safe experience that's possible while exploring an unstable surface. Her colleague Teresa Gillen, OTR/L, says, "That's probably the most popular piece of equipment that we use in the clinic."

Alexander Lopiccolo, COTA/L, CPT, NC, therapist at Bothell Pediatric & Hand Therapy in the Seattle area, says that the children's favorite activity is climbing up and down and transferring through layers in a four-pointed swing. He encourages therapists to explore their own creativity and share their discoveries. He recommends Lycra compression clothing and weighted blankets to parents because "that deep sustained pressure can help with body awareness, self-regulation, core activation, and shoulder stability."

Can you describe the outcomes and results you've observed?

Lawton-Shirley has observed changes such as reflex integration, more-efficient weight shifts, less gravitational insecurity, better quality of movements, and increased hand strength. On an annual trip for the Red Thread Charities, Lawton-Shirley and Gillen brought Lycra equipment to several Chinese orphanages and held training sessions about its use.

The staff had never before seen these children with sensory deprivation explore movement, play, smile and vocalize so much. They were intrigued by the joy they observed. Infants were particularly responsive while interacting with a stand-alone product created for babies.

This group of therapists considered Lycra a helpful tool to calm the nervous system when a child's arousal level causes difficulty transitioning from one activity to another. By tapping into so many sensory systems (tactile, proprioception and vestibular) that regulate emotional states, therapists have observed children achieving functional goals in the occupational performance areas of play and social participation by:

- Being motivated to play;
- Communicating wishes about play: what, when, with whom and how;
- Engaging in spontaneous, parallel and collaborative play with their peers;
- Taking turns and sharing with others.

Are there any unique ways you have used equipment made from Lycra materials?

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Ingram constructs a vertical wall made of Lycra so that when children run into it, they are “boomeranged” back into pillows – a highly intensive proprioceptive and vestibular experience. For home programs, she secures Lycra over storage tubs, places the baby inside, and shows parents how to activate righting and equilibrium reactions by tilting the tub. According to Ingram, so much grading is possible with Lycra to meet the needs of different children at different times by varying its thickness, size, layers, position, length, diameter and weight.

What do you consider the pros and cons for using Lycra in treatment?

Patricia Oetter, MA, OTR/L, FAOTA, a private practitioner in San Francisco, says that the most important advantage for treatment with Lycra is that it provides “the best postural core muscle workout ever invented.” She reminds therapists that humans have an intrinsic motivation to master gravity and spatial/temporal awareness, and that children find the equipment inviting and challenging.

“I don’t have to do much, just watch and guide,” said Oetter. Her only drawback is the issue of clinics or homes having enough space for the larger equipment.

Other therapists admit that although space requirements can be daunting, many smaller pieces, such as Lycra tunnels, could be compacted for storage. Many categorize safety as a concern, while others consider it just an issue of good clinical practice. They all agree that children need supervision while using certain equipment, in the home as well as in the clinic.

Favorite Therapy Tool

Six OT practitioners specializing in the treatment of sensory processing disorders and physical disabilities describe Lycra as a favorite play-based therapy tool because of its versatility, adaptability and motivational qualities, as well as its low cost and durability. Activity ideas share common therapeutic themes: contributing to self-regulation and improved quality of movements through proprioceptive and vestibular input, offering opportunities for just-right motor challenges, and supporting participation in the occupational performance domains of play and social interaction. n

References

1. Mukhopadhyay A, Sharma IC, Mohanty A. Impact of Lycra filament on extension and recovery characteristics of cotton knitted fabric. *Indian J Fibre Text Res.* 2003;28(4):423-430.
2. Occupational therapy practice framework: Domain and process (3rd Ed.). *Am J Occup Ther.* 2014;68:(Supp1).