

NDTA Newsletter Case Study, October 2008

Power Up™ For Success

Can one product be the answer to a mother's continued encouragement of her child to sit-up straight, please sit-up, power-up kiddo! Can it also help the child, whose body is in constant movement, have enough upper body control to use an augmentive communication device? How about the child who cannot shake his head yes or no? Thanks to an OT, who was looking for "an extra set of hands", and a way to properly position her clients while also helping them develop upper body strength and trunk control, a tool was developed that has turned out to be so much more than that "extra set of hands."

The Power Up™ stabilizer is a tool that was originally developed by Chris Cayo, an OT and an NDTA instructor. It has been designed to be used with children who have neuro-motor disorders and moderate to severe one side or total body involvement including impairments of dystonia, athetosis, and spasticity. (Note: Please see July/August NDTA Network Case Study by Chris Cayo, A Family Force, featuring use of the Power Up™ stabilizer.)

Chris was looking for a way to help position the shoulder girdle in proper alignment to help develop strength and stability in the deep scapula stabilization muscles (rhomboids, middle trapezius) of the upper trunk and shoulder girdle. Chris enlisted the help of the Marquette University biomedical engineering department to develop the initial prototype of the handle device. After several years of development and use with various clients, who showed progress in varying degrees in their functional upper body trunk control, the Power Up™ stabilizer is now available through Assistive Resources, LLC for the therapeutic community and their clients.

Jan Mulholland, of Assistive Resources and in collaboration with Chris and Marquette University, has re-designed and enhanced the Power Up™ stabilizer to include options for sizing, fit and attachments on standers and walkers in addition to wheelchairs. Marquette is currently doing a research study on the effectiveness and carryover of using the stabilizers for the development of upper extremity control, head control and upper trunk control.

The Power Up™ Stabilizer is more than just an extra set of hands for the therapist. By providing a point of stability, it gives the client a form of freedom to do the things that they want to do; better control to access a communication device, self-feed or simply lift their head up to look around. The Power Up™ stabilizer is also a tool that with continued and consistent use, shows improvements and carryover in the clients' core stability, alignment and posture. In addition to its therapeutic uses, it is also a functional tool that children and teens are using to help them access communication devices, eat independently or to simply sit up straighter at the dinner table. This tool has the capability of providing the client a base of support to use their own muscles to accomplish tasks without human assist.

Empowerment

Ultimately and most importantly, by providing that important base of support for the client to work off of, the Power Up stabilizer has the capability to empower clients with the self confidence that comes from the capability of doing things on his or her own. Here are a few stories of empowerment:

Luiz

Luiz, is a 15-year-old young man with cerebral palsy. He has poor postural control, dystonia and involuntary muscle contractions that pull his body forward into flexion. Before Luiz started using the Power Up™ stabilizer handles, the resulting position was that his head was often on his tray and a physical assist was needed to lift his head. Luiz also cannot feed himself or use a communication device. A soft foam block, made by Luiz's OT, Carol Wingenter, helped keep Luiz's upper body off of the tray, but he still had very poor head control. A year ago, Carol introduced the Power Up™ stabilizer handles into Luiz's treatment sessions with the goal of getting active head control. The Power Up™ stabilizer handles gave Luiz the point of stability that gives his shoulder girdle a point to work off of so he can use his own muscles.

By using two handles as a point of stability, Luiz began to use his own muscles to lift his head for short periods of time. During treatment, Carol would also use a mobile forearm support for one arm and the Power Up stabilizer on the other arm. Three months ago, Luiz began consistently using the handles at home on his wheelchair tray.

Results: Luiz can now more frequently hold his head up to see and interact with his environment whereas before he could not lift his head on his own at all. He is now able to look at people when they are talking to him. He is also now able to lift his head independently and hold it for up to 20 seconds whereas before he could not independently lift his head at all. Luiz is also able to now shake his head yes or no – a very big step toward his own sense of self confidence - which he could not do before using the stabilizers.

Luiz is able to sustain his head for a short period of time in an upright and middle position even without the use of the stabilizers because his muscles have become stronger while using them. According to Luiz's mom, Denise, Luiz is now able to control the involuntary movements that bring his head forward. She also says that he can tolerate the stabilizer handles very well and even asks for them so he can better communicate and look up and around. In addition to using them on his wheelchair tray at home, Luiz is also using the stabilizers on his stander and at home.

The Future: With the use of the Power Up™ stabilizer handles, Luiz has new realistic goals of building up his muscles to the point of using a communication device with head switches while using the stabilizers bi-laterally and also to be able to efficiently activate switches while one arm is in a stabilizer.

Alexa

Alexa is thirteen year old and has athetoid cerebral palsy. She initiates upper extremity movement with asymmetry in her trunk she cannot maintain her lower body stability. She has a difficult time keeping her hips over her feet and her pelvis aligned.

Results: Alexa uses the Power Up™ stabilizers on a table surface. The stabilizers give her a point of stability to work off of which keeps her upper trunk aligned so she can keep her pelvic femoral alignment. Functionally, Alexa is quicker when picking things up and can use her hands and eyes better together when she is using the stabilizers.

The Future: According to Carol Wingenter, Alexa's OT, using the Power Up™ stabilizers on a consistent basis will hopefully prevent scoliosis by not allowing her to use asymmetry and will keep her body aligned. Alexa herself likes using the stabilizers because, she tells Carol, she likes how they make her body feel.

How the Power Up™ stabilizer Works

Following elongation and preparation of the shoulder girdle to achieve proper or optimal alignment, the stabilizer handles help to position the shoulders in external rotation and depression. This puts deep postural muscles in a shortened position where it is believed that they initially must be to become active. (This is similar to an infant doing the Landau or the high guard of a toddler.) The stabilizer handles also provide a point of stability for the arm to work off to help maintain the proper alignment. Previously, therapists frequently would put a bar on a tray in front of the client to grasp to provide a point of stability. However, reaching forward biomechanically puts the thoracic spine into flexion and the scapula to rotate outward making it nearly impossible for the scapula stabilizer muscles to work because they were in a lengthened position. In addition, the arms tended to internally rotate. So, although a bar in front helped to provide a point of stability, it did not work on developing postural stability.

Once the shoulder girdle is aligned, it is easier for the head to extend and for the client to use their vision. The Power Up™ stabilizer helps to develop sustained upper trunk and head control and can be a valuable positioning aide and a way to carryover therapy goals at home.

Uses for Clients of Varying Abilities and Needs

The Power Up™ stabilizer is designed to be used in multiple ways with clients of varying abilities. There are also many degrees of freedom that are built into the Power-Up stabilizer which allows the therapist to decide which position of the handle will benefit the child's treatment goals such as:

- Can be used unilaterally to allow the child to work on improving accuracy of reach, grasp and touch with the other hand.
- Head control for visual tracking, visual "pointing" and eye contact

- Upper extremity control for reach, grasp and manipulation and activation of assistive equipment.
- Strengthening of upper trunk and neck for improved alignment and control in sitting, standing and during mobility tasks.
- Can be used with someone with hemiparesis to help achieve upper trunk symmetry.

For more information on the Power Up stabilizer please contact:

Assistive Resources, LLC
Linda Mulholland
19340 Edmonton Drive
Brookfield, WI 53045
262-439-8253
www.assistive-resources.com