

Power-Up Stabilizer In-Service Hand-Out

History

The Power-Up Stabilizer was developed by an OT who was looking for a way to help position the shoulder girdle in proper alignment to help develop strength and stability in the deep stabilization muscles (rhomboids, levator scapulae) of the upper trunk and shoulder girdle. The biomedical engineering dept. at Marquette University helped develop the initial prototype and is currently doing a research study on the effectiveness of using the stabilizers for the development of upper extremity control, head control and upper trunk control.

Purpose of the Power-Up Stabilizer

Following elongation /preparation of the shoulder girdle to achieve proper or optimal alignment, the handles help to position the shoulders in external rotation and depression. This puts the deep postural muscles in a shortened position where it is believed that they initially must be in to begin to become active. (Similar to an infant doing the Landau.) The handles also provide a point of stability for the arm to work off to help maintain the proper alignment. Previously, we frequently 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 to the scapula stabilizer muscles to work because they were in a stretched position. In addition, the arms tended to internally rotate. So although a bar in front helped 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 vision. The Power-Up Handle helps to develop sustained upper trunk and head control and can be a valuable positioning aide and a way to carryover at home.

Components to the Power-Up Stabilizer

Base: This can be mounted to any table surface that has a place for the bottom to clamp such as wheelchair trays, table surfaces, desks, standing frames, arm rests of wheelchairs etc. It must be fastened securely and one needs to be careful where the tightening knob is located for comfort of the client.

Telescoping Rod: The orientation of the rod can be adjusted as well as the height by adjustments made at the base and on the rod itself. Extensions can be added for clients with longer arms.

Handle: The orientation of the handle can be changed as well as the size of the handle. It is important to look at the orientation of the forearm to the hand and adjust the alignment of the hand piece accordingly to achieve optimal alignment.

Optional Forearm Pad: This is helpful with the more involved client who cannot maintain an active grasp on the handle or has difficulty maintaining proper forearm alignment. The forearm pad can be used as a surface to push against. Frequently, clients may need this initially but as they gain proximal stability, an active grasp develops. When the forearm pads on, you lose the ability to adjust the height of the handle. It may be helpful if using the handle with a variety of clients, to leave the forearm pad off for ease of transition from one client to another.

Strapping: Straps are provided to hold the forearm in place on the forearm pad. In addition, an elbow support strap is provided that helps to keep the elbow and forearm in proper alignment. Initially, further straps or splints may be needed to help keep the hand on the handle.

Using the Power-up Stabilizer for Function

The handles can be incorporated into most position systems such as a chair, wheelchair or standing frame. They can be used bilaterally or unilaterally. For a client who has difficulty with maintaining upright head control, using two handles will help to maintain alignment of the shoulder and spine to make it easier to keep one's head up. Once the head is up it is an ideal time to promote visual control. It can be used during feeding, in the classroom, at home or in the community. Once the client has developed improved proximal strength only one handle may be necessary. Using one handle provides a point of stability with the shoulder and upper trunk properly aligned for using the "free" hand to reach, self-feed, operate a communication system or computer. It promotes upright posture which also then helps the client use their vision system more effectively. The angle and position of the handle can be altered as less stability is needed from the handle because the client has improved their own postural control strength and endurance.