Case Study
Diagnoses: 17 year old male with cerebral palsy, epilepsy with intractable epilepsy, superior mesenteric artery syndrome (SMA), esophageal reflux, and kyphoscoliosis.

Status upon admission: dependent for negotiation of environment in manual wheelchair, communicated using limited verbal speech mostly unintelligible to unfamiliar listener, eye gaze, facial expressions, and through the use of paired with low/high tech communication devices.

Musculoskeletal impairments: significant lordosis, flattened rib cage, shortened pectoral muscles, and overlengthened cervical extensors.

Neuromotor impairments: decreased ability to sustain co-activation of postural muscles to sustain an upright sitting position, poor static and dynamic sitting balance, recruitment of whole body stiffness (lower extremities and trunk into an extensor movement pattern and a flexor movement pattern of the arms terminating with cervical hyperextension and rotation of head to the left) with attempts to vocalize and limited isolated control both within and between body segments.

Barriers to independent participation in daily activities: poor posture control, head alignment due to decreased muscle strength and abnormal tone, coordination of movements, decreased breath support, and associated movement patterns.

Collaboration and Treatment Outcome
Speech and Physical Therapy goal: Increase postural control and visual attention to improve his functional participation in daily activities.

Speech Therapy objectives:
1.) To increase functional use of a dynamic display communication device, the patient will activate color icons drawn through sustained visual attention via eye gaze technology to participate in functional communication exchanges.
2.) To increase functional use of a dynamic display communication device, the patient will increase the number of icons activated in different quadrants of a screen.

Physical Therapy objective:
1.) To increase sustained co-activation of lower abdominal muscles for facilitation of neutral head alignment for functional communication.

Therapy Session Progression

Eye Gaze Progression

Current Status
- Increase in the number of icons activated in different quadrants of the screen
- Increased familiarity with communication device layout which has increased the number of activations/messages per minute
- Increase in breath support which has improved his speech intelligibility as well as phrase and sentence length
- Inconsistencies in sustained co-activation of lower abdominal muscles for facilitation of neutral head alignment

References