One of the indicators of postural alignment in the human body is the direction and degree of spinal curvature. This is one way that posture is typically deemed appropriate or abnormal. This curvature dictates the position of the human hips and shoulders that could lead to health and wellness or pain and fall risk.\textsuperscript{1,2} Ages seven to nine indicate the developmental milestone in which a human solidifies his posture and mature walking pattern. This location of the body in space is a process and must be learned. Neurological insult to the human body, be it stroke or traumatic brain injury, can bulldoze this learned process, rendering the need to relearn functional posture.

It is imperative that therapists address posture in all treatment sessions post neurological diagnosis. Balance can be coined as the product of both body alignment and base of support (Folmar K, Knox J. Neurodevelopmental Treatment Association Certificate Course. Houston, Texas, April to August 2016). The alteration of the body’s alignment must be perfected to ensure optimal muscular contraction for fall prevention.

This principle resonates well with a participate patient of mine in need of intense rehabilitation to achieve his goal of fishing. I have had the pleasure of treating Mr. Sidney Smith, who experienced a traumatic brain injury (TBI) after a ceiling fan struck his head.

Mr. Smith initially was treated by me in the acute care setting post intracranial hemorrhage. The nature of this bleed was complex and unstable resulting in a rapid decline in functional status from ambulatory to a bed-bound condition. He continued to travel through a roller coaster of functional gains and declines. His journey moved through acute to inpatient and then to hospice care. For two months his wife expected to lose her beloved husband. His co-morbidities of declined cognitive function and persisting congestive heart failure seemed to contribute to his poor prognosis and poor hope of return to independence.

Be it his exemplary grit, a belief in divine intervention, and/ or his ability to physically recover, Mr. Smith survived hospice care, transitioning toward home health. He continued to progress, eventually returning to my care in our outpatient neurological program. Mr. Smith’s medical status may have stabilized, yet his functional and cognitive status remained poor. He presented with right foot drag, poor truncal control, and was predominantly wheelchair bound. He fell often, given the combination of impulsive behaviors with altered mental status and disorientation. He would frequently transfer impulsively and would not adhere to safety commands. Mr. Smith could only be treated in a closed environment with little to no verbal cues in efforts to avoid impulsive unsafe motions and agitation.

The initial approach to rehabilitation was to teach his caregiver and wife how to appropriately provide non-verbal postural cues. Verbalization of postural correction would only agitate or confuse him. I tested his wife to see how many verbal corrections she would give Mr. Smith when walking and exercising over a two-minute time frame. I found that she spoke over twenty voiced corrections despite her attempts to limit them to a non-verbal approach.
Mrs. Smith’s struggle with assisting her husband in this way coincides with our struggle as therapists. It is human nature to voice our concerns and help others promptly. Yet postural control can be most optimal without spoken words. Another imperative factor is salience. His wife expressed to me that he loves fishing. Naturally, I resorted to a trekking pole we had in our clinic to mimic the motion of fishing. Yet this proved to be less than successful for a slew of different reasons including a prior musculoskeletal injury to his dominant shoulder and decreased cognitive engagement with the task.

I found that he did best when casting his personal fishing pole while facilitating activation or stretch of targetted musculature. Once I incorporated complete specificity to his task of fishing, his cognitive engagement and muscular force and coordination increased.

Human center of gravity lies in the sacrum. This ability to maintain this center of gravity over the base of support is shot by traumatic brain injury. It is our job to aid the learning process of our patient’s regained postural control. This is done best with the control of the pelvic and truncal position to ensure the proper position of the center of gravity. Mr. Smith was able to fish with a fishing pole while receiving facilitation to the upper chest and low back. By facilitating the pelvic position from key points above and below, one can achieve patient learning of a new position without performing the entire activity for him. Embracing modifications while avoiding over-facilitation leads to better generalization to community fall prevention.

This approach led to great success for Mr. Smith. His postural control was trained in varied settings: open/closed environments, pliable/level surfaces, change in direction and speed of motion. Variance of settings dictated his speed of progression allowing the utmost success despite his cognitive impairments. The tool and environment combined needed to be specific together. I attempted to treat him in the clinic. Yet I found that the early stages of rehab worked best in the outdoors near a body of water. This seemed to engage his level of force to each casting of the fishing pole. This led to more excitement, functional gain, and decreased burden of care for his wife. Neuroplasticity is obtained by specificity to task, and this principle rang true during each of Mr. Smith’s learning sessions. He now has attended excursions to the movie theatre, grocery store, and a family reunion without his wheelchair. Mr. Smith was able to demonstrate his success to many family members at a recent family reunion in which many of them were pleasantly surprised to see his miraculous recovery. He has a shear will that is believed to be God-given, enabling him to participate in each session with high intensity.
Mr. Smith’s temperament continues to fluctuate at home and in the clinic. There have been various times that intensity is scaled back to allow recovery from agitation. Yet his agitation has become less frequent and he is less likely to fall when experiencing one of these episodes. He seems to have improved from a cognitive standpoint as his physical function progresses. Mr. Smith initially became distressed when walking or standing by many persons around him. He now can walk and say “hello” to pedestrians walking by. This provides ease of burden to his wife and can allow him to have an improved quality of life while feeling less isolated from the community.

Postural control served as the portal to success with Mr. Smith’s rehabilitative process. By correcting his truncal position non-verbally, he was able to participate in the learning process. He eventually was able to respond to verbalization with less agitation or less confusion. Yet it required patience on the part of his therapist and wife alike. This level of thinking and approach to rehabilitation leads to success due to its salience and evidenced-based modal approach.

Perhaps we as therapists provide too much verbal input. This can lead to confusion with patients with TBI and may hinder the learning process. Therapists are skilled individuals who can lead a patient to their goals by facilitation and a non-verbal approach. This can give hope to an individual like Mr. Smith who otherwise may have been discharged due to guarded prognosis or poor adherence to safety cues. We can be that ray of hope for patients such as these and their family as long as we offer them the utmost level of therapy provided by us.

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REFERENCES