Trunk control in cerebral palsy: are we ready to address the elephant in the room?

SANDRA SAAVEDRA
University of Hartford – Rehabilitation Sciences, West Hartford, CT, USA.
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From the earliest definitions onwards, deficits in postural control have been a hallmark of cerebral palsy (CP).1 Trunk control creates the foundation of postural control and has long been recognized as a primary factor in predicting ambulatory status of children with CP.2 Historically, evaluating the contribution of trunk control to function in children with CP has been difficult to address. Thus, focus on assessment and treatment of trunk control in children with CP has been scattered and sparse in comparison to the focus on upper and lower extremity research and treatment. Like the proverbial ‘elephant in the room’ the issue of trunk control in this population cannot continue to be ignored. The article by Sæther et al.3 offers concrete clinical options for beginning to explore and discuss the potentially crucial contribution of trunk control to gait deviations in children with CP.

There have been a number of recent advances with development of specific assessment techniques for trunk control in children with CP.4 Sæther et al. take advantage of the increased specificity of two of these evaluations, the Trunk Impairment Scale (TIS) and the Trunk Control Measurement Scale (TCMS), in order to examine the relation between trunk control and gait deviations in ambulatory children with CP. The focus of their research is to provide busy clinicians with a screening tool for selecting those children in whom trunk control may play a critical role in the success of gait interventions.

It is important to note that these are preliminary steps toward further examination and exploration of the contribution of trunk control to functional skills in children with CP. We do not yet know if treatment of trunk control in sitting can generalize to improvements during gait or if specific training of the trunk during gait may be warranted. While a number of treatment regimes have claimed to contribute to improved postural control in children with CP, these must be interpreted with caution until more rigorous testing for reliability and responsiveness of clinical balance tools is completed.4

At the very least, the results reported by Sæther et al. support a more comprehensive evaluation of trunk control for this group of children prior to major decisions regarding interventions for gait. From a research perspective, the suggested subscales also provide a method for selecting the population of children with greatest potential to show measureable functional gait changes in relation to intervention.

Sæther et al.’s results also serve as guideposts toward future empirical studies aimed at isolating the most critical components of trunk control with respect to specific gait deviations. The subscales with the strongest correlation to gait deviations in this article examined different aspects of trunk control. The TIS dynamic sitting balance (DSB) items have been referred to as a test of selective movement control within the base of support, while the TCMS dynamic sitting balance reaching (DSB-R) is a test of trunk control outside the base of support.5 Interestingly, the TIS (DSB) components are all present in the TCMS dynamic sitting balance selective movement control subscale (DSB-S), yet the TIS (DSB) was highly correlated with trunk control during gait and the TCMS (DSB-S) was poorly correlated. The difference in the two subscales is that the TCMS (DSB-S) includes additional items that examine selective control of trunk movements in the sagittal plane. These results in conjunction with recent work of Heyrman et al.6 suggest that selective control of trunk movements in the lateral and transverse planes may be most critical to trunk control during gait. The specificity of new interventions could be further improved by analysis with the Segmental Assessment of Trunk Control (SATCo).7 The combination of SATCo to isolate contributions of different trunk segments along with the TCMS to determine specific aspects of selective control could increase the specificity and efficiency of new interventions.

REFERENCES