Introduction to Neurodevelopmental Treatment traditionally begins with the study of typical development. It is imperative to have a thorough understanding of the progression of typical development to provide a baseline comparison when atypical development is occurring.

I have been providing physical therapy in a pediatric setting for over 30 years. Most of that time has been spent with the early intervention population – children under 3 years of age. During that time there have been some subtle changes, or trends if you will, in patterns of the types of dysfunction observed.

In 1991, a public health campaign was launched recommending a change in the sleeping position for babies from prone to supine. After babies began sleeping on their backs and spending little to no time on their bellies, there was a dramatic increase in children being referred for a delay in gross motor development without formal medical diagnoses. These children were merely never in prone. As this tendency became more pronounced, the medical community made a push to educate parents that although babies were recommended to sleep on their backs, they could certainly spend time on their bellies while awake.

After several years, this trend of a large population of undiagnosed yet delayed babies decreased. Studies reveal that although for the first 6 months supine sleeping babies demonstrate an early delay in gross motor development compared to babies who sleep in prone, these babies do walk about the same time as belly sleeping children.1-3

Recently, over the past year or two, I have been noticing a new trend. Once again, there appears to be an increase in the number of children referred for early intervention, who although delayed, do not have a formal diagnosis. Unlike the children previously observed who simply lacked opportunity in the prone position and who progressed rather quickly once therapy was initiated, I find that these children are demonstrating a more significant delay with the need of more prolonged physical therapy intervention. The consistent finding with these children is exaggerated posturing of bilateral hip abduction and external rotation. These children, in both prone and supine, posture in an excessive hip flexion, abduction, and external rotation (FABER) position. This posturing and exaggerated joint range of motion affects development in many ways.

In prone, the elevation of the legs in this FABER’s style posturing increases the weight onto the head and upper trunk, making success with head elevation and upper extremity weight bearing difficult. This tendency is typically and historically present with physiological flexion but resolves with hip extension around two months of age.4 This wide-based flexed posturing remains for many months with the children currently observed.

As is usually seen with wide-based posturing, spontaneous rolling is blocked. Grabbing the feet with the hands in supine is done with excessive hip abduction, blocking back to side rolling. Similarly in prone, the collapse of the shoulder in an early weight shift does not produce a roll to the back because the posturing of the legs blocks the roll. I have frequently observed in children who do not experience this early non-purposeful rolling difficulties with the vestibular system as the child gets older and is working on independent ambulation. These children either exhibit distress with
even minimal movement or conversely do not react to even abrupt changes of their position. Either way, they resist being unsupported in standing. These are not children that cannot walk; they are children who refuse to take steps if not supported. This observation was confirmed when I attended a conference by Linda Kliebhan, PT, C/NDT, on the Treatment of the Child with Hypotonia: An NDT Approach in October 2017 (Kliebahn L. Treatment of the Child with Hypotonia: an NDT Approach. New Brunswick, NJ, 2017).

As is typically the case in our wide-postured flexible children, compensatory transitions are utilized, primarily those involving one-plane sagittal transitions, limiting the use of rotational transitions from sitting to and from quadruped or kneeling. These children tend to scoot on their buttocks to move about on the floor rather than using reciprocal creeping.

These children demonstrate a delay in gross motor development. They are not walking by 12-15 months. The exaggerated joint range of motion requires an increased strength demand. The child must acquire stability in every degree of motion they possess. The increased flexibility makes typical transitions more difficult while allowing compensatory patterns that limit acquisition of necessary function. As previously noted, I often observe in these children poor vestibular processing and body awareness, frequently creating apprehension to taking unsupported steps.

My hypothesis to this increased range of motion for hip abduction and external rotation is linked to the change in positioning devices used for infants. Whether it be an infant bouncy seat, a swing, a car seat, a high chair, etc. all these devices utilize a wide pelvic harness to secure the child. Most have a wide strap that comes up between the legs creating separation of the hips. In addition, many devices, even bassinettes, are positioned like a tilt-in-space seat of a wheelchair. The pelvis is not on a horizontal support surface; it is on an incline.

When we are supine or long sitting, our legs posture with some mild external rotation and abduction. If are legs are elevated because the seat base is on an incline, gravity adds to the degree of outward turning and hip separation.

Lois Bly wrote eloquently about typical development in her book *The Components of Normal Movement During the First Year of Life*. An infant moved from physiological flexion to hip extension with prone positioning. Now, are children moving from physiological flexion to excessive bilateral hip abduction and external rotation due to devices establishing this wide posturing in supine or semi-reclined sitting?

One of the recommendations I provide to parents of young babies is to hold the child. Position changes are paramount in overall development. With each position, some muscles are elongated and some muscles are working. The benefit to holding a child is that the parent gets fatigued and changes the child’s position. Unfortunately, positioning devices remove the parent holding the child and thus reduce the need for the infant to be active.

One study looked at motor development of children who spend a large amount of time in a device compared to children who...
Infants with high equipment use tend to score lower on infant motor development tests compared to children who do not. When holding and carrying a child, the child must respond actively, but when in a device (except for the strap-on carriers), a child does not. The devices of this study were different than those utilized today.

I certainly cannot unequivocally attest that these positioning devices create this onset of atypically flexible children. As is generally seen in development, the majority of children develop typically in any situation. Is there an underlying cause why for some children this is becoming a problem? In the event that positioning devices are a factor in the increased incidence of excessive hip abduction and external rotation, this will be a much harder problem to solve.

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REFERENCES


