Dynamic Neuromuscular Stabilization Improves Gross Motor Function in A Child with Developmental Delay: A Case Report

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Abstract:

Core muscle stability is crucial for effective gross motor function. Dynamic neuromuscular stabilization (DNS) stabilizes core muscle and improves balance, gait, and motor performance in individuals with stroke. However, few studies provide evidence of DNS techniques improving gross motor function in infants and children with developmental delay. Therefore, the purpose of this study is to investigate the effects of using DNS techniques on gross motor performance in a child with developmental delay. This case was a full-term, 2-year-and-11-month-old boy with global developmental delay. The DNS exercise intervention consisted of 30 minutes per day, once a week, for 5 months, focusing on 3-month supine and bear position. Before and after the intervention, the gross motor performance was evaluated by using the Peabody Developmental Motor Scale-2(PDMS-2). After 5 months, the score on the PDMS-2 increased from 38 to 40 in the stationary subtest, from 87 to 99 in the locomotion subtest, and from 19 to 26 in the object manipulation subtest. The gross motor quotient improved from 83(13%) to 85(16%). DNS techniques can enhance gross motor function in a child with developmental delay by improving core stability. Clinically, DNS exercises are useful training methods for physical therapists to improve motor performance in children.