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Center-Based Treadmill Training for an Infant Not Yet Pulling to Stand
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**Background**

Infants with Down Syndrome (DS) are typically delayed in ambulation and motor development. The effects of center-based treadmill training (TT) on the rate of development in infants with DS are documented in children who are pulling to stand but research is lacking about TT below this developmental level at onset.

**Case Description**

The participant was a 9-month-old child that has been diagnosed with DS. The participant attends speech therapy and physical therapy 1x per week, occupational therapy 2x per month, and sees a physical educator once a month. She began these services at one month old and continued these services throughout the entirety of this study. In addition to these services, the infant participated in a center-based TT protocol. There was an initial exam that consisted of height and weight measurements, a bout of 5 minutes of treadmill stepping, and an administration of the GMFM-Motor sections B, C, D, and E. The participant received 2 x 20-minute sessions of TT per week, with the treadmill set at 0.2m/s for 8 weeks following the initial exam. The final session included a reevaluation of the measures tested at the initial visit.

**Results**

In this case study, there was no change seen in the number of steps taken between initial and final sessions. The child’s GMFM part B and part C scores increased between the initial and final assessment. By the 4th treatment, she was able to tolerate stepping a full 20-minute session while taking a 6-minute rest, indicating a treatment of this length is appropriate. The child also developed the ability to sit unsupported and transition to quadruped position by the end of the intervention period.

**Purpose**

To explore the impact of a center-based TT program on an infant with DS who is unable to pull to stand.

**Conclusions**

In a previous study, infants began TT when they could take at least 6 supported steps per minute but concluded when the child could take 3 unsupported steps. This case study addressed a change in dosage and duration of the intervention from the previous studies. While the child did not make change in the number of steps per minute, she improved sitting balance and developed the ability to get into the quadruped position. This indicates the TT may be beneficial for core and lower extremity development and control. Treadmill training may also be beneficial for developmental progress; however, 2 months may not be enough time for a child at this developmental level to walk. Since the child was able to tolerate 2 sessions of 20 min/wk, this could be an effective in clinic treatment so families wouldn’t have to purchase treadmill equipment for in-home use.