BIODYNAMIC FACTORS THAT INFLUENCE THE FREQUENCY OF LEG MOVEMENTS GENERATED BY INFANTS WITH SPINA BIFIDA

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BACKGROUND AND PURPOSE: Infants with spina bifida (SB) do not move their legs as often as typically developing babies. Pediatric physical therapists have little evidence to guide them regarding when they should provide interventions designed to help infants with SB increase their leg movements (LMs). Little is known about the relationship between their anthropometric characteristics and LM frequency. The purposes of this project were to examine the relationship between the frequency of their LMs and their anthropometric traits as well as determine if one or more of these attributes can be used to predict how often they move their legs.

SUBJECTS: 17 infants with lumbar or sacral SB.

METHODS AND MATERIALS: Following IRB approval, the infants’ LMs were video-taped while supine once a month for 4 months between the ages of 9.1 and 12.1 months. Eleven anthropometric measures were collected at each visit. The video-taped data was behavior coded to determine the per minute LM frequency.

ANALYSES: Pearson correlations were calculated between the anthropometric measures and LM frequency. Anthropometric measures significantly related to LMs were used to develop a regression equation to determine if these traits accurately predicted how often infants with SB moved their legs. An a-priori alpha level of p=0.05 was set for both statistical analyses.

RESULTS: Dorsiflexion, hip abduction, calf skinfold, and calf circumference were significantly correlated with LM frequency (p ≤ .015). Multiple regression using these variables revealed they accurately predicted how often these babies moved their legs (R = 0.467, R2= 0.219, F4, 62 = 4.334, p = 0.004). CONCLUSIONS: These results suggest that therapists may use specific anthropometric measures to help predict how often baby with SB will move her legs.

IMPLICATIONS: The ability to predict LM frequency may be used to guide the type and timing of physical therapy interventions for infants with SB.