Impact of Adiposity on Postural Control at the Onset of Sitting

Danae M. Dinkel  
_Ouraniversity of Nebraska at Omaha_, dmdinkel@unomaha.edu

Anastasia Kyvelidou  
_Ouraniversity of Nebraska at Omaha_, akyvelidou@unomaha.edu

Ben Senderling  
_Ouraniversity of Nebraska at Omaha_, bsenderling@unomaha.edu

Kailey Snyder  
_Ouraniversity of Nebraska at Omaha_, kesnyder@unomaha.edu

Jung-Min Lee  
_Ouraniversity of Nebraska at Omaha_, jungminlee@unomaha.edu

Follow this and additional works at: [http://digitalcommons.unomaha.edu/pahppresentations](http://digitalcommons.unomaha.edu/pahppresentations)  
Part of the [Maternal and Child Health Commons](http://digitalcommons.unomaha.edu/pahppresentations), and the [Other Public Health Commons](http://digitalcommons.unomaha.edu/pahppresentations)

Recommended Citation

Dinkel, Danae M.; Kyvelidou, Anastasia; Senderling, Ben; Snyder, Kailey; and Lee, Jung-Min, "Impact of Adiposity on Postural Control at the Onset of Sitting" (2016). Research Presentations. Paper 9.  
[http://digitalcommons.unomaha.edu/pahppresentations/9](http://digitalcommons.unomaha.edu/pahppresentations/9)
Impact of Adiposity on Postural Control at the Onset of Sitting

Danae Dinkel¹, Anastasia Kyvelidou², Ben Senderling², Kailey Snyder¹, Jung-Min Lee¹
¹School of Health, Physical Education and Recreation, University of Nebraska at Omaha
²Department of Biomechanics, University of Nebraska at Omaha

ABSTRACT

Little research has examined the impact of infant adiposity on the quality of gross motor behavior, especially in sitting through measuring postural control. Therefore, the purpose of this study was to examine the impact of adiposity as measured by skinfold thickness (SFT) on postural control at the onset of sitting in typically developing infants. Nineteen infants (n=8 high SFT, n=11 lower SFT) participated in a pilot study examining the relationship between infant physical activity and postural control. High SFT was classified as having a subscapular and triceps measurement in the 85th percentile or above according to the WHO age and sex-specific standards. Infant’s postural control was measured within one week of the onset of sitting. Three trials of sitting were recorded while infants were sitting on an AMTI force platform and postural sway measures were recorded. Sway movement patterns were analyzed using the range for both the anterior/posterior (AP) and medial/lateral (ML) direction as well as sway path. The results revealed that there were no significant differences between infants in Range in the AP and ML directions. However, Sway Path was significantly different as infants with high SFT showed lower Sway Path values in comparison to lower SFT infants. These results suggest that infants with high SFT cover significantly less distance with their center of pressure than infants with lower SFT. This finding suggest that infants with more adiposity adopt a different postural control strategy. This altered strategy, may limit exploration early in development, which may hinder the progression of cognitive emotional and social processes, however more research is needed.

RESULTS

- There was a significant difference in Sway Path values; infants with high SFT showed lower Sway Path values in comparison to lower SFT infants (p<.05).

DISCUSSION

These results suggest that infants with high SFT cover significantly less distance with their center of pressure and overall move less than infants with lower SFT. This finding may suggest that infants with more adiposity adopt a different postural control strategy, due to the added mechanical constraints imposed by the added SFT. This altered strategy, may limit exploration early in development, which may hinder the progression of cognitive emotional and social processes, however more research is needed.

KEY REFERENCES


Acknowledgement: This study was funded as a pilot project under a COBRE grant from the National Institute of General Medical Sciences of the National Institutes of Health through the Centers of Biomedical Excellence. Award number: P20GM109090