Background

• An infant’s ability to interact with their environment changes with every new motor skill learned.1-3
• Changes in motor interaction can have cascading effects on the quality of other developing cognitive abilities.1-5
• Research suggests a relationship between early gross motor skills and language, with infant sitting ability at 3-months-old demonstrating a cascading effect on language outcomes at 10- and 14-months-old.4-5
• Studies linking motor and language development test previous notions about the nature of developing infants: It is believed by some that the development of language is an independent process separate from the development of other cognitive competencies.6-7
• Aim: The goal of this study was to examine whether sitting ability at 6 months predicts language comprehension and production at 36 months.

Methods

• Participants: Thirty infants (15 female), derived from a larger longitudinal study spanning 6 months to 5 years.
• Touwen Neurological Assessment: Neuromotor development was tested at 6-months-old using Group III of Touwen’s neurological assessment⁶. The Touwen’s allows for rating of infant motor skill quality. In this study, we focused on the Touwen’s benchmark item for sitting duration, where a score of 0 denoted being unable to sit without support and a score of 4 represents sitting independently longer than 1 minute.
• Sitting Groups: Infants who scored a 2 or higher, indicating independent sitting ability for 30 seconds or more, were grouped as “Skilled-Sitters”. Infants who scored 1 or less, indicating sitting freely for only a few seconds, were grouped as “Unskilled-Sitters”.
• Language Assessment: Language was assessed at 36 months using the Preschool Language Scales 5th edition (PLS⁵⁵). The PLS-5 has two subscales: Auditory Comprehension (AC) measuring language comprehension, and Expressive Communication (EC) measuring language production.
• Statistical Analyses: Independent samples t-tests were conducted to assess differences between skilled-sitters and unskilled-sitters at 6 months in relation to 36 month language comprehension and production.

Results

Fig 1: PLS-AC and PLS-EC by sitting skill
PLS-AC, t(28)=-2.31, p = 0.29, d = 0.83
PLS-EC, t(28)=-2.32, p = 0.27, d = 0.85

Compared to unskilled-sitters, skilled-sitters had higher scores for both receptive and expressive language skills at 36 months of age.

Take-Home Point

An infant’s ability to sit at 6-months-old predicted distal language outcomes at 36-months-old. Thus, this study further supports the notion that early motor skills have cascading effects on later language outcomes.

References & Acknowledgements

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2Iverson (2010) DOI:10.1017/S0305000999990432
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6Speke et. al., (2007) DOI: 10.1111/j.1467-7887.2007.00569.x
7Fodor (1975) DOI: 10.2307/2184356
8Touwen (1976), ISBN: 0521442869

This project was supported by NIH/NICHD T32 HD-007376 to ELN, and NSF DLS0718045 to GFM. We would like to acknowledge the families who graciously participated in this longitudinal project and the members of the Infant Development Center who have helped in data collection.

For more information about our studies, visit hands.fiu.edu
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Infant Sitting Ability at 6 Months Predicts Language Comprehension and Production at 36 months
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