

ORAL: ARE THERE RELATIONSHIPS BETWEEN PHYSICAL ACTIVITY, MOTOR, COGNITIVE & LANGUAGE ACHIEVEMENT AT THREE, SIX, & NINE MONTHS OF AGE?

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Research is demonstrating how motor development, physical activity (PA), and health are related during childhood (Benjamin-Neelon, 2020; Stodden, 2008). Objective: Our study is designed to investigate if early life PA & motor skill development are related and if they are related to cognitive & language development during the first year of life. Campos, et al, (2000) concluded that onset of locomotor behaviors affords infants many opportunities to explore their environment leading to cognitive & language achievement. Method: Our longitudinal study is designed to observe infants at 3, 6, & 9 months of age. 25 full-term infants participated in the study and included 12 females & 7 non-white infants. PA was measured objectively with accelerometers over 3 days at the right wrist & ankle. Gross & fine motor development, cognitive & language achievement were measured by use of the Bayley Scales of Infant & Toddler Development (3rd edition). Results: PA increased across the 3 ages in both extremities. Wrist activity was consistently higher and more varied than ankle activity. At each age, wrist and ankle PA were highly correlated ($r > .70$). There were no differences in PA by gender. At 3 months, wrist and ankle activity were both significantly related to fine motor development ($r = .44$, $r = .46$, $p = .02$). Cognitive achievement was related to both fine motor ($r = .49$) & receptive language ($r = .54$). At 6 months, PA at the wrist was related to gross motor dev ($r = .60$, $p = .002$). Fine motor dev was related to cognitive dev ($r = .49$). At 9 months, there were significant relationships between PA at both the wrist ($r = .47$) and the ankle ($r = .46$) with gross motor dev. Gross motor dev was significantly related to both cognitive ($r = .51$) and expressive language dev ($r = .42$). Our results suggest that PA is moderately related to fine motor dev during early infancy and related to gross motor dev later in infancy. Implications: Strategies must be developed and communicated to parents on how to promote physical activity, gross, and fine motor development during infancy and why this is important.