## Early Indicators of ADHD presented by Hyperactivity Symptoms in Children

Attention Deficit Hyperactivity Disorder (ADHD) is one of the most common neurodevelopmental disorders identified in childhood, typically marked by inattention, impulsivity, and hyperactivity as its core symptomology. Early recognition of telltale behavior is critical, as timely intervention and treatment can improve academic, social, and emotional outcomes for children. Among the main features of ADHD, hyperactivity is often the most obvious, and can be concerning for parents and teachers to navigate. Identifying early signs of hyperactivity can assist professionals and caregivers in being able to provide appropriate support before symptoms significantly interfere with development.

Countless research has recently examined hyperactivity in infants and young children as a potential early indicator of later ADHD diagnosis. However, the evidence is somewhat inconclusive and inconsistent. A systematic review of early motor signs related to ADHD found that some studies linked early abnormal motor patterns, such as unusual spontaneous movements in infancy, to hyperactivity later on (Athanasiadou et al. 2020). More specifically, infants with abnormal movements at three to four of age months were more likely to be distractible and hyperactive at school age. Opposing study results found no clear connection between early motor activity and subsequent ADHD, leaving inconsistent evidence to this proposed relationship.

A secondary source provides strong evidence for proposing hyperactivity as an early predictor of ADHD. Using teacher completed questionnaires within a kindergarten class, Liu et al (2024) concluded that children who struggled with concentration, turn taking, or sitting still were more likely to have been diagnosed with ADHD within the next four years. Hyperactive and inattentive

behaviors were among the strongest predictors within this model, confirming that these early interventions are meaningful indicators of risk. Similarly, caregiver reports of high infant activity at six months of age predicted ADHD symptoms in early childhood, and formal diagnoses at age seven (Meeuwsen et al. 2019). Caregiver impressions of activity were more predictive than objective activity measurements from devices, suggesting that parents and caregivers may notice subtle restlessness or general activity habits that machines cannot capture.

Across these studies, several important early signs of hyperactivity emerge. Primarily, high infant activity levels and difficulty with self regulation are pre-meditative factors that predict later diagnoses. Evidence is mixed in infancy, as some studies show clear links between infant motor behaviors and later hyperactivity, but results are often inconsistent which suggest that hyperactivity may not become clinically meaningful until later in development.

Understanding these early signs has important applications for parents, teachers, and healthcare providers. For parents, noticing consistent restlessness or difficulty with emotional self control in infancy can encourage earlier conversations with pediatricians. For teachers, recognizing hyperactive behaviors in kindergarten characterized by fidgeting and inability to focus can lead to earlier screening and introduction of support within the classroom. Early identification allows interventions like behavioral strategies, structured routines, and parent training programs to be introduced earlier on, which can reduce long term challenges and improve outcomes.

Hyperactivity is one of the earliest observable features of ADHD, and can sometimes be detected in infancy or early childhood. Research findings are mixed, but studies consistently show that caregiver and teacher reports of unusually high activity, restlessness, and difficulty with self regulation are important predictors of a later ADHD diagnosis. Recognizing these

patterns early provides families and educators with opportunities to support children before difficulties manifest as disruptions. Early awareness is crucial as timely support can help children with ADHD thrive both academically and socially.

## Works Cited

- Athanasiadou, A., Buitelaar, J. K., Brovedani, P., Chorna, O., Fulceri, F., Guzzetta, A., & Scattoni, M. L. (2020). Early motor signs of attention-deficit hyperactivity disorder: a systematic review. *European Child & Adolescent Psychiatry*, *29*(7), 903–916. https://doi.org/10.1007/s00787-019-01298-5
- Liu, Y. S., Talarico, F., Metes, D., Song, Y., Wang, M., Kiyang, L., Wearmouth, D., Vik, S., Wei, Y., Zhang, Y., Hayward, J., Ahmed, G., Gaskin, A., Greiner, R., Greenshaw, A., Alexander, A., Janus, M., & Cao, B. (2024). Early identification of children with Attention-Deficit/Hyperactivity Disorder (ADHD). *PLOS Digital Health*, *3*(11), Article e0000620. https://doi.org/10.1371/journal.pdig.0000620
- Meeuwsen, M., Perra, O., van Goozen, S. H. M., & Hay, D. F. (2019). Informants' ratings of activity level in infancy predict ADHD symptoms and diagnoses in childhood. Development and Psychopathology, 31(4), Article 0954579418000597. https://doi.org/10.1017/S0954579418000597