



RESEARCH FINDINGS

Early Detection of ADHD with Clinical and Brain Measures

Preliminary analyses of our RHINO-Mites study have revealed possible behavioral and brain markers of ADHD in children ages 2-5. To date, 25 children have completed the 18-month follow up interview, and 11 (44%) met diagnostic criteria for ADHD.

Behavioral Markers: Using information from an interview with a caregiver and observations of the child during the research visit, clinicians were able to predict the 18-month ADHD diagnosis with 76% accuracy. A neuropsychological test designed to measure behavioral inhibition also predicted ADHD outcomes. On average, children rated by the clinician to be at high risk for ADHD scored nearly two standard deviations lower than their peers on this task. By contrast, young children at risk for ADHD did not differ from their peers on tests of IQ, processing speed, or working memory.

Brain Markers: Before age 5, children at high risk of developing ADHD have an enhanced cortical response to new or surprising sounds. This event related potential is called the “mismatch negativity” or “MMN” for short (see Figure 1). Additionally, when at rest in a dark room, children at risk for ADHD have elevated beta power (i.e., power in the 13-20 Hz range) in the posterior region of the scalp (Figure 2). Posterior beta power has been linked to cortical immaturity, as well as traits like irritability and surgency.

Thank you to all the RHINO-Mites families who continue to complete the follow-up visits! Your continued participation is vital to the success of our research and will have a major impact on our ability to improve life-course outcomes for children with ADHD and their families.

MEET THE TEAM

Soleil Golden is a recent graduate of Harvard University with a degree in Cognitive Neuroscience and Psychology. Since joining the Labs of Cognitive Neuroscience as a student in the Nelson Lab in January 2022, Soleil has evolved from novice to researcher under the mentorship of the wide breadth of professionals within the lab. She recently completed her senior thesis on the neurodevelopmental origins of social competencies in children, analyzing fNIRS and behavioral data. Soleil has joined the Arnett Lab as part of the inaugural cohort of the Research Scholars Program and will work as a Research Assistant for the next two years, in addition to dedicating time to an independent project within the lab. She aims to pursue medical school after gaining further research experience, with a dedication to advancing developmental neuroscience surrounding the social determinants of health and improving access to mental health care. In her free time, Soleil likes to make jewelry, read, and spend time with her 3 guinea pigs, Aspen, Ginger, and Esmée.

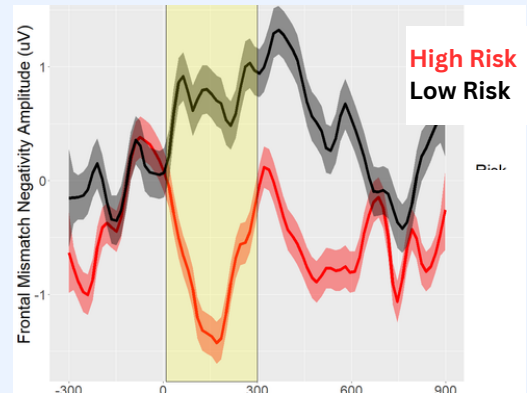


Figure 1

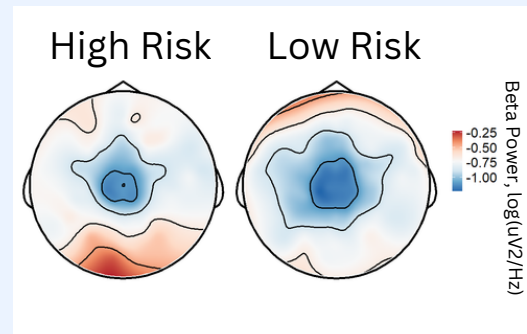


Figure 2

