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Uncovering developmental paths to neurodevelopmental conditions: Dynamics over time

Abstract

Autism is a neurodevelopmental condition that occurs in around 2% of people, and can be associated with differences in social interaction, communication and interests. Autism is connected with genetic changes that are present from conception, but is often not identified until children are in school. Prospective longitudinal studies that follow infants from near birth to childhood can reveal the earliest developmental changes that precede the later emergence of autistic traits. Here, I describe a series of studies examining some of the earliest changes in infants with later autism and their interrelation over both short and long timescales. Within prospective studies, we see differences in sensory reactivity across touch, audition and visual domains, and changes in sleep that precede an autism diagnosis. Sensory differences are related to sleep differences, and both may relate to emerging trajectories of fearfulness and later anxiety, indicating they may be important targets for supportive interventions. Further, changes in sleep may be linked to alterations in daytime brain states that have been associated with longer-term cognitive development. Taken together, examining changes in early sensory development and sleep may provide important insights into the early development of children with neurodevelopmental conditions. I discuss how these approaches can help us think about neurodevelopment from the perspective of neurodiversity.