

# Overlaps and distinctions between attention deficit/hyperactivity disorder and autism spectrum disorder in young adulthood: Systematic review and guiding framework for EEG research

Lau-Zhu A, Fritz A, McLoughlin G.

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## Abstract

Attention deficit/hyperactivity disorders (ADHD) and autism spectrum disorders (ASD) frequently co-occur. However, we know little about the neural basis of the overlaps and distinctions between these disorders, particularly in young adulthood - a critical time window for brain plasticity across executive and socioemotional domains. Here, we systematically review 75 articles investigating ADHD and ASD in young adult samples (mean ages 16 to 26) using cognitive tasks, with neural activity concurrently measured via electroencephalography (EEG) - the most accessible neuroimaging technology. The majority of studies focused on event-related potentials (ERPs), with some beginning to capitalise on oscillatory approaches. Overlapping and specific profiles for ASD and ADHD were found mainly for four neurocognitive domains: attention processing, performance monitoring, face processing and sensory processing. No studies in this age group directly compared both disorders or considered dual diagnosis with both disorders. Moving forward, understanding of ADHD, ASD and their overlap in young adulthood would benefit from an increased focus on cross-disorder comparisons, using similar paradigms and in well-powered samples and longitudinal cohorts.