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Potential neural mechanisms underlying the effectiveness of early intervention for children with autism spectrum disorder

Abstract: Although evidence supports the efficacy of early intervention for improving outcomes for children with autism spectrum disorder (ASD), the mechanisms underlying their effectiveness remain poorly understood. This paper reviews the research literature on the neural bases of the early core deficits in ASD and proposes three key features of early intervention related to the neural mechanisms that may contribute to its effectiveness in improving deficit areas. These features include (1) the early onset of intensive intervention which capitalizes on the experience-expectant plasticity of the immature brain, (2) the use of treatment strategies that address core deficits in social motivation through an emphasis on positive social engagement and arousal modulation, and (3) promotion of complex neural networks and connectivity through thematic, multi-sensory and multi-domain teaching approaches. Understanding the mechanisms of effective early intervention will enable us to identify common or foundational active ingredients for promoting optimal outcomes in children with ASD.