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Autism and the mirror neuron system: insights from learning and teaching

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Abstract: Individuals with autism have difficulties in social learning domains which typically involve mirror neuron system (MNS) activation. However, the precise role of the MNS in the development of autism and its relevance to treatment remain unclear. In this paper, we argue that three distinct aspects of social learning are critical for advancing knowledge in this area: (i) the mechanisms that allow for the implicit mapping of and learning from others' behaviour, (ii) the motivation to attend to and model conspecifics and (iii) the flexible and selective use of social learning. These factors are key targets of the Early Start Denver Model, an autism treatment approach which emphasizes social imitation, dyadic engagement, verbal and nonverbal communication and affect sharing. Analysis of the developmental processes and treatment-related changes in these different aspects of social learning in autism can shed light on the nature of the neuropsychological mechanisms underlying social learning and positive treatment outcomes in autism. This knowledge in turn may assist in developing more successful pedagogic approaches to autism spectrum disorder. Thus, intervention research can inform the debate on relations among neuropsychology of social learning, the role of the MNS, and educational practice in autism.