Watching others' actions: mirror representations in the parietal cortex

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Abstract:

An observation that neurons in the motor cortex of the monkey are active both when the monkey performs a specific action and when he watches an actor executing the same action led to the mirror-system hypothesis. This hypothesis suggests that primates perceive and interpret others’ actions by generating an internal motor representation (e.g., simulation). Recent evidence suggests that humans have a similar mirror system. In this review, we focus on the essential congruence between the motor and visual properties of an action. We summarize behavioral and imaging studies in humans that show that observing others’ actions can interfere with our own motor execution. We discuss a framework for understanding such an internal representation and suggest that the activity in the parietal cortex during observation of others’ actions is based on the sensory-to-motor remapping properties of this region, which are necessary for fine control of our own actions.

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