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Dance is a rich source of material for researchers interested in the integration of movement and cognition. The multiple aspects of embodied cognition involved in performing and perceiving dance have inspired scientists to use dance as a means for studying motor control, expertise, and action-perception links. The aim of this review is to present basic research on cognitive and neural processes implicated in the execution, expression, and observation of dance, and to bring into relief contemporary issues and open research questions. The review addresses six topics: 1) dancers' exemplary motor control, in terms of postural control, equilibrium maintenance, and stabilization; 2) how dancers' timing and on-line synchronization are influenced by attention demands and motor experience; 3) the critical roles played by sequence learning and memory; 4) how dancers make strategic use of visual and motor imagery; 5) the insights into the neural coupling between action and perception yielded through exploration of the brain architecture mediating dance observation; and 6) a neuroaesthetics perspective that sheds new light on the way audiences perceive and evaluate dance expression. Current and emerging issues are presented regarding future directions that will facilitate the ongoing dialog between science and dance.

### Highlights

□ Dance is a valuable source for studying the integration of movement and cognition. □ Dance expertise involves motor control, memory, imagery, and synchronization. □ Neural correlates of watching dance yield insight into action-perception coupling.

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