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Motivation and Motor Action: A Behavioral Test of the Sword and Shield Hypothesis

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Abstract

According to the ‘textbook’ model of affective motivation in the brain, approach motivation is lateralized to the left cerebral cortex and avoidance motivation to the right. By contrast, according to the Sword and Shield Hypothesis (SSH), the hemispheric laterality of motivation follows the way people perform approach actions (typically with the dominant hand) and avoidance actions (typically with the nondominant hand). As predicted by the SSH, neuroimaging and neurostimulation studies have shown that the cortical laterality of approach motivation reverses between right and left handers. The present study used a bimanual reaction time task to test a fundamental assumption of the SSH. Across two experiments, right and left handers were faster to use their dominant hand for approach responses and their nondominant hand for avoidance responses, supporting the SSH: Hemispheric specialization for approach and avoidance motivation corresponds to manual specialization for performing approach and avoidance actions.

Keywords: affective motivation; emotion; laterality; action