

運動短期記憶における位置-距離 相互干渉と意識的-無意識的処理

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Distance-location Interference in Motor Short-term Memory and Conscious-unconscious Processing

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Abstract

We reviewed the literature on the interference between movement location and distance information in motor short-term memory, which originated with Walsh et al. (1978-1982) and was extensively examined by Imanaka and Abernethy(1989-1992), who attempted to isolate the sources of the distance-location interference phenomenon. Their findings suggested that the distance-location interference phenomenon is not simple interference between movement distance and location information but rather a manifestation of an interference between conscious and unconscious processing. This interpretation was then discussed from several points of view on unconscious aspects evident in perception and motor control, such as the attentional-automatic processing modes, perception-action dissociation, and unconscious motor control by the brain of the center of mass of the limb used in reaching movement. In conclusion, we suggested that the distance-location interference phenomenon in motor short-term memory should be re-examined beyond the research domain of motor short-term memory. We also noted that multi-disciplinary approaches should be used to effectively examine issues on perceptual-motor control and learning, dealing with cognitive, neuromuscular, and biomechanical factors as well as self-organized coordination dynamics.

Key words : motor short-term memory, arm positioning, distance, location, conscious and unconscious processing