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## Exercise and Cognition in Multiple Sclerosis: The Importance of Acute Exercise for Developing Better Interventions

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### Abstract

Cognitive dysfunction is highly prevalent, disabling, and poorly-managed in persons with multiple sclerosis (MS). Exercise training represents a promising approach for managing this **clinical symptom** of the disease. However, results from early randomized controlled trials of exercise on cognition in MS are equivocal, perhaps due to methodological concerns. This underscores the importance of considering the well-established literature in the general population that documents robust, beneficial effects of exercise training on cognition across the lifespan. The development of such successful interventions is based on examinations of fitness, physical activity, and acute exercise effects on cognition. Applying such an evidence-based approach in MS serves as a way of better informing exercise training interventions for improving cognition in this population. To that end, this paper provides a focused, updated review on the evidence describing exercise effects on cognition in MS, and develops a rationale and framework for examining acute exercise on **cognitive outcomes** in this population. This will

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