

RAISE! Active Aging Training Enhances Spatial Mental Representations During Familiar Route Walking Across Cognitive and Psychological Intrinsic Capacities

Thursday, September 11, 2025 2:10 PM (20 minutes)

Aging is a multifaceted process involving biological, psychological, and social changes that collectively affect an individual's ability to adapt and function. Rather than focusing solely on disease, current perspectives emphasize maintaining intrinsic capacity—mobility, cognition, emotional well-being, and vitality—as central to aging well. Declines in spatial navigation are particularly impactful, affecting autonomy and daily functioning. Older adults often experience impairments in spatial memory, orientation, and route learning, leading to reduced confidence and increased isolation.

This study introduces RAISE! (Route to Active Independence through Spatial Enhancement), a novel training that integrates moderate physical activity with spatial cognitive tasks embedded in real-world environments. Unlike traditional dual-task programs that may overwhelm older adults, RAISE! grounds cognitive training in daily walking routines and familiar environments. Through guided exploration of varied paths, participants engage in egocentric and allocentric navigation tasks designed to reinforce mental spatial maps and enhance real-time adaptation. This ecological approach may improve general cognition, emotional well-being, and physical health, including mild BMI changes, while promoting social engagement.

RAISE! aims not only to preserve spatial skills but also to foster independence by reinforcing functional capabilities necessary for everyday life. By facilitating motivation through meaningful, context-driven tasks, this intervention supports long-term adherence and relevance. We hypothesize improvements across cognitive, emotional, and physical domains, contributing to enhanced quality of life. This model highlights the potential of embedded cognitive-motor training as a scalable, low-cost strategy for delaying functional decline in aging populations and supporting autonomy through enriched spatial awareness and real-world engagement.

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Primary authors: MIRENGHI, Claudia (Università degli studi di Bari Aldo Moro); Prof. LOPEZ, Antonella (Università degli studi del Molise); BOSCO, Andrea (Dipartimento di Scienze della Formazione, Psicologia, Comunicazione, Università degli Studi di Bari 'Aldo Moro')

Presenter: MIRENGHI, Claudia (Università degli studi di Bari Aldo Moro)

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