

Effectiveness of Executive Functions Training in Middle-Aged Adults: Evidence for Limited Transfer to Trained Tasks

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The prevailing executive function (EF) model delineates three core processes: updating, inhibition, and task switching. These processes are distinct yet interrelated constructs that underpin a variety of higher-order cognitive functions. Since many cognitive functions decline with age, there is growing interest in developing interventions to improve EF in the aging population. Despite its potential, the efficacy of EF training has produced mixed outcomes. Researchers agree that EF training promotes gains on trained tasks and similar untrained tasks, though gains on tasks involving related cognitive abilities remain highly debated. This study aimed to investigate whether the effects of EF training transfer across various tasks related to the trained core EF process and extend to other cognitive tasks involving EF processes. A total of 120 middle-aged adults (aged 49-65) were randomly assigned to one of four groups: updating (n-back training), inhibition (Stroop training), switching (task-switching training), and an active control group (communication skills training). The study employed a design with three measurement points: a pretest, a posttest, and a six-month follow-up. Participants underwent 20 training sessions over 10 weeks. Results indicated that training gains were confined only to the trained tasks, suggesting that EF training predominantly enhances only the skills necessary to perform the trained tasks. These findings align with a growing body of literature underscoring the limited generalizability of EF training effects. The study highlights the importance of focusing on near-transfer mechanisms in future research to understand the underlying processes contributing to gains in process-based EF training.

Are you currently an Early Career Researcher?

Yes, I am still a student or have not yet received my Ph.D.

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