

Exercise to Promote Brain Health in Older Adults: Preliminary Results of a Systematic Review for Dose-specific Recommendations

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Introduction. The increasing proportion of older adults in the world's population has motivated a greater interest in understanding and combating cognitive aging. For most older adults, maintaining autonomy and independence as they age is a high priority. There is sufficient evidence in animal models to support a role of physical exercise (PE) in improving cognitive performance, a link that has been attributed to neuroplasticity in the nervous system. In addition, the evidence linking PE and cognitive performance in humans is less consistent, but overall demonstrates a small, but positive effect. However, due to the great heterogeneity across the literature in this field, there is little guidance on how to prescribe PE in order to achieve effects on cognitive performance. **Objectives.** The objective of this study was to conduct a systematic review of available scientific literature proposing the use of PE to improve cognitive function in the elderly, and based an analysis of methodologically sound data, outline dose-specific recommendations for PE prescription to promote cognitive health. **Methods.** In this ongoing analysis, we performed searches in different indexed medical databases (PubMed, CENTRAL, PEDro and LILACS) to identify studies evaluating the influence of exercise on cognitive performance in older adults. The inclusion criteria were: articles in English or Portuguese (title or abstract); published from 1990-2016; proposing any regular EF modality (either isolated, or combined with other interventions, minimum 4 sessions total); in older adults aged 60 years or more; studies that included at least one neuropsychological test for measuring cognitive performance. Data regarding demographic information/clinical characteristics, physical exercise parameters (approach, dose, intensity), outcome measures and results were gathered. Methodological quality was assessed via the Cochrane criteria. **Results.** Data collection is ongoing. Thus far, the initial searches yielded 617 records, of which 39 studies were included in the analysis. Various approaches have been proposed, but mostly consisting of aerobic exercise isolated or as adjuvant to another approach (such as strength training or stretching). Executive functions, attention and processing speed were most often shown to be improved PE. Preliminary dose-specific recommendations are discussed. **Conclusion.** Regular PE is associated with improved cognitive performance.

Key words: exercise; cognition; older adults.