

## Exercise to Improve Functioning in Patients with Dementia

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This series is coordinated by John E. Delzell Jr., MD, MSPH, Assistant Medical Editor.

### Clinical Question

Do formal exercise programs improve functioning in activities of daily living (ADLs) in patients with dementia?

### Evidence-Based Answer

Exercise programs lasting at least two months moderately increase the ability of patients with dementia to perform ADLs. (Strength of Recommendation: A, based on systematic reviews of randomized controlled trials [RCTs].)

A 2015 Cochrane review of six RCTs (N = 289) involving patients older than 65 years who had been diagnosed with dementia assessed the effect of exercise on cognitive, neuropsychiatric, behavioral, and ADL outcomes.<sup>1</sup> Dementia was diagnosed using criteria from the *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed., the National Institute of Neurological and Communicative Disorders and Stroke, and the Alzheimer's Disease and Related Disorders Association. Exercise programs ranged from seven to 52 weeks and consisted of aerobic, strengthening, and balancing activities. Control groups received no additional intervention or were engaged in social activities only. Investigators assessed ADLs using the Barthel Index of Activities of Daily Living, the Katz Index of Independence in Activities of Daily Living, and the Changes in Advanced Dementia Scale. Higher scores indicated better performance; a standard mean difference (SMD) of 0.2 is considered small, 0.6 moderate, and 1.2 large. Patients in the exercise groups scored moderately better than those in the control groups (SMD = 0.68;  $P = .03$ ). There was statistical heterogeneity among the six trials because of differences in dementia severity and type, and the duration, frequency, and

type of exercise. Despite these differences, the intervention group in each study showed improvement in the performance of ADLs.

A 2014 systematic review examined the effect of physical exercise on ADL performance.<sup>2</sup> The authors included six RCTs with 446 patients who were diagnosed with Alzheimer disease and underwent a regimented exercise program of walking, stretching, strength/resistance training, balance exercises, and aerobics/endurance programs for 12 weeks to 12 months. Control groups received only routine medical care. Four of the studies were also included in the Cochrane review discussed previously. Exercise moderately improved performance of ADLs (SMD = 0.80;  $P < .001$ ). Program duration (12 weeks to six months) and adherence were associated with greater improvements in ADL scores and larger effect size. Adherence was measured and reported by the patient's caregiver, physical therapist, or occupational therapist. The program with the largest effect size consisted of walking and aerobics for 30 minutes per day, four times per week for six months. The study with the longest intervention (12 months) did not produce a large effect size.

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2. Rao AK, Chou A, Bursley B, Smulofsky J, Jezequel J. Systematic review of the effects of exercise on activities of daily living in people with Alzheimer's disease. *Am J Occup Ther*. 2014;68(1):50-56. ■