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Editorial

Exercise for dementia prevention: Evidence for a flexible prescription

Alzheimer's disease and related dementias are among the most pressing public health challenges of our time. Over 55 million people are currently affected worldwide—a figure projected to nearly triple by 2050 [1]. As pharmacological options remain limited, effective preventive strategies are urgently needed. Accumulating evidence places physical activity (PA), particularly structured exercise, at the forefront of dementia prevention and cognitive resilience promotion in aging populations [2–4].

The recent study by Wang et al. [5] makes a timely and important contribution by dissecting not only the *dose* but also the *distribution pattern* of moderate-to-vigorous physical activity (MVPA) required for cognitive protection. Their analysis of accelerometer-derived data from over 91,000 UK Biobank participants reveals a clear threshold: performing more than 300 minutes of MVPA per week is associated with a substantial reduction in dementia risk. Notably, the cognitive benefits persist whether this activity is performed evenly across the week or condensed into just one or two days—a pattern popularly referred to as the "weekend warrior" approach.

This finding carries substantial clinical relevance. It validates flexible PA patterns that accommodate older adults with time constraints, physical limitations, or inconsistent routines—without compromising protective effects. In practical terms, this opens the door to more adaptable exercise recommendations that may improve adherence and broaden uptake in real-world settings.

Equally important is the study's attention to light physical activity (LPA). For those unable to meet MVPA thresholds, accumulating more than 840 minutes per week of LPA was independently associated with a lower risk of dementia. These findings reinforce a critical public health message: *some* activity is far better than none. Even low-intensity movement confers cognitive benefits and should be promoted as a realistic and achievable target for sedentary older adults.

1. Precision exercise prescriptions: A new standard of care?

The implications of these findings are magnified when viewed alongside the recent *Global Consensus on Exercise for Healthy Longevity* [3]. This expert-driven framework elevates structured exercise to the same level of clinical precision expected of pharmacological interventions. It advocates for individualized, multicomponent programs combining aerobic training, progressive resistance training (PRT), balance work, and cognitive-motor dual tasks to maximize cognitive and functional outcomes [3,4].

Mechanistically, the benefits of exercise extend across multiple domains of brain and body health. These include enhanced cerebrovascular function, reduced neuroinflammation, improved insulin sensitivity, and upregulation of neurotrophic factors such as BDNF [2,3]. Importantly, structured exercise uniquely targets sarcopenia and frailty—two powerful predictors of cognitive decline and loss of independence in later life. High-intensity aerobic and resistance training protocols, in particular, have demonstrated superior effects on cognitive function compared with lower-intensity or unstructured programs [3].

2. Next steps in the evidence continuum

Moving forward, several areas warrant attention. First, future research should explore the long-term sustainability and health outcomes of intermittent versus continuous activity patterns in diverse populations. Second, implementation science approaches are needed to identify scalable models for delivering structured, individualized exercise programs across health systems. Finally, more work is required to elucidate the biological mediators of PA-induced neuroprotection, which may further refine intervention specificity and timing.

3. Conclusion

The study by Wang et al. [5] adds critical nuance to the growing body of literature on physical activity and dementia prevention. Their evidence supports a more liberal and realistic interpretation of activity patterns—one that acknowledges the lived realities of older adults. When combined with the recommendations of the Global Consensus [3], these findings establish a strong foundation for integrating structured, personalized exercise into clinical care as a first-line, non-pharmacological strategy against cognitive decline.

The time for action is now. Structured exercise must be recognized not merely as a lifestyle choice but as a core component of evidence-based preventive medicine. The message is clear: move more, move smart—and start today.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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