

Time Spent Outdoors Mediates The Association Between Systemic Inflammation And Cognitive Decline In Older Adults: Evidence From NHATS

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Key Takeaway:				
Going outdoors is a simple, accessible strategy that may partially offset inflammation-related cognitive risks in older adults.				
INTRODUCTION	METHODS	RESULTS	DISCUSSION	REFERENCES
Chronic systemic inflammation is associated with cognitive decline in older adults, but behavioral pathways underlying this link remain unclear (1). Outdoor activity may buffer inflammation-related cognitive risks, yet its role as a mediator is unknown. Going outdoors may promote cognition through improved physical activity, mood, and social engagement (2). Understanding this pathway may identify accessible strategies to support healthy brain aging. We examined the potential mediation of frequency of going outdoors in the longitudinal associations between multiple inflammatory markers, including CRP, IL-6, and CMV, and cognitive function in older adults in a nationally-representative study in the US.	Data from 3,749 adults aged 65+ in the National Health and Aging Trends Study (NHATS; waves 7-9; 2017-2019). Systemic inflammation assessed at wave 7 using C-reactive protein (CRP), interleukin-6 (IL-6), and cytomegalovirus (CMV) IgG antibodies. Frequency of going outdoors was assessed at wave 8. Global cognitive performance was measured at wave 9. SEM models examined whether outdoor activity mediated associations between baseline inflammation and follow-up cognition. Separate models adjusted for socio-demographics, comorbidities, baseline amount of outdoor activity, and baseline cognition.	Inflammation (T1) Cognitive function (T3) Time spent outdoors (T2) a path CRP -0.13, -0.16 to -0.10 IL-6 -0.09, -0.12 to -0.05 CMV -0.15, -0.18 to -0.12 b path ~0.11, 0.07 to 0.14 c' path CRP -0.05, -0.07 to -0.02 IL-6 -0.03, -0.05 to -0.01 CMV -0.03, -0.06 to -0.01 Direct Effect (DE) = c' Indirect Effect (IE) = a*b Total Effect (TE) = c' + [a*b] Percent Mediated = PM CRP (IE) $-0.13 \times 0.11 = -0.01$; (TE): $-0.05 + (-0.01) = -0.06$; PM: 22.2% IL-6 (IE) $-0.09 \times 0.11 = -0.10$; (TE): $-0.03 + (-0.01) = -0.04$; PM: 24.8% CMV (IE) $-0.15 \times 0.11 = -0.02$; (TE): $-0.03 + (-0.02) = -0.05$; PM: 35.5% Results presented as standardized beta coefficients and confidence intervals. Sensitivity analyses adjusting for depressive symptoms and physical activity yielded similar results.	Outdoor activity partially mediated the prospective associations between inflammatory markers and cognition Percent effect mediated: CRP =22.2%; IL-6 = 24.8%; CMV = 35.5%. Frequency of going outdoors may be a key behavioral pathway linking systemic inflammation to cognitive decline in older adults. Promoting regular outdoor activity could help mitigate inflammation-related cognitive risks and support healthy aging, highlighting an accessible, non-pharmacological strategy to preserve cognition in later life.	(1) Leonardo, Sofia, and Felipe Fregni. "Association of inflammation and cognition in the elderly: A systematic review and meta-analysis." <i>Frontiers in Aging Neuroscience</i> 15 (2023): 1069439. (2) Harada, K., Lee, S., Lee, S., Bae, S., Harada, K., & Shimada, H. (2018). Changes in objectively measured outdoor time and physical, psychological, and cognitive function among older adults with cognitive impairments. <i>Archives of Gerontology and Geriatrics</i>, 78, 190-195. CONTACT mkt5742@psu.edu +1-8142807286 ALZHEIMER'S ASSOCIATION AAIC>26