

Aging Outdoors: Understanding How Nature Contact Influences Younger and Older Adults' Executive Functioning, Heart Rate Variability, and Affect

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Abstract

Greater executive functioning (EF) protects against cognitive decline and activities that increase heart rate variability (HRV) can improve inhibitory control. Therefore, EF and HRV play a key role in healthy aging. Attention Restoration Theory and Stress Recovery Theory posit that nature exposure can improve EF and HRV, but older adults are underrepresented in this work. This study addressed this gap by examining how contact with real-world nature (RWN) and virtual reality nature (VRN) affected healthy younger and older adults' EF, HRV, perceived stress, and affect. Participants ($N = 61$) were randomized into an RWN, VRN, or an indoor control condition, and outcomes were assessed before and after 20-minute exposure to the environmental manipulation. We predicted that for both age groups, RWN and VRN would improve EF and affect, increase HRV, and reduce perceived stress compared to the control. Results partially supported hypotheses—RWN only enhanced positive affect and decreased heart rate and perceived stress among younger adults. We discuss insignificant yet interesting trends for cognitive performance and share implications, limitations, and future directions.

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