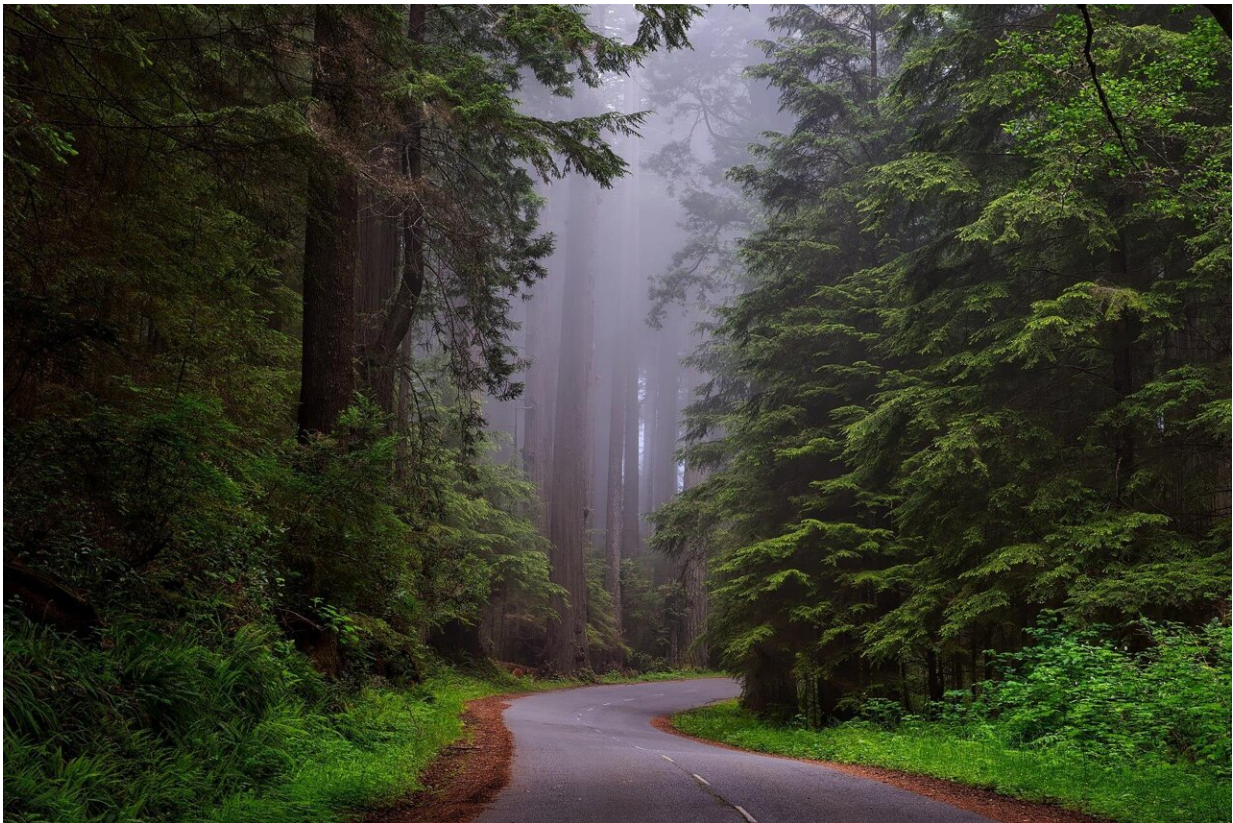


Living in areas with more greenery may boost cognitive function: study

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Cognitive function at middle age is a strong predictor of whether a person may develop dementia later in life. Now, a new study led by a Boston University School of Public Health (BUSPH) researcher has

found that increasing greenspace in residential areas could help improve cognition function in middle-aged women and that this association might be explained by a reduction in depression, which is also a risk factor for dementia.

Published in the journal *JAMA Network Open*, the study found that exposure to greenspace around one's home and surrounding neighborhood could improve processing speed and attention, as well as boost overall cognitive function. The results also showed that lowered depression may help explain the association between greenspace and cognition, bolstering previous research that has linked exposure to parks, community gardens, and other greenery with improved [mental health](#).

"Some of the primary ways that nature may improve health is by helping people recover from psychological stress and by encouraging people to be outside socializing with friends, both of which boost mental health," says Dr. Marcia Pescador Jimenez, study lead and corresponding author, and assistant professor of epidemiology at BUSPH. "This study is among the few to provide evidence that greenspace may benefit cognitive function in older ages. Our findings suggest that greenspace should be investigated as a potential population-level approach to improve cognitive function."

For the study, Pescador Jimenez and colleagues from BUSPH, Harvard T.H. Chan School of Public Health, Brigham and Women Hospital, Harvard Medical School, and Rush Medical College estimated residential greenspace with a satellite image-based metric called the Normalized Difference Vegetation Index (NDVI). They measured psychomotor speed, attention, learning, and working memory among 13,594 women aged 61 on average and primarily White, from 2014 to 2016. The women were participants in the Nurses' Health Study II, the second of three studies that are among the largest investigations into the [risk factors](#) for [chronic diseases](#) among US women.

Adjusting for age, race, and individual and neighborhood socioeconomic status, the researchers found that greenspace exposure was associated with psychomotor speed and attention, but not learning or working memory.

In addition to depression, the researchers also examined the potential roles of air pollution and physical activity in explaining the association between greenspace and cognitive function, and they were surprised to only find evidence of depression as a mediating factor.

"We theorize that depression might be an important mechanism through which green space may slow down cognitive decline, particularly among women, but our research is ongoing to better understand these mechanisms," Pescador Jimenez says. "Based on these results, clinicians and public health authorities should consider green space exposure as a potential factor to reduce depression, and thus, boost cognition. Policymakers and [urban planners](#) should focus on adding more [green space](#) in [everyday life](#) to improve cognitive function."

While the study shows evidence of this association, the greenspace metric that the researchers used to measure [greenspace](#) exposure does not differentiate between specific types of vegetation. In a new project, Pescador Jimenez will apply deep learning algorithms to Google Street View images to better understand which specific elements of greenery, such as trees or grass, could be the driving factors for health.

The researchers also hope that their study is replicated among other racial/ethnic populations and assesses associations with [cognitive decline](#) over longer periods of time.

"The distribution of green spaces in cities is not uniform," says Pescador Jimenez. "Increasing everyday access to vegetation across vulnerable groups in urban cities is a crucial next step to achieve health equity."

More information: Residential green space and cognitive function in a large cohort of middle-aged women, *JAMA Network Open* (2022). [DOI: 10.1001/jamanetworkopen.2022.9306](https://doi.org/10.1001/jamanetworkopen.2022.9306) , jamanetwork.com/journals/jamanetworkopen.2022.9306

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