

Preventing dementia: Meditation still under investigation

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Following a meditation program for 18 months can improve attention

and socio-emotional regulation capacities for people over 65, finds a new study co-led by a UCL researcher.

But the researchers did not identify any significant impact of [meditation](#) on the volume and functioning of the brain structures studied, in comparison to control groups, so the potential to prevent dementia remains unclear, they report in *JAMA Neurology*.

Joint senior author Dr. Natalie Marchant (UCL Psychiatry) said, "Our findings are promising, as meditation appears to improve well-being of older adults, conferring benefits to attention and emotion regulation.

"While our scans did not reveal any improvements in [brain structure](#) or function, we will continue monitoring this group of people to study whether some benefits may take longer to emerge."

Mental training aimed at regulating stress and attention, such as [mindful meditation](#), has previously proven to be beneficial in managing the cognitive and emotional aspects of aging, particularly to reduce stress, anxiety, and depression.

Recent research has reported that the insula and anterior cingulate cortex brain regions are particularly sensitive to meditation training, as well as in aging processes. These interconnected regions are involved in self-awareness and in the processing and regulation of attention, emotions, and empathy. In [young adults](#), meditation has already been shown to modify these brain areas structurally (in terms of volume) and functionally, particularly in the brains of meditation experts with several thousand hours of practice under their belts. Prior research has found that in older adults who are experts in meditation, gray matter volume and [glucose metabolism](#) (a physiological process essential for good brain function) were higher than in people who do not meditate.

For the current study, a team of researchers from the European Medit-Aging research group, involving Inserm, Université de Caen Normandy, UCL, Lyon Neuroscience Research Center, University of Liège and University of Geneva, looked at the potential physiological, cognitive, and emotional benefit of meditation in older adults.

In the Age-Well clinical trial involving 136 participants aged 65 or older with no known diseases, the researchers measured the impact of an 18-month meditation intervention on tissue volume and perfusion (physiological process of supplying an organ with nutrients and oxygen necessary for its metabolism) of the insula and anterior cingulate cortex. They also looked at specific cognitive and socio-affective parameters.

The participants were assigned to three groups in order to compare the potential benefit of meditation with different types of interventions. The first group followed the meditation intervention protocol (mindfulness meditation and loving kindness and compassion meditation), the second group (the "active control" group) followed a period of English-language training, and the third group (the "passive control" group) did not follow any intervention.

After 18 months of intervention, the researchers saw no significant changes in volume or perfusion of the cingulate cortex or insula in the meditation group compared to the control groups.

Lead author Dr. Gaël Chételat (Inserm and Université de Caen Normandy) said, "The fact that no anatomical differences were observed between these two groups could indicate that while meditation can modify the volume of younger and more plastic brains, 18 months of meditation training are not enough to modify the effects of aging. In addition, while the results of the volume measurement are strictly negative, those of the perfusion show a trend in favor of meditation that could be interesting to explore over a longer intervention time and/or

with a larger population sample."

The research team will therefore conduct a four-year follow-up of the participants, to investigate potential long-term effects.

In contrast, significant differences were observed in behavioral measures between the meditation group and the English-learning group, with improved regulation of attention and socio-emotional capacities in the meditation group participants.

Joint first author Antoine Lutz (Lyon Neuroscience Research Center) said, "Here the practice of meditation is showing its real benefit on the mental health of elderly people, with a significant improvement in parameters specific to well-being and fulfillment, but also to the maintenance of attentional and socio-emotional capacities, as reported by participants."

More specific measurements and analyses will be conducted within the Age-Well trial to improve the understanding of these mechanisms. These analyses could be used to identify the measures which are most sensitive to meditation and to study the mechanisms behind its effects.

More information: Gael Chételat et al, Effect of an 18-Month Meditation Training on Regional Brain Volume and Perfusion in Older Adults, *JAMA Neurology* (2022). [DOI: 10.1001/jamaneurol.2022.3185](https://doi.org/10.1001/jamaneurol.2022.3185)

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