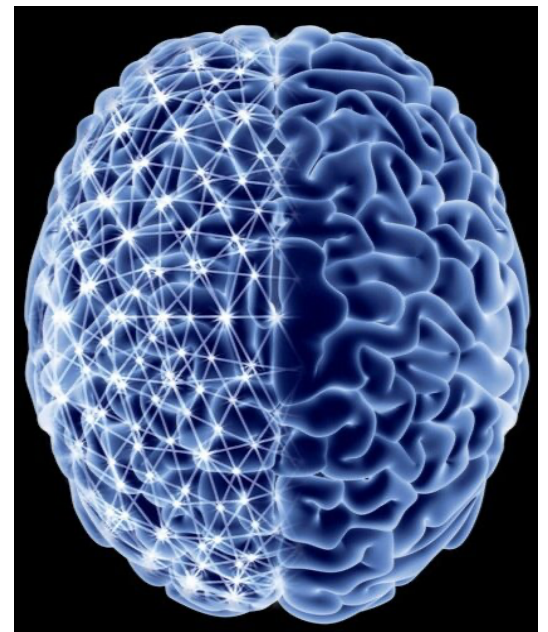


Meditation and mindfulness for individuals with cognitive impairments & dementia

MINDFUL MEDITATION

For thousands of years, mindful meditation has been practiced by many people living in the South East Asia. Meditation is a process by which an individual learns to control his/her mind to achieve some benefit; such as, to generate positive thoughts, relax the mind, reduce stress, or enhance a mind/body connection. Mindfulness is a form of meditation that focuses on calmly acknowledging one's awareness in the present moment and accepting one's feelings and thoughts. While the benefits of meditation seem desirable to many, modern day neuroscientists have been studying the effects of ancient mindfulness techniques on the human brain, with some pretty compelling results.

Harvard Medical School neuroscientist, Sara Lazar, found that meditation can actually change the physical structures of the human brain. Following an eight-week Mindfulness-Based Stress Reduction (MBSR) program, Lazar and her team, using magnetic resonance imaging (MRI) technology, found brain cell volume increases in four regions. Most notable were increases in cortical thickness in the hippocampus, which governs learning and memory, spatial orientation, and regulation of emotions, as well as increases in the temporoparietal junction, an area that is responsible for empathy and compassion (Hölzel, 2011). There were also decreases in brain cell volume in the amygdala gray matter, which is responsible for fear, anxiety, and stress. The changes that Lazar et al. established correlated to the participants' self-reports of their stress levels, indicating that meditation not only changes the brain, but it changes our subjective perception and feelings as well.



MCI & DEMENTIA

Because of the potential healing properties that meditation has on the mind and body, researchers and medical professionals are trying to determine if a link exists between the practice of meditation and rates of people with mild cognitive impairments and early stages of dementia. These diseases are neurodegenerative, meaning they get worse over time. The prevalence of mild cognitive impairments (MCI) in the United States in individuals over the age of 60 years is 6.7%, 70 years is 10.17%, and 80+ years is 25.2% - 28.1%. People within these age groups are considered to be in the prodromal stage of dementia, particularly Alzheimer's disease (Wong et al., 2017). Additionally, individuals with dementia represent 14% of the population over the age of 71 years. This number further increases with age, from 5.0% of those aged 71 to 79 years to 37.4% of individuals over the age of 90 years (Plassman, 2007). Lastly, the adjusted annual conversion rate from Mayo clinic defined MCI to Alzheimer's disease was 8.1% in specialist clinical settings, and 6.8% in community studies (Mitchell, Shiri-Feshki, 2009).

Individuals with MCI and early-stage dementia may begin to experience a subtle decline in cognitive ability, such as episodic memory loss, reduced capacity to pay attention, and additional time while completing complex activities. In the simplest terms, our brain begins accumulating beta-amyloid protein plaques, which interfere with interneuron communication and contributes to the cell's death (National Institute on Aging, 2017). Other brain changes include inflammation and atrophy. These cognitive impairments have a tremendous negative impact on an individual's everyday occupations, such as struggling to remember daily routines, as well as psychological health, self-esteem and feelings of security. This is especially true for individual that maintain an insight (partial or full) relative to his or her cognitive and functional limitations.

Listed below are potential causes and mechanisms of cognitive impairment, including:

- Age-related cognitive decline
- Alzheimer's disease
- Dementia (Lewy body, Parkinson's, frontotemporal)
- Vitamin deficiencies (e.g., B1, B12, folate, D)
- Alcohol/drug-induced
- Depression, anxiety, stress
- Brain tumor

So, the question remains, what are the implications of meditation on people with early stages of dementia and MCI?

While pharmacological treatments should not be dismissed, there is a timely window where early therapeutic interventions such as mindfulness and meditation could be implemented to improve activities of daily living (ADL) functioning and individuals' awareness and cognitive stimulation. The formal practice of mindful meditation is not limited to sitting quietly, rather it involves techniques such as body scanning, deep breathing, mindful eating, walking in nature, participation in mental exercises, such as reading and solving puzzles, and/or physical exercises, such as yoga and tai chi. With practice, these techniques may be able to help control wandering thoughts, stress and anxiety, uncomfortable emotions, and cultivate kindness and goodwill towards all beings, including oneself. A 2019 pilot study investigated the role of a Mindfulness-Based Stress Reduction (MBSR) program on adults with high susceptibility of developing dementia (i.e., those with MCI). The study found that most adults with MCI were not only able to learn mindfulness meditation, participant also showed improved levels of acceptance, self-efficacy, social engagement and reduced levels of chronic stress. Physiologically, fMRI's of participants showed less bilateral hippocampal volume atrophy and increased functional connectivity between the posterior cingulate cortex and bilateral medial prefrontal cortex and left hippocampus compared to controls (Wells et al, 2019).

(Insert photos here as slideshow)

Walking Meditation in Nature (5 min)
(play)



RESOURCES

Although this is still a relatively new area of focus, emerging literature suggests that mindfulness and meditation may enhance occupational engagement in activities and participation. Furthermore, this will help individuals with MCI and early stages of dementia to preserve cognitive function, engage in meaningful and creative activities, and participate in personal and social roles to help maintain self-esteem, self-efficacy, and social engagement. It is important to note that these interventions are only complimentary therapeutic alternatives and individuals with the mentioned cognitive impairments should still consult with their physician, as well as take medications that are prescribed. Additionally, other professional services that could be beneficial for individuals with MCI and early stages of dementia include occupational therapy, physical therapy, social work, and music therapy, amongst others.

Below I have listed some common types of mindfulness-based interventions (MBIs) that will help to address attention and memory, ADL functioning, psychological health, emotion management, learning, mental flexibility and problem solving, and sleep; as well as links that will help you access these resources in your community.

- [mindfulness-based stress reduction \(MBSR\) program](#)
- [mindfulness-based cognitive therapy \(MBCT\)](#) specifically adapted for depression
- guided meditation apps, such as [Calm](#), [Headspace](#), [Insight Timer](#), etc.
- community support groups and [wellness initiative programs](#) such as Monthly Mindfulness Meditation, [Catching Your Breath](#), and [Mindfulness-based Dementia Care](#) offered through the University of Michigan Alzheimer's Disease Center.

For more information on emerging studies in this field, I have listed some below:

[Can Adults with Mild Cognitive Impairment Build Cognitive Reserve and Learn Mindfulness Meditation?](#)

[Qualitative Theme Analyses from a Small Pilot Study](#)

[Meditation Effects on Cognitive Function and Cerebral Blood Flow in Subjects With Memory Loss: A Preliminary Study](#)

[Meditation's Impact on Default Mode Network and Hippocampus in Mild Cognitive Impairment: A Pilot Study](#)

[Rate of progression of mild cognitive impairment to dementia—meta-analysis of 41 robust inception cohort studies](#)

[The Effects of Mindfulness on Older Adults with Mild Cognitive Impairment](#)

[Sara Lazar, Ph.D. Neuroscience of Yoga and Meditation - Harvard University](#)

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<https://www.cassandraviselli.com/news/meditation-dementia>

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