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Meditation, Yoga and Spiritual Fitness Heal Dementia and Brain Disorders

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ABSTRACT

Older adults underestimate their level of life stress and early adversity, and kind of the impact that has. For some people, early adversity can affect their entire lives, but for other people, it seems like it catches up to them once they're aging. our frontal lobes helping moderate our emotional responses. But the frontal lobes are also one of the main areas of the brain that begins to decline with age in terms of function. By sitting in any posture, standing, lying or walking for few minutes meditation include general wellbeing improvement, like decreasing depression and anxiety and improving sleep hygiene. By meditation like this one, you're turning on the frontal lobes as you repeat the sounds and touch your fingers. Another area that becomes activated is the thalamus, which is a very core structure of the brain that helps regulate neuronal information flow. Most beneficial aspect of meditation training is increased self-control of emotions and attention. Psychologists are fond of touting the popular phrase "willpower is like a muscle," meaning that the more a person practices delaying gratification, the easier it becomes to deny oneself in the short term for a better payoff later. As per the genetic makeup and climatic conditions different person will observe different sensation on body parts. The Gamma, Beta, Alpha, Theta and Delta ray regulate the brain activities as per sleep and function Fig. And so when you have these areas turned on, what that is basically doing is helping you better concentrate and regulate different parts of the brain. If you right now focus for the next few seconds or minutes on your breathing-breathe in and breathe out very slowly results in you're going to reduce your heart rate, blood pressure and calm your brain down. So it is important to make sure that you can fully engage the practice whether it is meditation, prayer, yoga, or some other spiritual practice.

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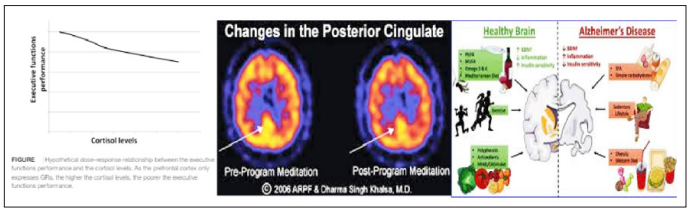
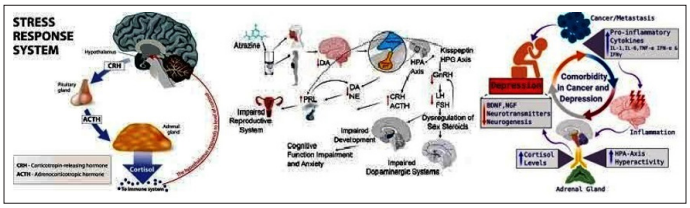
This review will initially focus on a lifestyle factor common today: chronic stress. Stress, via the cortisol connection, causes neurotoxic damage to cells in the hippocampus and elsewhere in the brain which may increase AD risk [1]. Beyond that, stress has a causative association with multiple risk factors for AD, including inflammation, calcium dysregulation, cardiovascular disease including hypertension, diabetes/insulin resistance, depression, anxiety, physical inactivity, sleep deprivation, and smoking [2,3]. There is a growing body of evidence that increased cortisol may be deleterious for the late-life cognitive performance, and may be associated with an increased risk for cognitive decline and dementia, in particular dementia due to AD. In patients with AD, the increased cortisol at preclinical and early clinical stages is associated with a poorer prognosis and a more rapid cognitive decline. Increased cortisol may represent a pathophysiological mediator between stressful life events, personality, mood, and sleep, and may increase both the risk of AD and the extent of symptoms at clinical stages of the disease [4]. Yet, the exact underlying mediating factors are not fully understood. Direct deleterious cortisol effects on the hippocampus and on the prefrontal cortex are likely, but also cortisol links with metabolic syndrome and neuroinflammation; and HPA axis disinhibition due to neurodegeneration are other possible mechanisms that may explain the association of cortisol with late-life cognitive impairment and AD.



How meditation acts to reduce stress and cortisol levels and improve multiple aspects of health and cognition will then be reviewed. Beyond the basics of this discussion, this article will discuss research on a simple, twelve-minute, meditation technique called Kirtan Kriya (KK), that positively impacts brain and memory function, cellular health, genetic expression, and well-being. Moreover, KK may reverse memory loss in subjects with subjective cognitive decline (SCD) and mild cognitive impairment (MCI), both of which may progress to dementia [5,6].

Furthermore, aging is a time of decreased ability to handle stress and, untreated, chronic stress accelerates many of the degenerative aspects of aging, including cognitive decline. In contrast, meditation may counterbalance many aspects of the stress response and protect the brain specifically from the ravages of aging combined with stress overload [6-8]. Stress may injure hippocampal cells via the release of the hormone cortisol from the adrenal gland in response to hypothalamic and pituitary stimulatory signals, such as CRF and ACTH. Such injury could lead to dysfunction and atrophy of that critically important memory and emotional brain structure [9,10]. Beyond that, hippocampal cellular loss is dramatically exacerbated because of the destruction of the specific neurons that control cortisol secretion from the adrenal gland [11].



The negative effects of chronic stress are considerable. Beyond cognitive decline and memory loss, stress also affects numerous neurobehavioral phenomena, from anxiety to depression to various abnormal behaviors and unconscious self-defeating compulsive actions. Significantly, Lupien argues that it is not simply isolated episodes of stress that do damage to the brain. Rather, it is the magnitude of cortisol exposure over the lifetime, especially middle age and beyond, that is linked to AD and promotes emotional and cognitive dysfunction, including disruption of hippocampal-dependent selective attention and explicit short term memory loss, SCD, MCI, and AD [7,12].

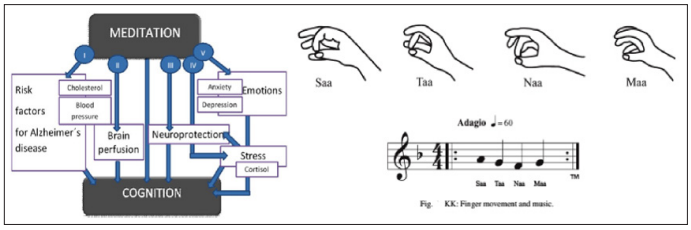
Meditation Techniques as Diseases Prevention Medicine

Meditation is not blanking out your mind, for that is virtually impossible. Rather, it is a wakeful, hypo-metabolic state that is produced by following these four steps, especially the last one [8]. Recently, Benson modified his original approach to two steps required to elicit the RR: Repetition of a word, sound or movement and the passive disregard of everyday thoughts when they come to mind during the practice of the chosen technique. Through four decades of research, Benson and colleagues have shown that the RR impacts genomic, structural, physical, psychological, and functional outcomes [13,14]. Other meditation techniques that have been studied prominently include the Transcendental Meditation technique (TM) as taught by Maharishi Mahesh Yogi, which uses a secret, silent, prescribed sound or mantra as its tool, and mindfulness meditation or Mindfulness Based Stress Reduction (MBSR), a Buddhist approach with the focus on the breath as its tool.

Kk Meditation-In addition to the four steps described above, KK, utilizes the following five specific actions:

1. Breath: In KK, the breath is allowed to come naturally.
2. Posture: One can sit comfortably in a chair or on the floor.
3. Sound: KK prescribes very specific sounds.
4. Hand position and finger movements: KK uses a specific finger tip movement sequence.
5. Focus of concentration: KK utilizes a unique focus.

KK can be performed by those of any age with memory loss and various degrees of impairment, with appropriate supervision. Moreover, the benefits accrue from the very first practice session [5,15], Most significantly, it takes only one 12-minute session a day using a recording to obtain the benefits of KK and requires no other training sessions, seminars, retreats, additional practices, or costs. KK is a multifaceted, multisensory exercise that engages and activates conscious awareness. It increases cerebral blood flow to important anatomical brain areas and, as discussed below, has numerous other benefits, both in caregivers and those with cognitive decline [16,15].



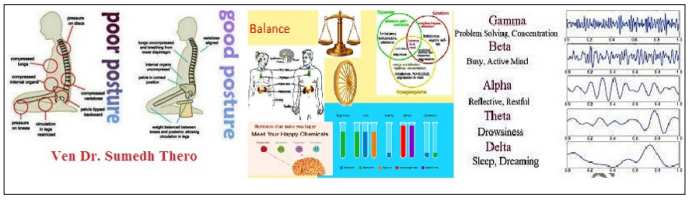
Posture-The practitioner can sit comfortably in a chair with their feet flat on the floor. The essence of the posture is to be comfortable and sit with the spine straight with only the natural curvature.

Breath-The person simply breathes naturally as the meditation unfolds.

Eyes-Eyes are closed. The sounds-KK uses the sounds, Saa, Taa, Naa, Maa. The tune to which these sounds are sung is the first four notes of the familiar children's song, "Mary had a Little Lamb." That is, the notes are "Mar-y had a." See Fig. The jaw should remain relaxed as you sing.

Beyond the above studies, additional research on KK demonstrates a diminished loss of brain volume with age (Newberg, et al 2010), which is consistent with other observations on meditation [15,17]. Additionally, in a study of 37 stressed family dementia caregivers, the effects of KK on mental health, cognition, and immune cell telomerase activity were examined. The experimental group practiced KK for 12 minutes a day for 8 weeks while the control group listened to relaxation music [18]. The outcome revealed that the KK group had significantly lower levels of depressive symptoms, and greater improvement of mental health, well-being, and memory, compared with the control group. Moreover, the KK group showed a 43% improvement in telomerase activity, the largest ever reported, compared with 3.7% in the relaxation group.

These findings suggest an improvement in stress-induced cellular aging. This study also demonstrates positive epigenetic effects with an upregulation of 19 genes related to positive immune function and a down regulation of 49 genes associated with inflammation, such as proinflammatory cytokines potentially indicating lower AD risk. Additionally, 9 of the subjects were randomized to receive FDG-Pet Scans at baseline and post-intervention, and the analysis of the results from these scans confirms that KK activates the whole brain including the occipital cortex [19,16]. Finally, KK improves sleep. This is important because poor sleep hygiene is a risk factor for AD (Devore, et al 2014). A recent study showed that AD patients and their caregivers who practiced KK reported less stress and better sleep. This study also reports improved psychological well -being with KK [20].



A well-known and vitally important benefit of meditation is the cultivation of higher levels of psychospiritual well-being. Acceptance, independence, and socialization, as well as discovering meaning and purpose in life, all part of spiritual fitness, may reduce risk for the development of MCI and AD [21]. Additionally, one of the above mentioned aspects of spiritual fitness, having meaning in life, has been shown to reduce AD risk by itself [22]. Higher levels of psychological well-being also increase telomere length and are inversely associated with amyloid plaques and tau tangles deposition in the posterior cingulate gyrus [23]. Moreover, in preliminary studies, having a sense of spirituality, regardless of its origin, reduces risk and slows AD progression [24]. This heightened level of consciousness and cognition is an important frontier in AD prevention, and a dimension that should be pursued further.

Meditation

Even though scientists have been investigating meditation for a long time, there has not been consensus on its definition. Diversity in the range of possible definitions reflects the vast number of different methods of meditation. Western definitions emphasize that meditation is a self-regulatory technique focused on maintaining one's attention. However, in the spiritual tradition, meditation is perceived as a tool for spiritual development, the growth of inner peace, concentration, positive emotions, such as love and happiness, and on reduction of negative emotions, such as fear and anger integrate those two views and propose a new definition. It characterizes meditation as a group of self-regulatory techniques focused on maintaining attention and awareness [25]. The main goal is to achieve a greater rate of well-being, serenity, and concentration through the enhancement of control over spiritual processes. This definition distinguishes meditation from other methods, for example hypnosis, imagination, or psychotherapy.

These techniques are not based on development of awareness or attention, but they rather focus on changing mental content of thoughts, images, and emotions [25]. suggest a classification of meditation according (1) to its area of interest: there are techniques, which primarily focus on a single object, such as breath or sounds. They are known as concentration meditations. Another type is represented by meditation, which aspires to gain open attention, containing more objects at once or selected in a consecutive order. This type is called awareness or open meditation. In addition, we can divide meditation techniques according to its relation to cognitive processes (thoughts, images) (2). This classification is consistent with the categories proposed by, who speaks about openly monitoring meditation (open monitoring, OM) and meditation with focused attention (focused attention, FA). The third type of classification relies on the targets (3). While some practices focus on supporting a general mental development and the state of well-being, others concentrate primarily on the growth of specific mental qualities, such as concentration, love, or wisdom. The most scientifically exploited techniques are described thoroughly below.

Mindfulness

One of the most researched meditation techniques is based on the concept of mindfulness (in Pāli language Satí). Traditionally this method has its origin in Buddhist meditation of mindfulness and insight (in Pāli language "satipatthana-vipassana"). Mindfulness practice includes a number of meditational techniques, such as activities focused on breath and physical awareness or using metaphors enlightening the essence of mindfulness. All these techniques have a common goal, which is expanding a subject's mindfulness – i.e., the ability to focus on the present moment and to perceive without any judgment or choice current internal or external impulses, which are emerging at a given moment of consciousness. Mindfulness thus allows one to stay "above" the particular content of thoughts, emotions, or imaginations and enables one to become aware of the process of consciousness itself [26]. Mindfulness allows one's active approach, which can alter current categories and distinctions through focusing on new impulses, which would otherwise remain unconsciously unnoticed. This conscious processing of impulses impacts a person's behavior and supports a change of habitual behavioral patterns.

Personal experience of many western psychologists leads them to establish meditational techniques as a part of their psychotherapeutic praxis, in which they use the techniques based on mindfulness very frequently. There are many psychotherapeutic schools and approaches, which use the techniques based on the concept of mindfulness, for example, Gestalt therapy or Morit's therapy. There are several new areas combining a mindfulness approach with cognitively behavioral therapy, such as mindfulness-based cognitive therapy, dialectical behavior therapy, and acceptance and commitment therapy [27].

Zen Meditation

Zen meditation is often classified as a meditational technique based on fundamentals of mindfulness. It comes from Zen Buddhism, Mahayan Buddhism's offshoot, which originated in the fifth century in China. It is performed sitting with legs crossed (lotus position) and the meditating person tries to maintain straight position of the body and a regular speed of breathing. On the mental level, they focus on their breath while their mind is open to emerging spiritual processes and contents, which they neither judge, conceptualize nor evolve. There upon moments of completely content-free consciousness occur [28].

Transcendental Meditation

Transcendental meditation represents another frequently used scientific method. It was developed by Maharishi Mahesh Yogi in the second half of the twentieth century, but it is based on ancient Indian Vedic tradition. This practice is based on the repetition of mantra for 15–20 min twice a day with closed eyes. Mantras in other words are sounds or simple sentences usually in Sanskrit facilitating the process of "inlaying" of attention. Attention is paid on inner psychological processes with the aim of overcoming even the mildest forms of thinking and to discover the source of thoughts, which is felt as a moment of pure consciousness, absolutely free of any content [29].

Vihangam Yoga

Another method, which has been investigated by researchers is Vihangam yoga. Its roots arise from the teaching of Sadguru Sadafaldeo Ji Maharaj. In theory and practice, it relates to the Indian Vedic tradition. The practice of this meditation is divided into five levels, but in scientific studies the most examined is the first one. In the first level, the meditating person tries through the training of concentration (for example, by repetition of mantra) to develop conscious reflexion, the ability to observe his mind's own tendencies. This helps to get better orientation in one's own inner world and to take better control of it. This state of mind allows

subjective feelings of harmony and satisfaction.

Kirtan Kirya

Experiments with the method of Kirtan Kirya are often performed in the context of neurodegenerative diseases. This technique originates in the tradition of Kundalini yoga school. The technique itself is based on repetition of sounds "sa ta na ma," loudly, in a whisper and silently in 2 min periods. Meanwhile the meditator touches the rest of the fingers with their thumb. According to Kundalini yoga, 84 acupuncture points are being stimulated while performing this technique. This leads to a positive bio-chemical transformation in the brain. From a neuropsychological point of view the effect of this method is explained as the activation of the brain areas associated with attention and exclusive functions (frontal area, cingulate cortex), which takes places during the meditation.

It is projected that up to 152 million people worldwide will be living with Alzheimer's disease (AD) by 2050 [30]. To date there are no drugs that have a substantial positive impact on either the prevention or reversal of cognitive decline. A growing body of evidence finds that targeting lifestyle and vascular risk factors have a beneficial effect on overall cognitive performance. A new review examines research that finds spiritual fitness, a new concept in medicine that centers on psychological and spiritual wellbeing, and Kirtan Kriya, a simple 12-minute meditative practice, may reduce multiple risk factors for AD. Spiritual Fitness may also contribute to brain health and is a proven defense against Mild Cognitive Impairment (MCI) and even Alzheimer's. Spiritual fitness is the combination of attributes of psychological well-being, such as contentment, socialization, and having a purpose or mission in life, combined with spiritual well-being, that includes service to others and the ongoing search for peace of mind. Spiritual fitness contributes directly to your ability to maintain a high level of mental function as your age.

There have long been predictions that religion would fade from relevancy as the world modernizes, but all the recent surveys are finding that it's happening startlingly fast. France will have a majority secular population soon. So will the Netherlands and New Zealand. The United Kingdom and Australia will soon lose Christian majorities (national geographic, Culture). Religion is rapidly becoming less important than it's ever been, even to people who live in countries where faith has affected everything from rulers to borders to architecture. But nones aren't inheriting the Earth just yet. In many parts of the world-sub-Saharan Africa in particular—religion is growing so fast that nones' share of the global population will actually shrink in 25 years as the world turns into what one researcher has described as "the secularizing West and the rapidly growing rest." (The other highly secular part of the world is China, where the Cultural Revolution tamped down religion for decades, while in some former Communist countries, religion is on the increase.)

The idea that religion would lose its relevance in modern society is called the secularization thesis. This thesis is based on the idea that modernization, rationalization, science, and technology diminish the authority of religion in social life and governance. However, some say that the secularization thesis is too simple and doesn't account for evidence that calls it into question. Others say that modernity actually leads to a process of pluralization, where more people live with competing beliefs, values, and lifestyles. This has a profound effect on religion, but it's different from the effects of secularization. Religion can be relevant to people in different ways. Some people use their religion as a moral framework for their daily lives, while others use it as a community-wide aspect of their lives. Thus we can define religion is not fading from relevancy as the world modernizes. In fact, religion continues to be a powerful force in society, influencing politics, social movements, and culture.

Faith's Flows reveals that the contemporary world has become the contested site of extensive transnational linkages brought about by religious organizations. Transnational religion is redefining the issues of identity, belonging and loyalty and in the process influencing the religious thinking and practices of people worldwide. These organizations are symptomatic of modern day dynamics—globalization, migration, technology and consumption, as well as the deeply ingrained role that religion plays in the lives of communities of people. Transnational religious organizations can strengthen communities and nations or subvert them. Faith's Flows describes the whole gamut of transnational organizations—those without political leanings and those that are clearly political and striving to form a theocratic state [31].

Spiritual Fitness is a relatively new concept in wellness, especially concerning aging adults. It involves nurturing the spirit through activities that foster a sense of purpose, peace, and connection. This can include meditation, prayer, community service, or simply spending time in nature. For aging individuals, maintaining spiritual fitness is not just about religious practices; it's about creating a meaningful, fulfilling life [32]. Studies suggest that a strong spiritual life can have significant benefits for mental health, potentially lowering the risk of cognitive decline and diseases like Alzheimer's.

Enhancing Lives in Our Retirement Community-In our retirement community in Greenville, SC, we prioritize spiritual fitness as a key component of our residents' overall wellness. Our programs are designed to cater to the diverse spiritual needs of our community members. From meditation workshops to interfaith discussions and volunteer opportunities, we provide a range of activities that promote spiritual growth and connection. Our team members are dedicated to creating a supportive environment where residents can explore and deepen their spiritual journeys, contributing to their mental and emotional well-being [33].

The Connection Between Spirituality and Alzheimer's Prevention
The link between spirituality and Alzheimer's prevention is a fascinating area of research that has gained increasing attention in recent years. Studies suggest that engaging in spiritual practices can have a profound impact on brain health and may reduce the risk of developing Alzheimer's disease. In this context, spirituality is not limited to religious beliefs but encompasses a broader sense of connection to something greater than oneself. It involves practices that promote a sense of inner peace, purpose, and emotional well-being. Individuals who regularly engage in spiritual activities tend to exhibit better cognitive function and resilience against cognitive decline. This may be attributed to spiritual practices often involving activities such as meditation, mindfulness, and prayer, which stimulate the brain and promote mental clarity. Moreover, spirituality has been found to reduce stress, depression, and anxiety—factors that are associated with a higher risk of Alzheimer's disease. By fostering emotional well-being and a sense of purpose, spiritual practices may contribute to a more robust defense against cognitive decline.

Spiritual Practices That Support Brain Health

Spiritual fitness encompasses many practices that can support brain health and contribute to Alzheimer's prevention. These practices nurture the spirit, engage the mind, and promote emotional

well-being. Meditation, for example, is a spiritual practice that involves focused attention and mindfulness. Regular meditation has been associated with improvements in cognitive function, memory, and attention span. It can also reduce stress and anxiety, which are known risk factors for Alzheimer's disease. Prayer is another spiritual activity that has been shown to have cognitive benefits. Engaging in prayer can enhance emotional well-being and provide a sense of purpose. It often involves deep reflection and concentration, stimulating brain regions responsible for memory and cognitive function. Mindfulness practices, such as mindful breathing or mindful eating, encourage being fully present in the moment. These practices reduce stress and promote mental clarity and cognitive resilience. They help individuals stay focused and attentive, crucial aspects of brain health. Yoga, combining physical postures, breathing exercises, and meditation, is another spiritual practice supporting brain health. It improves flexibility, reduces stress, and enhances emotional well-being, all contributing to overall cognitive wellness.

Reducing Stress and Promoting Emotional Well-Being

One of the significant ways in which spiritual fitness contributes to Alzheimer's prevention is by reducing stress and promoting emotional well-being. Chronic stress is a known risk factor for cognitive decline and Alzheimer's disease. Spiritual practices often involve relaxation techniques, mindfulness exercises, and emotional expression. These activities help individuals manage stress more effectively and maintain positive emotions. For example, meditation and mindfulness practices teach individuals to focus on the present moment, let go of worries, and reduce their physiological responses to stress. These practices can lead to a calmer mind and improved emotional well-being, essential components of brain health. Engaging in spiritual practices also provides a sense of purpose and meaning in life. This sense of purpose can be a powerful buffer against stress and depression, further contributing to emotional well-being. Moreover, spiritual communities often provide social support and a sense of belonging, which can help combat feelings of isolation and loneliness—factors that are associated with an increased risk of Alzheimer's disease

Conclusion

Recently, there have been studies on the influence of meditation on cognitive functions in the context of aging and neurodegenerative diseases. The results imply a positive effect especially on attention, memory, verbal fluency, and cognitive flexibility. Meditation can represent an appropriate non-pharmacological intervention aiming at the prevention of cognitive decline in the elderly. Conclusions of such studies are limited due to their methodological problems and differences among various meditation techniques. Further research in this area could help to confirm the validity of recent results and clarify problematical aspects. The brain appears to respond favorably to regular meditation practice. Although meditation is believed to be over five thousand years old, scientific research on it is in its infancy. Based on these studies, most kind of religious participation is a safe, affordable, easy to learn in all age groups, fast acting, and side-effect free meditation exercise that should be considered for inclusion as part prevention program, right alongside other potentially beneficial modalities such as diet, exercise, mental stimulation, and social activity.

These physical activities may also be utilized as a standalone therapy in those for whom a complete lifestyle modification program is impractical. Finally yoga and meditation, can theoretically be combined with pharmacological therapy, thereby possibly increasing the drug's preventive or therapeutic benefit. Further studies are ongoing and results and observations including memory, sleep, mood, well-being, and stress, are being tested in larger studies on subjects with SCD and MCI.

References

1. Khalsa, Dharma Singh (2015) Stress, Meditation, and Alzheimer's Disease Prevention: Where the Evidence Stands. Journal of Alzheimer's Disease 48: 1-12.
2. Barnes DE, Yaffe K (2011) The projected effect of risk factor reduction on Alzheimer's disease prevalence. Lancet Neurol 10: 819-825.
3. Innes KE, Selfe TK, Brown C, Rose KM, Thompson-Heisterman A (2012) The effects of meditation on perceived stress and related indices of psychological status and sympathetic activation in persons with Alzheimer's disease and their caregivers: A pilot study. Evid Based Complement Altern Med 1-9.
4. Ouanes S and Popp J (2019) High Cortisol and the Risk of Dementia and Alzheimer's Disease: A Review of the Literature. Front Aging Neurosci 1: 11-43.
5. Newberg AB, Wintering N, Khalsa DS, Roggenkamp H, Waldman RW (2010) Meditation effects on cognitive function and cerebral blood flow in subjects with memory loss: A preliminary study. J Alzheimers Disease 20: 517-526.
6. Reisberg B, Shulman MB, Torossian C, Leng L, ZhuW (2010) Outcome over seven years of healthy adults with and without subjective cognitive impairment. Alzheimers Dement 6: 11-24.
7. Lupien SJ, McEwen BS, Gunnar MR, Heim C (2009) Effects of stress throughout the lifespan on the brain, behavior and cognition. Natl Rev Neurosci 10: 434-445.
8. Benson H, Beary JF, Carol MP (1974) The relaxation response. Psychiatry 37: 37-46.
9. Stein-Behrins BA, Sapolsky R (1992) Stress, glucocorticoids and aging. Aging Clin Exp Res 4: 197-210.
10. McEwen B, Sapolsky RA (1992) Stress and cognitive function. Endocrine Rev 7: 284-301.
11. Sapolsky R (1992) Stress the Aging Brain and the Mechanisms of Neuron Death. Bradford, Cambridge.
12. Lupien S, de Leon M, de Santi S, Convit A, Tarshish C, Nair NPV, Thakur M, McEwen BS, Hauger RL, Meaney MJ (1998) Cortisol levels during human aging predict hippocampal atrophy and memory deficits. Nat Neurosci 1: 69-73.
13. Dusek JA, Hibberd PL, Buczynski B, Chang BH, Dusek KC, Johnston JM, Wohlhueter AL, Benson H, Zusman RM (2008) Stress management vs lifestyle modifications on systolic hypertension and medication elimination: A randomized trial. J Alter Complement Med 14: 129-138.
14. Samuelson M, Foret M, Baim M, Lerner J, Fricchione G, Benson H, Dusek J, Yeung A (2010) Exploring the effectiveness of a comprehensive mind-body intervention for medical symptom relief. J Altern Complement Med 16: 187-192.
15. Newberg AB, Wintering N, Waldman MR, Amen D, Khalsa DS, Alavi A (2010a) Cerebral blood flow differences between long-term meditators and non-meditators. Conscious Cogn 19: 899-905.
16. Pomykala KL, Silverman DHS, Geist CL, Voege P, Siddarth P, Nazarian N, NM Cyr St, DS Khalsa, Lavretsky H (2012) A pilot study of the effects of meditation on regional brain metabolism in distressed dementia caregivers. Aging Health 8: 509-516
17. Luders E, Cherbuin N, Kurth F (2015) Forever Young(er): Potential age-defying effects of long-term meditation on gray matter atrophy. Front Psychol 5: 1551.

18. Lavretsky H, Epel ED, Siddarth P, Nazarian N, St Cyr N, Khalsa DS, Lin J, Blackburn E, Irwin MR (2012) A pilot study of yogic meditation for family dementia caregivers with depressive symptoms: Effects on mental health, cognition, and telomerase activity. Int J Geriatr Psychiatry 28: 57-65.
19. Black DS, Cole SW, Irwin MR, Breen E, St Cyr NM, Nazarian N, Khalsa DS, Lavretsky H (2013) Yogic meditation reverses NF-kB and IRF-related transcriptome dynamics in leukocytes of family dementia caregivers in a randomized controlled trial. Psych neuroendocrinology 38: 348-355.
20. Devore EE, Grodstein F, Duffy JF, Stampfer MJ, Czeisler CA, Schernhammer ES (2014) Sleep duration in midlife and later life in relation to cognition. J Am Geriatr Soc 62: 1073-1081.
21. Ryff CD, Singer BH, Dienberg LoveG (2004) Positive health: Connecting well-being with biology. Phil Trans R Soc Lond B 359:1383-1394.
22. Boyle PA, Buchman AS, Wilson RS, Barnes LL, Bennett A (2010) Effect of a purpose in life on incident Alzheimer disease and mild cognitive impairment in community-dwelling older persons. Arch Gen Psychiatry 67: 304-310.
23. Chen ST, Siddarrth P, Saito NY, Rueda F, Haight T, Ercoli LM, Miller KJ, Lavretsky H, Barrio JR, Bookheimer SY, Small GW, Merrill DA (2014) Psychological well-being and regional brain amyloid and tau in mild cognitive impairment. Am J Geriatr Psychiatry 22: 362-369.
24. Kaufman Y, Anaki D, Binns M, Freedman M (2007) Spirituality, religious practice may slow progression of Alzheimer's disease. Neurology 68: 1509-1514.
25. Walsh R, Shapiro SL (2006) The meeting of meditative disciplines and Western 8 psychology: a mutually enriching dialogue. Am Psychol 61: 227-239. [25]
26. Kabat-Zinn J (2005) Bringing mindfulness to medicine: an interview with Jon Kabat-Zinn, PhD. Interview by Karolyn Gazella. Adv Mind Body Med. 21: 22-27.[26]
27. Germer CK, Siegel RD, Fulton PR (2005) Mindfulness and Psychotherapy. New York: Guilford Press 1-33.[28]
28. Pagnoni G, Cekic M (2007) Age effects on gray matter volume and attentional performance in Zen meditation. Neurobiol Aging 28: 1623-1627.[29]
29. Forem J (2012) Transcendental Meditation. London: Hay House Inc. [30]
30. Haynes Jeffrey (2021) Religion and International Relations: What Do We Know and How Do We Know It? Religions 1-14. https:// doi.org/10.3390/rel12050328 [31]
31. Jonathan James (2018) Transnational Religious Movements: Faith's Flows. https://www.researchgate.net/publication/323257568 [32]
32. Benson H (1975) The Relaxation Response, Morrow, New York.
33. Lupien S, Lecours AR, Lussier I, Schwartz G, Nair NPV, Meaney MJ (1994) Basal cortisol levels and cognitive deficits in human aging. J Neurosci 14: 2893-2903.