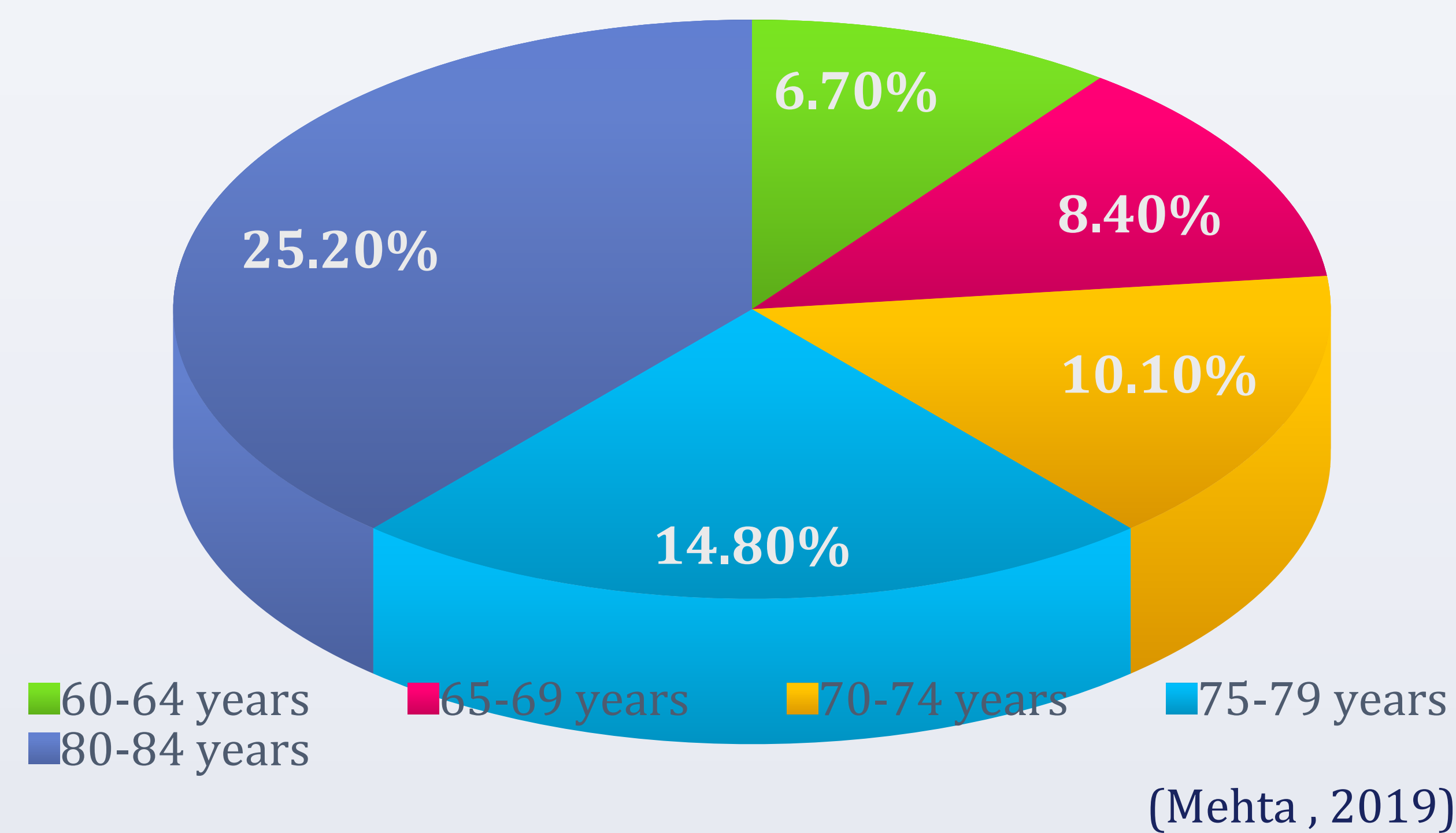


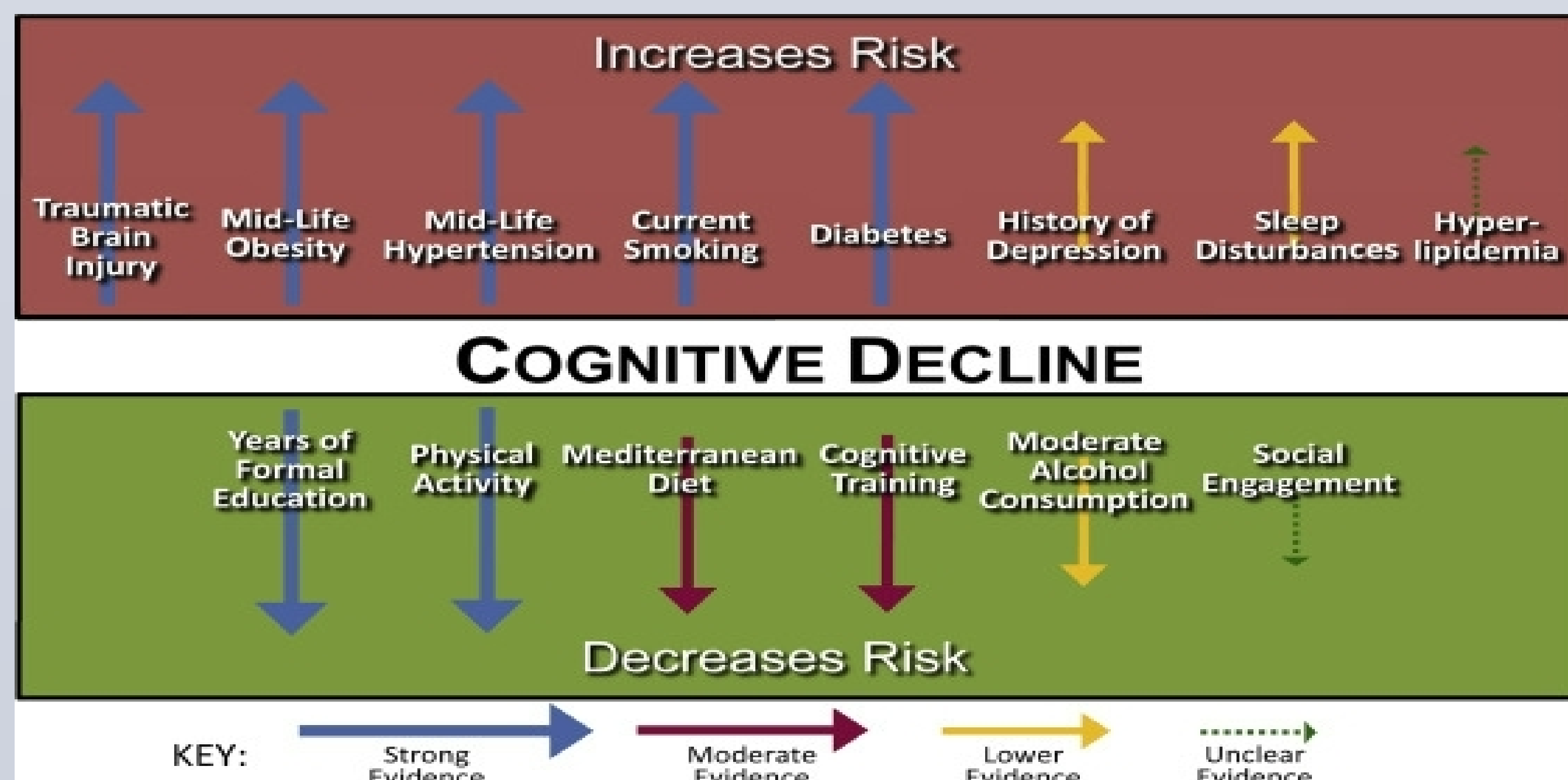
INTRODUCTION

Mild Cognitive Impairment (MCI) is a symptomatic pre-dementia stage which does not preclude an individual from living alone (Kane, 2017).

MCI Prevalence



- The yearly monetary cost per person in 2010 that was attributable to dementia was between \$41,689 - \$56,290.
- These individual costs suggest that the total monetary cost of dementia in 2010 was between **\$157 billion** and **\$215 billion**.
- Medicare paid approximately \$11 billion of this cost (Delavande, 2013).
- The costs of treatment and care for patients with MCI continues to rise, as the baby boomer generation continues to age, and the number of individuals living with MCI increase.
- Currently **there is no cure or effective treatment** for Mild Cognitive Impairment.
- The focus should be placed on reducing the risk factors, monitoring cognitive function, and non-pharmacological interventions like diet and physical activity (Mehta, 2019).



(Baumgart, 2015)

OBJECTIVES

- To determine if regular physical activity (aerobic training, resistance training, or balance and toning exercise) is effective in prevention of developing dementia in elderly population with mild cognitive impairment.
- To provide recommendations for treatment and prevention of mild cognitive impairment

METHODS

A review of eight randomized control studies was performed.

1. The Mental Activity and eExercise (MAX) Trial: A Randomized, Controlled Trial to Enhance Cognitive Function in Older Adults (Barnes et al., 2013).
2. Long-Term Effects of Resistance Exercise Training on Cognition and Brain Volume in Older Women: Results from a Randomized Controlled Trial (Best et al., 2015).
3. Three months of multimodal training contributes to mobility and executive function in elderly individuals with mild cognitive impairment, but not in those with Alzheimer's disease: A randomized controlled trial (de Oliveira Silva et al., 2019).
4. Resistance training promotes cognitive and functional brain plasticity in seniors with probable mild cognitive impairment: A 6-month randomized controlled trial (Nagamatsu et al., 2013).
5. A 12-Week Physical and Cognitive Exercise Program Can Improve Cognitive Function and Neural Efficiency in Community-Dwelling Older Adults: A Randomized Controlled Trial (Nishiguchi et al., 2015).
6. Combined Intervention of Physical Activity, Aerobic Exercise, and Cognitive Exercise Intervention to Prevent Cognitive Decline for Patients with Mild Cognitive Impairment: A Randomized Controlled Clinical Study (Park et al., 2019).
7. Effects of a moderate-intensity aerobic exercise program on the cognitive function and quality of life of community-dwelling elderly people with mild cognitive impairment: A randomized controlled trial (Song et al. 2019).
8. Effects of multicomponent exercise on cognitive function in older adults with amnesic mild cognitive impairment: a randomized controlled trial (Suzuki, et al., 2012).

RESULTS

- All eight trials showed evidence of the positive effect of physical activity on cognitive function in the elderly population with both mild cognitive impairment and amnesic mild cognitive impairment.
- Physical activity had no effect on participants with early stage Alzheimer's disease, which proves that prevention is very important to delay the progression from mild cognitive impairment to early Alzheimer's.

Most studies attributed the effect of physical activity on MCI to:

- improvement of depressive mood and quality of sleep;
- increase blood flow and oxygenation of the brain tissues;
- reducing the risk factors that can be very detrimental to cognitive functioning and lead to dementia;
- social interaction during group exercising;
- maintenance of high levels of cerebral activity for prolonged periods of time stimulates the production of neurotrophic factors;
- decrease of white matter atrophy, that is important in preserving cognitive function in older adults.

RECOMMENDATIONS

- The findings provided sufficient evidence to support that physical activity could be beneficial to the elderly with mild cognitive impairment.
- Regular physical activity like aerobic exercise or resistance training, twice a week, should be recommended as a part of disease management.
- The modifiable risk factors for developing MCI are Diabetes, mid-life-obesity, mid-life-hypertension, smoking, and history of depression (Baumgart, 2015).
- Modification of lifestyle and risk factors remains the best way to avoid or delay the onset of MCI, as well as impacting the progression of the condition to Alzheimer's disease or dementia (Baumgart, 2015).
- It is imperative to rule out other medical conditions which can present as MCI and treat them if possible (Langa, 2014).
- Routinely screen for cognitive impairment with validated assessment tools to monitor for deterioration (Langa, 2014).



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