



Lifestyle changes to reduce dementia risk

According to the estimation made by Alzheimer's Disease International, 44 million people worldwide have dementia.¹ Although the neuro-degeneration has no known cure at the moment, it is suggested that 1/3² to 1/2³ of the disease cases were attributed to known causes. Modifiable risk factors of dementia, as published by the National Institution of Health of the US,⁴ included diabetes, midlife hypertension, midlife obesity, physical inactivity, depression, smoking, and low education level. This research review will highlight some of the risk factors and the subsequent lifestyle changes.

The World Health Organization recommended adults below 65 years old to engage in no less than 150 minutes of moderately-vigorous aerobic exercise, or 75 minutes of vigorous aerobic exercise on a weekly basis. Failure to remain physically active across the life span, on the contrary, might increase the rate of chronic diseases.⁵ It was revealed that physical inactivity had been the largest risk factor of dementia in the US and the UK.² In Hong Kong, being sedentary between 18 and 64 years of age was also reported to be the largest contributor to late-life dementia.⁶

There is yet an optimal exercising parameter for adults to promote brain health, but it is proposed that aerobic exercise which increases both heart rate and the total oxygen intake, performed in a sustained and ongoing manner, would improve cardiovascular health and subsequently reduce the risk of developing dementia. In clinical research concerning seniors without cognitive impairment, aerobic exercise was reported to associate with better structural brain health, including cognitive networks and hippocampal volumes.⁷ Randomized control trials on aerobic exercise and brain health of seniors without dementia also reported consistent outcomes across exercise interventions, including improved attention, processing speed, and memory.⁸

In the Tobacco Knowledge Summaries published in 2014,⁹ the World Health Organization put forward that 14% of Alzheimer's cases worldwide could be attributed to smoking, and warned that second-hand smoking could increase individual's risk of developing dementia, therefore called for international efforts to enforce tobacco control. A cause to six million deaths per annual,¹ smoking is a known cardiovascular disease risk factor, and also a cause of increased plasma homocysteine, decreased brain cell oxygen and nutrition uptake, and a cause to oxidative stress, therefore accounts for brain degeneration.⁹ A meta-analysis conducted by the Alzheimer's Disease Association¹ reported that compared to those who



never smoked, current smokers had a statistically higher risk of developing Alzheimer's Disease, but those who had quit the habit had a similar risk with those who had never smoked. The authors thus regarded the findings "encouraging," as the heightened risk of dementia could be lowered by a change towards a more brain-friendly lifestyle.

Obesity is strongly associated with diabetes, and is likely to indirectly increase the risk of dementia via vascular and metabolic pathways.¹ A meta-analysis suggested that for those whose BMI exceed 30 during middle age, when compared to those with normal weight, had a relative risk of 1.6. Yet the analysis also pointed out that underweight might also harm brain health.³ A recent cohort study reported a positive association between underweight and heightened risk of developing any type of dementia. The authors also added cautious remark that other health-related factors, such as the amount of exercise, frailty, and diet, could contribute to the development of dementia.¹⁰

A good diet provides essential nutrients to the brain and protects it from harmful effects due to chronic diseases. In this regard, the Mediterranean diet might satisfy the goals. The eating habit consists mainly of fruits, vegetables, cereals, and legumes, with a medium amount of fish and wine, small to medium amount of milk products, and a small amount of red meat and meat products, and has been associated with lowering the risk of diabetes and cardiovascular disorders, both identified to increase the risk of developing dementia.¹¹ It is suggested that the dietary pattern provides sufficient fatty acids, antioxidants, and vitamins, and thus could be promising in reducing dementia risk.¹² A large-scale prospective cohort study reported that a higher adherence to the Mediterranean diet could reduce the chance of declining from intact to impaired cognitive function during an average follow-up of four years.¹³

A comparison of dementia prevalence among people aged 65 years or older between 1991 and 2011 in three regions in the UK reported a decrease in prevalence from 8.3% to 6.5%,¹⁴ a robust result considered as an outcome of public health campaigns. It was thus suggested that the reduction in smokers and improvements in vascular disease management had been effective in delaying or even preventing a significant portion of dementia cases in the population.¹⁵ However, the awareness and knowledge of these risk factors of dementia have not been widely promoted in Hong Kong.⁶ There is a need to include risk factors of dementia in public health education, so that individuals in Hong Kong can be knowledgeable to lead a healthier and more brain-friendly lifestyle, possibly resulting in a reduced incidence of dementia in late-life.



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