

What can you do to prevent dementia?

Age and genes can't be modified, but you can work on other risk factors to delay or prevent dementia, say experts.



Sumiko Tan

Executive Editor

Late last year, I got it into my head that doing jigsaw puzzles could improve my memory and stave off dementia.

I can't remember now (bad sign?) where and what I had read that led me to this conclusion, but I recall ordering a 1,000-piece puzzle from Amazon.

It featured a drawing of a park with a tree in the middle and hundreds of people and dogs playing around it.

The last time I did a jigsaw puzzle was as a child. I struggled with this one and took a whole weekend and many more nights to complete it.

I'm not sure how it helped my brain. I suppose different parts of it were engaged when I processed shapes and colours and figured out how to put them together.

What I definitely achieved, though, was worse eyesight.

Letters on a page that I could read before I embarked on the puzzle were now blurry, and remain so today. My sight had deteriorated after the hours spent peering at the tiny pieces.

Safe to say I'm staying off jigsaw puzzles in my quest to keep dementia at bay.

It used to be that cancer was my biggest fear. In recent years, it has been joined by dementia.

Dementia is a hot topic, and deservedly so.

Longer lifespans coinciding with the ageing of the sizeable baby boomer generation means we are seeing more people with dementia.

Governments, healthcare systems and families are grappling with the financial and social burdens this brings.

The slow and painful decline of one's cognitive functions – for

both the patient and their loved ones – has become a common theme in books, movies and TV shows.

About one in 10 people over the age of 60 in Singapore has dementia and we all know – or know of – someone who has it.

The risk rises as you age, especially after 65. As someone heading there, and with an old parent who could still succumb to dementia, I'm willing to try anything that can prevent it.

DEMENTIA FACTS

Dementia is not a disease. It is the medical term used to describe a pattern of cognitive decline caused by different diseases or conditions.

In dementia, cognitive functions such as memory, judgment, language skills and problem-solving deteriorate to such an extent that it limits a person's ability to function.

Dementia commonly occurs when brain cells (neurons) die and/or their connections are interrupted. These disruptions have a variety of causes and usually cannot be reversed.

Although the elderly are more prone to dementia, younger people can get it, too.

Dementia is not part of normal ageing; many live to an old age without any signs of it.

Dementia is also not the same as age-related cognitive decline where certain areas of thinking, memory and information processing slow with age, but overall function and cognitive ability, at an age-appropriate level, remain unchanged.

The two main causes of dementia are Alzheimer's disease and vascular dementia.

Alzheimer's disease comprises about seven in 10 cases of dementia in Singapore. It is thought to be caused by a combination of age-related changes in the brain, genes, as well as environmental and lifestyle factors.

Vascular dementia is caused by decreased blood flow to the brain, with resulting lack of oxygen and nutrients damaging brain tissue. In some cases, it is due to bleeding in the brain.

Conditions such as stroke or chronic cerebrovascular risk factors, such as hypertension, diabetes and lifestyle habits like smoking, can result in this. Vascular dementia can be preventable because you can lower your risk of the conditions that lead to it.



Other causes of dementia include frontotemporal dementia, Lewy body dementia, Parkinson's disease, autoimmune diseases of the brain and traumatic brain injury.

In July 2024, medical journal *The Lancet* said that addressing 14 lifestyle risk factors may reduce up to 45 per cent of dementia cases.

The risks are less education, hearing loss, high LDL cholesterol, depression, traumatic brain injury, physical inactivity, diabetes, smoking, hypertension, obesity, excessive alcohol, social isolation, air pollution and vision loss.

"These findings provide hope," *The Lancet* said, while also noting that "change is difficult and some associations might be only partly causal".

HEALTHY BRAIN

So, do brain games such as crosswords, Sudoku and, yes, jigsaw puzzles, help?

While there have been studies on whether cognitively stimulating games can improve memory, it is hard to draw conclusions from them given how heterogeneous they are, with varied methodologies and outcomes, said Associate Professor Adeline Ng from the National Neuroscience Institute (NNI).

That said, such games may be used quite effectively as part of treatment for mild cognitive impairment (MCI), said Prof Ng, a senior consultant at NNI's department of neurology.

MCI is a condition where a person shows a greater decline in cognitive skills such as memory, language, judgment or thinking compared with their peers, but remains functionally independent. This is also known as a "pre-dementia" stage, she said.

At the NNI, patients with MCI learn strategies to improve their cognitive function and to maintain good brain health through lifestyle changes. They also take part in group-based activities which provide social engagement.

"What has been clear is that if someone already has mild dementia or more moderate stages, the cognitive intervention is more likely to be less effective at slowing it down," said Prof Ng.

"But what is more important is that it can improve, even for a short period, the overall emotional well-being of the patients and maybe the caregivers as well," she said. "They find that these activities give them more of a sense of purpose and meaning, even if it's just for that period."

She explained that the brain has networks in different areas that are responsible for different things. For example, some

networks are more for planning and thinking, and others for day-dreaming.

"In cognitively healthy people, doing more multimodal sorts of tasks engages your brain in many different aspects, and this makes each network more effective and efficient," she said. Multimodal refers to making use of different cognitive functions or domains, such as memory, planning, language and spatial ability.

It has been found that people in "high-functioning" jobs have better cognitive function as they age and a lower risk of dementia, Prof Ng added.

These are jobs that involve decision-making, problem-solving, managing a team, giving presentations and other activities that require the person to be engaged in their work.

To keep the brain's networks going, an activity such as playing mahjong or Rummy-O with friends ticks all the right boxes, including the benefits of socialising.

"All these games involve a group of people and are multi-domain exercises. You're engaging, you're using language, you're thinking of what to say, and you are also forced to go out, which means you need to stick to a schedule, find your way and navigate," she said. "You're keeping yourself cognitively engaged."

She advises choosing activities you enjoy so you will continue doing it. There's no point doing Sudoku if you hate it.

For someone like me who lives in fear of dementia, what signs should I be looking out for, I asked Prof Ng. Should I be worried that there've been a few occasions while getting ready for work when I couldn't remember if I'd slapped on my sunblock?

The most common sign of dementia is memory loss, especially short-term memory, and when it happens so often that it is noticed not only by you but also others around you.

"Is it something that you alone feel, or your family members also see it? We tend to be more concerned when it's also reported by close family members and close colleagues," said Prof Ng.

"I think we're all allowed a memory lapse here and there, especially if it's triggered by, say, multitasking or not sleeping enough. But if there are not many triggers or confounding factors such as poor sleep and it's happening frequently, we would take it quite seriously." (My sunblock lapse, hopefully, falls into the multitasking category.)

Patients with dementia might forget what they had for breakfast, for example, and turn to their spouse for the answer.

They might have more problems finding the right word in a normal conversation, or their vocabulary gets smaller and simpler. "It may not be so much a language problem but a retrieval problem," Prof Ng said.

"Usually when we forget something, we can still remember after some time or with simple prompts. But when you can't, that becomes a sign."

There are other indications of dementia such as behaviour and personality changes. A quiet person might become disinhibited or a careful person might fall prey to scams.

Speaking to dementia experts reinforced common health messages such as the need for regular exercise, a balanced diet and a social life.

Keeping the brain curious and engaged is another crucial part of the puzzle to keeping dementia at bay.

I might well be the one in 10 who gets dementia at some point, but I'll do my darnedest to stave it off.

So, jigsaw puzzles don't work for me. Mahjong, anyone?

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6 doctors on dementia

1 GOOD SLEEP, LESS STRESS

"Take care of your sleep, mood and exercise.

You need sleep to encode what you've done during the day, to register the information, and for general health and well-being.

Some studies show that reduced sleep worsens the clearance of proteins that may be harmful to the brain. This may possibly lead to the accumulation of these toxic proteins, leading to dementia.

High stress normally affects your sleep, and this leads to high cortisol, which is the stress hormone, and inflammation. All this is linked to brain degeneration.

Research has shown that people who exercise regularly may be less likely to develop dementia than those who don't. A diet high in antioxidants also helps. Working, especially in high-functioning jobs, builds up your cognitive reserve so if you were going to get dementia, you are more likely to develop symptoms later."

Associate Professor Adeline Ng, senior consultant at the department of neurology at the National Neuroscience Institute. She leads the dementia programme there.

2 FORTY PER CENT OF DEMENTIA CAN BE PREVENTED

"Whether one gets dementia or not is a combination of genetic

predisposition, vascular risk factors, lifestyle factors and level of brain reserve, which varies from person to person.

Forty per cent of dementia can be prevented by targeting risk factors such as diabetes mellitus, hypertension, cholesterol, smoking, vision and hearing.

For prevention of dementia, it's best to start in middle age (40 to 60 years).

My main advice would be to ensure adequate cognitive stimulation with a variety of new, challenging yet interesting tasks. Studies have shown that cognitive stimulation can activate brain areas crucial for cognitive processes. This results in improved cognitive reserve.

Every individual would need a different amount of time and complexity of stimulation. This would depend on their personal, educational and occupational profile. The level of difficulty should be tailored to ability and interest. Tasks that stimulate several cognitive processes are better. Use a combination of visual tasks and verbal tasks."

Associate Professor Nagaendran Kandiah, director of the Dementia Research Centre (Singapore), Lee Kong Chian School of Medicine, Nanyang Technological University

3 NEVER TOO LATE TO GET HEALTHY

"Adopt a healthy lifestyle that involves proactive management of overall health.

This includes staying up to

date with regular health check-ups and managing chronic conditions, like hypertension and diabetes, which can directly impact brain vascular health.

Maintaining a balanced diet, staying physically active and prioritising mental well-being are also essential for developing cognitive reserves, which is the brain's "capacity" and hence reflects its resistance to damage that it may encounter.

The higher the cognitive reserves, the more resilient it is to damage. This can explain why people differ in their ability to cope with changes or damage that result from ageing, disease or brain injury. People with higher cognitive reserve may be able to cope with more brain damage before showing symptoms of dementia.

It is never too late to adopt a healthy lifestyle, even at 60. While dementia risk is lowest in people who have healthy behaviours in mid-life (aged 40 to 65), adopting a healthy lifestyle at an older age can still lower your risk of getting dementia, delay the onset of dementia, and slow down the progression of dementia if you have it already."

Dr Arthi Premkumar, associate consultant and specialist in geriatric medicine at Alexandra Hospital

4 BE CAREFUL WHEN YOU HIT MIDDLE AGE

"Pay more attention to your health, especially when you hit middle age (35 to 65 years).

Studies have shown an association between dementia and cardiovascular diseases. So, a good prevention strategy would be to avoid cardiovascular



Associate Professor Adeline Ng



Associate Professor Nagaendran Kandiah



Dr Arthi Premkumar



Dr Yao Fengyuan



Dr Tu Tian Ming



Dr Jennifer Hung

risk factors such as hypertension, diabetes, smoking and obesity. Conditions like hypertension and diabetes tend to set in in middle age. Go for regular screenings so you can detect them early and act.

Refrain from smoking and keep a healthy BMI (body mass index) through exercise and a balanced diet.

Dementia is associated with cognitive decline, so keeping our minds active is important. It helps the rest of the brain to compensate better even if some parts are damaged due to reasons such as stroke or

degeneration. I suggest mind-stimulating games such as crossword puzzles, chess or Sudoku, or learning a new skill.

It has been found that inactive but otherwise healthy seniors who begin an exercise programme experience significantly improved cognitive function. Exercise must be regular and tend towards the more vigorous side."

Dr Yao Fengyuan, senior consultant and chief, department of geriatric psychiatry, Institute of Mental Health

5 HEALTHY LIFESTYLE AND DIET YOUR BEST BET

"Dementia currently has no cure. There are medications to improve the symptoms. There are also new drugs that appear to halt the process but have yet to show long-term benefits. Hence, preventing or delaying the onset of dementia will be the most useful course of action now.

Scientific evidence has shown an inverse relationship between some components of a healthy lifestyle and the incidence of dementia. These include physical exercise, social interactions and mental activities. But it is not known if instituting these interventions will reduce dementia risk.

There is currently no evidence that any form of 'brain training' has prevented dementia in the long term.

More robust evidence shows that cardiovascular risk factors, such as hypertension, increase the risk of dementia. Again, reduction of hypertension has not reproducibly shown a reduction of the onset of dementia.

Dietary factors have been shown to reduce the risk of dementia. Observational studies of a Mediterranean diet have shown it to reduce the onset of Alzheimer's dementia. But these are confounded by population factors. All this suggests that the cause of dementia is multifactorial and reducing a single risk factor is insufficient. A combination of healthy lifestyle and good nutrition is probably the best bet."

Dr Tu Tian Ming, neurologist at Mount Elizabeth Novena Hospital

6 LIFESTYLE IMPACTS BRAIN HEALTH

"Our lifestyle has a profound impact on our brain health. Transforming the way we live can improve our brain and mind and reduce the risk and progression of dementia.

Physical exercise is important, as is mental exercise. I encourage my patients who are retired to follow a daily routine filled with activities and to avoid being mentally sedentary.

We need adequate sleep (at least eight hours per night) and it's important to learn to manage stress. Opt for a balanced, Mediterranean-based diet and avoid processed and fried foods.

Take care of overall medical health, especially cardiovascular health. Finally, staying socially active improves the quality of our lives and relationships and has huge benefits in protecting against cognitive decline."

Dr Jennifer Hung, associate consultant, division of neurology, department of medicine, National University Hospital

Sumiko Tan