

Dementia And The Food Fitness Factor

This article explores the impact of diet and exercise on dementia, highlighting AI's role in early diagnosis and the importance of proactive health-focused lifestyles.
By Henk Hoogenkamp

Dementia is a slowly progressive disease and is expressed by—for example—failing to recognise people, impaired speech, and reduced cognition, which affects socialisation and daily activities.

The inability to communicate verbally can result in mood swings, fear, frustration, crying, and sometimes physical aggression. Additional signs are that reading simple passages do become difficult, confused rambling, sudden loss of train of thought and halting speech.

Cognitive Deterioration

Globally, dementia is the most rapidly growing disease and ranks as the third leading cause of death after cancer and heart disease in certain age groups. About 70 percent of people globally with dementia have Alzheimer's disease, and after diagnosis, these patients have an additional life expectancy of 6.5 years.

According to the WHO, dementia affected about 55 million people in 2024, with approximately 10 million additional people receiving a diagnosis of





this neurodegenerative ailment each year. It is one of the fastest-growing degenerative diseases spreading throughout the world.

Dementia is a description of a person's mental function that ultimately interferes with daily living, including a decline in memory, reasoning, language, mood, behaviour, and coordination.

Memories can be lost all at once from a massive stroke or chipped away by mini-strokes that leave small holes in the brain or are destroyed from within by degenerative diseases like Alzheimer's.

Spreading Rapidly

The most common cause of dementia is Alzheimer's disease. It is estimated that about 7 percent of all people over the age of 65 have some form of dementia, reaching about 50 percent of people aged 85 and older.

As such, dementia is typically seen as a late-life illness, and the CDC projects that in the US, about 14 million people, or 3.3 percent of the population, will be affected by 2060.

In simple terms, dementia is caused by damage to the brain because the brain's nerve cells can no longer communicate properly, or from blocking blood flow to the brain, subsequently depriving it of much-needed oxygen and nutrients.

Without these two components, brain tissue ultimately dies. There is also a group of health issues diagnosed as dementia-like symptoms, many of which can be slowed down. Computed tomography (CT), magnetic resonance imaging (MRI), and neurocognitive testing are proven methods to evaluate the brain's mental functioning.

Alzheimer's is a brain disease, and autopsies reveal plaque buildup on arteries in the brain, or in other words, clogged blood vessels. The blockage prevents blood flow and proper oxygenation in the memory centre of the brain. These plaques are caused by excess cholesterol and fatty deposits.

Additionally, autopsies reveal tangles in the brain caused by the loss of enzymes that keep DNA functioning.

A Real Game Changer In The Making

Artificial Intelligence (AI) has tremendous potential in medicine. It can diagnose diseases, develop

personalised treatment plans, and assist—and sometimes overrule—medical doctors in decision-making, while also suggesting preventive measures for patients.

Currently, AI is being used to interpret images in radiology, ultrasounds, CT scans, and fundoscopy (examination of the eye interior), as well as in cervical cancer screening. AI can not only diagnose faster but also detect—for example—cancer cells that may evade the fatigued eyes of medical specialists, thus generating greater efficiency and accuracy than human vision.

There is no doubt that AI represents a paradigm shift in the treatment of neurodegenerative diseases. Using machine learning to analyse blood samples from patients, similar biomarkers present in people with Alzheimer's can be identified.

For example, AI-powered blood tests can provide early warning signs of significant nerve cell damage up to seven years before it occurs, allowing physicians to address diseases like dementia and Alzheimer's at very early stages where traditional diagnostic methods might not detect them. This knowledge allows for the administration of pharmaceutical therapies at an earlier stage, potentially slowing disease progression or even preventing it altogether.

The human brain uses around 20 percent of a person's total daily energy requirement to maintain functions such as memory and thinking. There is emerging evidence that people diagnosed with mild cognitive impairment (MCI) are less able to utilise glucose as the main energy source; therefore, alternative fuel sources such as medium-chain triglycerides and B vitamins might support brain cell functioning.

MCI is an intermediate clinical state between healthy ageing and dementia, and medical food supplements can positively impact accelerated cognitive decline, slow down the progression to dementia, improve sleep, and therefore enhance the quality of life.

MCI affects around 20 percent of people over 65 and 50 percent over 85, putting them at risk of developing dementia. According to the Gerontological Society of America, as many as 40 percent of dementia diagnoses can be averted in the early stages by modifying long-term eating behaviour.

Controlling Disease

Making all these “advantages” happen is easier said than done. It is common knowledge that elderly consumers are usually reluctant to change their preferred dietary and lifestyle habits, especially when nutraceutical supplements or medical foods are marketed to older individuals. Not only does cognitive capacity decline, but ageing people also face sarcopenia and frailty, which are associated with possible changes in dietary patterns, such as less enjoyment of flavours and decreased chewability.





These variables are further complicated as people age; they eat less, slow down or stop physical exercise, and generally have less appetite. Quite often, older adults fail to meet the minimum levels of protein intake and other key nutrients, such as vitamins and minerals.

The main reason is that as people grow older, anabolic resistance sets in; a condition where the same amount of protein intake is less efficient in converting to muscle synthesis compared to younger individuals.

For this reason, it is generally a good idea to fortify common food products with high-quality protein sources like whey protein isolate to deliver sufficient protein to older consumers who are reluctant to change from the foods they feel comfortable with.

Peer-reviewed studies have made it clear that dementia cannot be reversed. However, it has been proven that a proactive health-focused lifestyle may reduce risk factors. The obvious parameters are:

- Maintaining normal blood pressure
- Maintaining healthy blood sugar levels
- Maintaining a healthy weight
- Keeping blood vessels clear of cholesterol buildup
- Exercising (most days) for 30 minutes
- Stopping smoking
- Reducing or eliminating alcohol intake

- Following a Mediterranean diet, i.e., avoiding ultra-processed foods
- Staying socially active

Less Is More, And More Is Better

Most people know that physical exercise is good for health and well-being. Any amount of physical activity is better than none, and more is better. It requires commitment and dedication to change a person's lifestyle and build the discipline to slowly integrate exercise into everyday routine.

However, it frequently happens that people who decide to start exercising suddenly engage in this routine excessively and disproportionately. A sudden switch to excessive physical exercise not only poses certain health risks but is also a proven way to revert to old sedentary habits.

Long-lasting health benefits can only be achieved by building up an exercise routine slowly and integrating it as a normal part of daily activities. To avoid injuries and maintain motivation, less is often more. A daily 15-minute workout, such as brisk walking, swimming, or simply taking the stairs, is always better than a once-a-week rigorous workout.

Keeping fit and healthy can reduce the risk of dementia. Here is where nutritionally adequate food



choices come into play. There is strong evidence linking prolonged poor dietary choices, such as consuming highly- or ultra-processed foods rich in unhealthy fats and sugars, to increased risks for dementia.

These diets particularly point to a high carbohydrate intake, highly processed snacks, and meat products—including some plant-based meat alternatives—being associated with memory decline. In other words, the inflammatory response might be provoked by long-term consumption of hyper-processed foods.

Intensive lifestyle changes can effectively slow down the progression of mild cognitive impairment or early dementia, thereby improving the quality of life (for a few years more).

Studies have indicated a correlation between mild cognitive impairment or early dementia and dietary intake combined with aerobic exercises for at least 30 minutes a day and mild strength training. This correlation can be further enhanced by incorporating stress management techniques such as meditation, yoga, stretching, and breathing exercises to increase alertness and awareness.

The preferred diet plan includes minimally processed plant-based whole foods, high in complex carbohydrates, such as fruits, vegetables, legumes, whole grains, seeds, and nuts. This diet should be low in harmful fats, sweeteners, and refined carbohydrates like sugar.

Parkinson's Disease Is Not An Old People's Disease

About 5 to 10 percent of people diagnosed with Parkinson's disease are younger than 50 years old. Parkinson's is a progressive disorder that worsens over time, causing symptoms like stiffness, uncontrollable movement, swallowing difficulties, sleep disturbances, depression, and cognitive decline.

The disease likely begins about 20 years or more before symptoms become apparent. Some of the early symptoms of Parkinson's disease include constipation and a reduced sense of smell. A positive diagnosis is usually confirmed only when dopamine-producing cells in the brain are damaged.

Increasingly, neurologists are pointing to air pollution—mainly caused by heavy industrialisation and the use of agricultural pesticides—as a contributing factor to Parkinson's disease.

The number of global Parkinson's disease patients has doubled since 2000, and it is projected to double again by 2024. The increase in Parkinson's disease patients is particularly rapid in China and the US compared to other parts of the world.

In the Netherlands, the number of Parkinson's disease patients has increased by 30 percent since 2014. However, the Netherlands has implemented strict regulations on the use of certain pesticides and trichloroethylene, resulting in fewer people being exposed to these harmful substances.

The Dopamine Pump

Fortunately, the future for Parkinson's disease patients is becoming brighter, with the development of devices that allow patients to directly “inject” dopamine into their brains, providing rapid relief from tremors and uncoordinated movements. This procedure is done via an implanted pump device, which patients can control to regulate dopamine infusions, offering a more targeted treatment than traditional oral medications. **APFI**



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