

Growing Old Intelligently



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It happens to us all eventually... we wake up one day and suddenly realise we're getting old.

It starts with almost imperceptible aches and pains we barely noticed before... then we get used to the idea we're not sleeping through the night anymore... we're having to get up to go to the loo at three-o'clock in the morning. Over the next few years, we notice we're skulking off to bed earlier.

We start to grow less tolerant of the world, with all its ridiculousness... And then suddenly, despite the ignorances of our youth, we finally realise that we're getting old... and we accept that there's no way back to our exuberant youth, with all its energy and adventure.

We knew this would happen one day of course... back in the days when we thought we were immortal, indestructible, and knew everything. Now, all we can do is to grow old gracefully... healthy... with dignity... and with all our memories intact.

The secret of long life is to treat physical and mental health with equal respect.

Taking moderate exercise – like going for a short walk, doing a little gardening, washing the car, meeting friends for a drink or going to the theatre – even doing a crossword puzzle can help keep you mentally healthy and stave off dementia. In fact, going for a short daily walk can shave up to 10 years off your brain age. Even just climbing the stairs improves thinking skills and, believe it or not, the positive effect of physical activity actually *increases* with age. Regular moderate aerobic exercise boosts essential grey matter in all adults.

In research carried out by scientists in New York and published in the journal *Neurology*, all participants who took regular moderate exercise not only showed improvements in executive function but also increased the physical health of their brains. Specifically, exercise improved a person's ability to regulate their own behaviour, regulate emotion, exercise self-control, pay attention, plan, organise, initiate tasks, and achieve goals.

For the research, 132 people aged between 20 and 67 were randomly assigned to six months of either aerobic exercise or stretching and toning four times a week. None of the participants smoked or had dementia and had not exercised before the study. They also had below average fitness levels.

The researchers found that exercise such as walking or playing gentle sports such as bowls was twice as effective as running or stretching and toning. The exercise also improved their overall scores on executive function tests. Surprisingly, the level of improvement was slightly higher in the older participants. Thinking skills improved in older participants and the results suggest that aerobic exercise is more likely to reduce age-related decline.

Even just walking to the local shop every morning could help you live longer because the benefits are similar to that of cholesterol-busting statins. Even ten minutes of leisurely activity, such as gardening, reduces the risk of cognitive decline. Analysing data from adults in their 70s, 80s and 90s, the researchers discovered venturing outside more also boosted their lifespan! 78 year-olds who ventured out every day were 28% more likely to

reach 85 than those who only went out once a week. For 90 year-olds who went out every day, there was around a 26% chance of living longer.

Apart from the physical exercise, simply getting out of the house and engaging with the world is another factor that can delay decline because social activity is an important factor in the ageing process. University of Illinois psychologist Arthur Kramer has convincingly demonstrated that aerobic exercise improves cognitive functioning and there is robust evidence exercise has positive effects on the brain, and can help prevent the onset of dementia. Playing 'complex' sports such as badminton is good also for your brain because Badminton requires the player to make decisions and use co-ordination.

A team at Tohoku Gakuin University, Japan, recruited 20 adults who played badminton and walked on a treadmill for ten minutes, with a ten minute rest after each activity. All the participants took a test before and after each session which involved matching words to colours. Average test scores increased from 53.6 to 57.1 after playing badminton. Scores increased from 55 to 57.2 after running.

In badminton, players are required to not only grasp the speed and orbit of the shuttle and the spatial position of the opponent, but also to choose appropriate shots and perform them. These kind of cognitive demands activate regions of the brain concerned with executive function. These results were reported the journal *PLOS One*.

An article in the *Harvard Health Letter* by executive editor Heidi Godman, confirmed exercise can boost the size of certain parts of the brain, stimulate healthier brain cells and improve sleep.

Research from the University of British Columbia, Canada, showed that people who did regular aerobic exercise – running, swimming or cycling – have a larger and more active hippocampus, which is associated with memory, learning and emotion. Researchers at the University of Western Sydney and the University of Manchester found that being active several times a week maintains the size of the hippocampus Other research adds that the prefrontal cortex and medial temporal cortex – regions control thinking and memory – tend to be larger in people who exercise more often.

Exercise can also reduce inflammation which can damage cells in the body. It can also stimulate the production of growth factors – chemicals affecting the health of brain cells and the growth of new blood vessels that dispense more oxygen to the brain. Exercise also helps people to sleep better and have reduced stress and anxiety, all of which have been shown to have positive effects on brain power and mental health.

In a study published in 2012 in the American Heart Association journal *Stroke*, scientists said that exercise doesn't need to be excessive – just 30 minutes three times a week is enough.

Researchers at the University of Lisbon Santa Maria Hospital in Portugal, found those who exercised regularly for a total of 90 minutes a week – less than recommended levels – reduced their risk of vascular-related dementia by 40% and impairment in brain skills by 60%.

Researchers at the Mayo Clinic in the United States reviewed the evidence on exercise and cognition, and reported in *Mayo Clinic Proceedings* in 2011 that any exercise that gets the heart pumping – including walking, strength training and even raking leaves – may reduce the risk of dementia and slow the condition's progression even after it starts.

The Alzheimer's Society says that mild cognitive impairment affects between 5% and 20% of people over 65 in the UK. According to the Alzheimer's Association in the US, 15% to 20% of older adults have the condition. Statistics suggest 5% to 15% of sufferers go on to develop dementia.

As yet, there is no known way to prevent this, but all the studies suggest lifestyle habits such as exercise can boost cognition. (Reported in the *Journal of Alzheimer's Disease*.)

Going to the theatre or a museum or art gallery once a month could dramatically reduce your risk of premature death. University College London researchers tracked nearly 7,000 adults over the age of 50 for 12 years. Participants who engaged with the arts every few months were 14% less likely to die by the end of the study. Visiting museums, theatres, art galleries more frequently, say once a month, cut the risk by 31%.

The research adds to evidence that engaging in art, whether playing a musical instrument, painting, or admiring art, can benefit your mental – and physical – health.

There is a link between health and physical activity and the arts. Academics believe that watching a West End show or just the local amateur theatre really could improve mental health and encourage physical activity. Becoming engaged with a complex whodunnit or an exciting musical is the perfect way of stimulating the brain.

According to a major review published by the World Health Organisation, taking music lessons, singing in a choir or learning calligraphy can all benefit health. The WHO looked at the ways in which the arts can prevent and treat illness. Among those which showed 'a robust impact of the arts on health' included dance for PTSD to relieve tension in muscles and group-knitting to encourage socialising in dementia patients.

The WHO claimed that taking part in the arts showed at least comparable or stronger effects than medication or exercise and that engaging with the arts is valuable for an array of health problems.

The frequency of art activities, including going to the opera and visiting art galleries, was measured at the start of the study in 2004-5. Participants were followed up for an average of 12 years and the Results were published in the *British Medical Journal*.

Of the 6,710 participants, a third – 2,001 – died of old age before the study was complete. However, the results highlighted the importance of continuing to explore new social activities for better health. This was the first research to confirm engaging in the arts may halt early death. A number of other studies have shown that those who get involved have improved physical and mental health. The growing evidence supports social prescribing schemes – a crucial part of UK government health policy.

There is a connection between sleep deficiency and the risk of dementia – getting five hours or less of sleep a night doubles the risk of dementia.

Researchers from Brigham and Women's Hospital in Boston looked at data from 2,812 US adults aged 65 and over. 'Very short' sleep duration (defined as five hours or less) doubled the risk of dementia compared to the 'recommended' duration of seven to eight hours. The study backs up previous research that too little sleep essentially 'sets the stage' for forms of dementia like Alzheimer's.

It's possible that a lack of proper rest prevents the brain from clearing out the toxins that trigger an ongoing decline in brain function. Recommended sleep duration is 7 to 9 hours for adults between 25 and 64, and 7 to 8 hours for adults aged 65 or over.

Alzheimer's disease is the most common form of dementia and may contribute to 60% to 70% of dementia cases. More than 920,000 people in the UK are living with dementia – a figure that's expected to rise to more than a million by 2024, according to the Alzheimer's Society UK.

Both sleep disturbance and abnormal sleep duration, although both possible to modify, are associated with the development and progression of Alzheimer's. Recent research also suggests adults above the age of 65 who report signs of good sleep health, such as waking and feeling refreshed, demonstrate better cognitive function. According to the Sleep Foundation, there is more sleep disturbance reported among older adults than any other age group.

Routinely taking 30 minutes or longer to fall asleep was associated with a 45% greater risk of incident dementia. Experiencing difficulty in maintaining alertness, routinely napping, reporting poor sleep quality, and sleeping five or fewer hours per night was associated with increased risk of early death.

Sleep inefficiency, or spending too much time wide awake in bed, is associated with a 24% greater chance of cognitive decline.

The study was published in the *Journal of Neurology, Neurosurgery, & Psychiatry*.

The study uncovered a cleansing process that takes place in the brain during sleep – fluid that is normally on the outside of the brain – a clear cerebrospinal fluid – actually begins to recirculate back into and through the brain along the outsides of blood vessels.

At the other end of the scale, a 2019 study found that people who slept for nine hours or more per night showed a significant decline in memory and language skills, both of which are early markers for dementia.

A lot of people openly admit they are not the healthiest person on the planet, but this mind-set could be dangerous for our health and wellbeing. Researchers at Stanford University tracked medical data on more than 60,000 Americans and found that those who saw themselves as less active were 71% more likely to die years later.

According to the Stanford researchers, people who view themselves as less healthy than others are at risk of suffering a premature death – no matter how active they actually are!

The research and results were published in *Health Psychology* and is just one of many studies that show how our thoughts, feelings and beliefs have a direct impact on health.

In 1980, the team collected and documented information about participants health, background, and levels of physical activity. All the participants were asked whether they considered themselves to be physically more active, less active, or about as active as other people of the same age.

21 years after the initial survey, the researchers then collated the death records from 2011. After controlling for such factors as physical activity, age, body mass index, and chronic illnesses, they discovered that people who saw themselves as less active than others were

up to 71% more likely to die in the follow-up period than people who thought they were more active than others.

It seems that the health benefits people get out of everyday activities depends in part on their mind-set – in other words, getting actual healthy benefits from exercise depends whether or not they *believe* they are getting health benefits from exercise. The researchers also cited the well-understood influence of the placebo effect, where patients who think they're getting treatment experience physiological changes even though they're not actually getting any treatment. People who believe they're getting healthy exercise often get more physiological benefits from their exercise than those who believe they don't get enough healthy exercise.

A lot of effort, notably in public health campaigns, is geared toward motivating people to change their behaviour – to eat healthier, exercise more and reduce stress.

As the placebo effect is well established in medicine, it is only logical to assume that it also plays a role in shaping the benefits of healthy exercise. An increasing volume of research shows that both positive and negative perceptions of healthy living really do affect one's health and longevity.

We don't realise just how much our thoughts, our mind-set and our expectations affect our everyday physiology. Even with everyday experiences, even simple thoughts and beliefs have very palpable physiological effects on our bodies. For example, a simple thought or idea can have an immediate effect on sexual arousal in the same way the mere sight of a spider can inspire feelings of dread.

In the case of stress – which is so closely linked to emotion – a single negative thought that something is wrong can make us sweat or increase our heart rate. Both positive and negative thoughts, feelings and emotions will have a physical constituent and be expressed in physiological reactions. In the same way, a doctor who tells a patient they can expect to make a full recovery is helping that patient far more than saying there will be a long and hard road to recovery. Humans experience these kind of reactions all the time and the process is the core mechanism of Suggestion.

Being mindful of, and feeling good about activities you do every day – like using the stairs, walking, or doing everyday chores could be an easy first step for everyone to improve their health. Just as important, is *believing* these things will make us healthier...

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