

- Brain—diseases

# How you can fight back against risk of dementia

So many medical conditions put millions in greater danger of brain decline. Here, a top expert analyses five compelling case studies — and has lessons we can all benefit from

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Within two years it's expected that the number of people living with dementia in the UK will exceed one million — up from the current 920,000. Those affected may experience not only memory loss but confusion, mood changes and difficulty with everyday tasks such as counting money and remembering when to eat and drink.



Picture: DAMEN McFADDEN/GWEMERHENTH

doesn't make enough of the thyroid hormone. This can slow down metabolism, making you tired and prone to weight gain. I was diagnosed in 2008 and control it with medication called levothyroxine. It means I keep a particular eye on my weight — I weigh 1st 7lb and am 5ft 4in. I adore chocolate but keep it to half a bar per day and I follow a 16-hour fasting regimen — which means consuming my eating within an eight-hour window. It seems to make a

careful about what she eats. There is an association between high-sugar intake and Alzheimer's, as high sugar levels can lead to type 2 diabetes, which is a risk factor. Animal studies suggest that intermittent fasting can slow the progression of Alzheimer's-related changes in the brain. Small studies in which intermittent

University College London found someone who sees friends daily at the age of 60 is 12 per cent less likely to develop dementia than those seeing friends every few months. Vitamin supplements have little benefit in people with a balanced diet but those with little exposure to sunlight may be low in

I thought I was resilient to Covid-19. But last November I succumbed and it developed into pneumonia. I also had a blood clot on my lung and ended up spending a week in hospital. I still get breathless but I walk regularly — although before Covid I also went to the gym three times a week. I lead a pretty healthy life. I eat very little meat, and I don't drink or smoke. I just wish I could shake off the

But why are cases rising so fast? the fact that we are living longer is often cited as the principal reason, but it isn't that simple.

According to the Alzheimer's Society, around four in ten cases of dementia may be prevented by addressing lifestyle factors such as eating a balanced diet, staying physically and mentally active, keeping blood pressure and cholesterol in check and not smoking. All these can help keep our brains healthy.

But some risk factors are impossible to avoid — women, for example, are slightly more likely to develop dementia than men, and genes can contribute to your risk.

A recent landmark study identified 42 genes linked to the disease — adding to the 30 or so previously identified. This leaves the door open for improved diagnostics and treatments, which currently are lacking.

The good news is that identifying elements of a person's health and lifestyle that may put them at increased risk can enable them to take steps to cut the likelihood of developing dementia in the future.

We talked to five people whose chance of developing dementia may be greater due to a variety of risk factors. Then Professor Paul Matthews, director of the UK Dementia Research Institute at Imperial College London, assessed their risks and suggested lifestyle adjustments that might help — and it is advice we can all benefit from.

#### RECOVERING FROM A HEAD INJURY

Guy Eaton, 55, a company director, lives in Hackney, London, with his wife Megan, 51, and their children, Eliza, 18, and George, 16. He says: My MUM suffered with Alzheimer's (the most common type of dementia) for seven years and died last June, at the age of 81. She was such a clever woman and, after her children had grown up, studied for a degree and a Master's. It was awful to watch her succumb to the disease and it makes me nervous about my risk.

I've always been in good health but last September I had a fall from my bike — I fell backwards after slamming on the brakes.

I suffered a small crack down the left side of my skull and was in hospital for six days. Scans showed no sign of any permanent damage and I've gradually been returning to work.

I try to keep fit: I ski, go hiking, and cycle. I gave up my two-packet daily cigarette habit and simultaneously took up running when I was 33. I'm also a vegetarian.

I just hope this is all enough to protect me. **EXPERT VERDICT:** Estimates suggest that people who have a first-degree relative with Alzheimer's may have a 30 to 70 per cent greater risk of developing the disease themselves because they share many disease-causing genes.

However, Alzheimer's is a disease of old age for most people. So even in a worst-case scenario, if Guy had a 70 per cent increase in risk as a result of his mum having it, that still might only mean his risk goes up from 3 per cent to about 5 per cent for developing the disease before he is 74.

However, having had a head injury could increase his risk further, especially since it happened when he was middle-aged and, as we age, the brain becomes less resilient.

Trauma to the head can damage the brain — it's like a blancmange suspended inside the hard, bony skull. Any lasting damage from a head injury could more than double someone's risk of dementia. This may be the result of triggering a chronic inflammatory response and the tearing of small blood vessels and nerves as the brain moves with impact.

I'm glad Guy has given up smoking, which increases the risk by about 40 per cent. As he gave up more than 20 years ago, this is no longer a contributing factor.

Otherwise, Guy is doing everything he can to protect against the disease. He is a vegetarian, which may help, although this is a controversial area: scientists cannot yet determine whether meat-eating causes dementia or if the kind of people who eat more meat are at higher risk of dementia for other reasons.

Guy keeps physically active which, along with social engagement and maintaining an active mind, is one of the best prescriptions we currently have for warding off dementia.

#### HEARING LOSS AND DIABETES

LAURA CORBRIDGE, 38, a veterinary manager, lives in Newbury, Berks, with her husband Ben, 34, who works in finance. She says:

I HAVE hearing loss in both ears caused by damage to the nerve running from the ear to the brain. I was diagnosed when I was five and it seems to be hereditary as my siblings have it, too.

I used to struggle because the old-fashioned hearing aids didn't look terribly attractive, and I felt there was a stigma attached to wearing them, especially when I was a teenager.

So i learnt to lip-read — which does mean you have to concentrate hard when people speak. however, i now have discreet hearing aids, so i no longer have to lip-read.

i was diagnosed with type 2 diabetes out of the blue around four-and-a-half years ago and control it with tablets and a healthy diet. At the time, i had a stressful job and was about 10 kg overweight.

the diagnosis really shocked me and forced me to improve my lifestyle, so i gave up my weekly packet of cigarettes, cut down on alcohol and now watch what i eat.

We moved from London to the countryside about two-and-a-half years ago and now i walk everywhere.

My mind is always buzzing, not least because my work is varied. i used to do a lot of sudoku but now prefer online strategy games, matching up colours and shapes. i hope i'm doing enough.

**EXPERT VERDICT:** Laura is active, socially engaged and regularly challenges herself mentally through her work and hobbies. Unfortunately, diabetes is a cause of dementia (and Alzheimer's specifically), although why is not clear.

One theory is that diabetes may lead to changes in important fats that regulate the production of Alzheimer's-related proteins in brain cells; another is that diabetes increases inflammation in the brain.

Keeping the diabetes wellcontrolled — through a healthy diet and exercise and taking any prescribed medication — is vital to reduce the risk of Alzheimer's and there is growing evidence that suggests some diabetes medicines (such as metformin) may directly help to prevent it.

Laura also has hearing loss and while this might predispose her to dementia, the evidence isn't clear. Age-related hearing loss is a well-recognised risk factor but we don't have evidence that treating hearing loss changes the likelihood.

What is important is that Laura's hearing aids enable her to remain socially and mentally engaged. it may be that hearing loss affects dementia risk by making it harder for people to stay socially connected. Keeping up reading, writing and playing games in later life could delay dementia, although the evidence on this is mixed. But living in the countryside could potentially have a protective effect. Some studies suggest tiny air pollution particles can enter the brain and trigger inflammation.

#### UNDERACTIVE THYROID

EMMA GOSLING, 48, a hypnotherapist, lives in St albans, Herts, with her husband andreas, 42, a technology architect, and their son, Luca. She says: My GRANDMA died from Alzheimer's in 2001, aged 84 — and if someone like her who had a lively mind can get it, anyone can. her mother also had it.

i do what i can to keep my own mind active by listening to Spanish podcasts. i learnt the language when i lived in Spain for nine years.

healthwise i have slightly raised cholesterol, which i'm told might be connected to hypothyroidism — whereby the thyroid gland

doesn't make enough of the thyroid hormone. This can slow down metabolism, making you tired and prone to weight gain. I was diagnosed in 2008 and control it with medication called levothyroxine.

It means I keep a particular eye on my weight — I weigh 8st 7lb and am 5ft 4in. I adore chocolate but keep it to half a bar per day and I follow a 16-hour fasting regimen — which means containing my eating within an eighthour window. It seems to make a difference in maintaining a healthy weight.

I also take magnesium, vitamins C and D, and a probiotic for my overall health.

I don't exercise enough, though: I average a 20-minute walk a day. I just don't have time for more. **EXPERT**

**VERDICT:** Having a second-degree relative — in this case Emma's grandmother — only marginally increases her risk of dementia.

Emma's history of hypothyroidism is, however, a wellrecognised cause of 'brain fog'. But while untreated hypothyroidism can lead to problems with thinking and some forms of dementia, it does not cause Alzheimer's. It's good that Emma is careful about what she eats. There is an association between highsugar intake and Alzheimer's, as high sugar levels can lead to type 2 diabetes, which is a risk factor.

Animal studies suggest that intermittent fasting can slow the progression of Alzheimer's-related changes in the brain. Small studies in which intermittent fasting is combined with other positive lifestyle changes — such as

aerobic exercise and muscle strength building — have suggested it can improve thinking in middle-aged people at higher risk of Alzheimer's disease.

Emma is testing her brain by using a second language — nerve cells in the brain that are active make chemicals that help to sustain other nerve cells. While the brain is always active, engaging it in learning new things and interacting with people seems to make it more resilient, perhaps by encouraging continued plasticity.

Socially engaged people who keep their minds active — say, with challenging mental tasks and hobbies — have a lower risk of dementia generally. A 2019 study by

University College London found someone who sees friends daily at the age of 60 is 12 per cent less likely to develop dementia than those seeing friends every few months. Vitamin supplements have little benefit in people with a balanced diet but those with little exposure to sunlight may be low in vitamin D, which is a risk factor for Alzheimer's, albeit a small one. So, it's helpful that Emma takes the supplement.

**SERIOUS EFFECTS OF CORONAVIRUS** Carole railton, 75, a business body language expert, lives in London. She says:

BEFORE the pandemic, my work took me all over the world. It was so stimulating, mixing with different people and cultures. I'm still busy, but these days it's online.

Having visited so many countries

I thought I was resilient to Covid-19. But last November I succumbed and it developed into pneumonia. I also had a blood clot on my lung and ended up spending a week in hospital.

I still get breathless but I walk regularly — although before Covid I also went to the gym three times a week.

I lead a pretty healthy life. I eat very little meat, and I don't drink or smoke.

I just wish I could shake off the last symptoms of the virus. **EXPERT VERDICT:** The virus that causes Covid-19 — SARS-CoV-2 — is not believed to enter the brain, but the inflammation that it causes can injure nerve cells there.

A recent study by Oxford University looked at brain scans of people before and after they had Covid-19 and found that in olfactory-related regions, responsible for smell, their brain volume shrank more than in a control group who did not get Covid. Survivors of Covid infection also took longer to complete cognitive tests and achieved poorer scores compared to their peers.

These results suggest an effect on the brain but do not explain why. However, the brain is 'plastic', meaning it can heal itself over time so the changes may be reversible. Time will be needed to understand whether Covid contributes to the risk of dementia. Carole should continue to follow her healthy lifestyle. Hopefully, when she fully recovers from Covid, she will be able to travel more. This will mean more social engagement, which we know is important for brain health.

#### HIGH BLOOD PRESSURE

Jonny Whelan, 49, is a regional manager for a recruitment company. He lives in Dundee with his partner Fiona, 48, an environmental manager, and their sons Olly, ten, and Finn, eight. He says: I'VE ALWAYS been very active — I've played semi-professional football, golf and been a regular gym-goer.

However, about 14 years ago, my mum was diagnosed with high blood pressure at the age of 60, so I thought I'd have mine checked, too. I was stunned when the GP told me mine was high.

I was even more shocked when he told me I'd have to be on medication for life to control it. I now take the drugs amlodipine and perindopril daily.

My blood pressure is pretty much controlled but I have a busy life. I have a three-hour commute at least a couple of times a week.

My brain is always buzzing but I relax by being with the family, playing sports, and watching quizzes on the television. I also love socialising.

Fiona makes sure I eat plenty of fruit and vegetables. I don't smoke and only drink socially. I try to keep an eye on my weight — I'm 6ft and weigh around 13 st. **EXPERT VERDICT:** It's important

that Jonny's blood pressure is well controlled. High blood pressure is associated with a significant increase in the risk of dementia and is the major cause of stroke and chronic vascular disease of the brain, both of which can cause dementia.

A blood pressure of 121/81 to 139/89 is on the high side but lifestyle changes such as eating less salt, more fruit and veg and losing weight may be enough to reduce it. If readings are consistently at or above 140/90, you'll need medication, too.

It is good that Jonny has a stable family. Maintaining social engagement appears to lower or delay the risk of dementia. It may be that this involves using cognitive skills such as memory and language, which can help develop a cognitive reserve [the ability of the brain to function well despite being damaged]. A family can help with this.

Solving problems and doing quizzes might help to delay or slow the onset of the earliest symptoms of dementia. Jonny's body mass index is almost 25 — the top end for a healthy weight range for his height. He is, however, very active and gets plenty of exercise, which is associated with lowering the risk.