

China's doctors are racing to see if Vitamin C can beat coronavirus

Victoria Lambert

Desperate to avoid coming down with a winter cold or worse, plenty of us will be dosing up on vitamin C supplements — and doctors in [China](#) are even looking into its effectiveness against [coronavirus](#).

Research into new and exciting uses such as battling sepsis and memory loss is also under way.

We spend more than £880 million on vitamin C supplements globally, with that figure expected to top £1.1 billion by 2024.

Its popularity is rooted in the belief that vitamin C can prevent colds — a theory first set out in 1970 by Nobel Prize-winning scientist Linus Pauling. He was convinced of its benefits and personally took 3g a day, although much of his research on the vitamin was later discredited.

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Eating one medium orange will provide almost double the daily amount at 70mg, and two medium tomatoes will hit the goal at 20mg each (stock image)

World Health Organisation advice on how to avoid Coronavirus

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LIVE

Certainly, when it comes to infections or a virus such as flu, it is accepted that vitamin C is part of the immune response and quickly becomes depleted. It helps by encouraging the production of white blood cells that fight disease, attaching themselves to, and killing, invading microbes.

However, multiple studies have failed to back up Pauling's theory of vitamin C as a preventative supplement and, according to a 2017 report by the authoritative review board the Cochrane Collaboration, the best we can hope from taking a well above average daily 1,000mg of vitamin C is shortening the length of a cold by 8 per cent — about 0.4 days.

Higher doses than this have been found to shorten colds further — research from the University of Helsinki in 2017 found that daily doses of 6g to 8g could shorten symptoms of a cold by 19 per cent. But in the general population, vitamin C was not found to have any preventative effect.

In other words, while it might help fight a cold, supplementation didn't alter how frequently people come down with one.

The NHS recommends healthy adults consume 40mg of the vitamin daily. 'We are all genetically deficient as we do not naturally provide the vitamin C we need,' says Dr Thomas Levy, a U.S. cardiologist and author of *Primal Panacea*, a new book about the uses of vitamin C.

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Although vitamin C may not be the way to avoid the winter bugs, scientists are increasingly looking to use it as a treatment for other conditions, from coronavirus to memory loss.

COvid-19

In China, a study is under way to see if high doses of vitamin C can help fight off coronavirus (officially known as COVID-19). Scientists at the Zhongnan Hospital of Wuhan University are testing its effects on 120 patients who have the virus, giving them daily infusions of 24g of vitamin C for seven days. Results have not yet been published.

The dosage being used in China is around 60 times as much as the NHS daily recommended amount and 24 times the amount trialled against colds in reviews by Cochrane.

In tests, vitamin C has worked against every virus — if given in sufficient concentration, says Dr Levy.

Dr Mike Skinner, a virologist at Imperial College London, says we won't know vitamin C's value against coronavirus for some time, and says the dose being tested is 'massive'. 'They're doing the trial,' says Dr Skinner 'Let's see if it has any benefit.'

MEMORY LOSS

Could a lack of vitamin C also be a factor in brain health?

Researchers from the University of Copenhagen found that vitamin C could be a key factor in the prevention of cognitive decline caused by ageing and disorders such as dementia.

Their review, published in the journal *Nutrients* in 2014, reported a direct effect of vitamin C deficiency on brain function throughout our lives, from development in the womb to regrowth following a traumatic brain injury such as a stroke.

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In another study involving 80 healthy adults, researchers in Australia found that vitamin C supplementation could improve performance on tasks involving attention, working memory and decision speed.

The report, in the journal *Frontiers In Aging Neuroscience* in 2019, suggested that further investigation could be useful in elderly groups as they are most likely to be deficient. Vitamin C is thought to have a protective effect on brain cells and tests on mice have found that extra vitamin C improved memory and ability to do tasks such as navigating mazes.

SEPSIS

New research into the use of vitamin C therapy for sepsis — where the body's immune system overreacts following infection, with potentially fatal results — is positive. In the UK there are about 48,000 deaths a year connected to the condition.

Now U.S. researchers at the Virginia Commonwealth University have discovered that intravenous vitamin C given every six hours for four days within hours of admission reduced the risk of patients with sepsis dying from 46 per cent in a placebo group to almost 30 per cent in the vitamin C group after a month.

On average, the vitamin C group spent three days fewer in intensive care and a week less in the hospital overall. 'This therapy could potentially transform the way we care for sepsis patients,' says Dr Alpha Fowler, a lung disease specialist who led the research last year.

Professor Ron Daniels, a consultant in critical care at University Hospitals Birmingham NHS Foundation Trust, says researchers have been exploring the potential of vitamin C in the management of sepsis for several years now.

'Results have been variable, with some studies suggesting benefit and others not,' he says. 'The evidence is not yet enough to revolutionise sepsis care.'

METABOLIC ISSUES

Doctors use the term metabolic syndrome to describe conditions including obesity, high blood pressure and high blood sugar, that raise the risk of type 2 diabetes, fatty liver disease (the build up of fat in the liver), and cognitive dysfunction.

Now researchers from Oregon State University have reported that anyone affected by metabolic syndrome might need more vitamin C.

Their 2019 study, published in the journal *Redox Biology*, suggests that the high saturated fat, low-fibre diet that raises the risk of metabolic syndrome can disrupt the natural gut flora – or microbiome.

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When this happens, some types of harmful bacteria can pass into the bloodstream where antioxidants such as vitamin C are needed to neutralise them – this can cause a deficiency if the vitamin is not replenished.

Professor Maret Traber, who led the research, said: ‘People with metabolic syndrome can consume the same amount of vitamin C as people without the condition but have lower levels of vitamin C in their blood.’

The researchers believe that further work is needed to establish whether vitamin C supplements could have a positive effect on reversing aspects of metabolic syndrome.

HOW MUCH IS TOO MUCH?

The NHS warns that taking extremely large amounts (more than 10g per day) of vitamin C can cause stomach pain, diarrhoea and flatulence.

But ‘there is no known level of vitamin C which is toxic’, says Dr Levy. ‘This is because vitamin C is water soluble, so anything the body doesn’t use will be excreted in urine.’

However, he warns that in cases of kidney failure, supplements should only be given with close monitoring. This is because when the kidneys – which make urine – are failing, it is more difficult for the body to excrete excess vitamins.

Under the microscope

Olympic rowing gold medallist James Cracknell, 47, answers our health quiz

Can you run up the stairs?

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