

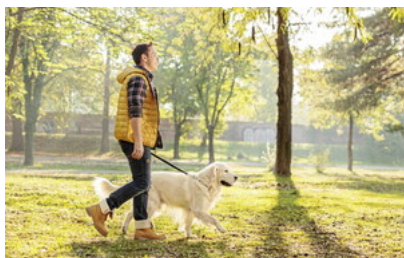
Why even mild Covid is now being linked to long-term heart trouble

Many of us have had the Covid-19 infection, and recovered in days. But now worrying research suggests there could be a nasty sting in the tail, writes John Naish, who hears that convalescence is 'what we all need after Covid'



Scientists suggest that Covid-19's spike protein - which it uses to invade human cells - can cause an outbreak of localised inflammation in heart tissue that is so intense that it damages the muscle.

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(<https://binaries.irishnews.com/2022/09/29/135808071-5b239f2c-a891-4d0f-a1dd-fd2384bfb387.jpg>)

Long Covid patients should try to keep active within their own limits.

TWO weeks after falling ill with Covid, TV doctor Xand van Tulleken thought he was on the mend, when he suddenly took a turn for the worse.

"I woke at 3am with my heart rate rushing at 170 beats per minute [it should have been about 60] and in a chaotic rhythm. I felt bad: faint, sweaty, breathless, panicky," he says.

This was March 2020, at the start of the pandemic, when little was known about the typical course of the infection.

But Xand's training as a public health doctor left him in little doubt that he had developed atrial fibrillation, a dangerous heart rhythm disorder where abnormal electrical impulses cause an irregular and often racing heartbeat. It can lead to stroke and, in extreme cases, heart failure.

"I believed that my heart-rhythm problem arose most likely as a result of the virus inflaming my heart," he says. Realising the seriousness of the situation he raced by taxi to University College Hospital in London.

"The emergency doctors shocked my heart to stop it temporarily, allowing it to restart in a normal rhythm, a process called cardioversion," he adds.

With his heart beating more normally, Xand was prescribed bisoprolol, a type of beta-blocker - medication that alters the heart's response to nerve impulses, slowing its rate to reduce the risk of further heart-rhythm problems. But it didn't.

"My heart went into atrial fibrillation several times after that, meaning I had to go through the cardioversion process repeatedly," he says.

A year after his original infection, in 2021 Xand had to return to hospital for an ablation, a procedure that uses freezing liquid nitrogen to 'burn' heart tissue, creating scarring that disrupts the electrical signals that cause irregular heartbeats.

"Surgery took about 90 minutes and I was awake throughout," he recalls.

"It wasn't painful but it definitely wasn't enjoyable. When it got to the bit where they froze the heart tissue with liquid nitrogen in a balloon threaded through my artery, I was gripped by a sense of impending doom."

Xand now feels recovered, mercifully. But millions of others have been left facing similarly dangerous and debilitating heart problems in the wake of Covid.

Some 23 million Covid infections have been recorded in the UK, although it's estimated that many more cases have gone unrecorded because those affected weren't tested.

Two million people in the UK are living with long Covid, data from the Office for National Statistics (ONS) revealed in June. It classified long Covid as experiencing symptoms more than four weeks after a coronavirus infection.

Fatigue is the most common, followed by shortness of breath, loss of sense of smell and difficulty concentrating, according to the ONS, but more worryingly there are also significant reports of long-term heart-related problems.

In March, the potential scale of such problems was revealed by a paper in the BMJ. The study of more than 47,000 people who had been hospitalised with Covid-19 showed that they were about three times more likely than uninfected people to face major cardiovascular problems within eight months of being taken to hospital.

It's not only people who were hospitalised who have been affected. A study in March of 150,000 Americans found serious heart complications can occur in people who seem to have recovered from a mild infection.

The report in the journal Nature Medicine, led by Dr Ziyad Al-Aly, an epidemiologist at Washington University, St Louis, in the United States, found that people who'd had Covid faced substantially increased risks for 20 conditions, including heart attacks and strokes, in the following 12 months.

In patients who'd been admitted to intensive care the risk of conditions, such as myocarditis (inflammation of the heart that reduces its pumping ability) and blood clots in the lungs, was at least 20 times higher than in uninfected people.

But even those who had not been hospitalised had increased risks of many conditions, ranging from an 8 per cent increase in heart attacks to a 247 per cent increase in myocarditis.

Scientists have long known that respiratory infections such as flu can trigger heart disease. This is because they cause inflammation, which plays a major role in cardiovascular illnesses.

However, a Covid infection seems to cause a much higher incidence of problems, and following much milder levels of initial illness.

"It is not only surprising but also profoundly consequential that the risk is evident even in those [who had mild infections]," says Dr Al-Aly.

"That's what makes this likely a serious public health problem."

But why? One possibility is that the virus's spike protein - which it uses to invade human cells - can cause an outbreak of localised inflammation in heart tissue that is so intense that it damages the muscle.

Dr Zhiqiang Lin, an assistant professor of cardiology at the Masonic Medical Research Institute in New York, exposed human heart tissue in the lab to spike proteins from Covid-19 and HCoV-NL63, a coronavirus that infects the respiratory system without harming hearts.

He found Covid-19 sparks an immune response in heart cells whereas the other coronavirus did not. He believes that causes excessive inflammation which damages heart cells and causes myocarditis.

But Covid may also harm cardiovascular health in another way, according to a study by Houston Methodist Academic Medical Centre, Texas, published in August.

This found that patients with long Covid heart symptoms may have double the normal risk of having unhealthy endothelial cells, which line the inside of the heart and blood vessels.

Endothelial cells play a key role in dilating the arteries and helping to get blood to the heart when we do physically strenuous activities. Patients with unhealthy endothelial cells, a condition known as microvascular dysfunction, are at higher risk of heart failure and death.

Dr Mouaz Al-Mallah, a cardiologist who co-authored the paper, explains in the journal JACC: Cardiovascular Imaging: "When a patient exercises they need more blood delivered to the heart to be able to provide blood to the entire body... But in some patients with Covid, we noted it's not increasing to the degree it should be."

Dr Al-Mallah's team scanned the hearts of nearly 400 patients with long Covid. The scans showed they were twice as likely to have unhealthy endothelial cells inside the heart and blood vessels.

"This may potentially explain why some patients are having chest pain and shortness of breath because their heart is not getting that extra blood," Dr Al-Mallah wrote.

Not everyone is convinced that the dangers are widespread, however. In a small study of 52 people, Professor Gerry McCann, a cardiac-imaging specialist at the University of Leicester, found that people who had recovered after being hospitalised with Covid-19 had no greater rate of heart disease than people who had similar underlying cardiovascular conditions such as high blood pressure, but who had remained uninfected by the virus.

He is working on a larger study with around 1,200 participants. "The more data we're acquiring, the less impressed we are with the degree of myocardial injury," he said.

"There is no doubt Covid is associated with heart problems in hospitalised patients, although it is relatively uncommon. Those who are hospitalised tend to have other risk factors such as older age, obesity and pre-existing cardiovascular disease."

He adds: "There are mixed reports on the extent of heart problems from researchers using imaging techniques. Some of the abnormal findings are of uncertain clinical significance and we are not sure how much of the changes are related to pre-existing conditions."

Other researchers disagree that the extent of cardiovascular dangers are exaggerated.

Colin Berry, a professor of cardiology and imaging at the University of Glasgow, said: "Professor McCann's study has serious limitations because it only studied 52 patients.

"I would concentrate on much larger studies that have greater statistical power such as the American ones, which do show widescale problems."

Professor's Berry's own study, published in Nature Medicine in May, covered 1,306 former Covid patients. It found that one in eight people who had been hospitalised with the virus between May 2020 and March 2021 were later diagnosed with myocarditis.

"Prior to Covid they had been fit and healthy," he says.

"I think that the damage is more than just to these patients' hearts but to their wider cardiovascular systems.

"It may also involve their blood vessels, which helps to explain why such long Covid patients are showing physical problems and loss of quality of life."

Dr David Strain, a senior clinical lecturer at the University of Exeter who specialises in viral infections, also believes Professor McCann's results may not represent the whole picture.

"The patients he studied are generally being followed up after they have left hospital, when the main danger period has passed," he says.

"Beyond three months there seems to be a negligible risk of bad cardiovascular things happening."

Dr Strain argues instead that the majority of heart problems emerge in a period that lasts from six to eight weeks after Covid infection.

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"This is the period when we see rates of heart attacks, strokes and blood clots going up," he says.

"During this post-infection danger period, Covid picks on your weakest parts, such as your heart and arteries."

Over the longer term Dr Strain says worrying evidence is mounting to suggest that the virus can hide dormant in our bodies for months or even years.

"If the virus can hide in the body then anything that weakens a person's immune defences - such as physical stress, infection or reinfection with another strain of Covid - may allow the virus to re-emerge," he says.

"There is evidence to suggest long Covid can be caused by the virus persisting, and having surges subsequently may cause cardiovascular disease."

This, Dr Strain says, is why it is crucial people getting over Covid take things very easy when recuperating from the virus.

"From what we see, people who return to work early are more likely to get post-Covid problems," he warns.

Professor Berry agrees. "I advise long Covid patients to keep active, but to stay within their own limit," he explains.

"Go for short leisurely walks and if you can do that well, try brisk walks - but don't overdo it."

Xand van Tulleken wishes he had taken things more slowly two years ago in the wake of his Covid infection. "I did not try to take it easy," he says. "Even on the day I suffered the first bout of atrial fibrillation, I went straight into work."

As a result, "I went into a downward spiral. Being post-Covid and with heart worries, I felt depressive, miserable," he says.

"Lots of people have gone through this stuff. Fortunately I had the support of my parents, who encouraged me to exercise gently and cooked for me.

"My twin brother Chris has been hugely helpful with recovering my health by getting me to eat well, not eating junk food and ultraprocessed foods to aid my general health."

He adds: "Professor Toby Hillman was my doctor at the clinic for people with Covid complications. He said his best advice for anyone with long Covid is to rest."

Thanks to a combination of Xand taking this on board, and having the successful cardioversion op, he says: "I now feel amazing.

"I can go for a run every morning and feel healthy.

"Convalescence is what we all need after Covid. It sounds such an old-fashioned word, but as a nation we have lost the concept of convalescence. We need to get it back."

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