Should doctors be prescribing exercise instead of pills for serious illnesses?

Top academics increasingly believe so – as research shows being active can treat everything from chronic depression to arthritis and even impotence

By CAROLINE JONES

LAST January, Karthik Venugopal hit what he calls 'rock bottom'. Having gained 5st over the previous decade Karthik, 48, also had high cholesterol and his kidneys were showing signs of damage. Then the sudden death of his beloved mother in 2021 triggered a total health crisis. He felt so low he often struggled to get out of bed and was diagnosed with depression.

'Some days I felt so bleak I didn't want to live,' explains Karthik, who works in risk management. 'I comfort ate and my weight gain increased. I felt terrible.'

Not only was he at 17st 6lb (112kg) obese for his 6ft 3in height, his blood pressure was dangerously high at 160/112 [normal is 120/80].

Karthik's doctor wanted to put him on blood pressure medication and antidepressants, but he had other ideas. With a six-month-old son, Danush, to care for, Karthik believed the better option was to overhaul his lifestyle.

He joined his local gym, Ultimate Performance, and started weight training with a coach three times a week. He also committed to taking 10,000 steps a day and overhauled his diet — 'ditching the cheesecake that had become my comfort food and sticking to lean proteins such as chicken, fish and eggs with plenty of vegetables', says Karthik, from Tonbridge in Kent.

'After three months I was down to 11st 9lb (76kg) and my waist had shrunk from 47in to 31in — I even had a six-pack! 'My blood pressure was down to a safe 116/76, my cholesterol dropped and my kidney function normalised. Plus, my mental health improved massively.'

One year on, Karthik is still exercising. 'My mood is so much better; I'm enjoying life again,' he says. 'Best of all, I feel I have enough energy to be active for my son. I'm determined to keep this up, having proven I can stay happy and healthy with exercise alone — no pills.'

The idea that exercise can treat some medical problems as well as, if not better than, medication is gaining momentum.

Earlier this year, a review by the University of Potsdam in Germany hailed exercise as the best treatment for depression, being at least as effective as drugs or talking therapies without the potential side-effects or waiting lists.

The conditions that respond to exercise are wide ranging. A recent study by Anglia Ruskin University showed that regular physical activity was as beneficial as drugs when it comes to treating premature ejaculation, for instance.

These can be added to the list of ailments — from high blood pressure and diabetes to dementia and arthritis — that exercise has been shown to improve.

In the face of such research, The Academy of Medical Sciences in London pronounced physical activity a 'miracle cure' for many common ailments. Its 2015 paper concluded that exercise would reduce pressure on the NHS if doctors encouraged everyone to do it more.

And you don't need to be running marathons to benefit. A 2019 review in the BMJ found that health improves with as little as 30 minutes of physical activity a week — however, more than a quarter of UK adults currently fail to achieve even this minimum.

'The sweet spot, identified by research,' says Dr Lindsy Kass, a researcher in exercise physiology from the University of Hertfordshire, 'is 150 minutes of moderate intensity activity [enough to raise your heart rate and get you a little out of breath] in bouts of ten minutes or more.'

With so much mounting evidence, she believes there should be broader acceptance that exercise is 'an effective therapy that doctors can prescribe'.

One of the lead researchers in this field, Bente Klarlund Pedersen, an exercise physiologist at the University of Copenhagen, goes a step further: 'There's strong evidence that exercise decreases the risk of more than 35 disorders and that it should be prescribed as medicine for many chronic diseases, such as type 2 diabetes, dementia, cardiovascular diseases and cancer.'

DOCTORS have long known that people who move more tend to be slimmer, have better mental health and a lower risk of chronic illnesses — and live longer. New data is revealing what exercise does at a cellular level — and exactly what makes the effects so powerful and wide-reaching.

'Research has shown that the exertion of exercise places a small but positive stress on our body's systems, which forces the cells to adapt in order to cope with the demands being put on them,' explains Professor Ian Swaine, a sport and exercise scientist at the University of Greenwich.

'This has the net result of making them work better and harder across every organ, meaning the entire body functions more efficiently.'

In other words, repeated exercise keeps all the body's cells in optimal condition so they can cope better with life's everyday challenges.

Yet there are, of course, specific areas of the body that can benefit, including the heart and, less obviously, the brain. 'Activity streamlines the "plumbing" of the cardiovascular system, by making blood vessels stronger, more flexible and better able to pump blood around the body, which reduces strain on the heart and lowers blood pressure,' says Professor Swaine.

This improved blood flow also means vital nutrients are delivered more effectively around the body. Neurologists have investigated whether this increased circulation to the brain helps prevent the cell death that's linked to dementia.

One 2018 study by the University of Gothenburg in Sweden found that middle-aged women with medium to high fitness levels had an eight times lower risk of developing Alzheimer's than those who didn't exercise. Meanwhile, in 2021, Arizona State University researchers found that exercise could significantly slow deterioration in people who had already started to develop dementia.

Exercise also helps with blood sugar control. Our bodies break down the carbohydrates we eat into glucose (blood sugar), which the muscles use as fuel to move. The hormone insulin (released by the pancreas) is needed to remove glucose from the blood into the muscle cells. 'Exercise releases specific enzymes that improve the sensitivity of our cells to insulin, so less insulin is needed overall,' explains Dr Lindsy Kass.

'This means the pancreas doesn't have to work as hard, which in turn reduces the risk of developing insulin resistance and type 2 diabetes.

'Exercise also helps reverse the age-related decline in the function of our mitochondria — the tiny powerhouses in every cell that turn glucose into energy molecules.' This decline is worse in sedentary people, which can leave the mitochondria unable to burn off glucose, creating an excess of oxidants — molecules that damage our cells and DNA. Poorly functioning mitochondria have been linked to fatigue, memory loss, heart disease and other chronic diseases.

Despite such strong evidence, questions remain about how this research translates into specific prescriptions. Last year the Government began a £12.7m trial in which GPs around England prescribed activities such as walking or cycling as part of a wider movement of social prescribing that aims to refer more patients for non-medical activities. It's hoped the results of this three-year study will shed more light on whether being told to be more active works in practise, and if it can help reduce GP appointments and over reliance on medication.

Sir Muir Gray, an NHS public health specialist, described the service as: 'The single most important advance in therapeutics in my 50 years in medicine', adding that 'every drug or psychological prescription for a long-term condition should be partnered by a prescription of activity'.

Professor Swaine, however, cautions against people seeing exercise as a 'replacement' for medication — especially without discussing it with your doctor — 'not least as most people's ability to fit in exercise waxes and wanes during our lifetime — often unavoidably depending on other factors, such as looking after children or dealing with an injury', he says.

You can also have too much of a good thing. One 2015 study in the Journal of the American College of Cardiology found that people who ran at a fast pace for more than four hours a week had about the same risk of dying during the study's 12-year follow up as those who hardly exercised at all.

However, Dr Lindsy Kass stresses 'most of us are in not in danger of over-exercising — so, the overall message that exercise will help almost any health problem holds true. 'Moving more every day is a free and easy way to take more control of your wellbeing,' she says.

WHEN IT WORKS AS WELL AS MEDICATION

HIGH BLOOD PRESSURE: Exercise was found to be as good as drugs at cutting high blood pressure in a study published in the British Journal of Sports Medicine in 2018.

There are two mechanisms at play, explains Professor Ian Swaine, a sport and exercise scientist at the University of Greenwich.

'First, by causing gentle, repeated challenges to the cardiovascular system, exercise encourages the blood-pumping network to adapt and strengthen, so it copes better under stress — maintaining lower pressure even in moments of high anxiety.

'Second, exercise helps increase "good" cholesterol in the blood — which counters "bad" cholesterol, which would form plaque on artery walls and could increase blood pressure.'

DEPRESSION: An analysis in the British Journal of Sports Medicine last month found moderate exercise (150 minutes per week) was as effective as antidepressants for treating mild to moderate depression. Another new study in the Journal of Affective Disorders found antidepressants and running equally effective for moderate depression. The authors said exercise should be considered a standard treatment option. It's thought exercise leads to the release of endorphins, hormones that improve mood.

TYPE 2 DIABETES: In a 2017 Copenhagen University study, more than half of adults were able to stop taking their type 2 diabetes medication within a year of starting 30 minutes' aerobic exercise five times a week. The theory is that regular exercise increases the sensitivity of cells to insulin, the hormone that controls blood sugar levels.

IMPOTENCE: A review of existing studies in the British Journal of Sports Medicine in 2016 found that regular exercise improved erectile function similar to that seen with medication such as Viagra. Professor Swaine says: 'We know exercise can redistribute blood flow around the body, so it's possible it could send more blood to the genitals and boost erectile function.'

OSTEOARTHRITIS: Studies show the effect of training on arthritic knee and hip joints is comparable to non-steroidal anti-inflammatory drugs. Exercise builds stronger muscles, which better support sore joints. There's also evidence it triggers the release of myokines that reduce the inflammatory response in osteoarthritis.

Why this year's marathon runners could be oldest ever

By RICHARD ASKWITH

WITH days to go before the London Marathon, the world-beating talent in this year's race is being billed as 'the greatest field ever' — yet beyond the elite there is an even more exciting story.

This may be the oldest field ever.

More than half of the 45,000 starters will be over 40. Getting on for 10,600 will be over 50, nearly 2,500 over 60, 315 over 70 and, barring pre-race mishaps, at least a dozen are over 80.

The number of female entrants aged 60 to 69, has doubled since 2018.

And they are part of a trend. Data from Sport England suggests that getting on for 240,000 UK pensioners, including nearly 40,000 aged over 75, are regular runners. Some run marathons; most stick to shorter distances. In Parkrun — the free 5km events that take place in more than 2,000 locations worldwide every Saturday morning — the proportion of participants who are over 65 tripled from 1 to 3 per cent between 2009 and 2019.

Stereotypes suggest that pensioners should be encouraged to 'take it easy' and while this is one of the worst lifestyle choices an older person can make being a runner is one of the best.

The most committed older athletes — the sort who compete in national'Masters' events, aiming to be the best in their age category — often show physical characteristics of people several decades younger from heart function to muscle strength and more.

'Much of what we consider part of normal ageing is actually due to inactivity,' says Janet Lord, a professor of immune cell biology at Birmingham University, who was involved in one of the most exhaustive studies ever of keen (not elite) life-long athletes aged 55 to 80.

'A lot of things that medical textbooks say is what happens in old age just don't happen in these people,' she says.

One striking finding, published in Ageing Cell in 2018, was that the long-term keen exercisers had barely any age-related deterioration of the immune system.

'They were producing just as many [infection-fighting] T-cells as the healthy, but inactive, 20 to 36-year-olds in the control group,' says Professor Lord.

Other studies support the view that even gentle late-life running is associated with a range of benefits, including improved circulation, reduced risk of falls, and improved mental well-being.

'We're not saying: "Look at these amazing old people", because actually these old people are where they should be,'explains Professor Stephen Harridge, director of the Ageing Research at King's (ARK) programme at King's College London.

Yet running can be a struggle for older people. An influential 2016 study by the Mayo Clinic suggested that lung power and muscle power decline by around 10 per cent per decade from our late 20s, and fall off even faster once we reach our 60s.

Your maximum heart rate plummets, too, limiting your capacity for exertion. Your joints lose mobility and your ligaments, tendons and bones become increasingly fragile.

You can slow your decline: regular weight-training, and upping your protein intake, to help maintain muscle can help as can boosting your balance and range of motion with exercises (such as standing on one leg with your eyes closed) or with yoga or tai chi.

We still decline, but it's slower — and if it keeps you running, it's worth it.

A seminal study at Stanford University tracked the health of hundreds of middle-aged people for more than 20 years.

THE runners in the study, published in the Journal of Internal Medicine in 2008, not only lived longer than the non-runners (by seven years, on average) but enjoyed significantly longer healthspan — the part of life that is not limited by chronic illness or disability.

An inactive person, on becoming a pensioner, can expect to live about half of their remaining years with a disability. For runners, disability typically starts 16 years later than for non-runners.

And don't believe everything you hear about running wrecking your joints. A 2021 review of 43 studies, by Jean-Francois Esculier, an internationally-renowned physiotherapist and researcher at the University of British Columbia, concluded that 'not only is running not bad for your joints, it's actually good for your joints'.

It's worth adding that some of the most successful older runners were past middle-age when they started.

Eileen Hieron, fastest woman over 80 in last year's London Marathon (5:48:04), took up running at 72; while Fauja Singh, who ran the 2012 London Marathon aged 101 (7:49:21), didn't start until his late 80s.

'You are never too old to begin,' says Jamie McPhee, director of the Institute of Sport at Manchester Metropolitan University, said: 'Even if you have never run before, it's still possible to gain many of the benefits.'

First-timers with underlying medical problems should check with their doctor before starting. The key for beginners is to build up gradually and allow plenty of recovery time between sessions.

If you watch the older runners in Sunday's marathon you'll notice the joy they derive from being, as one leading octogenarian runner likes to say, 'fully engaged in life's journey, and not just lingering in the departure lounge'.

■ *The Race Against Time: Adventures in Late-Life Running, by Richard Askwith*

Best foot forward: Fauja Singh, aged 93