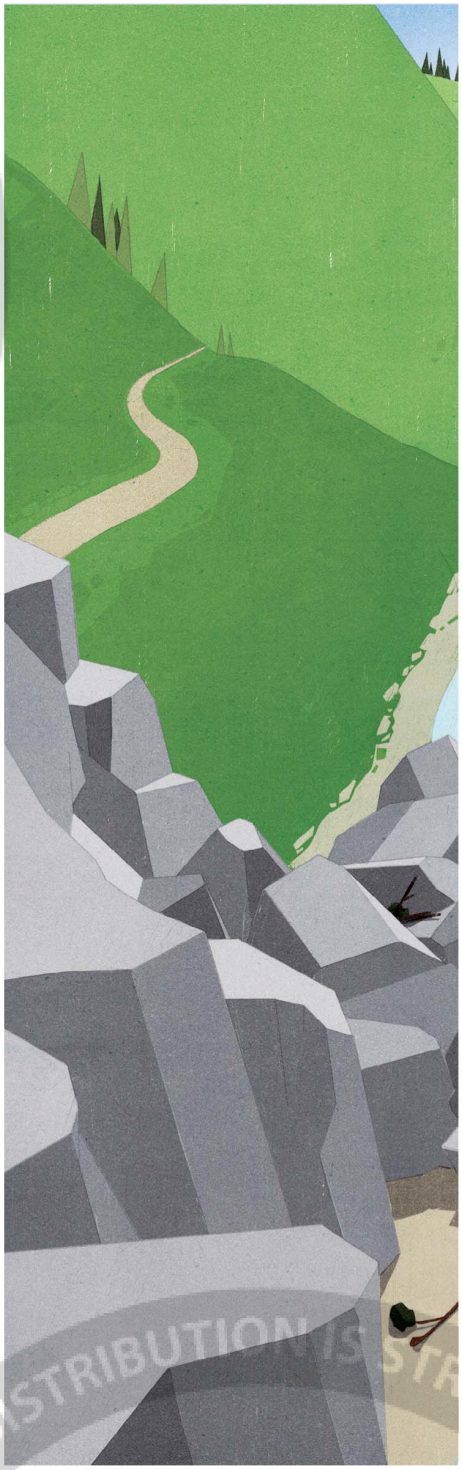
- Digestion

Features

In search of relief

Constipation isn't just a minor inconvenience – it has been linked with cardiovascular disease and cognitive impairment. So what can you do to get things moving again, asks **Graham Lawton**



ANDREA UCINI

WE'VE all been there: the urge to defecate is strong, but the ability to do so isn't. Despite much huffing and puffing, nothing is forthcoming. You rise defeated, if not deflated.

Constipation is one of the occupational hazards of being human. Perhaps because of how common it is, it has long been regarded as an inconvenience, curable by diet and exercise and, if those don't loosen things up, laxatives.

Much of the time, those remedies help and constipation passes quickly. But for many people, being unable to regularly defecate persists for months or even years. And for them, the consequences can be more serious.

That's why researchers and doctors are starting to pay more attention to constipation. It can have a terrible impact on quality of life, leading to haemorrhoids, anal fissures or, in particularly serious cases, impacted bowels caused by the build-up of faeces in the lower intestine, all of which can be debilitating. In severe – but thankfully rare – cases, constipation can damage internal organs and even be deadly.

There's more. Emerging evidence supports the idea that chronic constipation is a causal factor in some more pernicious health problems, including cardiovascular disease, kidney disease and cognitive impairment. Why it might play a role in these conditions isn't entirely clear, which has got researchers on the hunt for potential mechanisms.

What is clear is that being bunged up for a long time can take a real toll on your health and should be avoided. But that is sometimes easier said than done.

There is a natural variation in people's bowel habits, but those who are constipated have unusually infrequent movements – just two or fewer a week. If that persists for 12 weeks, along with at least one more symptom, such as frequent straining, hard or lumpy stools or the need for "manual assistance", the diagnosis is chronic constipation.

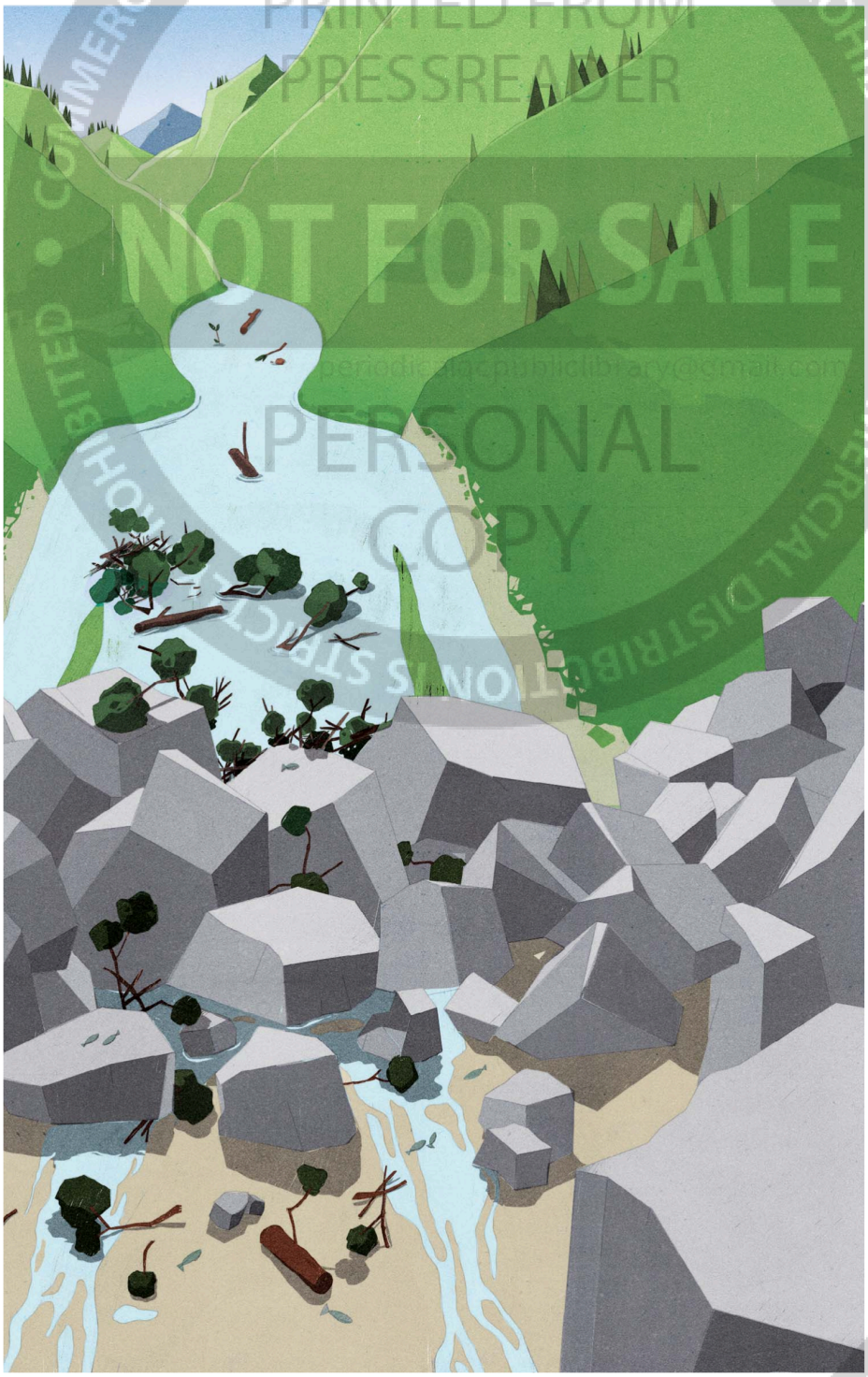
Around 16 per cent of people are chronically constipated at any given time. "That means that one in seven [people] globally struggle with symptoms of chronic constipation," says Brian Lacy, a gastroenterologist at the Mayo Clinic in Jacksonville, Florida.

People become constipated for many reasons. In children, the main cause is withholding faeces during and after toilet training, with a peak incidence rate of about 12 per cent between the ages of 2 and 4. Women account for around two-thirds of adult cases of constipation: reproductive hormones suppress bowel motility and childbirth can damage the muscles of the pelvic floor, including those that control the contraction of the rectum.

In fact, dysfunctional pelvic floor muscles in men and women are to blame for about 30 per cent of chronic constipation cases, according to Lacy. The condition becomes more common with age, with the difference between the sexes evening out in the over 70s. The age-related decline of sensory nerves in the rectum means that older people are sometimes less aware of the need to defecate, which can lead to a build-up of faeces in the lower bowel that hardens and becomes more difficult to pass.

Some medical problems can contribute to constipation, including irritable bowel syndrome, hypothyroidism and neurological conditions such as Parkinson's. Constipation can also be a side effect of many drugs,

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especially opiates such as codeine. And, of course, lifestyle choices are a major culprit – a lack of dietary fibre, dehydration and inactivity contribute to at least a third of cases.

Constipation can usually be fixed. But about 10 per cent of people with chronic constipation go for six to eight weeks without a bowel movement, according to Lacy. In a handful of cases, the condition can be fatal. Some of the documented causes of death from long-term constipation include perforated bowel, sepsis and respiratory failure due to compacted faeces crushing the lungs.

Such deaths are very unusual. More common are the associations between persistent constipation and other medical conditions. For instance, the chronically constipated tend to have higher rates of high blood pressure, diabetes, kidney disease and heart disease. These links were assumed to be a correlation, because some of the most common causes of constipation – a diet low in fibre and physical inactivity – have wider health consequences. But that perception is now shifting.

Thinking started to change a few years ago, thanks to tentative evidence that chronic constipation wasn't merely correlated with heart disease and death – it was a contributing factor. In 2016, for example, a team at Tohoku University School of Public Health in Sendai, Japan, found that lower defecation frequency was associated with an increased risk of mortality from cardiovascular disease in older women. But the study was small and other researchers were unable to find a connection.

A couple of years later, a team led by Keiichi Sumida at the University of Tennessee decided to dig deeper. The researchers analysed the ›

"One in seven people have symptoms of chronic constipation"

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medical records of over 3.3 million US veterans, a nationally representative population. Of those, they identified people who were constipated based on either having had at least two diagnoses of constipation more than 60 days apart or having been prescribed laxatives more than twice during a certain period of time.

Sumida's team then looked at how many of the veterans had subsequently died, as well as the incidence of non-fatal stroke or coronary heart disease (CHD). The researchers found that among the nearly 240,000 who were chronically constipated, deaths from all causes were significantly higher. Strokes and CHD were also more common in these groups.

When the team re-analysed the data to eliminate confounding factors, such as other illnesses, socioeconomic demographics and prescription drug use, they found that the associations persisted. "Constipation remained significantly associated with higher all-cause mortality, which was very surprising," says Sumida. Veterans with chronic constipation were 12 per cent more likely to die from all causes than the non-constipated and had a similarly elevated risk of stroke and CHD. The worse their constipation, the higher their risk.

Symptom or cause?

Since Sumida and his team published their analysis in 2019, more evidence has emerged that chronic constipation is an independent risk factor for cardiovascular disease. In 2024, a meta-analysis found that people with chronic constipation were 41 per cent more likely to have a stroke than the non-constipated. Also last year, Francine Marques at Monash University in Melbourne, Australia, analysed the anonymised health records of 408,354 people aged 40 to 69 from the UK Biobank project, looking for associations between constipation and cardiovascular disease. She and her colleagues found that people with chronic constipation were more likely to go on to have a major cardiac event.

"People that had hypertension and had constipation were 34 per cent more likely to end up having a heart attack or a stroke than people that only had hypertension, even after we consider all the traditional risk factors such as diabetes or smoking," she says.

Though these studies didn't examine how chronic constipation raises the risk of death and cardiovascular disease, there are several plausible explanations, says Sumida. One is that straining to defecate can put pressure on the vagus nerve, prompting a sudden plunge in heart rate and blood pressure. This can cause fainting – called a "defecation syncope" – and may also temporarily cut off the blood supply to the heart and brain, causing tissue damage. The phenomenon is exacerbated by dehydration, which is both a cause of constipation and a side effect of some laxatives.

Straining can also have the opposite effect on blood pressure, causing it to increase to dangerously high levels. In 2019, for example, researchers at Jichi Medical University in Tochigi, Japan, reported on the case of a woman hospitalised with congestive heart failure who experienced a flash pulmonary oedema – a sudden and potentially fatal influx of fluid into the lungs – after her blood pressure rose to 208/88 while straining on the toilet.

It is also possible that simply retaining stool in the body for long periods is harmful.



CALEB DOW/UNSPLASH



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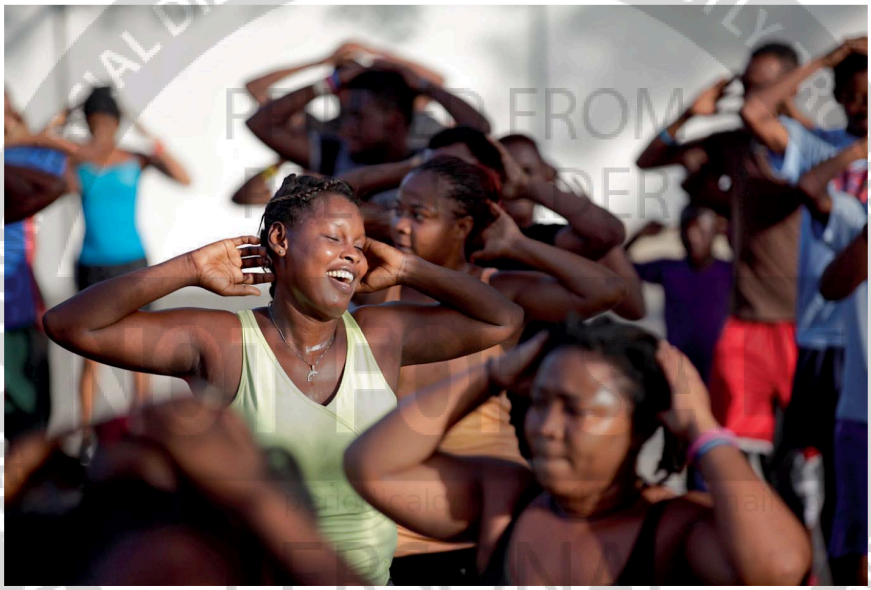
Caffeine may help get things moving, while a diet high in red meat has long been thought to bung things up

There are clear differences between the microbial signatures of stool samples from constipated and non-constipated people, suggesting chronic constipation leads to an imbalance of the gut microbiome, or dysbiosis. This can damage the intestinal wall and allow bacteria and their toxic metabolites to flood into the bloodstream, triggering inflammation. Chronic inflammation is a risk factor for cardiovascular disease.

Evidence has also begun to emerge that chronic constipation raises the risk of developing other conditions. For instance, people with chronic kidney disease have long been known to be prone to constipation, which was attributed to dehydration, lack of fibre, inactivity and their use of multiple medicines. But in a study published last year, a team at Inha University College of Medicine in Incheon, South Korea, analysed UK Biobank data and found that chronic constipation often preceded the development of kidney disease.

It is too early to conclude that chronic constipation causes kidney disease, the researchers warn – they couldn't rule out the possibility that it is just an early symptom of kidney dysfunction – but they say there is a plausible mechanism for a causal link. Prolonged retention of stool in the colon gives gut bacteria time to ferment proteins present there, producing toxins such as cresol sulphate and indoxyl sulphate. In animal models, these can enter the bloodstream and damage the kidneys. "That's probably why constipation and kidney disease are linked very closely to each other," says Sumida, who wasn't involved in that study but has also found a potential causal connection between the two.

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Exercise can aid gut motility, helping to relieve constipation

"Those with constipation had significantly worse cognitive function"

Chronic constipation is also linked to anxiety and depression. Though it is a known side effect of antidepressants, a recent study of nearly 450,000 participants found that constipation often comes before people begin taking the drugs. What's more, the study concluded that people with constipation are almost 50 per cent more likely than those without to develop depression over the next 12 years.

There is even a possible link between chronic constipation and cognitive decline. Chaoran Ma at the University of Massachusetts Amherst and her colleagues analysed data from over 110,000 people, mostly women in their 60s, who were cognitively healthy and had kept track of their bowel movements for a year. When Ma followed up with the participants two or four years later, she found that those with constipation had significantly worse cognitive function, equivalent on average to an extra three years of cognitive ageing. She and her colleagues suggested that gut microbial dysbiosis caused by constipation might be the reason.

As this troubling evidence has piled up, however, another worry about constipation has been flushed away. Constipation has long been hypothesised as a cause of colorectal cancer, but the latest research suggests there is no link. Nevertheless, people who are chronically constipated or experience a sudden change in bowel habits should be checked for cancer, says Takaomi Kessoku at the International University of Health and Welfare, Narita Hospital, in Chiba, Japan, who has studied constipation extensively.

More broadly, of course, these recent findings suggest that people with chronic constipation would be well advised to seek help. "Treating constipation may be beneficial for various health outcomes," says Sumida.

If you find yourself backed up, what can you do? The standard medical advice is to drink more fluids and increase fibre intake. Exercise can also be effective; a recent review found that even gentle exertion such as walking and tai chi helps. Abdominal massage for 15 minutes a day, five times a week, was recently found to work, too. Adopting a different posture on the toilet – either leaning forward in the style of Rodin's sculpture *The Thinker* or sitting upright with feet on a footstool – helps to align the rectum and anus, giving stools an uninhibited route out. A doctor can also check for any pelvic floor dysfunction that might be hindering defecation, and physical therapy can help too.

Then there are laxatives. The simplest and cheapest are fibre supplements such as methylcellulose and psyllium husks. Like natural dietary fibre, these bulk up stools and cause them to retain water, making them larger, softer and easier to expel. Another option is an osmotic laxative such as sorbitol, which is found naturally in prunes and draws water out of the bloodstream into the gut to soften and lubricate stool. Stool softeners and lubricants, such as mineral oils, do exactly what they say on the tin.

If those fail, various pharmaceutical agents are available. Muscle stimulants, also known as prokinetics, such as senna, bisacodyl and prucalopride strengthen the contractions of the gut wall. Secretagogue laxatives such as lubiprostone and linaclotide cause more liquid to be secreted into the colon.

The newest additions to the arsenal are ileal bile-acid transporter inhibitors. These work by blocking the reabsorption of bile acids into the body through the small intestine, allowing them to enter the colon. There, they stimulate muscles, encourage the secretion of fluids and resensitise the rectum to the presence of stool. As ever, you should consult with a doctor before starting or making any changes to the medication you take.

But even with this medicine chest, there is still room for improvement. Research shows some people don't respond to over-the-counter laxatives and many who do don't experience complete relief. Lacy recently ran a survey in the US that found only a third of people with chronic constipation were satisfied with their treatment. That is partly down to the side effects: pain, nausea, bloating, diarrhoea and, paradoxically, worsening constipation. Long-term use of stimulant laxatives, for example, can lead to tolerance that ultimately makes the problem worse.

"The general population would say that we need to do better," says Lacy.

New treatments are being explored. Small trials of probiotics, which aim to manipulate the gut microbiome, have been carried out, with largely positive results. Caffeine, too, is emerging as a possible treatment, perhaps because it stimulates bowel muscles. People with high intake – about six cups of coffee a day – have lower rates of constipation.

So if you are chronically constipated, there is hope. "I think that we are fortunate to have a number of treatment options available," says Lacy. "My view is that if you take the time and effort and work with a patient, you can generally find the right therapy, or right combination of therapies, to help the patient and improve symptoms." ▮



Graham Lawton is a staff writer at *New Scientist*

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