

by Nicky Pellegrino

Beyond the myth

As scientists grapple with long Covid, it's hoped they will uncover more about what causes other post-viral illnesses.

When Warren Tate's daughter was 14, she came down with glandular fever. Instead of eventually recovering, her health worsened and she developed a cluster of debilitating long-term symptoms.

"She could walk only about 10m," Tate recalls. "She was hypersensitive to light, had trouble sleeping, had lots of pain, was allergic to a wide range of foods and suffered from brain fog."

No one could tell Tate and his wife what was wrong with their child. It was implied she was making it all up. "We got things such as, 'Well, your daughter doesn't want to go to school,'" Tate says.

This was 30 years ago, when few people had heard of chronic fatigue syndrome/myalgic encephalomyelitis (ME), and it was considered by most health professionals to be a

About 25,000 people suffer from chronic fatigue syndrome/ME. For many, this is a lifelong condition.

psychosomatic disorder rather than an actual illness.

Tate, a biochemist at the University of Otago, knew there had to be a biological reason for all those symptoms, so he started trying to get his own research off the ground.

Funding has been hard to come by, with much of it coming from the families of those affected, but last year he had a

breakthrough. Tate published two studies that showed differences at a cellular and DNA level among sufferers of chronic fatigue. It was proof at last that, far from being psychosomatic, this is a complex disease involving many systems of the body.

Tate had used sophisticated technology to examine proteins in the immune cells. What he found were numerous changes in the mitochondria – the powerhouses of the cells that produce energy the body needs to function – that help explain the persistent fatigue that sufferers experience.

"Quite remarkably, we found about 50 proteins from mitochondria that were all produced in dysregulated amounts," says Tate.

He also discovered changes to signatures on DNA that he believes are responsible for many of the



neurological symptoms.

There had already been signs that attitudes towards chronic fatigue syndrome/ME were changing. A 2015 report from the National Academy of Sciences in the US concluded it is a serious disease that deserves more medical attention. But still there is no reliable diagnostic test or effective therapy.

The game-changer may be long Covid, the post-viral syndrome affecting many thousands of people throughout the world, which has similar symptoms including fatigue, muscle weakness, muscle and joint pain, headache, low mood and sleep disturbance. Suddenly, research dollars aren't so hard to come by as, globally, scientists focus on trying to learn more about what is going on and how best to treat it.

Tate's contribution is a

comparative study that he is working on, to see whether the sorts of molecular signatures in mitochondrial proteins and DNA that he found with chronic fatigue syndrome also occur in long Covid.

There have been more localised outbreaks of post-viral syndromes – such as Tapanui flu, named after the Otago town where a number of people suffered debilitating fatigue in the 1980s. Tate says there have been other instances where a particular infectious flu-like disease has led to ongoing problems, including one in northern Iceland in the 1940s and another centred on a London hospital in the 1950s. These have all been small in scale. Long Covid is affecting 10-30% of people who have Covid-19, so is being taken much more seriously. The “all-in-the-mind” myth may have had its day.

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The hope is that now we will learn more about what causes post-viral illnesses and how they can be better managed, if not cured. Currently, cognitive behavioural therapy (CBT) and graded exercise – a programme where the amount of physical activity is gradually increased – are the interventions most often recommended. CBT is at best a management tool and graded exercise can actually be harmful. In the UK, the National Institute for Health and Care Excellence has been working to develop new, improved guidelines for treatment, but these have been delayed.

In New Zealand, about 25,000 people suffer from chronic fatigue syndrome/ME. For many, this is a lifelong condition. Although Tate's daughter is among them, she has managed to achieve academically and have a child, and he is incredibly proud because he knows how hard it has been.

“As my work has got publicity, I get maybe four or five emails from people every week, and some of them are heart-wrenching,” he says. “They're so grateful that I've found something that has affirmed their illness, although I haven't been able to find anything yet that can change it.” ■

HEALTH BRIEFS

PLAYING CATCH-UP

If you've had a long run of restless nights, catching up on sleep for a week may not be enough, new research shows. A small study, published in the journal *PLOS One*, looked at a group of healthy adults who had 10 days of intentionally restricted sleep, followed by seven recovery days of unrestricted sleep. Even after a week of sleeping in, the participants still hadn't returned to any of their pre-deprivation baseline measures, except for their reaction speed.

GREATER COVID RISK

Living with someone who has Covid-19 increases your risk of catching the disease, even if you are fully vaccinated, according to research from the Hebrew University of Jerusalem. The team studied healthcare workers in Israel and found that living with an infected family member was a higher risk factor for catching the disease compared with exposure to Covid-19 at work. The likely cause is a longer exposure time without the benefit of masks or social distancing.

STRAIGHT TO THE HEART

One glass of alcohol can immediately and substantially increase the risk of an episode of atrial fibrillation in those who suffer from the condition, say researchers from the University of California. They studied 100 adults with the intermittent episodes of irregular heartbeats, with each one wearing an electrocardiogram monitor to record the time and length of an episode and an ankle monitor to record their alcohol consumption. After a month, the researchers found that

of the 56 people who had an episode, it was about twice as likely that they had consumed alcohol in the four hours prior.



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