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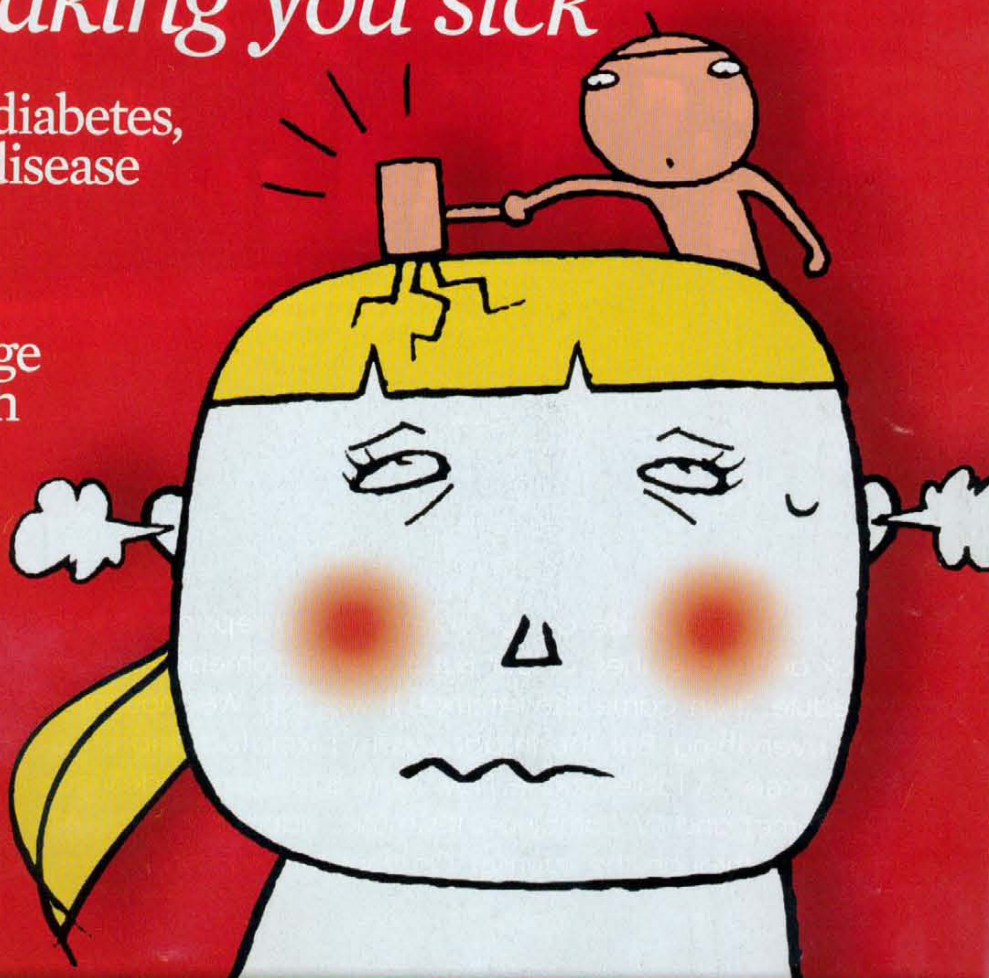
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# LISTENER

# STRESS

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- 8 top tips for restoring balance
- Cardiac cases surge after Christchurch quakes



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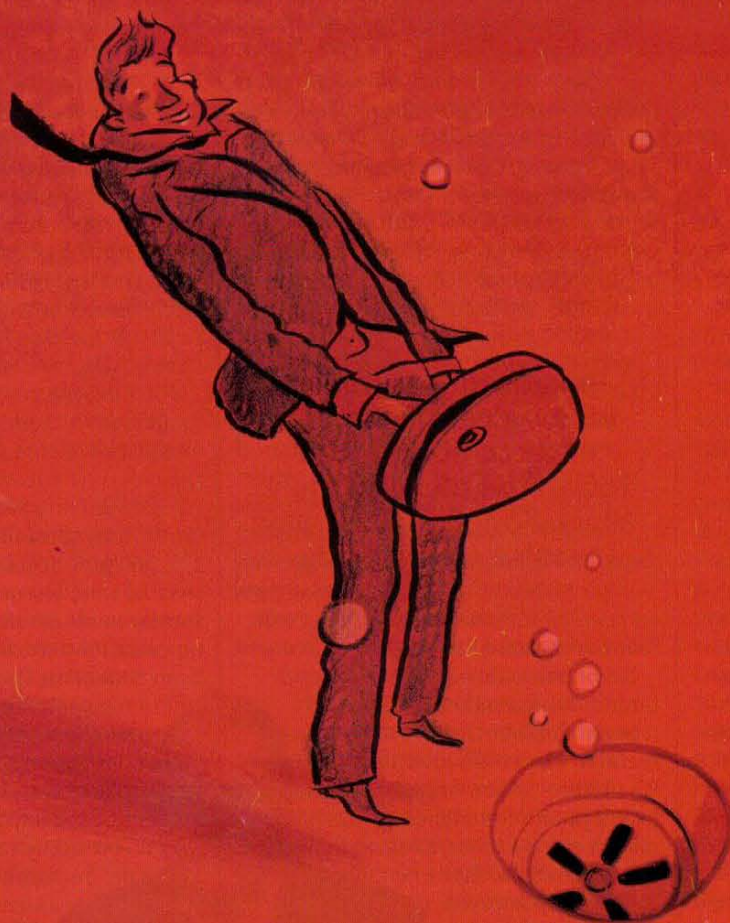




# STRESSED *to* EXCESS

We are only just starting to understand how bad stress can be for our health and how we can best manage it.

BY RUTH LAUGESEN/ILLUSTRATION BY DARON PARTON





**T**he groaning, shuddering earth in Christchurch is setting off reverberations not just through masonry and wood but through hearts, chests and nervous systems.

Christchurch GP Simon Wynn-Thomas sees the results in the patients who come through the door of his Mt Pleasant practice. "People are presenting with altered appetite, palpitations, dry mouth, sweaty palms, diarrhoea – all physical symptoms associated with acute anxiety problems

"And it's difficult to deal with diarrhoea from acute anxiety when you have to find a portaloos at the end of the street with a torch in the middle of the night." More serious are those for whom stress has turned to chronic stress, anxiety and depression.

For others, worry and fear are showing up in physical illnesses. Wynn-Thomas, who is also the senior clinical leader for big GP network Pegasus Health, says many people with chronic illnesses, such as asthma, diabetes or lung or heart problems, are experiencing a worsening of their conditions. "I'm convinced that the anxiety is one of the causes for these people experiencing flare-ups in their conditions.

"We're also seeing people who are usually fit and healthy presenting with physical illnesses. That could be anything from shingles to infections that aren't clearing by themselves. Patients who have a cold, who would normally come right in a few days, are suddenly getting a chest infection and needing antibiotics for the first time in their lives."

Christchurch 2011 is an unwelcome living experiment in a nebulous but promising realm of medicine – stress and how it makes us sick. We seem to understand intuitively that emotions can manifest themselves in poor physical health – people talk of becoming ill through overwork, or of someone dying of a broken heart.

Over the past two decades researchers have been putting some hard science behind those popular understandings, establishing that stress can be a powerful force in the immune system, in wound healing and in heart health, as well as in a range of other illnesses. The hope is once we know more, we can fight illness on this new front.

The immune system has been fingered as one of the most promising avenues for understanding the mechanisms of how stress might besiege the body.

**U**niversity of Auckland School of Medicine associate professor Roger Booth, an expert in mind/body interactions, says as recently as 20 years ago there was little study of the connection between the immune system and the nervous system. Now the new field of psychoneuroimmunology seeks to piece it all together.

"They were considered separate subsystems of our body. But now people often talk about a bidirectional communication highway between the nervous system and immune system, which just emphasises that the number of paths and connections is very large. There are a lot of different types of hormones and neurotransmitters

British volunteers were given nasal sprays full of cold and respiratory germs after answering questions measuring the amount of stress in their lives. After two weeks in quarantine the results were clear-cut. The higher a volunteer's stress levels, the more likely they were to catch a bug. "It was very striking," says Booth.

People who are chronically under stress are also more prone to infection. A 1996 study found that when a group of caregivers for Alzheimer's sufferers were vaccinated with influenza, they formed fewer antibodies to the influenza than a control group. That showed their immune systems were less active.

Sufferers of HIV infection are also more



Seeking comfort: survivors of Christchurch's February quake support each other.

and nerve connections between the two that really lead people to realise that they are talking to each other all the time and mutually influencing one another's behaviour in your body."

Studies using stressed medical students as guinea pigs have found the higher the academic stress, history of stressful life events and loneliness, the lower the level of "natural killer" cells and other measures of cellular immunity. Those with high stress and loneliness levels were also more likely to have high levels of cortisol, the stress hormone released by the adrenal gland.

A breakthrough in understanding was a 1991 study in which 400 unfortunate

likely to go downhill if they have higher stress levels, as they have been found to have a more rapid loss of the CD4 helper cells, which are an indicator of immunity – if the CD4 count drops far enough, it signifies the onset of Aids-related illness. Thoughts and feelings can take their toll in another way – one study found HIV sufferers who were pessimistic about their future health were more likely to have an onset of symptoms and to die.

**S**tress can affect not only whether you can fight off an infection but also whether wounds heal. And that may have important implications for

**"NOW PEOPLE OFTEN TALK ABOUT A BIDIRECTIONAL COMMUNICATION HIGHWAY BETWEEN THE NERVOUS SYSTEM AND IMMUNE SYSTEM."**



# Stress busters

How to beat stress – before it beats you.

**W**e can't live satisfying lives without stress, says psychologist Gaynor Parkin. "If you didn't have any stress, you'd be bored and lethargic and probably wouldn't get much done," says Parkin, co-author of the book *I've Had It Up to Here: From Stress to Strength*, and a clinical practice adviser at Victoria University's School of Psychology.

Too much stress and we feel overwhelmed. Thoughts race, the heart beats faster, the blood pressure rises, muscles tense. And those chronically under stress – whether through adversity, financial pressures, an impossible boss, self-imposed perfectionism or juggling too many responsibilities – are more likely to become ill.

Like Goldilocks's porridge, however, stress can be just right, giving us energy, focus and a sense of challenge. "It helps us perform well," says Parkin.

So how to get stress just right?

■ **Build in regular mini-recoveries:** find ways to schedule respite from the "fight-or-flight" hormones surging through your body. Ideally, have several short boosts of recovery during the day, such as doing something active, getting outside, taking a food break or doing a simple

relaxation exercise. Top with more recovery at the end of the day.

■ **Be physically active:**

walking the dog, swimming, running or a dance class give your body and mind a break and use up adrenalin.

■ **Watch the caffeine intake:**

too much caffeine will boost adrenalin, which may wind you up more. Afternoon consumption can interfere with sleep. Reach for herbal teas or lemon and honey, instead.

■ **Just relax:** easier said than

done, but everything from relaxation exercises and breathing exercises to guided meditation CDs, mindfulness meditation and yoga lower arousal levels. If you have been on alert for long periods of time, it can take some practice to learn to wind down your body and mind.

■ **Get a good night's sleep:**

practising some form of relaxation before sleep, having a bedtime routine, and getting up and going to sleep at about the same time each day can improve poor sleep patterns.

■ **Mind games:** avoid catastrophic thinking patterns, which in themselves raise stress



**Some people don't even know they are feeling stressed. They have learnt to ignore warning signs and keep going.**

levels. Learn to keep thoughts realistic and balanced. Cultivating optimism has also been shown to lower levels of the stress hormone cortisol.

■ **Give and receive support:** whether it's with friends or family, talking helps and may give you feedback and new ideas about how to lighten your load. Plus helping others makes us feel good.

■ **Experience more positive emotions:** heartfelt positive emotions such as joy, awe, hope, serenity and gratitude help us recover and bounce back from negative experiences and stress.

helping patients recover more quickly from surgery.

At Auckland's Middlemore Hospital, patients having a gall bladder operation were divided into two groups: one got relaxation training and a CD, the other got no special treatment. During the operation tiny Gore-Tex tubes were inserted into the wound to allow measurement of deposits of a wound-healing byproduct. A week after surgery, deposits of the wound healing byproduct were double for the group that had had relaxation training. Recovery after the operation was also measured, says Associate Professor Andrew Hill, head of the University of Auckland's South Auckland Clinical School.

"What we found four weeks after surgery

was the group that were in the relaxation group had significantly improved tiredness and functional recovery. These people were back to better than they were before surgery. They made a much better recovery than they would without this approach. So this is all pretty exciting."

Hill leads a world-class research programme at Manukau SuperClinic aimed at speeding up recovery times after surgery. He is hoping to get funding to include relaxation training as a standard element of their Enhanced Recovery After Surgery course. "We need to investigate the relaxation element in bigger surgeries to see if it makes a difference. But getting money to do new things like stress relaxation is actually quite difficult."

Landmark studies in this field have found that dental students who receive a cut in the roof of their mouth heal faster during the holidays than during exam time, and that Alzheimer's patient caregivers with a skin wound heal more slowly than a control group. "It suggests that people heal more slowly when they're perceiving their lives to be stressful," says Booth.

He says it appears at least two pathways are involved in the impact of stress on the immune system and wound healing. One is the stress hormone pathway, in which during times of stress high levels of cortisol inhibit some of the inflammatory and immune processes necessary to promote wound healing and to muster an immune response to a vaccine or infection.



Parkin says some people don't even know they are feeling stressed. They have learnt to ignore warning signs, such as strong feelings, and keep going. The only clues that they're overloaded with stress may be physical complaints or illness.

Those who have experienced childhood trauma may be more easily tipped into high stress because their systems already have elevated levels of cortisol. Such individuals can lower their cortisol levels through learning in therapy to process events differently. They can still be resilient, but they need to recognise they are likely to require more support and self-care.

So what to do when you have no choice but to work long hours in a tedious job, servicing a towering mortgage, with little energy to engage with your family, and then when you come home it's your turn to cook again? University of Auckland School of Medical Sciences associate professor Roger Booth, who specialises in mind/body health, uses a technique called active acceptance to combat stress.

It's related to a number of other techniques, such as mindfulness and meditation, that focus on the present moment. Instead of looking to some far-off point when everything will

be better, the focus is on engaging with and becoming satisfied with the present moment.

The first step is not to deny your frustrations or pretend everything's great, says Booth. "Honestly but compassionately reflect on how you're feeling about things, and actively accept those feelings." Next explore, and it takes practice – "why do I feel like that about this, what is it about me that makes me feel this way?" At this point you may be able to consider changes you could make to diminish the source of the stress or the feelings.

Otherwise, the next step is to actively accept the present. Sitting in his office, marking a pile of examination scripts, Booth says he could be thinking 'oh no, is it going to take another five hours?' and resenting every moment.

"I would be spending a lot of time doing this, but not actually engaging in my life as it is at the moment, instead wishing I was living some other way. Essentially, I'm denying my present existence at that point.

"Instead I could say, 'I don't particularly like this at the moment, but this is what I'm doing right now, let me just engage in it, I might even enjoy it, but whatever, I'll accept this is what life is for me at present and I choose to do it. This is my life, this is how I'm accepting it at present. I can enjoy this as I am now.'"

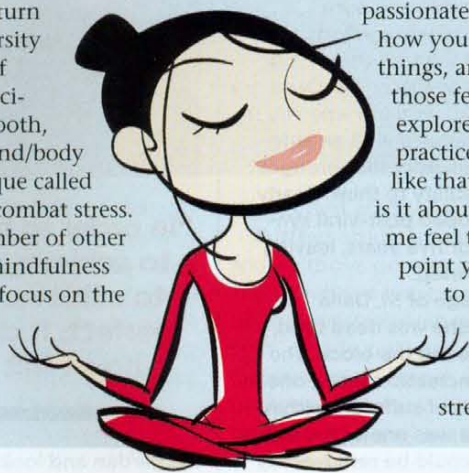
A second pathway is likely to be through the autonomic nervous system, which mostly functions below the level of consciousness. In the fight-or-flight response that comes with stress, the heart rate and blood pressure rise, and hair stands on end. The autonomic nervous system also directly influences immune tissue and the lymphatic system. "And so it's conceivable that signals coming through those nerves could also modulate immune responsiveness," says Booth.

The myriad pathways in the body through which stress may travel are reflected in a dizzying array of illnesses and conditions in which it is thought to have a role. Cancer has

## RESEARCHERS FOUND EMERGENCY ADMISSIONS FOR HEART ATTACKS ROSE 25% IN THE 48 HOURS AFTER ENGLAND LOST A CRUCIAL WORLD CUP MATCH.

been looked at closely. A 2007 academic round-up of research on stress concludes that although animal studies and test-tube work show ways that stress can affect tumour progression, currently the overall relationship between stress and cancer appears weak, or at least not as powerful an explanation as other well-known risk factors.

Research also suggests stressful life events are associated with the development or flaring up of autoimmune diseases such as rheumatoid arthritis, lupus and arthritis. A 2009 study found individuals reporting two or more traumatic childhood events were twice as likely to get a rheumatic disease as those reporting no childhood trauma. And a study of 2500 Vietnam combat veterans





suffering from post-traumatic stress disorder found they were at increased risk of developing autoimmune diseases.

Other work has linked major stressful life events to the onset or worsening of multiple sclerosis. Stress also appears to play a role in other chronic inflammatory diseases, such as psoriasis, and inflammatory bowel disease, such as Crohn's, but overall the area has been scantily researched.

Stress has a well-established role in flare-ups of asthma, and in triggering sudden rises in blood glucose levels in diabetics. Chronic fatigue has links to stress, with one Canadian study finding those with the condition had higher rates of childhood trauma. Stress, either current or from past trauma, also has well-established links to migraine and headaches.

In Christchurch, the stress fallout that has been best measured is the increased

**RESEARCH  
“SUGGESTS THAT  
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rate of serious heart problems. Cardiologists at Christchurch Hospital found in the week after the September 2010 quake, cardiology admissions were 41% higher than in the same period in 2009, and in the second week they were 38% greater. In the week after the February 2011 earthquake, admissions were 35% higher, but they were similar to the previous year's in week two.

Heart Foundation medical director Norman Sharpe says doctors and cardiologists have been sceptical about stress in the past “and haven't really known what to say and do about it ... That reflects the fact that stress is everywhere, it's a normal phenomenon, but it can be exaggerated and excessive. And it's also very difficult to measure and modify.”

For him, confirmation that stress is a serious player in heart problems came from a 2004 study involving 20,000 people across 52 countries and published in the *Lancet*, in which participants answered questions on self-perceived stress at work and home, financial stress and major life events in the previous year.

“What came out was that across all these countries, and across many different regions in the world, how strong and consistent the effect of stress was in terms of the incidence of heart disease. It was

# Reclaiming a life

How one woman fought to turn her life around.

Dana's life has been a struggle with poor health, and at times a fight against death. And she believes profound stress is the reason her body has turned on itself so often.

It isn't the type of stress people usually complain about: working too many hours, not having enough money or juggling too many responsibilities.

Instead, says Dana, 72, a former medical researcher and now a music teacher, it was a stress that was part of her very being, the result of exacting, critical parents who used physical punishment, manipulation and denigration to enforce their will.

“I was taught to think I wasn't any good unless I was fulfilling other people's expectations. That was the major stressor. In order to be okay, I had to achieve and be seen to achieve. I had to be perfect. It didn't matter how I felt about it. I didn't count. I learnt to ignore what I felt. That set me up beautifully,” says Dana, who does not want her real name used.

The result has been a lifetime of “crash and burn, crash and burn”, cycles in which hard work, efforts to please others and then rebellion have intermingled with health crises. Dana routinely continued working when ill. In 1976 she was diagnosed with an autoimmune thyroid disorder that brought fatigue and an inability to think clearly. In 1982 she developed post-viral syndrome. It lasted for five years, leaving her tired and depleted.

In 1990, at the age of 51, Dana became more ill. She was dead tired, unable to walk around the block. The diagnosis was pancreatic cancer, one that kills all but 5% of sufferers within five years. But she was one of the lucky ones: the cancer could be removed by surgery, although the procedure would be risky and major.

Dana sensed the cancer was the product of internal conflict. “It was my way of committing suicide, really. There was no space for me in my life; I had to do what was expected of me. Even though I rebelled and went my own way, those expectations always were felt, rightly or wrongly. I had huge rage. Unfortunately I turned that against myself.”

She decided she needed to tackle some of the roots of her unhappiness, some of the less helpful aspects of her family upbringing. She went on a journey of personal discovery. But she was still pushing herself hard, taking little time off work after her surgery.

In 2006 another crisis struck. She and her husband were renovating their house, a hugely pressured job. Dana came down with a liver abscess and severe septicaemia. She came within 24 hours of complete organ shutdown.

The penny dropped – yet again. Dana felt to survive she would need to pull back from her crash-and-burn approach and reinvent herself some more. She has semi-retired. “Now I give myself lots of time and leisure.”

She believes having some sort of aesthetic satisfaction and delight is an essential stress reliever – for her it's her garden, her music and her remodelled home. “There's a lovely room. I watch



**“In order to be okay, I had to achieve and be seen to achieve. I had to be perfect. It didn't matter how I felt about it.”**

the garden and look at the changing sky, the birds, and am just content to be, rather than do.” She also believes animals offer escape from stress, in her case a menagerie of cats.

Her husband has been a great support, too, and her stress load has also been lightened by the death of both parents. “Them dying was a huge relief because I wasn't put under their expectations any more.”

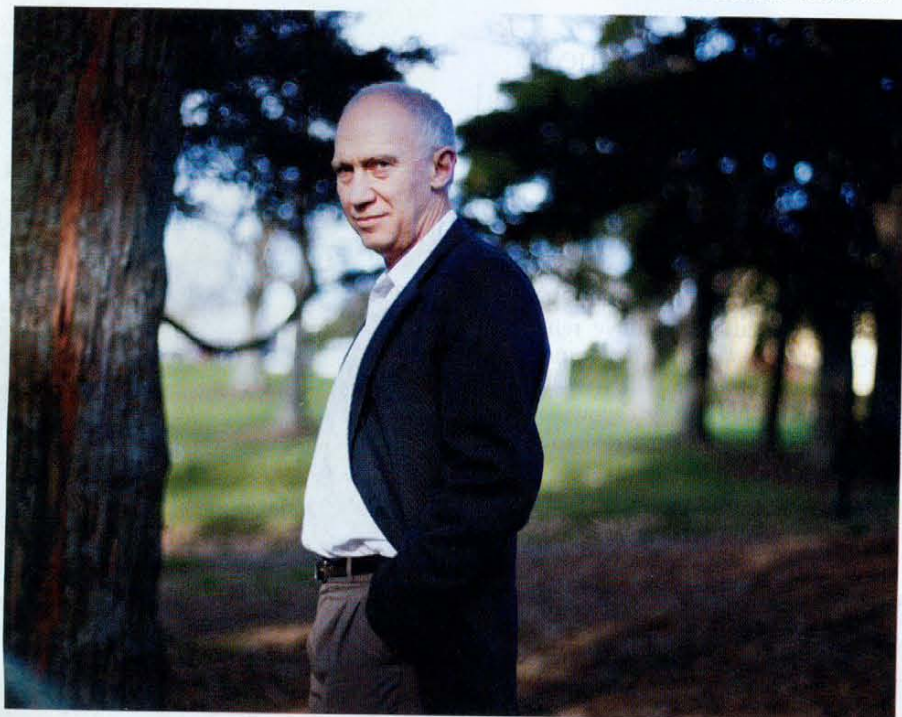
She still doesn't have much energy. Recovery from her liver abscess has not been complete.

But Dana has found out how to enjoy life. “A lot of healing from stress is about reclaiming yourself and allowing yourself to be a person in your own right. It's an act of self-creation.”



about as strong as any other of the long-established and understood major risk factors," says Sharpe.

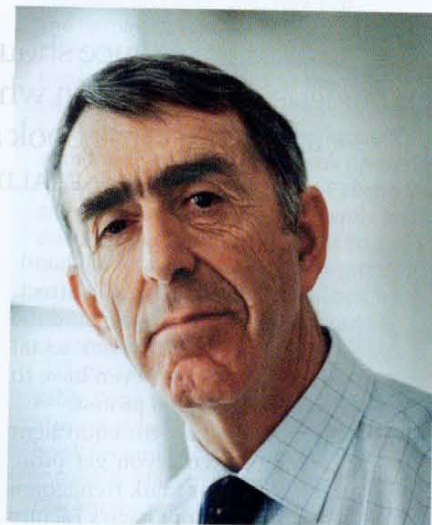
There are other clues that the heart can be stopped by extreme stress, such as by a World Cup penalty shoot-out. British researchers found emergency department admissions for heart attacks rose 25% in the 48 hours after England lost a crucial 1998 Football World Cup match against Argentina after an agonising penalty shoot-out.



Ideas about what constitute stress have changed over time, so that now poverty, low status and lack of control over one's work are recognised as strong drivers of stress. It was initially thought workplace managers at the top of the heap suffered the most stress and were at most risk of heart attacks. But a long-running study of British civil servants that began in 1967 turned all that on its head, finding that men such as messengers and doorkeepers had a death rate three times that of men in

affects their health. "There is some evidence from animal studies that where you are in a hierarchy can get under the skin through hypertensive mechanisms and changes in cardiovascular activity. But it's far from certain," says Blakely.

He thinks a stronger factor is probably that those who are under stress from their position in society behave differently, seeking relaxation in alcohol and smoking. Stress is also likely to play out in mental health problems, which can then lead to a



The Heart Foundation's Norman Sharpe, above, and Associate Professor Roger Booth, left, are convinced that stress plays a big part in certain illnesses.

And in 2005 it was established that one heart syndrome – stress cardiomyopathy syndrome – was entirely caused by stress. The syndrome, which mimics a heart attack, is often found in women middle aged and older who have normal coronary arteries but have been extremely stressed. Sufferers usually make a full recovery.

Levels of stress hormones in the body appear to play a role, but the exact mechanism is not yet understood. Researchers speculate that whatever the mechanism is, it could provide the clue to the role of stress in heart problems generally.

In Christchurch the cardiology study recorded a dramatic spike in stress cardiomyopathy. Christchurch Hospital recorded six cases in the first two weeks following the 2010 earthquake and 24 cases in the first week after the 2011 earthquake. Usually there are just six such cases in a year.

the highest grade of administrators.

Further studies, extended to women, found those on the bottom rungs had higher rates of some cancers, chronic lung disease, gastrointestinal disease, depression, suicide and back pain. Once lifestyle factors were taken out, such as higher rates of obesity and smoking among those at the bottom, a strong relationship remained between low social status and higher rates of illness and death.

Stress appears to be one reason for higher death rates at the bottom of the hierarchy, says Professor Tony Blakely, director of the Health Inequalities Research Programme at the University of Otago's Wellington clinical school. One form of stress is from living in poorer neighbourhoods with more crime and experiencing more hostility as a result.

Some also argue a person's perception of where they are in a hierarchy directly

domino effect of poor decisions and poor health.

Back in Christchurch, Wynn-Thomas says his concern is that the battery of aftershocks is wearing away what resilience is left in the population. He expects more people will have trouble bouncing back from the acute stress of each aftershock and will instead move into a state of chronic stress and anxiety that will take its toll on their health and their ability to function.

Wynn-Thomas says these people should not hesitate to go to their GP, even if cost is a worry. "Your GP and practice nurse would rather see you and worry about the cost later. ... Where possible you should try to concentrate on the simple things of life, which is eat simple wholesome food, try to get a bit of exercise, try to get a good night's sleep, talk to friends and neighbours, and support each other." ■

DAVID WHITE, JANE USSHER

**"WHAT WE FOUND FOUR WEEKS AFTER SURGERY WAS THE GROUP THAT WERE IN THE RELAXATION GROUP HAD SIGNIFICANTLY IMPROVED TIREDNESS AND FUNCTIONAL RECOVERY."**