

ROD KENYON RECALLS THE CHAOS when about 160 rocket, gun and bomb attacks occurred daily in Baghdad in 2006. But the Royal Australian Navy captain cannot remember the one that knocked him down. He was on a solo fitness run one dark night in Camp Victory, the American military headquarters in a former Saddam Hussein playground of palaces, lakes and ex-torture chambers.

There was no warning whistle, just a bang. "I felt like someone had hit me over the shoulders with a cricket bat," he says. The pain in his neck after the incident was so intense that he could only sleep on the floor. At first Kenyon ignored it. "I thought, 'She'll be right.'" Seven years later, Kenyon, now 47, still lives with the chronic pain caused by that blast. "The only time I feel relief is when I'm floating face down with a snorkel in a swimming pool, like a dead man," he says.

As Australia begins withdrawing its troops from Afghanistan this year, a legacy remains that marks this conflict as different from earlier ones: the soaring rate of chronic physical pain among veterans. Advances in battlefield medicine mean more wounded soldiers than ever are surviving injuries that have been designed to kill.

Dr Rollin Gallagher, a pain-management expert from the University of Pennsylvania's medicine school, estimates the wounded survival rate from the Iraq and Afghanistan wars at 90 per cent; with the Vietnam War 40 years ago, it was just 40 per cent. He calls the wounds, and the ongoing pain that military veterans are left to deal with, a "signature new injury": those caused by improvised explosive devices (IEDs), weapons that inflict horrible blast impacts on heads, necks, spines and limbs.

Ken Donald, a Queensland pathologist known for his work on veterans' health, puts it more bluntly. "We send soldiers to war with two jobs: kill people or inflict pain on them so they can't fight any more. We're now saving them from the kill bits. But we haven't tackled [the residual] pain with the full capacity of modern science." Donald argues that in a world where health funding is always "rationed", chronic pain control has been "left at the bottom of the ration list".

Acute pain caused by injury or surgery often passes. If the pain persists for more than three months after injury or surgery, doctors designate it "chronic". Damage to the nervous system is commonly involved.

The acute pain becomes chronic if it's not treated early and properly, causing neuroplastic changes in the nervous system that make later pain far harder to treat.

The explosion in chronic pain among survivors of the Iraq and Afghanistan wars has helped to highlight the problem in the broader population. One in five Australians are estimated to suffer chronic pain. Access Economics estimates the cost at \$36 billion a year in treatment and lost productivity, making it the country's third most expensive health problem after cardiovascular disease and musculoskeletal conditions. Chronic pain caused by back injury is the main reason why people drop out of the workforce.

Rod Kenyon has sought help through a treatment program run by Professor Michael Cousins, one of Australia's leading pain-management specialists and director of the Pain Management and Research Centre at Sydney's Royal North Shore Hospital. "Chronic pain isn't just a symptom," says Cousins. "It's a killer disease because of its impact on all aspects of a person's physical and



AN ONGOING WAR

Chronic pain from war injuries is opening the way to new treatments, writes Robert Milliken.

PHOTOGRAPHY BY TAMARA DEAN

Hurt locker: the navy's Rodney Kenyon (main picture and right) has a computer implanted in his hip to quell pain, but says he is no longer deployable.

mental well-being. A sufferer can reach a point where they no longer wish to live.”

Once seen as just a physical symptom, pain is now studied more through mechanisms linking the body's physical and psychological sides. Breakthroughs in brain scanning in the past decade have given experts new insights into neuroplasticity – the ability of the nervous system to change its structure and functions. Those insights, in turn, have broadened understanding of how the brain can change the way it responds to pain.

Philip Siddall, a professor of pain medicine at Sydney University and Greenwich Hospital, says recent neuroplasticity studies have shown that pain is associated with a range of functional, anatomical and chemical changes at many levels of the nervous system. “Neuroplasticity research has opened a new world of mechanisms underlying pain and the complex interaction between mind and body,” says Siddall. “There's no room now for the old dualist view of pain being either real or psychological.”

Michael Cousins and Rollin Gallagher hope that the impact of chronic pain among Iraq and Afghanistan war veterans will force governments to take a fresh look at chronic pain in the broader population.

Five years ago, the US Congress passed the Military Pain Care Act calling for a strategy on handling veterans' pain. Media exposure of poor pain management among America's “injured warriors”, as veterans are known there, together with mounting public opposition to the Afghanistan war, prompted Congress to respond. Australia has no such legislation.

A survey of American veterans seeking health care after returning from the Iraq and Afghanistan wars found that almost 57 per cent had been left with a compromised musculoskeletal system; more than 40 per cent were suffering from conditions of the nervous system and sense organs, while more than 48 per cent were living with mental disorders.

ROD KENYON, WHO JOINED THE NAVY AS A 17-year-old, shows me to his office in the Defence Plaza in Pitt Street, Sydney. After “a lot of sailing around the world”, including four missions to the Middle East, he's now director of naval inventory procurement. “I buy and repair the navy's spare parts,” is his short-hand explanation of his job.

Crop-haired and dapper in his white naval uniform, Kenyon appears every bit the fit military officer. You'd never know he has a condition known as type II nerve damage with complex regional pain syndrome. It comes from damage to the foramen, a slot in the top of his vertebrae linking bundles of nerves with his neck. Invisible to an onlooker is the computer implanted in his hip that's linked to a stimulator around his spinal cord to help him try to control the pain. He'll carry this device in his body for the rest of his life.

Kenyon's office is dotted with mementoes from his years in naval service. He points out a picture of al-Faw Palace, an extravagant colossus that Saddam Hussein built to commemorate a military conquest in the al-Faw Peninsula during the 1980s Iran-Iraq war. By the time Kenyon was posted to Iraq as part of the multinational Operation Iraqi Freedom in 2006, the palace inside Camp Victory had become the US headquarters. Indirect rocket fire from insurgents was a constant random threat across the base: the one that felled Kenyon was a 240-millimetre Fajr-3 Iranian rocket. “They weren't aiming for me,” he

says. “They were aiming for the palace, the commanding generals' quarters.”

Kenyon's run that night in just a T-shirt and shorts had an important purpose. “I tried to stay as fit as possible to run as fast as I could wherever I had to,” he explains. The rocket landed in a nearby levy and a passing truck driver, seeing that Kenyon had been knocked over by the blast, stopped and urged him to get into the truck. Instead, Kenyon resumed his run. “I wasn't even going to report it,” he says. After a medic checked him at his headquarters later that night, Kenyon went back to work. “But I felt strange and warm down my left side and neck.”

The next day, Kenyon flew in a helicopter to the heavily fortified Green Zone in Baghdad for a meeting at the American embassy. When he reached forward to open a door, “Zap!” he says.

“ THE STIMULATOR IS CERTAINLY AN IMPROVEMENT, BUT IT'S NOT A SILVER BULLET FOR PAIN. IT GOES FROM NOT-BAD DAYS TO BAD DAYS TO WORSE DAYS.”

“I got pain up and down my arm and neck. It started getting worse. I slept on the floor for the next four months and self-medicated, taking American versions of Panadol from the Post Exchange, the military store.

“I got weaker and weaker. But I wasn't going to go home just because of a sore neck. I was in denial.” The chronic pain Kenyon still battles seven years later stems from the damage of that blast impact on his neck.

Kenyon's response was typical in a military culture where the focus has always been on fixing wounds, but not being particularly vigilant to the pain that lasts. Many soldiers prefer to dose themselves quietly than to admit they're suffering.

Pathologist Ken Donald says veterans often try to avoid the stigma that hovers over those who suffer from chronic pain. “You can't see pain, so they're stereotyped as liars if they complain,” he says. “Until the last decade, opiates were the only serious treatment, and that can lead to another stereotype: the drug addict.”

The US Army surgeon general's task force blames a military culture of “no pain, no gain” for making soldiers work through their suffering. Michael Cousins cites “barbaric” policies during World War I when wounded soldiers were refused anaesthetics “because the authorities didn't think amputations that would only take a minute” warranted them.

Back in Australia in early 2007, Kenyon's wife, Lenore, an anaesthetist, knew something was wrong with her husband. An MRI scan discovered that broken fragments of disc bone were crushing the nerves in his neck, causing his chronic pain. After microsurgery, the pain seemed to ease but, by late 2008, it was back.

Under Associate Professor Ray Garrick, a neurologist at Sydney's St Vincent's Hospital, Kenyon tried a series of treatments – specialist physiotherapy, CAT-scan-guided injections, external nerve stimulation – in a bid to break the pain cycle, but relief was short-lived. “I finally had to tell my admiral that I hadn't slept for several months,” says Kenyon. “I couldn't lie down. The



only time I was comfortable was when I was standing up or floating.”

Garrick referred him to Michael Cousins, who works with Dr Andrew Ellis, an orthopaedic surgeon and military lieutenant-colonel. The techniques Cousins and his team are pursuing include spinal cord stimulators like the one they inserted in Kenyon.

Kenyon shows me how he is now able to control his pain with a hand-held mouse, a bit like a small television remote control, which he places next to his left hip. Implanted inside his hip is a pulse generator with a battery and a tiny computer. In response to signals from the mouse, the generator sends tiny electrical impulses up a lead, containing 16 electrodes, in the epidural space around his spinal cord. This device inside his body ends at Kenyon's neck, the site of the damage that has caused his chronic pain. The process is designed to reduce pain signals from the nerves to the brain.

An estimated 500,000 spinal cord stimulators are now used for chronic pain relief worldwide, but they're by no means a panacea. About 40 per cent of people fitted with the devices respond to them, experiencing a 40 to 50 per cent reduction in their pain level.

At about \$40,000 each, the stimulators don't come cheap, although workers' compensation and veterans' health schemes will cover some of that cost after patients' responses to the devices are tested; in Rod Kenyon's case, the Royal Australian Navy covered the full cost. As with Kenyon, a patient is usually only offered the option of being fitted with a stimulator after less invasive approaches – drugs, physiotherapy and external nerve stimulation – have failed to have an effect.

Despite wearing this cutting-edge pain-control gadget, Kenyon still feels pain in his neck. “It's certainly an improvement,” he says, “but it's not a silver bullet for pain. It goes from not-bad days to bad days to worse days.” He continues to take medication.

Some pain specialists, such as Cousins, see hope from spinal cord stimulators. Although it is yet to be proved, they believe that electrical



Legacy of war: Professor Michael Cousins (left) is helping former soldier Geoff Evans (below), who was medically discharged from the army this year and says his rib pain still “drives me insane”.

stimulation of the spinal cord can release natural chemical transmitters in the body that block the pain before it reaches the brain. Australian researchers are recording the electrical responses of nerve cells in the cord from the stimulation, hoping to broaden the knowledge of this treatment’s mechanisms.

Cousins is now working on trials for a more advanced form of stimulator with Sydney-based company Saluda Medical. Unlike the device Kenyon wears, “bombarding the spinal cord with electrical impulses”, the proposed new one would allow more precise control of the stimulation. In July, the NSW government granted the project \$5 million through its Medical Devices Fund.

Kenyon and Lenore have two children, Tim, 19, and Stephanie, 16. “I’ve given them hell, but they’ve coped well,” he says. “Chronic-pain patients are not good people to be around! My son once said, ‘Dad, when are you getting a personal-ity upgrade chip to go in that computer in your hip?’ We still go fishing, but I can’t catch big ones because it hurts my arms.”

Kenyon speaks of his plight in a straightforward, almost military manner. During our time together, the only hint that he’s suffering something underneath his outwardly controlled demeanour comes when he periodically stands up to relieve the pain that settles on him if he sits down for too long at his desk. “If I could sleep like a horse standing up, I would,” he says. As for his future career in the navy, he accepts that his physical discomfort is likely to keep him desk-bound: “I’m no longer deployable,” he adds.

FOR MICHAEL COUSINS, A HORRIFIC INCIDENT he witnessed early in his career as an anaesthetist convinced him that doctors needed to understand far more about how to control pain. In 1964, when Cousins was 25, two young brothers, accidentally and severely burnt in a bonfire, were rushed to Sydney’s St George Hospital in Kogarah. “I saw two little children black from burns, crying out, ‘Save us!’” he recalls. Cousins and colleagues spent three days and nights fighting to do so. After multiple surgeries, the pair survived. “I didn’t know people could have pain as bad as that.”

In the early 1970s, Cousins worked with returning Vietnam soldiers in a fledgling pain clinic at Stanford University in California.

“During the Vietnam War, we didn’t know much about the neurobiology of pain at all,” he says. “We didn’t know the importance of keeping acute pain after injury to as low a level as possible to stop it becoming chronic pain.”

Australia is home to about 373,000 war veterans. About 47,000 of these are Vietnam vets,

while 57,000 are survivors of “post-1999 conflicts”, including Iraq and Afghanistan. Graeme Killer, principal medical adviser to the Department of Veterans’ Affairs, agrees that the early intervention that pain specialists now advocate is vital. Killer recalls how many Vietnam veterans came home in the 1970s not just with chronic pain from injuries, but with mental health problems from post-traumatic stress. Yet both sets of problems, Killer says, became “entrenched” because they were not addressed straight away, making rehabilitation chances much harder. “We picked up Vietnam vets’ problems 10 years later, and too late,” says Killer.

DAMIEN THOMLINSON, AN EX-SOLDIER, lost both his legs after an IED blast in Afghanistan four years ago. Cousins says Thomlinson was his toughest case, and among his most successful. Thomlinson was in “as bad a state as I have ever seen” when he was transferred from a military hospital in Germany. He was screaming in pain, swearing and way be-



yond his ability to cope. Injuries to his nerve tissues were so severe that his pain was excruciating.” Thomlinson’s pain, originating from nerve damage at the sites of his amputated legs, was then amplified through his whole nervous system.

Cousins and a team of specialists brought Thomlinson’s neuropathic pain under control in 48 hours. They did so through targeting different areas in the nervous system, using more than one type of opioid painkilling drug, in conjunction with anaesthetic infusions. They also attacked Thomlinson’s pain with tricyclic drugs that are normally used to treat depression: such drugs boost chemicals in the nervous system that are capable of both reducing pain and alleviating depression.

Thomlinson was later fitted with prosthetic legs. This outcome, says Cousins, was “an outstanding example of what early intervention can achieve.” Thomlinson, he says, was at high risk of developing chronic pain because the neuroplastic changes to his nervous system sparked by the acute pain after his amputations could then have become far more complicated and harder for specialists to manage.

That will be a challenge for former commando Geoff Evans, who lives in Sydney. He is turning to Cousins after suffering pain in his back, ribs and legs two years after being injured by an IED blast in Afghanistan. Evans was stationed on an out-

side gun portal of a Bushmaster, an armoured vehicle designed to protect those inside from IEDs. He says of the devices, “They’re the Taliban’s answer to our technology: rudimentary, but lethal.”

Evans and a group of Australian and Afghan soldiers were returning from a patrol through the Mirabad Valley region of Uruzgan province, where they had been mentoring a provincial Afghan police company. The IED exploded as their Bushmaster approached a river crossing. His mates inside the vehicle escaped the blast’s impact. He says his rib pain still “drives me insane”. Evans, 36, was medically discharged from the army in February as a result of the wounds he received in the blast, and still isn’t working.

Some fall victim to chronic pain without even seeing a war. Aaron Fahlbusch, 26, suffered a leg injury during infantry training for overseas service near Singleton in NSW seven years ago. He landed badly after climbing over an obstacle wall, fractured his left shin and dislocated his left knee. Fahlbusch says his chronic pain was diagnosed only after he left the army in 2008.

He later sought help from Ellis and Cousins, who referred him to a clinical psychologist and a physiotherapist. Part of his recovery involves managing his chronic pain with exercises that improve his ability to walk.

Apart from anti-pain drugs, he also relies on regular meditation to help him focus his mind away from the lasting pain as a result of nerve damage in his leg. “The meditation calms everything down,” says Fahlbusch. His pain levels still vary from day to day. “I’ve just learnt better ways of controlling it.”

Don Rowe, 65, RSL state president of NSW, laments the treatment of those like Fahlbusch who are injured while training and never see overseas deployment. “The Defence Force sees them as no further use, so they’re out. Australian authorities are still not doing enough to recognise chronic pain as a problem among vets.”

Rowe, a Vietnam veteran, recalls his father suffering pain all his life after injuries he received during World War II: “He died with shrapnel still in him,” he says. “We accepted it then. We don’t now, and we shouldn’t. Even after Vietnam, the official attitude, was ‘Here’s another pill. Get over it.’”

MICHAEL COUSINS AND OTHER PAIN specialists are exploring several new techniques aimed at higher pain management success rates for all sufferers, not just veterans. Pharmacotherapy, a “rapidly changing field”, uses new types of neuropathic drugs (such as pregabalin and duloxetine) that act on specific targets within the nervous system associated with the pain process. Some drugs being trialled include so-called sodium channel blockers that interrupt the pain process for several hours, or as long as the drug doses last.

Other techniques involve training patients, such as Fahlbusch, to adapt their postures and movement of damaged joints. Another approach, cognitive behavioural therapy, draws on techniques aimed at re-training the brain to adapt to pain. Cousins believes advances in genetic testing will eventually be able to identify people at high risk of succumbing to chronic pain after surgery or trauma, thus enabling early intervention to stop it.

Cousins is optimistic about transformation in pain management: “Starting with those two little children who once impressed on me that this is an area of enormous need, I think this is the moment when it’s finally happening.” **GW**

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