Prevention is better than cure

Rethinking chronic pain

“Prevention is better than cure”, so the old adage goes. And when it comes to safeguarding our future health and preventing illness, a lot of what’s important for healthy backs is also beneficial for our overall health.

In this latest instalment of the ongoing educational series, we’ll be reviewing and rethinking chronic pain – its meanings, consequences and resistance to mainstream medical approaches.

Back pain represents half of all chronic pain\(^1\), so it’s certainly pertinent for us and not surprising that back pain has informed the majority of thought and research on this topic.

**SNAPSHOT:**
**THE HUMAN COST OF CHRONIC PAIN**

Every year, five million people in the UK will develop chronic pain.

That’s a further 8% of the population succumbing to chronic pain every year:

- 75% will get divorced
- 25% will lose their job
- 22% will develop depression
- 20% will consider suicide
- 10% will attempt suicide

If their chronic pain becomes “highly disabling”, their risk of death is greatly increased:

- 50% increased risk of terminal cancer
- 90% increased risk of fatal heart attack
- 250% increased risk of fatal lower respiratory disease
- 370% increased risk of fatal coronary heart disease

**Back pain doesn’t kill**

All too often we’re told that back pain and chronic back pain is too expensive, costing billions in NHS treatments and disability benefits. True as this may be, it tends to detract from the humanity and human cost of pain. Patients suffering chronic pain are at high risk of suffering long-lasting emotional disturbances characterized by persistent low mood and anxiety\(^2\). In fact, they carry three times the average risk of psychiatric disorders\(^3\), and 22% of cases lead to depression\(^4\). Perhaps most unsettling is that a review of a dozen different studies conducted in 2006 showed that chronic pain doubles the risk of suicide – around one in five chronic pain patients think about suicide, and one in ten will attempt to take their own life\(^5\).

In fact, several studies have shown the profound impact of chronic pain on mortality. Chronic pain doubles the all-cause death rate, independent of socio-demographic factors (such as

**The chronic pain epidemic**

So it appears that chronic pain is far more lethal and destructive than is often realised, but how common is it? Well, there are an estimated 100 million chronic pain sufferers in Europe\(^13\), including one third of adults in England\(^7\). In America, one third of the entire population is estimated to suffer chronic pain\(^14\). So that’s around a quarter of a billion people in just the Western world. Chronic pain is certainly a global issue and by several accounts it’s getting worse.

In Britain, the prevalence of total back pain increased across all age groups, social classes and regional areas from 35% in 1987 to 50% in 1997\(^15\). Between 1992 and 2006, the prevalence of chronic lower back pain (CLBP) in North Carolina more than doubled, from 4% to 10% – increasing in all age, gender and ethnicity groups\(^16\). An identical more-than-doubling (also from 4% to 10%) was recorded between 2002 and 2010 in the medium-sized Southern Brazilian city of Pelotas – growing fastest in younger individuals with more years of education and higher economic status\(^17\).

The 2011 Health Survey for England revealed that 15 million adults in England have chronic pain, but this appears to be a rapidly growing figure. In 2009, former Chief Medical Officer Sir Liam Donaldson reported that more than five million people develop chronic pain in the UK every year, from which a third will never recover. Put another way, a further 8% of the population becomes chronic pain every year.

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age, gender, education, income and occupation). Sufferers who are highly disabled by their condition (33%) are at even greater risk of death, particularly from heart attacks, coronary heart disease and lower respiratory diseases.

The slogan, “back pain doesn’t kill, it tortures” wasn’t coined by BackCare but we did adopt it in several instances over the last couple of years as a means of highlighting the fact that back pain continues to destroy so many lives. However, upon delving more deeply into the research literature, we find that even this seemingly stark slogan is an underestimate, particularly in the context of chronic back pain – in short, it literally increases death rate. And if it doesn’t kill you, pain and disability impacts every area of life. According to the Chronic Pain Policy Coalition, one quarter of sufferers will lose their jobs. The impact upon daily functioning can be severe and the strain placed on relationships can reach breaking point. Around 40-50% of all marriages in the UK and America end in divorce, but this figure rises to more than 75% where one partner is chronically ill.

“Physical pain, psychological distress and the deleterious effects of medical procedures all cause the chronically ill to suffer as they experience their illnesses. A fundamental form of that suffering is the loss of self in chronically ill persons who observe their former self-images crumbling away without the simultaneous development of equally valued new ones. As a result of their illnesses, these individuals suffer from (1) leading restricted lives, (2) experiencing social isolation, (3) being discredited and (4) burdening others.”

In conclusion, it has been said that “back pain doesn’t kill”, but chronic pain is, in fact, associated with an increased risk of death, disability, depression, divorce, and numerous other direct and indirect sequelae.

As discussed, around a third of people have chronic pain, a third of these are highly disabled by their condition and this disablement carries a dramatically increased risk of death from heart attacks, coronary heart disease, lower respiratory diseases (such as chronic bronchitis and emphysema). Astute readers may have spotted that these particular diseases are classically associated with stress, smoking, physical inactivity, unhealthy diet and drug dependence. Indeed, chronic pain sufferers are at higher risk of opioid and alcohol dependence. Smoking is three-times more prevalent among chronic pain patients than the general population – 60% and 20% respectively – and causes 80% of chronic bronchitis and emphysema cases. Indeed, the full consequences of pain are so often overlooked.

There is a tendency within our modern mainstream conception of medicine to classify disease as something that happens to the body and within the body. Making any medical progress at all is in part dependent upon mustering the “escape velocity” needed to leave behind this antiquated definition. Chronic pain is not simply something that happens to and within the body; rather it is the common name for syndrome or pattern of interrelated processes that encompass physical, psychological and social dimension. In no uncertain terms it controls how the person thinks, feels, behaves and functions. Obviously, not all chronic pain patients are addicted to cigarettes, alcohol and prescription painkillers. The point is that these, and an entire catalogue of far less obvious negative behavioural adaptations, serve as coping mechanisms for the ongoing experience of pain, disability and loss of self. These cannot be considered somehow separate from the pain itself.

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The physical fixation
While most people experiencing headache do not tend to attribute it to a physical problem with their head, our assumptions about back pain are quite different. It is common for back pain patients to absolutely fixate on relatively insignificant physical and anatomical details, often from an over-interpretation of diagnostic imaging results.

Most pain-free people have some form of spinal disc degeneration (including bulges, herniations, protrusions, prolapses) from harmless wear and tear and as a normal part of aging. A patient may classify their issue as “I slipped a disc at L4-L5 in 1995” rather than grasping that the chronicity of their pain is far more significant than its bodily location. In short, if a patient has had constant pain or recurrent episodes of pain for a long period of time (from three months to years), then their primary issue and the biggest medical threat to their future health and to their life itself is “chronic pain” not “slipped disc.” In fact, as shown by Professor Sir Simon Wessely and colleagues at the Institute of Psychiatry, you are almost 70% more likely to develop and suffer from medically unexplained symptoms (such as chronic back pain) if you attribute your condition to a physical diagnosis.

We have fallen foul of modern science’s tendency to “atomise” reality – cutting our experience into smaller and smaller fragments to be labelled with the hope of understanding our world. Chronic pain has not escaped the resulting obfuscation as we now have at least six different labels that identify parts of this syndrome: chronic, persistent, long-term, recurrent, non-specific, and medically unexplained. No, they don’t all mean the same thing, yet they are all facets of the chronic pain syndrome. And yes, even with a slipped disc or similar imaging-based diagnosis, the pain is non-specific and medically unexplained as normal spinal degeneration does not constitute adequate or plausible cause for lasting pain.

Adaptations of the brain
The last decade has seen considerable research associating specific skills and traits to brain structure. A rather elegant demonstration of this is that London taxi drivers who have “the knowledge” (i.e. learned the entire roadmap of London) show altered structure in the anterior hippocampus of the brain by MRI scan. Even political orientation has been found to relate to distinct structuring of the brain: greater liberalism is associated with greater grey matter in the anterior cingulated cortex (a part of the brain involved in empathy and impulse control), whereas greater conservatism is associated with increased grey matter in the right amygdala (a part of the brain that mediates subconscious fear).

In a recent breakthrough, Professor Sean Mackey and colleagues at Stanford University found they could detect chronic lower back pain with 76% accuracy by brain scan. Chronic lower back pain sufferers were found to exhibit restructuring of the cerebral cortex (a part of the brain involved in perception, awareness and thought). We have long known that the brain changes its physical structure as an adaptive, learning response to stimuli: a process termed “neuroplasticity” – but this new research supports the understanding that the chronic pain syndrome is an adaptation (arguably a maladaptation) acquired in the same way as other capacities are learned.

Single-site chronic pain is rare and 92% of chronic back pain sufferers feel pain in other parts of their body. For example, chronic lower back pain (CLBP) accounts for 25% of all chronic pain, but single-site CLBP is only 3%. Of course, it needs to be appreciated that it is common to experience referred and radiating pain. However, even when all lower limb pain is included with lower back pain, the figure only rises to 7% (falling well short of the 25% mark). In brief, more often than not, the chronic pain syndrome manifests pain in multiple sites of the body (even when we account for referred and radicular pain). This is important because it supports the emerging understanding that chronic pain is a systemic syndrome primarily driven by the brain.

Unlearning the maladaptive stress response
As noted, our mainstream conception of medicine harbours the notion that disease is something that happens to the body and within the body. A further misconception, again very much deleterious to progress, is that physical symptoms can only be

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The brain: the master organ

The only factor found to predict new cases of lower back pain was acute psychological distress.

become highly popularised in modern culture, there is actually a gross under-realisation of the brain’s significance, and, indeed, the mind’s significance, in physical health. What we have to remember is that non-specific pain refers to pain for which there is no recognised physical cause and which is likely to be stress induced. Note, “stress induced” (which suggests that stress is activating physical pain-related processes in the body) should not be confused with “imaginary” (which suggests that there is absolutely no relationship between the pain perception and bodily processes). The brain – which automatically breathes for you while you sleep, automatically raises your pulse rate in response to fear, and automatically increases blood flow through the face (blushing) in response to embarrassment – can certainly activate pain pathways. The brain is simply the master organ of the body, and its “software” (the largely unconscious mind) holds predominant governance. In fact, physical pain is a very common symptom of psychological stress. Around 96% of people will experience headache during their lifetime and nearly 90% of these will be stress induced tension headaches. Similarly, as many as 84% of people will experience lower back pain during their lifetime and around 90% of these cases are stress induced non-specific back pain.

The symptoms of several chronic diseases including chronic pain, cancer and diabetes are improved by general stress reduction. However, while general stress reduction may allow the patient to get more comfortable within their chronic illness, it does not appear to foster recovery outright. There is a world of difference between effective pain management and actual recovery. It is already well accepted that stress influences physical health. Nevertheless, despite all the evidence, it is not widely realised that chronic and non-specific pain is caused and driven by the brain, and that recovery must ultimately be psychological.

Research from the emerging field of “post-traumatic growth” suggests that recovery from chronic pain may involve specific new learning and growth by the patient – in essence, to “unlearn” the maladaptive stress response. Sadly, this remains unbelievable, and thereby out-of-bounds, to most people at this time in our development.

caused by physical problems and can only be adequately met with physical interventions such as drugs, surgery or hands-on therapies. The research, however, tells a very different story.

In 1996, researchers at the University of Texas started tracking 421 employees with acute back pain to understand better why some people don’t recover. Using a psychological test, they were able to classify who would be disabled by chronic pain a year later. The test had a predictive accuracy of 91%.

In 2000, researchers at Sydney University recruited 694 nursing students to learn about the factors that precede and predict lower back pain. Volunteers were assessed every six months for four years with measures of physical (body weight, strength, flexibility), psychological (stress, nervousness, health perception) and lifestyle factors (exercise, smoking). The only factor found to predict new cases of lower back pain was acute psychological distress.

In 2001, researchers in Germany recruited 51 volunteers through local newspaper advertisements and subjected them to low-velocity “placebo” rear-end car collisions with no actual biomechanical potential for injury. The 10 volunteers who had scored highest on their psychometric test reported the symptoms of “whiplash injury” at the follow up appointment three days after the placebo collision. By true test reported the symptoms of “whiplash injury” at the follow up appointment three days after the placebo collision. By true