

Common misconceptions about back pain in sport: Tiger Woods' case brings five fundamental questions into sharp focus

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Back pain is the leading cause of disability in the western world and a major reason for activity avoidance and athlete retirement. In spite of enormous and increasing costs, current approaches to management are fuelling rather than reducing the burden of the problem.¹ This was highlighted by the huge media interest generated recently over the demise of Tiger Woods and his golf game relating to his back pain disorder. Tiger's story has demonstrated common underlying beliefs about back pain often reinforced by well-meaning health professionals, which in turn leads to the quest for 'magic bullet' treatments to 'fix' the disorder. Tiger's situation highlights the diagnostic and management dilemma faced by many health professionals regarding the mechanisms for, and the management of, recurrent and disabling back pain disorders.

TIGER'S PUBLIC QUOTES RAISE FIVE KEY THEMES FOR DISCUSSION

1. "Tiger has a pinched nerve in his back causing his pain" What is the role of imaging for the diagnosis of back pain?

Commonly in clinical practice back pain is considered from a purely biomedical perspective, where radiological imaging is the basis for diagnosis. The dilemma of imaging is that while it has an important role in the triage of people with back pain in order to identify fractures, malignancies and nerve root compression in 1–2% of people, it also identifies many pathoanatomical findings which are poorly related to back pain.² Imaging findings such as disc degeneration, disc bulges, annular tears and prolapses are highly prevalent in pain-free populations, are not strongly predictive of future low back pain (LBP) and correlate poorly with levels of pain and disability.^{3 4}

The documented adverse effects of early MRI for LBP include increased disability levels, increased medical costs and surgery, highlighting the risk of iatrogenic disability if spinal imaging is not communicated carefully and matched to the presenting disorder.^{5 6} Even in the presence of specific pathologies, consideration of all relevant biopsychosocial domains should be part of the examination, clinical reasoning and management process.²

2. "Tiger had a micro-discectomy for a pinched nerve that had produced pain lasting for several months." What is the role of microdiscectomy for the management of back pain?

In the case of disc prolapse, the natural history is good with the majority of cases recovering and the prolapse reducing in size over time, with long-term outcomes for surgical intervention no different to usual care.⁷ For those who do not recover, levels of pain and disability are not predicted by the size of the prolapse and degree of nerve compression suggesting other pain mechanisms are involved.⁷ The role of decompressive surgery (*microdiscectomy*) should be limited to nerve root pain associated with progressive neurological loss and cauda equina symptoms.² Surgical treatment for radiculopathy are not indicated in the absence of neurological compromise as the pain mechanism is associated with inflammatory mediators in the perineural fat⁸ rather than nerve compression. Microdiscectomy is not a treatment for back pain.

3. "My sacrum was out of place and was put back in by the physio." What role do manual therapies play to treat back pain?

Passive manual therapies, while providing short-term pain relief, do not prevent nor change the natural history of back pain, and have a limited role in the management of persistent back pain disorders.⁹ Beliefs such as "your sacrum, pelvis or back is out place" are common among clinicians. These beliefs are not evidence-based and can increase fear, anxiety

and hypervigilance that something is structurally wrong that an individual has no control over, resulting in dependence on passive therapies for pain relief (possibly good for business, but not for health). These clinical beliefs are often based on highly complex clinical algorithms associated with the use of poorly validated and unreliable clinical tests.¹⁰

Apparent 'asymmetries' and associated clinical signs relate to motor control changes secondary to sensitised lumbopelvic structures, *not* to bones being out of place.¹¹ In contrast, there is strong evidence that movements of the sacroiliac joint are minute, and barely measurable with the best imaging techniques let alone manual palpation.¹²

4. "I need to strengthen my core to get back to golf pain again." What is the role of core stability training?

'Working the core' has become a huge focus of rehabilitation of athletes and non-athletes in recent years. This has been driven by the belief that the spines stabilising muscles become inhibited with back pain rendering the spine 'unstable' and 'vulnerable'. This is in spite of growing evidence that disabling persistent back pain disorders are often associated with increased trunk muscle co-contraction, a tendency for earlier activation of the transverse abdominal wall muscles and an inability to relax the spines stabilising muscles such as lumbar multifidus.^{13–15} This increase in co-contraction can result in increased spine stiffness and altered biomechanical loading reinforcing pain.

There have been a number of high-quality randomised controlled trials that have compared stabilisation training to various forms of exercise, manual therapy and placebo. These studies highlight that stabilisation is not superior to the other active therapies and only marginally superior to placebo, with only minimal changes in pain and moderate reductions in disability.^{16–19} Recent studies have also demonstrated that positive outcomes associated with stabilisation training are best predicted by reductions in catastrophising rather than changes in muscle patterning,²⁰ highlighting that non-specific factors such as therapeutic alliance and therapist confidence may be the active ingredient in the treatment—rather than the desired change in muscle.

5. What should clinicians do? The paradigm shift required for managing a complex multidimensional problem like back pain.

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So where does this leave us as clinicians—and people like Tiger—when managing persistent and recurrent back pain? First, clinicians need to realise that back pain does not necessarily mean that spinal structures are damaged—it means that the structures are sensitised. It is the health professionals' job to determine what the mechanisms are that underlie this process. While there may be pathoanatomical and biomechanical explanations for some athletes' pain, for others it is far more complex. There is growing evidence that LBP is associated with a combination of genetic, pathoanatomical, physical, neurophysiological, lifestyle, cognitive and psychosocial factors. The presence and dominance of these factors varies for each person, leading to a vicious cycle of tissue sensitisation, abnormal movement patterns, distress and disability.^{21 22}

The examination of an athlete involves; careful history taking, understanding the person's pain experience in relation to their levels of disability and patterns of provocation, the level and type of impairments, the sport demands, the person's beliefs and expectations as well as other lifestyle and relevant psychosocial stressors. Review of radiological imaging is considered in light of the clinical history and examination. The physical examination seeks to identify the pain sensitive structures and associated pain features. Where pain is mechanically provoked, careful observation is made of the relevant pain provocative movement patterns specific to the sport (ie, golf swing) and activities of daily life. Consideration is made as to whether these movement patterns are provocative of the pain disorder. For example careful observation is made as to whether the golf swing is associated with increased lumbar flexion or extension, coupled with side bending and rotation, increased trunk muscle co-contraction, breath holding as well as guarded movement of the hips and thorax, which can increase lumbar spine loading. A video analysis of the swing can assist this process. If motor control impairments are identified, then strategies to normalise these movement patterns are tested in order to determine if the pain can be reduced, modified and controlled.^{23 24} Addressing limb and trunk muscle strength and endurance deficits may also be indicated, where sporting demands for power generation are high.²⁵

On the basis of these findings, consideration is made as to the likely biopsychosocial drivers for the disorder. A graduated rehabilitation plan is then devised in

agreement with the coaching staff. Set clearly defined goals.

Effective management of persistent pain involves providing a clear understanding of the factors that drives pain, developing graduated strategies to normalise and optimise movement patterns while controlling pain, coupled with sports specific conditioning and a graduated return to sport. Addressing psychosocial stressors and unhealthy lifestyle factors (ie, poor sleep patterns) is part of this process, especially where 'central' pain features are dominant.^{21 22} Magic bullets do not exist, so do not promise them.

A NEW MINDSET

To adopt this kind of approach clinicians require

- ▶ A *mindset change* to abandon old unhelpful biomedical beliefs, and adopt evidence-based beliefs to help people with pain, and understand the underlying mechanisms linked to their disorder.
- ▶ *New and broader skills* for examining the multiple dimensions known to drive pain, disability and distress, developing innovative interventions that seek to enhance self-management, and engage in relaxed normal movement, healthy lifestyles and positive thinking about backs.²¹

Although there is growing evidence and momentum to support this process,^{23–25} large sections of the health industry have a vested interest in resisting such as change. So change will likely be driven by consumers demanding better outcomes, political will/legislation preventing expensive ineffective interventions and hopefully a growing body of clinicians and educators who are committed to evidence-based practice.

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