



# Back pain rehabilitation

**BACKGROUND** Back pain is a universal problem that becomes persistent in 5–10% of patients following an acute episode.

This makes it one of the most costly areas of health care in Australia.

**OBJECTIVE** This article outlines the paradigm that general practitioners should adopt to assist the patient to live with their pain experience.

**DISCUSSION** The development of persistent back pain is not a static process but one that is heavily influenced by the context in which it occurs. Patient characteristics, health care providers and the health system environment contribute and interact to promote the development of persistent pain. Health care providers involved in managing persistent pain should remain confident, positive and reassuring. They should encourage activity, discourage fear avoidance behaviour, and consider rehabilitation early before illness beliefs become entrenched. Multidisciplinary rehabilitation, when used early, aims to improve function and assist in the return to work process; when used late, it aims to prevent worsening disability and increased coping for patients.

## Pain as the problem

It has been estimated that one in five Australians have some form of persistent pain.<sup>1</sup> Pain is recognised as one of the more costly areas of health care in Australia second to respiratory disease and diabetes related diseases.<sup>2</sup> In 1997, codeine phosphate 30 mg with paracetamol 500 mg was the second most prescribed drug in Australia. In 1995 there were 3.7 million prescriptions written.<sup>3</sup>

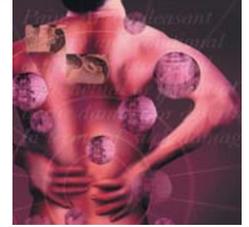
Pain is defined as: 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage'.<sup>4</sup> This definition is important, as acute or persistent pain can occur without a physical injury in the setting of significant distress. As such, the emotion surrounding the onset event – and subsequent events – can have a major role in the development and persistence of the pain state<sup>5</sup> (see *Case histories*).

### Case history – James

James is 26 years of age. He was on the top floor of a building working in a lift. He opened the wrong door and fell, sustaining multiple fractures. He had major weight bearing joint fractures but was able to return to work in a stores capacity by 6 months part time and full time in 1 year, despite post-traumatic osteoarthritis to the weight bearing joints.

### Case history – Sandra

Sandra, 39 years of age, was the front seat passenger involved in a car accident in which a pedestrian was killed. She sustained no obvious injury at the time. The following day she developed pain and stiffness in her neck and back. Three years later she continues to experience widespread diffuse pain, is unable to work and is severely limited in her activities.



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The term 'chronic pain' is now accepted as not recognising the complexity of the problem. Indeed the term 'chronic pain' has fallen into disrepute within the broader community, especially in medicolegal settings, as it implies 'functional overlay' or over embellishment. It has been replaced by the term 'persisting pain'. Persisting pain is multifactorial and often poorly related to the initiating event.<sup>5,6</sup>

### Models of pain

The neurophysiological model describes peripheral nerve interactions with spinal nerves and other central nerves leading to changes of nerve receptors at multiple central levels. These changes can persist after removal of the offending lesion, eg. phantom pain after amputation. Behavioural models of the past few years add further layers with the interaction of the pain state with the environment and how cognitions (thoughts and emotions) can lead to further behavioural changes such as reduced activity levels, medication consumption and complaining.

### Development of persistent pain

The development of persistent pain is not a static process. It is a dynamic one involving interaction between the person, the pain and the environment, and is heavily influenced by context. There is no doubt that in addition to patient characteristics, health care providers and the health environment all contribute to promote persistent pain states.

### Patient characteristics

Within a population of patients with persistent pain, certain cognitive patterns portend a poorer outcome. 'All or nothing' thinking, or catastrophising beliefs, eg. 'I can't do anything any more', 'my life is over', have a negative effect on recovery. Fear avoidant behaviours are the common product of all such characteristics.<sup>7,8</sup>

A recent study showed that patients in whom fear avoidance scores were highest in the early stages of injury were more likely to develop persistent pain than those with identical injuries. In addition, fear avoidance was found to be highest in patients who were most disabled with persistent pain.<sup>7</sup> Anxiety and depression also clearly magnify the pain experience and are associated with negative attitudes to recovery.

### Assessment of persistent pain

In a patient with persistent pain, diagnosis involves more than just determining where the pain is coming

**Table 1. Messages to give patients early and repeatedly**

- Keep active (a walking program is ideal)
- Keep moving the sore area (don't let it stiffen up)
- If it hurts to move, then it needs to move (hurt doesn't equal harm)
- Remain positive (what they are going through won't be forever)
- Encourage return to work ASAP (keep communication open with the employer)

from (if possible). It involves considering all aspects that may contribute to the development of persistent pain and developing a problem list. This can then be used as a meaningful basis for intervention. A careful history is imperative. Important features include:

- a detailed history of the circumstances surrounding the onset of pain
  - sudden stress overload
  - cumulative trauma
  - perceptions of fault
  - response of other parties (eg. family, employer)
- psychosocial profile of the patient
  - social context and supports
  - features or history of anxiety, depression
  - premorbid personality and thinking styles
- vocational history if relevant, and
- medication used/abused.

A matching of history, examination and imaging is required to enable the problem list to be compiled (including diagnosis). It is important to note, that in the setting of persistent pain, it is not uncommon to be unable to match radiology changes to the complaint. In addition, ascribing major radiological abnormalities to a patient's symptoms can also cause unnecessary treatment (see the article *Diagnostic imaging for back pain* by Michael Yelland page 415 this issue.)

### Treatment

An individual's health care seeking behaviour depends on the:

- pain experience (level of pain, beliefs about what pain means)
- availability of treatment
- expectations about treatments, and
- learned and cultural patterns of illness behaviour.

Initial treatments in acute pain are invariably not done in a multidisciplinary setting. Treatment is almost

always single discipline in keeping with the simple nature of acute pain (clear cause with a single onset). Physiotherapists and chiropractors appear to form the majority of the initial health care providers.

The patient with persistent pain can be managed within a single therapy practice with experienced practitioners utilising appropriate guidelines. However, in a single therapy regimen, there is a risk of dependence and reinforcement of passivity and helplessness if treatment is not combined with strong positive messages (Table 1).

In patients seeking single discipline passive treatment, six sessions is long enough to know if durable benefit is to be achieved. Referral to a multidisciplinary facility should occur when it becomes clear that either the patient is not responding appropriately, or is becoming dependent on passive interventions only.

### Timing of rehabilitation

When used early, multidisciplinary rehabilitation aims to improve function and assist in the return to work process; when used late it aims to prevent worsening disability and increase coping for patients. The diagnosis of persistent pain is signalling that a medical endpoint has been reached. At this stage, the responsibility for improvement relies upon good advice from a pain management program and motivating patients to exert more control over their lives.<sup>9</sup>

The medical rehabilitation assessment should ensure there are no specific medical interventions likely to assist in significant pain relief. If the patient is able to accept that curative intervention is not 'just around the corner', rehabilitation is more likely to be successful.

### Rehabilitation programs

Rehabilitation programs broadly fall into two types:

- functional restoration programs, and
- pain management programs (PMP).

Functional restoration programs, which have a more physical orientation, have an emphasis on return to work outcomes. They commence as early as possible after injury and encourage movement through participation in a group setting. Pain management programs focus more broadly on improvements in all aspects of living with pain. They aim to assist the patient in learning to live with pain and to maximise participation at home, in the community and at work.

### Multidisciplinary teams

Multidisciplinary teams work most effectively when

each profession, while maintaining an area of responsibility and expertise, jointly relays a congruent message to the patient.<sup>10</sup> Negative, resistant or manipulative behaviour can appear to be deliberately challenging. However, it may be that difficult behaviour is related more to genuine distress and confusion. Debriefing discussions among team members often helps to clarify the extent to which behavioural patterns are being consistently displayed across disciplines, and assists in developing strategies to confront these behaviours.

### The rehabilitation physician

The rehabilitation physician has the primary role of determining that the patient accepts they have reached an appropriate medical endpoint. This role is crucial in debunking medical myths. Patients require accurate and realistic information about external interventions. Many persistent pain patients have had multiple investigations that report conflicting or ambiguous findings. The rehabilitation physician needs to explain why investigations are being carried out and what the findings mean in plain language. This process of education and explanation is invaluable in reducing patient anxiety and frustration.

### The psychologist

The psychologist has a primary role in working directly with the negative consequences of fear related beliefs. It is important to understand what the patient's pain beliefs are and how they translate into behaviour. Pain beliefs are based on multiple contexts: cultural, familial, work environments and personal experience. As has been well documented,<sup>7</sup> fear avoidance behaviour is crucial in the development of persistent pain and disuse atrophy. Another important consideration is the effect of depression on social withdrawal. The psychologist also has a crucial role in determining the 'psychological readiness' of a patient to begin the rather difficult and protracted process of rehabilitation.

### The physiotherapist

The devastating physiological effects of disuse atrophy have been well documented.<sup>11</sup> The physiotherapist is responsible for ensuring the patient is able to find an appropriate starting place in an exercise routine. This allows a well motivated patient to engage in a sustainable exercise program. The following three exercise types can be used to get the patient to peak potential:

- establish an aerobic program that is achievable and enjoyable (eg. walking, cycling, swimming)

- stretching regimen to stretch out tight and painful structures, and
- strengthening if possible (accepting the inhibitory effects of pain).

### The occupational therapist

The occupational therapist (OT) is responsible for working through activities in a way that seeks to minimise the effect of fear avoidant behaviour, and works intimately with problem solving and pacing skills, which are necessary to change life long habits related to task performance. In many people with persistent pain, themes of 'all or nothing' and 'over doing' are consistently presented. Other areas of OT expertise are teaching both relaxation techniques and good biomechanical skills during work related tasks. The OT often has a primary role in graded return to work programs (when appropriate) and work station modification, and often becomes the liaison between employer and employee, seeking to ensure that functional gains made in a program are not lost in difficult work environments.

### Outcomes

Outcomes vary depending on the aim of the program and the health environment in which the injury occurs. The same program run under differing health umbrellas will have different outcomes. In addition, what started as a discrete injury with time becomes complex and multidimensional, and often bears little relationship to the original traumatic event. This multidimensionality leads to neglect in the study of outcome measures; put frankly, there are too many confounding variables.<sup>12</sup> However, intensive functional restoration programs have been shown to improve function and have a moderate lowering of pain when matched with standard care.<sup>13-15</sup>

Pain management programs focus on developing the coping skills of the patient, and the evidence supporting this cognitive behavioural approach reveals the following outcomes:

- return to work (more related to employment factors in persistent pain programs)<sup>15</sup>
- reduction in health care utilisation
- quantifying the patients level of disability (claims management)
- improving quality of life<sup>15,16</sup>
- understanding the contributors to the individual's disability (anecdotal), and
- reduction of pain.<sup>15</sup>

### Conclusion

Persistent back pain is a complex process developing in a dynamic manner over a variable time span. Patient characteristics, health care providers and the health system are all contributors to the development of persistent pain. The important message to give patients early and repeatedly is to keep active, keep moving the affected area, remain positive and encourage return to work or other activities as soon as possible. Multidisciplinary rehabilitation programs aim to assist the patient in learning to live with pain and to maximise participation at home, in the community and at work.

Conflict of interest: none.

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