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# Approach to low back pain – exercise physiology

This article forms part of our allied health series for 2014, which aims to provide information about the management approach of different allied health professionals, using the case example of uncomplicated, mechanical low back pain.

## Keywords

exercise therapy; low back pain

## Case

A man aged 42 years, who works as a police officer, experienced an acute episode of severe lower back pain after spending the previous day helping his brother to move house. He had difficulty ambulating and most movements caused pain. Despite physiotherapy and osteopathy treatment he continues to experience back pain 12 weeks after the injury. Pain is having an adverse impact on his daily life and work and he has markedly reduced his activity levels. He is struggling with his current work duties and is anxious about his persisting symptoms. There are no lower limb symptoms and no 'red flags' are present on history or examination. He is otherwise well and takes no regular medications.

## What is an accredited exercise physiologist?

Accredited exercise physiologists (AEPs) hold a 4-year university degree and are allied health professionals specialising in the delivery of exercise interventions for the prevention and management of chronic diseases and injuries. Consultations are 45–60 minutes and focus on improving function and quality of life, and developing positive coping strategies and competency with self-management. AEPs treat chronic pain through a combination of exercise, education, contextual factors including the setting, and the therapeutic alliance between the AEP and patient.

## Initial assessment

The AEP explains their role in the rehabilitation continuum, and the objective and content of the assessment before the patient completes an informed consent. Assessments can vary depending on patient presentation, but all assessments include injury-specific outcome measures questionnaires, an oral and physical assessment, and an explanation of the assessment findings and the proposed treatment. In this case, the patient first completes a modified Roland Morris Disability Questionnaire<sup>1</sup> and short form McGill Pain Questionnaire<sup>2</sup> to assess self-perceived disability and pain. Red flags for serious spinal pathology are excluded. A comprehensive patient history is taken and includes details about injury, previous and current treatment, previous pain experiences, familial factors, treatment expectation, coping strategies, activity levels and beliefs about physical activity pain and injury. Symptom characteristics and aggravating and relieving factors are explored. The objective of the physical assessment is to determine the primary factors contributing to the patient's pain and disability (eg restricted spinal mobility, trunk muscle weakness, fear avoidance, compensatory or guarded postures). Functional tests are an integral part of the physical assessment (eg 8 min submaximal walking test, 1 min sit-to-stand and stair-climb tests) with particular attention to quality of movement and pain behaviour. At the completion of the assessment the AEP explains the assessment findings to the patient and the proposed treatment approach, with reference to normative data where applicable.

## Management strategies

### Short term (first 1–2 weeks of treatment)

The evidence supports patient education, reassurance and advice for establishing realistic treatment expectations to improve clinical outcomes.<sup>3,4</sup> The patient is informed that the

incidence of low back pain is high and that 70% of individuals experience intermittent symptoms for longer than 6 months after injury.<sup>5,6</sup> Staying active, avoiding excessive rest and remaining at work will assist recovery. The concept of acceptable and non-acceptable pain during exercise is explained. It is normal for patients to experience some discomfort with increasing activity but this should be manageable and decrease to baseline shortly after exercise. Work and non-work related goals would be discussed and a time frame agreed. This approach adheres to a biopsychosocial treatment model that is efficacious for treating and managing chronic pain.<sup>7</sup>

Evidence-based guidelines for the treatment and management of chronic back pain (>12 weeks) recommend exercise and activity as opposed to passive treatment modalities (eg traction, massage, mobilisation).<sup>8,9</sup> The evidence supports 6–8-week interventions incorporating individualised, enjoyable and supervised exercise, which is graded in intensity.<sup>8,9</sup> There is a common misconception that all patients with chronic back pain require core-stabilising exercise. Core-stabilising exercise is not supported by the literature as a panacea for chronic back pain<sup>10,11</sup> and might be best utilised for patients diagnosed with spinal instability.<sup>12,13</sup> The objective of exercise prescription is to address the primary limitations noted in the initial assessment (eg spinal mobility exercise to restore trunk mobility, graded exposure to fearful activities, work-related exercise to improve work capacity). A common theme in all exercise programs is work-related and functional exercise to improve the patient's tolerance to daily activity and work duties, with an emphasis on retraining better movement patterns and developing confidence.<sup>14</sup> This patient attends two supervised exercise sessions per week in the clinic in addition to self-managing a home exercise program and completing a daily activity/pain diary, which is reviewed weekly.

### Medium term (4–8 weeks treatment)

During the first 3–4 weeks of treatment, there is greater emphasis on increasing exercise volume as opposed to intensity. During this time the patient's function and mobility improves, confidence with exercise and movement increases and anxiety reduces. Work duties are better managed. The exercise program continues to be paced up during the remaining 4 weeks of treatment, with two

supervised exercise sessions per week and home exercise. Exercise intensity increases to 50–60 min of moderate-to-intensive exercise incorporating mobility, trunk-strengthening exercise and work-related and function exercise interspersed with 3 x 8 minute bouts of treadmill walking. The patient is instructed in strategies to reduce the risk of re-injury (eg movements and working postures that impose less spinal stress, manual handling, postural change, exercise). At the completion of treatment a post-treatment assessment is performed and the rehabilitation outcomes and recommendations are reported to the treating doctor.

### Long term (months-to-years, including prevention and maintenance strategies)

There is unequivocal evidence supporting exercise in the treatment and management of chronic back pain.<sup>8,9</sup> During treatment there is a strong focus on developing the patient's understanding and confidence with exercise so they can maintain their increased activity levels and self-manage exercise at the end of treatment. At the completion of treatment the patient in this case study would be prescribed a home exercise program that can be self-managed. Review would take place in 4 weeks with revision of the exercise program. Patients who experience frequent flare-ups and persisting symptoms need to be equipped with positive coping strategies to improve self-management post-treatment. This might include cognitive behavioural strategies, relaxation, breathing and activity pacing techniques, and gentle stretching and mobility exercises.<sup>15</sup> However, for some patients, the impact that chronic low back pain has on their function and daily life is beyond their coping capacity. These patients may benefit from a multidisciplinary pain management program implemented by a team of practitioners (eg doctor, pain specialist, physiotherapist, exercise physiologist, occupational therapist).

### Contraindications to treatment

Contraindications include red flags, substance abuse, and exercise risk factors as per the American College of Sports Medicine guidelines.<sup>16</sup>

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