# **Patient Information Sheet**

**Stress Fractures of the Lumbar Spine** 



### Stress Fractures of the Lumbar Spine

Bone is a metabolically active tissue that undergoes continuous resorption and renewal. Stress on the bone accelerates this process. When the process of renewal is not able to keep up with the process of bone resorption a stress fracture can form.

There are 2 types of stress fractures:

- A **fatigue fracture** occurs when abnormal stress is applied to normal bone. This is common in athletes
- An insufficiency fracture occurs when normal stress is applied to bone with diminished elastic resistance

The usual one seen in the lumbar spine is a **fatigue fracture**. It occurs in the area of the vertebrae called the pars interarticularis and is generally related to hyperextension, rotation and compression. It is most common on one side of the body but can occur on both sides. It is common in sports people and is seen frequently in cricket fast bowlers, throwing athletes, weightlifters, soccer players, gymnasts, dancers and Australian Rules footballers.

It is essential that it is diagnosed early as these do not always heal completely (especially those on both sides) and can lead to a permanent defect in the bone and potential for longer term low back problems.

### **Risk Factors**

• Training Volume and Insufficient Rest -Overtraining is common. Too much or the wrong type of training or sudden increases in activity and insufficient rest can overwhelm the repair process eventually leading to bone injury.

- Hormonal Overtraining or low body weight has the potential to cause lowering of oestrogen and subsequently lower bone density, or a negative calcium balance. Other endocrine factors that have the potential to influence bone health and therefore stress fracture risk are glucocorticoids, growth hormone and thyroxin.
- Nutritional Factors Either secondary to abnormal eating behaviours or poor diet can increase the risk of stress fractures and need to be addressed in management. Calcium balance can be affected by other dietary factors such as a high intake of salt, phosphorus, fibre, protein, caffeine and alcohol. It is not clear whether dietary supplementation with calcium or inadequate calcium in the diet is a factor in stress fractures but it is clear that restrictive or abnormal eating behaviours are a risk. Other nutrients such as potassium, iron, zinc magnesium and various vitamins are probably necessary.
- **Psychological Issues** can result in overtraining or an eating disorder.
- **Muscle Fatigue** Muscles exert a protective effect on bone and muscle fatigue has been associated with increased bone fatigue.
- **Type of activity** certain activities especially those involving rotation, hyperextension or compression are more prone to this problem
- **Technique** the body position adopted in several sporting activities can lead to stress fractures. This can often be modified without detriment to performance

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## Pain and Symptoms hysiotherapy & in

- Usually one sided lower back pain, which can radiate down into the gluteal region.
- Symptoms are aggravated by lumbar extension/rotation
- Localised tenderness over the problem region.

### Diagnosis

X-ray will show the fracture. MRI and CT (SPECT) scan will diagnose recent onset stress fractures.

### Treatment

Conservative management is usually successful in lumbar stress fractures and management would usually include the following:

- Activity Modification A period of activity modification is required to reduce stress on the injured region to enable bony healing to take place. Avoiding hyperextension activities is the most important activity to avoid.
- Pain Medication Early on appropriate pain medication prescribed by your GP may be appropriate in helping to control symptoms if they are severe.

- Exercises A physiotherapist prescribed and supervised exercise program is essential. This will focus on restoring optimal strength and movement to the back and related areas, and will assist in maintaining general fitness during the recovery phase
- Management of Risk Factors as noted above is crucial. This often requires multidisciplinary management (e.g. from dietician) and may require discussion with sports coaches
- Other Medical A fracture is a significant medical condition and the opinion of a Medical Doctor with expertise in this area is generally necessary

### Recovery Time

This will vary according to the requirements of your sport and the grade of the injury.