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What Are Spondylolysis and Spondylolisthesis?

IN LINE PHYSIO

One of the primary roles of the spine is to protect the spinal cord. This means that the spine needs to be strong while maintaining the flexibility required for a movable trunk. While the spine is very sturdy, spinal injuries do occur. Health professionals often use terms to describe and classify injuries of the body, two of these terms that you may have heard are *Spondylolysis* and *Spondylolisthesis*.

What are they?

Spondylolysis refers to a stress fracture of the pars interarticularis of the vertebra. This is the part of the vertebra that connects the body of the vertebra with the rest of the vertebra that surrounds the spinal cord. A separation of this fracture where the body of the vertebra is displaced forwards or backwards is called a spondylolisthesis.

Spondylolisthesis is a progression of spondylolysis and is given grades to classify its severity. Both spondylolysis and spondylolisthesis commonly affect the fourth and fifth lumbar vertebrae, found at the base of the lower back.

What are the causes?

Spondylolysis and spondylolisthesis can be a result of trauma with the spine being moved forcefully into extension, particularly in younger people. Certain sports such as gymnastics, football and weightlifting require repetitive backward movements of the spine and this can eventually lead to a stress fracture of the pars interarticularis. Growth spurts in teens have also been known to be responsible for the development of these conditions.

In older adults, common causes of spondylolysis or spondylolisthesis are degenerative changes in the spine due to aging, osteoporosis, infection or even a tumour. Some people have a genetic vulnerability in this area of their spine making them more susceptible to developing spondylolysis and then spondylolisthesis.

What are the symptoms?

Many people with spondylolysis and spondylolisthesis may be asymptomatic, which means they perform their normal activities without experiencing any symptoms. However, when symptoms do occur, common complaints are pain and tightness, much like a muscle strain, spreading across the lower back. This pain may be eased by bending forwards and aggravated by walking, running or leaning backwards.

In more progressive cases of spondylolisthesis, the shift of the vertebral body can cause narrowing of the spinal canal that can lead to nerve compression. This may cause hamstring tightness and even numbness and weakness of the lower limbs, affecting gait and daily activities.

How can physiotherapy help?

Your physiotherapist will work closely with you and any relevant medical professionals to determine exactly what is needed for your particular condition. Severe instability in the spine may require stabilization surgery, however, this is rare, and in most cases symptoms of spondylolisthesis can be improved with regular physiotherapy management.

Physiotherapy that focuses on strengthening and improving the flexibility of both the lower back and the abdominal muscles has been shown to have positive effects on both pain and function for those with symptomatic spondylolysis and spondylolisthesis. **Speak to your physiotherapists for more information regarding your individual condition.**

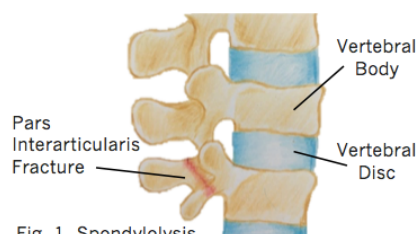
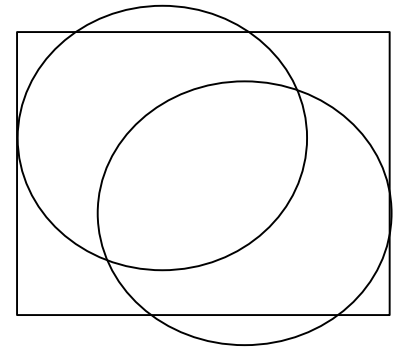


Fig. 1. Spondylolysis



Brain Teasers



1. Trace the pattern above with a pencil in one continuous line without taking the pencil point off the paper.

You are not allowed to cross the line or go over any part of it twice.

Did You Know?

You are taller in the morning and gradually lose height throughout the day as gravity acts to compress the cartilage in your body.

PhysioTip

Your body is capable of more change and improvement than you realise. Speak to your physiotherapists for tips on how to improve your fitness, flexibility or pain, no matter your age.

Shin Splints

What is it?

Medically known as Medial Tibial Stress Syndrome, shin splints is a term used to refer to pain along the inside of the tibia or shin bone. The exact pathology that causes the pain of shin splints is unclear and imaging such as ultrasound produces similar results when compared to persons who don't have shin splints. The pain of shin splints is usually felt over the area where two particular muscles insert into the tibia. These are Tibialis Posterior and Flexor Digitorum Longus, these muscles act to extend the foot and toes respectively.

Despite having an unclear pathology, this can be a debilitating condition that can impact activity levels significantly. The pain can be quite limiting and may even be an early warning sign of a stress fracture and this will need to be ruled out by a medical professional.

What are the symptoms?

Shin splints are typified by persistent leg pain, usually the inside of the shin, halfway down the lower leg. The pain might be felt during exercise or directly after. Some people experience a dull ache over their shin that lasts for quite a while after exercise stops, while for others the pain may be sharp and fades quickly.

The pain is often progressive, becoming worse with shorter distances. Eventually, shin splints can severely impact activity levels as the pain becomes too severe to continue exercise.

What are the causes?

Shin splints are predominantly seen in runners who increase their distances quickly, often while training for an event. Activities that require repetitive weight bearing of any kind, such as marching or high impact sports have also been shown to cause shin splints. Although the pathology of shin splints is unclear, studies have been able to identify certain risk factors that may predispose someone to shin splints. These include;

- An abrupt increase in activity level
- Improper footwear and support
- Higher BMI
- Training on hard or uneven surfaces
- Tight calf muscles
- Flat feet
- Increased external rotation range of the hips
- Females are more likely to develop shin splints than males.
- Prior history of shin splints
- Wearing or having worn orthotics

How can physiotherapy help?

The first step for your physiotherapist will be to address any contributing factors and

help to adapt your training program to a level that is optimum for you. A period of relative rest may be recommended along with a targeted strengthening and stretching program for any tight or weak muscles.

Switching to low-impact activities such as swimming, cycling and yoga may also help to maintain fitness during recovery. Your running technique will be analyzed and any training errors may be corrected. When getting back into your training routine, it is usually recommended that distances are not increased by more than 10% per week as this allows the tissues of the body to react to the increased demands and adapt accordingly.

None of the information in this newsletter is a replacement for proper medical advice. Always see a medical professional for advice on your individual injury.

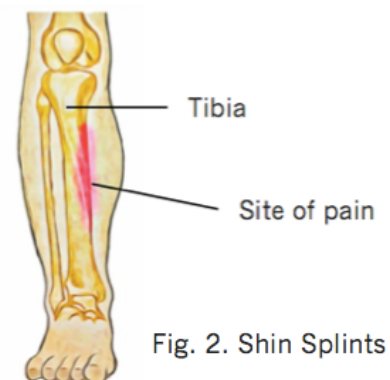


Fig. 2. Shin Splints

Kale, Brussel Sprout and Almond Salad

Ingredients:

12 Brussel Sprouts
3 Tbsp. Sliced Baking Almonds
1 cup chopped Kale
¼ cup shaved Parmesan
Cheese
2 Cloves of Garlic, Crushed

Dressing:

2 Tbsp. Red Wine Vinegar
2 Tbsp. Olive Oil
Salt & Pepper



1. Preheat your oven to 180 degrees Celsius or 350 degrees Fahrenheit. Chop brussel sprouts in half and place on a baking tray lined with baking paper. Sprinkle sprouts with olive oil, salt and pepper, add garlic and cover with almonds.
2. Roast brussel sprouts in the oven for 20-30 minutes until slightly brown. Prepare kale by chopping into small pieces and placing in a medium sized salad bowl.
3. Prepare salad dressing by whisking together olive oil, red wine vinegar, salt and pepper. Mix brussel sprouts, almonds, kale and dressing together gently in the salad bowl.
4. Sprinkle thin slices of Parmesan cheese over salad and serve.

Serves Two.

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