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SPONDYLOLYSIS

■ ■ ■ Description

Spondylolysis is a stress or fatigue fracture of part of the spine (vertebrae) *not* involving the main bearing part (the body of the vertebra). It involves the area of the pars inter-articularis (between the facets). Rarely, spondylolysis can be due to an acute traumatic fracture. It tends to occur in adolescent athletes. The stress fracture occurs because the mechanisms of repair fail to keep up with the damage caused by the repetitive force.

■ ■ ■ Common Signs and Symptoms

- Chronic dull ache in the low back, worse with hyperextension and occasionally with flexion (bending at the waist)
- Tightness of the hamstring muscles
- Occasionally, stiffness of the lower back

■ ■ ■ Causes

Spondylolysis is caused by repetitive hyperextension (arching) of the back and excessive hyperextension with rotation of the back; occasionally it is due to great strength of the back muscles. This repetitive or excessive force causes injury that exceeds the bone's ability to heal. Rarely it can occur due to an acute fracture with severe trauma from a sudden blow.

■ ■ ■ Risk Increases With

- Any sport in which movement causes hyperextension (arching) of the back, either excessively with rotation or repetitively, especially football, gymnastics, diving, weight-lifting, dancing, rifle shooting,

wrestling, tennis, swimming, running, volleyball, track and field and rugby, and contact sports

- Poor physical conditioning (strength and flexibility)
- Inadequate warm-up before practice or play
- Family history of spondylolysis
- Poor technique

■ ■ ■ Preventive Measures

- Use proper technique.
- Wear proper protective equipment and ensure correct fit.
- Appropriately warm up and stretch before practice or competition.
- Maintain appropriate conditioning:
 - Back and hamstring flexibility
 - Back muscle strength and endurance
 - Cardiovascular fitness

■ ■ ■ Expected Outcome

This condition is usually curable with appropriate conservative treatment within 6 months, although it may be much faster (less than 6 weeks in some cases).

■ ■ ■ Possible Complications

- Frequent recurrence of symptoms, resulting in a chronic problem; appropriately addressing the problem the first time decreases frequency of recurrence
- Chronic pain and nonhealing of the fracture
- Delayed healing or resolution of symptoms, particularly if sports are resumed too soon
- Prolonged disability

- Possibly, may progress to spondylolisthesis (slippage or movement of one vertebra on another)

■ ■ ■ General Treatment Considerations

Initial treatment consists of rest from activities that cause the pain (no hyperextension) and medications and ice to relieve pain. As pain subsides, exercises to improve strength and flexibility and to learn proper back mechanics are started. Referral to a physical therapist or athletic trainer may be recommended for evaluation and further treatment, including transcutaneous electronic nerve stimulation (TENS). A back brace may be recommended. Surgery is rarely necessary. It is reserved for those athletes who have persistent pain despite 6 to 12 months of appropriate conservative treatment. Surgery is performed to help the fracture to heal or, more often, to fuse two or more vertebrae together.

■ ■ ■ Medication

- Nonsteroidal anti-inflammatory medications, such as aspirin and ibuprofen (do not take within 7 days before surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.

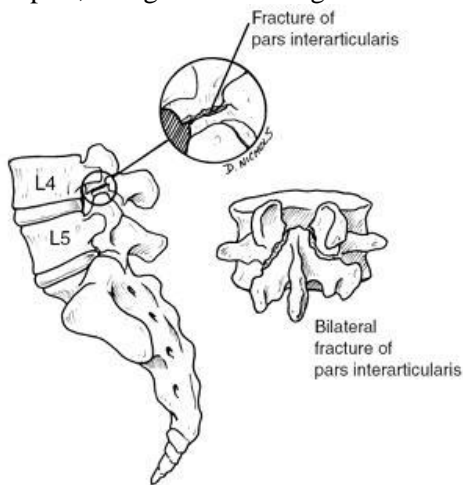


Figure 1

From Shankman GA: Fundamental Orthopaedic Management for the Physical Therapy Assistant. St. Louis, Mosby Year Book, 1997, p. 227.

- Pain relievers may be prescribed as necessary by your physician. Use only as directed. Do not use any heavy machinery or drive a car while taking these medications.

■ ■ ■ Heat and Cold

- Cold is used to relieve pain and reduce inflammation for acute and chronic cases. Cold should be applied for 10 to 15 minutes every 2 to 3 hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage.
- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

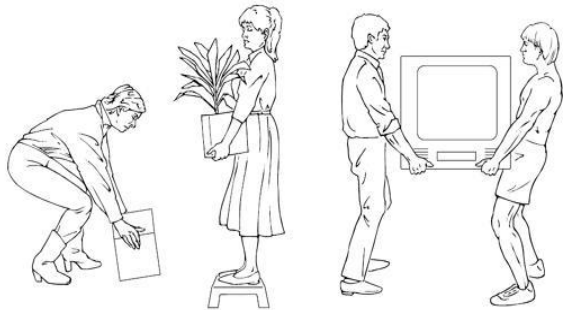
■ ■ ■ Notify Our Office If

- Symptoms get worse or do not improve in 2 to 4 weeks despite treatment
- You develop numbness, weakness, or loss of bowel or bladder function
- New, unexplained symptoms develop (drugs used in treatment may produce side effects)

POSTURE AND BODY MECHANICS CONSIDERATIONS • Spondylolysis

Maintaining the most appropriate posture and using correct body mechanics can have a significant effect on back pain. The following are basic suggestions regarding proper posture and body mechanics. These should be specifically discussed with your physician, physical therapist, or athletic trainer. Please remember:

- Good posture minimizes the stress and strain on any portion of your spine.
- Do the exercises as *initially* prescribed by your physician, physical therapist, or athletic trainer.
- Incorporate these exercises and posture principles into all of your daily and recreational activities.



CORRECT LIFTING TECHNIQUES

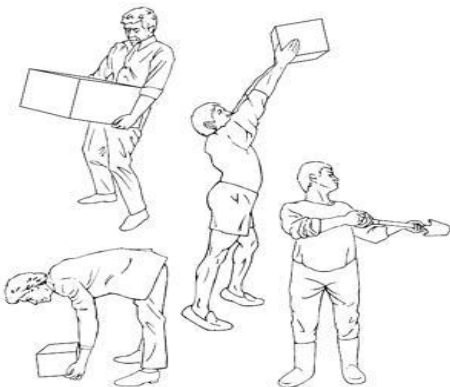
DO:

- Lift with your legs, keeping your back straight.
- Use a footstool for objects that need to be placed or retrieved from high locations.
- Use two people for heavy or awkward objects.



CORRECT SITTING POSTURES

Sit Erect. Use a lumbar roll, cushion, or pillow. Use a chair that has a high enough back to support your back up to your shoulder blades.



INCORRECT LIFTING TECHNIQUES

DO NOT:

- Lift with your legs straight and your back flexed/bent.
- Lift objects that are too heavy over your head.
- Ever lift and twist at the same time.
- Lift an object that is too heavy or awkwardly shaped without help.



INCORRECT SITTING POSTURES

Do not slouch or slump. Maintain a proper position in the chair.

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