Spondylolysis and Spondylolisthesis

What are spondylolysis and spondylolisthesis?

Your lower back is called your lumbar spine. It is made up of five bones called lumbar vertebrae. The vertebrae have two major parts, a solid part called the body and a bony ring through which the lower part of the spinal cord and nerves travel. Between the bodies of the vertebrae is shock absorbing material called disks. Part of the ring of each vertebra, called the pars, touches the vertebra above it and the vertebra below it.

Spondylolysis is a condition where there is a break in one or both sides of the ring of a vertebra. Spondylolisthesis is a condition in which a break in both sides of the ring allows the body of the vertebra to slip forward. Spondylolysis and spondylolisthesis most commonly occur at the fourth or fifth lumbar vertebrae. These conditions are also called pars defects, pars stress fractures, or stress fractures.

How does it occur?

Spondylolysis and spondylolisthesis result from repetitive extension of the back (bending backward). This causes weakness in the rings of the lumbar vertebrae, eventually leading to a break (fracture) in a ring. Less commonly, these conditions may result from an injury to the back. Some health care providers feel that certain people are born with weak vertebral rings.

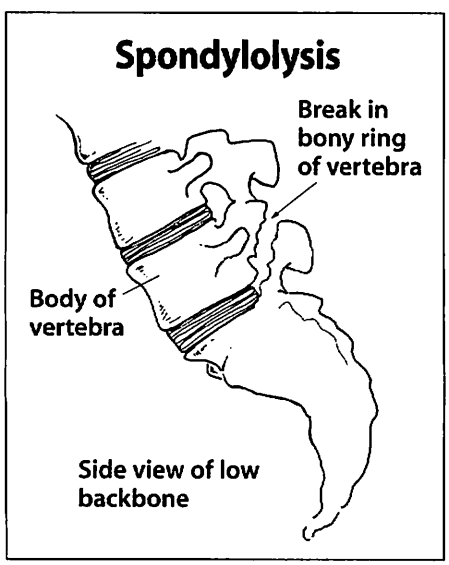
Athletes most commonly troubled by spondylolysis or spondylolisthesis are gymnasts, dancers, and football players.

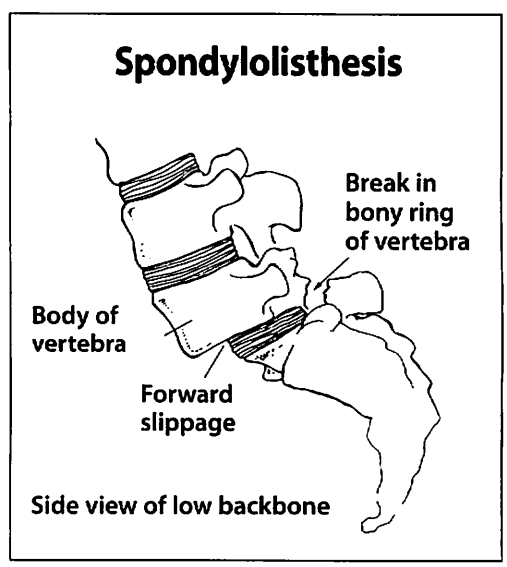
What are the symptoms?

You may have low back pain or spasms, or you may have no symptoms at all. You may have pain all the time or only from time to time. Spondylolysis or spondylolisthesis usually do not damage the nerves.

How is it diagnosed?

Your health care provider will examine your back and look for tenderness along your vertebrae or spasm in the muscles next to your vertebrae. He or she will order an x-ray, which will show a break in the ring of a vertebra or slippage of a vertebra. Your provider may order a bone scan to look for a break that has just recently occurred.





How is it treated?

For periods of acute pain your health care provider may prescribe anti-inflammatory medication or other pain medications. You should place ice packs on your back for 20 to 30 minutes every 3 to 4 hours for 2 to 3 days or until the pain goes away.

You can participate in your sport or activity as long as you do not have pain. You may need to change your sport or activity to one that does not involve hyperextending the back.

If your health care provider thinks the break is new and that the bones could heal, he or she may recommend wearing a brace for one to three months. Severe cases of spondylolisthesis may require surgery.

Spondylolysis and spondylolisthesis are chronic problems. It is very important to keep your back in the best possible physical condition. Do not become overweight.

How can I prevent spondylolysis and spondylolisthesis?

You can best prevent these conditions by having strong back and abdominal muscles and by avoiding being overweight. If you have spondylolysis you may be able to prevent progression to spondylolisthesis by doing back exercises and by avoiding forced back extension activities, such as might occur during tackling in football.

When can I return to my sport or activity?

The goal of rehabilitation is to return you to your sport or activity as soon as is safely possible. If you return too soon you may worsen your injury, which could lead to permanent damage. Everyone recovers from injury at a different rate. Return to your sport will be determined by how soon your back recovers, not by how many days or weeks it has been since your injury occurred. In general, the longer you have symptoms before you start treatment, the longer it will take to get better.

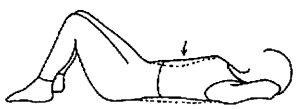
It is important that you have fully recovered from your low back pain before you return to your sport or any strenuous activity. You must be able to have the same range of motion that you had before your injury. You must be able to run, jump and twist without pain.

Spondylolysis and Spondylolisthesis Rehabilitation Exercises

It is important to have strong abdominal muscles when the structures of your spine are weakened. These exercises help build strong stomach muscles.

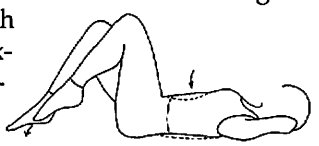
1. PELVIC TILT: Lie on your back with your knees bent and your feet flat on the floor. Tighten your abdominal muscles and push your lower back into the floor. Hold this position for 5 seconds, then relax. Do 3 sets of 10.

As the pelvic tilt becomes easier, you can progress to an exercise called the dead bug.



2. PARTIAL CURL: Lie on your back with your knees bent and your feet flat on the floor. Tighten your stomach muscles and flatten your back against the floor. Tuck your chin to your chest. With your hands stretched out in front of you, curl your upper body forward until your shoulders clear the floor. Hold this position for 3 seconds. Don't hold your breath. It helps to breathe out as you lift your shoulders up. Relax. Repeat 10 times. Build to 3 sets of 10. To challenge yourself, clasp your hands behind your head and keep your elbows out to the side.

3. DEAD BUG: Tighten your stomach muscles and press your lower back into the floor. Lift up one leg several inches off the floor, hold for 5 seconds, then lower it. Lift the other leg off the floor, hold for 5 seconds, then lower it. Alternate legs doing 5 repetitions with each leg and then relaxing your stomach muscles. Do 3 sets of 10.



4. ALL-FOURS-TO-HEELS SIT: Kneel on the floor on all fours. Your palms should be flat on the floor in front of you and your back should be kept flat. Shift your weight backward and try to sit on your heels. Be sure to keep your back flat. Hold this position for 6 seconds. Return to the starting position. Do this 10 times.