



# SPONDYLOLYSIS AND SPONDYLOLISTHESIS



## What is Spondylolysis and Spondylolisthesis?

Spondylolysis occurs when there is a stress fracture of one of more of the one bones of the spine (vertebrae). This most commonly occurs on the fifth lumbar (low back) vertebrae.

The pars interarticularis is a part of the spine in the lower back that joins the front and back of a spinal segment. Spondylolysis is confirmed by seeing a defect in this area. If the defect increases and the vertebra moves forward, this is spondylolisthesis. If the displacement is great, the vertebrae may pinch or stretch nerves, and surgery may be required.



## Causes

Many sports like gymnastics, weight lifting, and football place stress on the lower back when athletes hyperextend or arch the spine. These activities can cause stress fractures on either sides of the vertebra.

## Symptoms

Generally, pain is felt along the lower back, most often with extension of the lower back giving a sensation similar to a muscle strain. Spondylolisthesis may cause back spasms that stiffen the back and tense hamstring muscles. This can causes changes in walking and posture.

## Treatment: Nonsurgical

Spondylolysis requires that the individual rest from activities until symptoms disappear. Anti-inflammatory medications like ibuprofen, can be taken for the pain. Back and abdominal muscle stretching and strengthening can prevent any future reoccurrences of pain. Seldom, doctors may prescribe a back brace or physical therapy.

## Treatment: Stretching and strengthening

### 1. Single Knee To Chest Stretch

Lie on your back with one knee bent. Hold thigh behind knee and bring one knee up to chest. Hold 30 seconds. Relax. Repeat three times on each side.





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## 2. Hamstring Stretch

Lie on your back and bring affected leg towards your chest. Grab the back of your thigh and try to extend your leg. Hold this position for 30 to 60 seconds, feeling a stretch in the back of your thigh. Repeat three times. You may also try this with a towel around your foot if it is more comfortable.



## 3. Heel Raises

Sit on the floor with the injured leg straight and the other leg bent, foot flat on the floor. Pull the toes of your injured leg toward you as far as you can, while pressing the back of your knee down and tightening the muscles on the top of your thigh. Raise your leg six to eight inches off the floor and hold for 5 seconds. Slowly lower it back to the floor. Complete 3 sets of 10.



## Core exercises

### 4. Abdominal Contraction

Lie on your back with knees bent and hands resting below ribs. Tighten abdominal muscles to squeeze ribs down toward back. Be sure not to hold breath. Hold 30 seconds. Relax. Repeat 3 times on each side.



### 5. Pelvic Tilts

Lie on your back with both knees bent and feet planted on the floor. Gently tuck your buttocks under and front of hips slightly up and think of pulling your belly button in towards your back as you do this. Hold for 10 seconds and repeat 10 times.



### 6. Abdominal Crunch

Lie on your back with both knees bent and feet planted on the floor. Tuck your buttocks under like in the pelvis tilt exercise. Gently place both hands behind your head for support and tuck your upper body in. **DO NOT PULL YOUR HEAD WITH YOUR HANDS.** The movement should come from squeezing your abdominal muscles.





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## 7. Cat Cow

Start on your hands and knees. While breathing, slowly in round your back like a scared cat and hold for 1-2 seconds. While breathing out, arch your back to cow position. These should be slow gentle movements. Repeat this cycle 10 times.



## 8. Forearm Plank

Lie down facing the floor on your forearms. Raise yourself up until resting on your knees and elbows. Maintain your body straight from your head to your knees. Hold for five to ten seconds. If this is easy for you, lift your knees up off the floor. You may be able to work up to holding plank for 30 seconds to 1 minute, but only do this if you can keep your body straight like a board.



## 9. Plank (Upper Pushup)

Lie down facing the floor with your hands planted on either side next to your chest. Raise yourself up until resting on your knees and hands. Maintain your body straight from your head to your knees. Hold for five to ten seconds. If this is easy for you, lift your knees up off the floor and keep a straight line from head to toes. You may be able to work up to holding plank for 30 seconds to 1 minute, but only do this if you can keep your body straight like a board.



## 10. Side Plank

Start in hands and knees position and slowly lift one arm off the ground and roll slightly so all of your weight is on one arm the same knee and the side of the opposite foot. Keep your body in one straight line. If this is easy, you can straighten the lower leg out so weight is on your hand and feet only. Hold for five to ten seconds. You may be able to work up to holding plank for 30 seconds to 1 minute, but only do this if you can keep your body straight like a board.





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## 11. Opposite Arm and Leg

Lie down facing the floor. You may use a rolled up towel under your forehead for comfort. Lift up the opposite arm and leg two inches above the floor. Hold this position for five to ten seconds. Repeat 10 times on each side. Do three sets.



## 12. Advanced Opposite Arm and Leg

Position yourself on all fours. Lift one arm in front of you and the opposite leg behind you. Hold this position for five to ten seconds. Repeat 10 times on each side. Do three sets.



## 13. E-Y-I

Lay on your stomach. Gently lift upper chest off the ground slightly. Start with arms in an "E" position then to "Y" and finally in an "I" position. Repeat 10 times. Do 3 sets.



## 14. Dead Bugs

Lie on your back and place both hands under your buttocks. Bring both legs up to point to the ceiling with knees slightly bent. Gently lower one leg towards the ground then slowly back up. Try to keep your lower back on the floor. Repeat with opposite leg. Complete 3 sets of 10.



## 15. Hollow Hold

Lie on your back and place both hands under your buttocks. Lift shoulders and feet up while keeping lower back on the floor or bed. Only complete this exercise if you can keep your low back on the ground. Hold for 10 seconds. Do three sets.

