

**Orthopaedic Surgery**  
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**Neurosurgery**  
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**Pain Management**  
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## **Dynamic Lumbar Stabilization Exercises:**

The theory behind Dynamic Lumbar Stabilization Exercises (DSE) is to strengthen the Core Muscle Stabilizers of the spine (transversus abdominus & multifidus) while keeping a 'Neutral Spine' position. The goal Dynamic Lumbar Stabilization Exercises (DSE) is to strengthen the back without putting undue stress and strain on the injured discs, facets and ligaments.

After any serious injury to the back, the Core Muscle Stabilizers of the spine become rapidly weakened and event atrophied. By three months the weakness and atrophy will be even more debilitating and can easily show-up on MRI scans. Surgery also has been known to reduce the strength of the core stabilizers. It has been reported that the trunk muscles suffer a 30% decrease in strength after discectomy surgery. It is imperative that we get and keep our "Core Stabilizers" as strong as possible.

The lumbar disc is responsible to carry the weight or "axial load" of the body. If the disc is damaged and inflamed, it does not want to carry anything because this downward pressure hurts in the same way it hurts to walk on a sprained ankle. The only way to take some of this irritating pressure (axial load) off the disc and facets is by making the Core Stabilizers stronger. The Core Stabilizers also help carry the axial load of the body and will assist the disc in its weight bearing duties. Strengthening the Core Stabilizers will reduce mechanical irritation upon the disc and facets, lessen your pain, and allow you more time spent standing, walking, and sitting.

### **Will These Exercises Really Help My Pain?**

Yes! Exercise therapy for chronic lower back pain is recommended by several well-respected guidelines. There are increasing numbers of high quality randomized controlled studies which demonstrate that Core Stabilizing exercises have a profoundly positive and long-term effect on both decreasing lower back pain and improving overall patient function.

**This exercise program should be started up to three times per week and may be increased up to five times per week. If a particular exercise makes your pain worse, do not repeat it until after checking with your doctor.**



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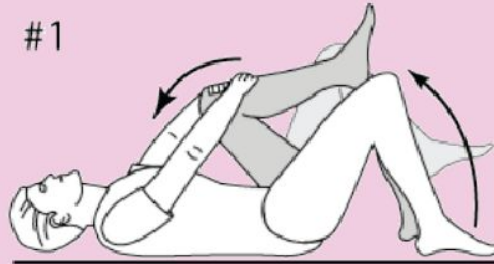
## Pain Management

James Behr, MD

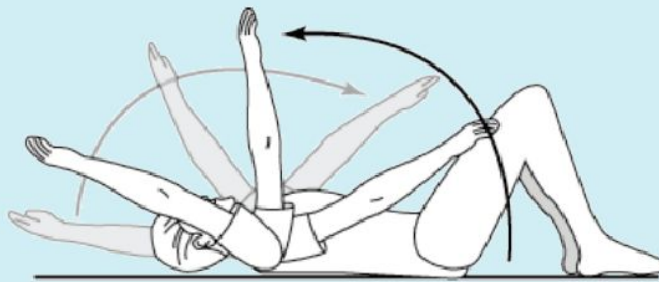
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ALWAYS START YOUR WORK-OUT WITH THIS STRETCH. Simply get in the above position and GENTLY pull your knee to your chest and **hold for a count of 20 to 30 seconds**. Slowly lower the leg and repeat the other side. **Do each leg 3 times**. Do NOT force it or cause yourself any significant lower back pain. It's also easy to stretch the piriformis muscle in the 'up' position (grey leg). All you do is move your left heel toward the right knee (rotates the knee and hip) while you keep your knee in about the same place.



Assume the above position only put the grey arm straight over-head and the white arm down by your side. Now, tighten your tummy (and butt if you are not too sore) to lock your spine in place. Slowly lift the grey arm upward like a railroad crossing-gate; keep it moving until it rests on the ground next to your side. Simultaneously do the same thing with white arm (right) only in the opposite direction. Both arms are going in opposite directions. **1 to 3 sets of 5 to 20 repetitions with each arm is enough.**



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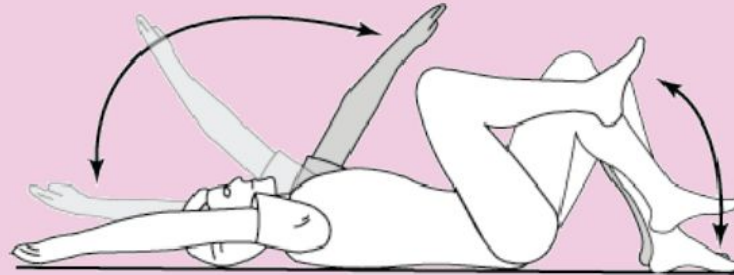
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For our final stomach exercise, let's combine the above two exercises, only we will NOT go all the way. Tighten the tummy and SLOWLY lift the left arm and right leg SIMULTANEOUSLY. Bring them to the mid-way point (12 O'clock), **hold for 5 to 15 seconds**, and return them to their original positions. Repeat other side. **1 to 3 sets of 5 to 20 repetitions with each leg** is enough.



**DO NOT DO THIS ONE IF YOU HAVE A BAD NECK!** Take two or even three pillows and lie on top of them as shown above. The bottom of the pillow should not be below your navel. You can also use a little pad for your forehead. Slowly raise your left arm (keeping it straight) upward and HOLD it at the top for 5 to 20 seconds. Slowly lower and repeat with the other arm. Only raise your arm to a comfortable height. You don't have to go very high for this to be effective. **1 to 3 sets of 5 to 20 repetitions with each arm** is enough.



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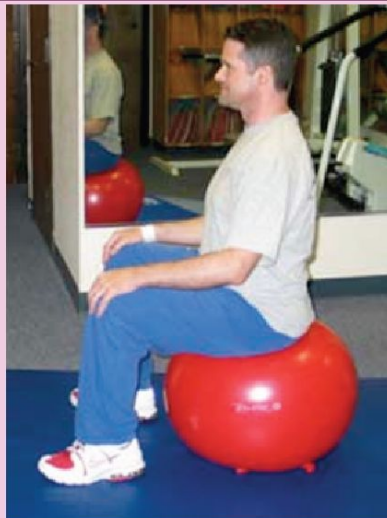
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While keeping your low back in the neutral position, simply sit for **5 to 20 minutes** while watching TV. You may bounce gently, and slightly roll from side to side. Just 'play', but make sure you keep that neutral spine.



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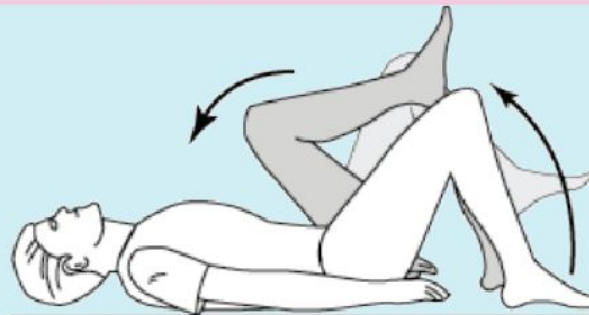
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Since disc patients lose their ability to 'Reflex-Contract' their core spinal-stabilizers, learning how to 'manually' accomplish this is a must! Here's how: Simply suck / contract your belly-button downward (NOT by deeply inhaling!) and tighten your buttock muscles simultaneously and hold. **1 to 3 sets of 5 to 15 seconds** is enough.



Assume the above position with both feet on the ground and knees bent. Tighten your tummy and **SLOWLY** raise your knee toward your chest. Keep that tummy tight as you lower it back down to the ground. Repeat with the other limb. To make this more difficult, lift your head off the ground as well and hold it up as you do the leg-ups. **1 to 3 sets of 5 to 20 repetitions with each leg** is enough.



Take two or even three pillows and lie on top of them as shown above. Slowly raise your left leg (keeping it straight) upward and **HOLD** it at the top for 5 to 20 seconds. Slowly lower and repeat with the other lower limb. You don't have to go very high for this to be effective. **1 to 3 sets of 5 to 20 repetitions with each leg** is enough.



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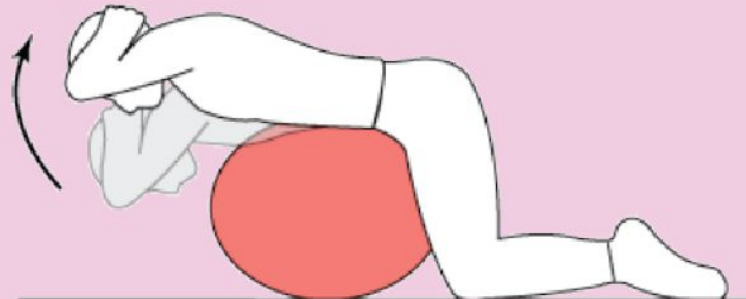
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Simply mount the Gym Ball as shown above. Note that both knees touch the ground. Next slowly raise and extend your right arm and **HOLD** it at the top for **5 to 20 seconds**. Slowly lower and repeat with the other arm. Raise your arm to a comfortable height. You don't have to go very high for this to be effective. **1 to 3 sets of 5 to 20 repetitions with each arm** is enough.



Start in the above position (grey). Make sure your knees are spread fairly wide apart so you have a good base. You can put some pillows under your knees to boost yourself up if need be. If you have neck problems fold your arms across your chest instead of the 'hands-behind-head' position. **SLOWLY** lift your chest off the ball. Do not try to get too high off the ball at first. **HOLD** that top position for **3 to 10 seconds** and then slowly lower your self back to the grey position. **1 to 3 sets of 5 to 20 repetitions** is enough.

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