

THE COMPLETE BACK INJURY GUIDE

From Injury to Independence through Exercise

<http://BackInjuryGuide.com>

Muscle Strain **Herniated disc** **Stenosis** **SI Joint** **Spondylolysis/Spondylolysis**

Piriformis Syndrome **Facet Joint** **Malalignment/Poor Posture**

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About the Author



Dr. Kareem Samhuri is the president and owner of Global Fitness LLC. Through his company people are able to realize complete wellness, as they serve nutrition, massage, physical therapy, and personal training. Dr. K is a graduate of the University of Miami Doctor of Physical Therapy program and has earned a bachelor's of science from the Pennsylvania State University in Kinesiology. Additionally, Dr. K is a licensed physical therapist and holds a Health and Fitness Instructor certification from the internationally recognized American College of Sports Medicine.

Dr. K has worked in some of the best hospitals, rehabilitation facilities, outpatient physical therapy services, and elite performance gyms in the United States. He has taught personal trainers and physical therapists alike in their roles as one, united front in the best interest of the patient/client. Dr. K has spent his career surrounding himself with only *the best in his field* and intends to provide you with *the best* information out there.

Dr. K has trained countless clients in the fitness industry, while mentoring and teaching other fitness professionals at the same time. He speaks regularly to corporations and individuals on improving well being at the workplace. He is a dynamic and interesting speaker. Most recently, Dr. K has realized the necessity of bridging the gap between physical therapy and personal training. He has been recognized on many occasions as *the expert* in creating this bridge.

Dr. K is also an avid supporter of many charities and associations. He regularly endorses and donates to the following organizations: American Diabetes Association (ADA), Women's Fund, Phlare Magazine (for corporate women), American College of Sports Medicine (ACSM), American Physical Therapy Association (APTA), MS Society, Philadelphia Expo to combat Childhood Obesity, Miami-Dade Children with Disabilities, the Foundation for Physical Therapy, the Special Olympics, and the Para Olympics.

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Before You Begin: Need Immediate Pain Relief?

“Wait! Dr. K, I’m in too much pain right now. I’m going to go to the doctor... I really am, but is there anything that I can do right now to take away some of the pain? My back hurts all day every day and I don’t have an appointment for another week. There must be something that I can do...”

Yes, the good news is that I do have suggestions for you, but first you have to ask yourself certain questions:

1. Has the pain gotten much worse all of the sudden?
2. Am I having trouble walking?
3. Are my legs feeling weaker than usual?
4. Have I had any change in my bowel or bladder habits?
5. Do I have severe numbness or tingling into my legs or feet?
6. Am I having trouble feeling pain or temperature?

If you have answered yes to any one of these questions, you must go to the Emergency Room. Do not wait for your doctor’s appointment. It’s simply not worth the risk.

On the other hand, if you were able to answer ‘no’ to all of the questions above, I recommend you do the following:

Heat:

If it’s chronic pain, meaning that you’ve had this problem for months or years and you’ve done nothing to aggravate it, heat may be a great option for relaxing your muscles and soothing your aches and pains. If your joints are chronically inflamed deep in your back, the chances are that the heat isn’t going to attract very much new swelling to the area. In fact, it may help draw blood to bound up tissue and help you find some relief.

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Ice:

On the other hand, if you just hurt your back, or aggravated an old injury, the better choice is ice. Start right away. The sooner you ice, the more swelling you'll be able to prevent. Lay a wet paper towel (single layer) on top of your back with a Ziploc bag of ice on top of the paper towel. Ice for a minimum of 5-7 minutes as needed.

Adjust your position:

Position of comfort can differ from one back injury to another (please see below for more specific details by diagnosis.) In order to increase comfort:

- Sitting – align your hips and knees at right angles if at all possible. If you slouch in your chair you will be forcing an arch into your back. The most stable position for you seated involves a support for your low back (i.e. a towel roll), a headrest that you do not have to lean back to reach, and proper hip and knee angles with feet flat on the floor.
- Standing – Try to stand up tall keep light tension in your abs and glutes by contracting your stomach muscles slightly as well as lightly squeezing your buttocks together. This will help stabilize your spine and prevent undue stretch or strain on painful areas.
- Laying down – the two healthiest positions for your spine while laying down are:
 - 1) On your side with a pillow between your legs and a pillow supporting your head in a neutral position (not tilted.) This position is the best for your back, although it may place a bit of strain on your shoulders.
 - 2) On your back with a pillow under your head *and* shoulders, as well as a couple of pillows under your knees (or at least with your knees bent.) This position is good for the back and great for the shoulder.
 - While laying on your back, you may want to gently rock your knees back and forth in a small range of motion to bring blood to your injury. Be careful not to go further than you are comfortable. This should be relaxing.

Find a way to do cardio:

If you are able to find a position of comfort, you should really try to exercise. Many times, through the increased circulation with exercise, as well as endorphin release, your pain can become manageable. If you can move your arms without pain, perhaps an arm bike is a better option or Theraband rows (see below.) If standing feels better than sitting, you may want to go for a walk (outside or on a treadmill) or get on the elliptical. Either way, be sure to try and exercise as much as you can without creating more pain. By increasing aerobic capacity you are half way there. There is amazing power in the body's natural ability to heal when stimulated through physical activity.

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The Way to Use The Complete Back Injury Guide:

- If you want to be successful with this back injury guide, be sure to follow the directions EXACTLY as they are written.

Step 1:

Here are the 5 rules to the back strengthening process:

- 1) Improve posture – normally this involves strengthening and stretching**
- 2) Balance muscles around the back and abdomen**
- 3) Rest what's injured – take the stress away from your spine in any way possible**
- 4) Stretch what's tight**
- 5) Strengthen what's weak**

Bottom line is that you shouldn't be performing movements that cause you pain. Whenever a movement causes you pain, think of it on a scale of 0 to 10, where:

- 0 = no pain whatsoever
- 10 = emergency level pain
- Your goal is $\leq 3/10$

Whenever you have pain that is 3/10 or less, the chances are you are not irritating the area as much as you are strengthening it. Therefore, you shouldn't have to worry about the after effects of swelling, etc. that would take place with $>3/10$ pain.

If your pain climbs above 3/10 during any point during the workout, be sure to ice for 5-7 minutes, with a wet paper towel directly over your back (single layer) and a bag of ice.

Note: You should attempt to avoid pain $>3/10$, but this may occur. Icing stops inflammation, but it does not get rid of swelling. Therefore, the sooner you ice, the better.

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The wet paper towel makes the ice work better and deeper. Similar to electricity, the water increases conductance.

Step 2:

Realize the power of a proper warm up. You should be spending a minimum of 5-7 minutes warming up (ideally 20 minutes.) Warm-up increases circulation to injured tissue and speeds up healing.

Warm-up should be anything that doesn't cause pain in your back. Great examples include:

- A brisk walk (if you can count to "three one-thousand" without taking a breathe, you are going too slow.
- With a herniated disc, 0 incline is the most appropriate
- With stenosis, add an incline for increased comfort
- See below for more details on each condition
- Elliptical cross-trainer machine – with or without arm component depending on pain scale
- Stairmaster machine (this may help recruit your Glute Max, the biggest supporter of your pelvis)
- Recumbent bicycle (especially with Stenosis, this is the best choice – see below for more details on stenosis)

STOP! Did you know that 80% of low back pain issues resolve with aerobic fitness? That's right! So do yourself a favor and get in shape. Spend extra time on the stairmaster, elliptical, treadmill, etc. Really make it a point to try and commit to 20 minutes per session (even if it's not your favorite thing in the world!)

Step 3:

Begin the exercise program for your back. While exercising, never go beyond 3/10 pain.

Choose the exercises that *do not* cause you pain first. This will help support your back so that you won't have to put as much stress through the injured tissue.

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Choose the exercises that *do* cause minimal pain last. Be extra careful not to allow your pain to climb beyond 3/10, but do work up to this point.

Step 4:

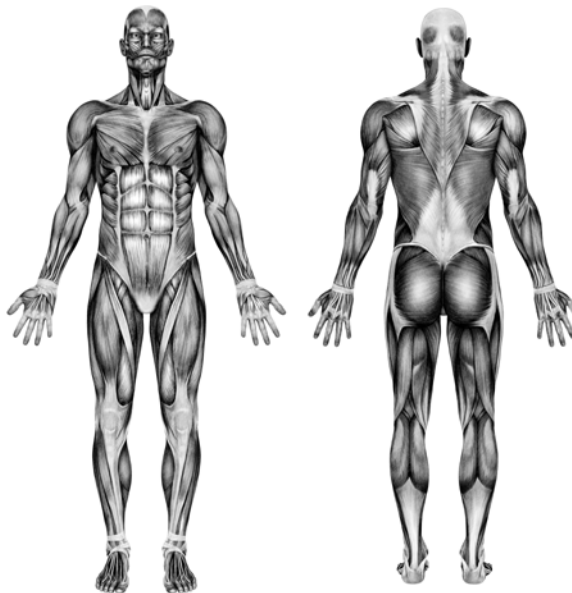
After completing Step 3, your back exercises are now done. Perform the rest of your workout, with careful attention to avoid painful movements. Remember, the more fit you are, the more your body becomes a natural healer. By improving your fitness level, you are cutting out most of the work.

If there was ever a time to focus on fitness levels, the time is NOW.

Too many people rest when they have an injury. It should be the opposite. If you have a back injury, you should be sure to exercise more, not less.

You do not need to exercise your back anymore. The rest of your exercise program should consist of exercises you would otherwise do, but your back is now done.

Muscles of the back:



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General Concern Before Reading Each Diagnosis:

Ask yourself if you have experienced any recent change in bowel or bladder habits? Are you going to the bathroom more frequently? Have you lost control of your bowel or bladder? Is there a difference in consistency? Is there blood in my stools?

I know these aren't the prettiest of questions, but any one of these changes warrants the immediate attention of medical professional. If you have experienced any of these symptoms surrounding the onset of your pain, please be advised that you may have a serious condition and you need to see the doctor.

What to expect from your doctor if you call with these complaints: First of all, you're going to want to get seen as soon as possible. Simply explain to whoever asks you about your condition: "I've had an onset of back pain and I've seen some changes that concern me." If they ask for more details, feel free to elaborate. Just be open and honest so that they can offer you their best advice. Your doctor will probably want to order some tests, perhaps an X-Ray, MRI, or CAT scan. They may also want to do some form of laboratory workup if they have suspicion of other issues.

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Possibilities of Injuries:

Muscle Strain – muscles strains can occur at any age in the back. Most of the time, people are able to pinpoint an exact moment when the pain set in. This type of pain is associated with heavy lifting, poor posture, or overstretching.

Classic Symptoms:

- Pain in low back, one side greater than the other
- No radiating pain (pain does not go down leg)
- Sharp pain, aggravated by movements that target the muscle
- Bending forward will lengthen the muscle, causing pain as you stretch
- Leaning backward will contract the muscle, causing pain as you contract
- Pain relieved by rest and/or position change

Possible Cause:

Trauma. People normally are able to identify a specific moment when this pain first set in. Normally, it is a result of lifting too much, in a potentially awkward position.

Note: This is different than picking up a pencil from the ground, for example, where the chances are you may have herniated a disc, rather than strained a muscle. Muscle strains normally come from heavier weight and/or rapid movements.

Self Tests:

Generally speaking, the best self test is simply re-creating the injury, but slowly and without going the full range of motion. For example, if you strained one of the muscles that extend your low back, then you would be sensitive to extending backward and bending forward. You will always have sensitivity related to both a stretch and contraction on injured tissue. Typically, stretch pain is identified as more of a burning sensation, while contracted tissue pain is known to be sharper in nature. Be careful not to go too far and/or perform too many repetitions of this movement. As soon as you know it causes you pain, STOP.

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How to Manage the Injury:

Rest, ice, flexibility and strengthening. Also, do not forget aerobic exercise. By increasing the amount of blood flow an injury gets without causing new injury and new pain, you are able to provide that area with more nutrients and oxygen, two essential components to healing. Try to avoid painful movements. Strengthen everything but the injury, so that the surrounding muscles can dampen the force. Avoid contact and full speed sports for at least 2-3 weeks or until pain has disappeared for at least 72 hours. Afterward, continue to be cautious and rest from contact sports until you are sure you have healed completely.

What Someone at Work Can Do:

The best thing is to move in any pain free way you can. Be creative: If you need to sit down and stand up 15x every 3 hours, then do it. If you need to take a couple of laps around the office every hour to help your back feel better, then do it. Even just pumping your ankles and kicking your legs will help deliver more blood and nutrients to your back. Also, do your best to sit with good posture while you work. Many times, a towel roll placed vertically along your spine provides good support. You may also feel relief by having your hips and knees make 90° angles, and a pillow placed in the small of your back to support your lumbar spine.

Special Concerns:

It is important to be sure that you are not experiencing symptoms related to a herniated disc or spondylolysis. If you have any question whatsoever, be sure to contact your physician and schedule an appointment. Depending on your bone mass, in some cases muscle strains can result in compression fractures (usually only in older populations, but this can happen to anyone with a disorder affecting the bone mass of his/her spine).

What to Expect From the Doctor:

Your doctor will probably do an examination on you that will re-create some degree of the pain that you experienced. Unless a more severe muscle strain s/he may recommend anti-inflammatory medication and rest. In some cases, physical therapy is recommended, but not always. General strengthening is almost always suggested and weight loss if you are overweight.

Expected Recovery Time:

2-3 weeks for most muscle strains (not muscle tears, which take much longer.) It is fair to expect decreased strength following a muscle strain, so it is wise to be sure you are exercising and avoiding potential muscle imbalances. For example, if you strain the left side of your back

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and the muscles on that side become weaker, doesn't it make sense that the muscles on your right side are always pulling harder than the left? Well, your spine detects that force as rotation, as if you were turning to look at something behind you, but you haven't moved. This creates rotation in your spine, causing prolonged pain from abnormal joint position. Through proper rest and corrective exercise, all of this can be avoided.

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Sample Rehab Program – add 3x Plank for 30 seconds to each workout

Do all exercises that DO NOT INCREASE your pain. Never do an exercise that increases any symptom you might have. Some people will be more sensitive to one position than another, depending on which muscle is strained.

	Phase 1 (1 st -2 nd week)	Phase 2 (3 rd -4 th week)	Phase 3 (5 th -6 th week)
Day 1: 10 reps	Middle Trap Lower Trap Inverted Lat Rows Bridge Back Ext. on Ball	TB Rows Inverted Lat Rows Bridge Back Ext. on Ball Post. Pelvic Tilt	TB Rows
Day 1: 15 reps	TB Rows Post. Pelvic Tilt		Inverted Lat Rows Bridge Back Extension on Ball
Day 2: 10 reps	Flexibility Squat Side Step Squat Crossed Extension Free Squat Static Lunge	Flexibility Squat Crossed Extension Ball Squat Static Lunge	Side Step Med Ball Static Lunge Med Ball Rear Lunge Med Ball
Day 2: 15 reps	Quick Kicks (30 sec)	Side Step Med Ball Free Squat Rear Lunge Med Ball Static Lunge Med Ball Quick Kicks (30 sec)	Flexibility Squat Crossed Extension Free Squat Ball Squat Static Lunge Quick Kicks (30 sec)

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Day 3: 10 reps	Middle Trap Lower Trap Inverted Lat Rows Bridge Back Ext. on Ball	TB Rows Inverted Lat Rows Bridge Back Ext. on Ball Post. Pelvic Tilt	TB Rows
Day 3: 15 reps	Middle Trap Lower Trap Inverted Lat Rows Bridge Back Ext. on Ball	TB Rows Inverted Lat Rows Bridge Back Ext. on Ball Post. Pelvic Tilt	TB Rows
Day 4: 10 reps	Flexibility Squat Side Step Squat Crossed Extension Free Squat Static Lunge	Flexibility Squat Crossed Extension Ball Squat Static Lunge	Side Step Med Ball Static Lunge Med Ball Rear Lunge Med Ball
Day 4: 15 reps	Quick Kicks (30 sec)	Side Step Med Ball Free Squat Rear Lunge Med Ball Static Lunge Med Ball Quick Kicks (30 sec)	Flexibility Squat Crossed Extension Free Squat Ball Squat Static Lunge Quick Kicks (30 sec)

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Herniated Disc - a bulging of a disc from an intervertebral space that places pressure on a spinal nerve root. A spinal nerve root emerges from your spinal cord, but is outside of your spinal cord. With pressure on the spinal root, “nerve pain” occurs, meaning that there will be a “shooting” type of pain with numbness and/or tingling down one or both legs.

If disc were to bulge, it would be pressing against the nerve root and causing shooting pain down the leg.



Age Group: 25-55 (most likely 28-45 years of age)

Classic Symptoms:

- Pain in low back
- Pain down the leg
- Numbness/Tingling down one leg
- Sometimes this can also be hypersensitivity – for example, a light touch might feel more like a burning sensation
- Weakness in one leg
 - If this is the case, you’ll need to be evaluated by your doctor. You have to be very careful if your condition escalates to the point of weakness.
- Pain bending, lifting, and twisting.

Possible Cause:

A herniated disc is usually caused from repeated bending, twisting, and/or lifting with improper posture and motion of the spine. You see, we spend most of our lives sitting, either in school or at work, and this causes a compressive load to weigh down our spines. Over time, we become

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more rigid and start moving from less segments of our spines. In the case of the lower back, the segments of your spine that are pre-destined to move the most are L5-S1 and L4-L5 (in that order). Because these segments move more than the rest already, they are most prone to injury. Through too much movement, the disc is squeezed from side to side of the vertebral space until finally it bursts and begins to leak. More often than not, the disc finally herniates when a final stress is placed on it, even one as light as a pencil that we are picking up off the ground by bending straight over without bending our knees. Because of the greater torque produced by our extended arm and back, we are translating much more force into that segment of our spines. As a “straw that broke the camel’s back” phenomenon, a disc ruptures.

A second means to a herniated disc, a fully wound-up position can produce a lot of force through a disc and cause herniation. For example, if you are bending over, slightly rotated, and with poor posture while you are lifting, you are putting yourself at risk. The same would be true while extended and twisted. If you are lifting anything too heavy, or with the wrong lifting posture, you can be putting yourself at risk for a herniated disc. (even very light objects!)

Self Tests:

Flexion – standing straight up, feet shoulder width apart, bend forward slowly. If you have an increase in symptoms, STOP.



Straight leg raise – laying on your back, raise one leg towards the ceiling at a time (keep knee straight). STOP if your symptoms increase.

- If the right side of your back hurts and raising your right leg increases pain, then your back will respond well to a strengthening program.

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- If the right side of your back hurts and raising your left leg increases pain, then your back may not respond as well to a strengthening program. If your pain persists, contact an orthopedic surgeon.
- If the left side of your back hurts and raising your left leg increases pain, then your back will respond well to a strengthening program.
- If the left side of your back hurts and raising your right leg increases pain, then your back may not respond as well to a strengthening program. If your pain persists, contact an orthopedic surgeon.

How to Manage the Injury:

Extension can alleviate pain – standing with feet shoulder width apart, arms across your chest, slowly lean backwards.

- This is like squeezing the disc back into the disc space.
- You can also do this by laying face down, and slowly extending up onto your elbows, then hands.

It is a good idea to get into the habit of icing first thing every morning, sometime in the middle of the day, and last thing every evening. In addition, every time you stand up from a chair, you should lean back a few times. Every time you wake up in the morning, try not to bend forward forcefully. Your nerve root, which the disc presses against, will be most sensitive in the morning after the joint has attempted to heal all night.

A herniated disc responds extremely well to a extension-biased, postural strengthening program, as is listed below.

What Someone at Work Can Do:

It is important that you get up periodically throughout the day. Try to stand up, even if only for a few seconds, about 4x/hour. Also, you should ice as necessary to control for the pain. If possible, you may want to try and sit on a pillow for extra cushioning.

Special Concerns:

DO NOT SMOKE. IF YOU DO SMOKE, STOP SMOKING. I know, sounds easy, right? But this is vital. Many orthopedic surgeons actually won't do surgery on you unless you stop smoking. The reason is because the smoke actually slows healing and makes your blood

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thicker. Also, the incidence for re-injury is too high in smokers. By depriving your disc of oxygen, it simply cannot heal. Also take caution with the following activities, as they may irritate your condition:

- Driving (especially for long periods of times)
- Riding in an airplane – anything with that amount of vibration
- Bending
- Lifting
- Twisting
- Running – too much impact
- Sneezing – this causes an increase in pressure and may, therefore, increase your symptoms
- All overhead activities, especially with any amount of weight in your hand
- Any activity where you raise your arms above your head
- i.e. shooting a basketball, reaching for a glass from a cabinet, etc.

Careful that the pain is not going further down your leg. Most often, in order for this injury to heal, the nerve needs to heal. Nerves heal by moving from your foot to the center of your body, so it's important that the pain is going up your body, not down, even if the pain is getting worse. In fact, an increase in pain, but over less area, can show improvement. Conversely, if your pain gets better but goes further down your leg, this could be a sign of worsening.

Be wary of the signs/symptoms discussed above in “General Special Concerns.” It is very important to monitor the strength in your legs as well as your bowel/bladder habits. If one or both of your legs become weak, or you lose control of your bowel and/or bladder, it is possible that the bulging disc is pressing on your spinal cord. You should go see a doctor immediately.

What to Expect From the Doctor:

Your primary care physician will probably send you to an orthopedist. The orthopedist will probably order an X-Ray and/or an MRI to see the bulging disc in your back. S/he will recommend either surgery, therapy, or both. In many cases, herniated discs are treated well, conservatively, through physical therapy.

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Expected Recovery Time:

6-8 weeks with proper rest, aerobic exercise, and strengthening.

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Sample Rehab Program – add 3x Plank for 30 seconds to each workout

	Phase 1 (1 st -2 nd week)	Phase 2 (3 rd -4 th week)	Phase 3 (5 th -6 th week)
Day 1: 10 reps	Middle Trap Lower Trap Inverted lat Rows Bridge Back Ext. on Ball	TB Rows Inverted Lat Rows Bridge Back Ext. on Ball	TB Rows Hip IR on Chair Hip ER on Chair
Day 1: 15 reps	TB Rows Hip IR on Chair Hip ER on Chair	Hip IR on Chair Hip ER on Chair	Inverted Lat Rows Bridge Back Ext. on Ball
Day 2: 10 reps	Flexibility Squat Side Squat Step Crossed Ext. Free Squat	Flexibility Squat Side Squat Step Crossed Ext. Ball Squat Static Lunge QL Side Bridge	Side Squat Med Ball
Day 2: 15 reps	Green TB Plank	Side Squat Med Ball Free Squat	Flexibility Squat Static Lunge Med Ball Rear Lunge Med Ball Crossed Ext. Free Squat Ball Squat Static Lunge

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			QL Side Bridge
Day 3: 10 reps	Middle Trap Lower Trap Inverted lat Rows Bridge Back Ext. on Ball	TB Rows Inverted Lat Rows Bridge Back Ext. on Ball	TB Rows Hip IR on Chair Hip ER on Chair
Day 3: 15 reps	TB Rows Hip IR on Chair Hip ER on Chair	Hip IR on Chair Hip ER on Chair	Inverted Lat Rows Bridge Back Ext. on Ball
Day 4: 10 reps	Flexibility Squat Side Squat Step Crossed Ext. Free Squat	Flexibility Squat Side Squat Step Crossed Ext. Ball Squat Static Lunge QL Side Bridge	Side Squat Med Ball
Day 4: 15 reps	Green TB Plank	Side Squat Med Ball Free Squat	Flexibility Squat Static Lunge Med Ball Rear Lunge Med Ball Crossed Ext. Free Squat Ball Squat Static Lunge QL Side Bridge

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Stenosis – Stenosis refers to narrowing of a spinal space. Stenosis is typically seen in individuals 40 years or older. In fact, there is an even greater incidence after the age of 55.

Classic Symptoms:

- Pain in low back
- Possible pain down the leg (not as likely here)
- Cramping of the calves when walking
- This cramping will go away when sitting and exercising (i.e. riding a recumbent bike will not cause cramping)
- If cramping does not go away when sitting and exercising, you may have what's called "vascular claudication"
- Go see a physician

Possible Cause:

Stenosis typically occurs through arthritic changes of the vertebral column over time. In many cases, people with stenosis have had a previous back problem, causing increased friction and scar tissue in that respective location. One example of someone at increased risk for stenosis would be an individual who herniated a disc when she was 30 years old, and now she is 60 years old. The likelihood is that she has already lost so much water from that disc space that the disc itself can not be pressing against a nerve root. It merely isn't big enough to do so. However, on an MRI, we might still see a herniated disc at that level. As a result of this narrowing, increased pressure on surrounding nerve root manifests as low back pain and/or cramping in the calves with activity.

Self Tests:

Treadmill versus recumbent bike test – Be sure to have a spotter, in case you have pain and do not feel steady. You may already know the answer to the following question without having to attempt either activity. Ask yourself: "Do I have more pain when standing and walking or sitting and biking?" If you find that your calves are cramping in both cases, then you may need to be evaluated by a vascular surgeon. Go see your physician. If walking hurts more, you may have stenosis. If biking hurts worse, you may be at risk for a herniated disc.

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Forward bend test – Try bending forward versus leaning back while standing. If bending forward relieves your pain and bending backwards increases it, you may have stenosis.

How to Manage the Injury:

This injury responds extremely well to a flexion-biased, postural strengthening program, as is listed in this guide. The most important thing you can do is incorporate the posterior pelvic tilt into your daily routine. By contracting your glutes while laying down, sitting, standing, and walking, you are rotating your pelvis into a position that imitates bending forward. This causes a gapping of the surfaces causing you pain and creates a lot of relief.

Movements that hurt when you have stenosis include:

- Extension – standing with feet shoulder width apart, lean backwards slowly. If this increases your symptoms, STOP.



- Overhead activities (especially if you are holding something overhead)

Daily tasks that will bother you if you have this problem:

- Standing for long periods of time
- Moving from sitting to standing
- Walking with no incline
- Reaching behind you

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- Jumping
- Throwing (especially throwing sports)

What Someone at Work Can Do:

If you are at work and having pain, the good news is that frequent rests and prolonged sitting will help. Also, you will want to be perform posterior pelvic tilts several times per day (see exercises below for details on how to perform a posterior pelvic tilt.) Posterior pelvic tilts are described in this manual while laying on your back, but you should be able to accomplish a relatively similar motion while sitting by squeezing your glutes together for 10 seconds and then letting go.

Special Concerns:

It is very important to differentiate spinal stenosis from vascular claudication. If you are experiencing cramping in your calves and it is not relieved when exercising your legs in a seated position, it is very possible that you have vascular claudication and need to see your physician to get a referral for a vascular surgeon. Vascular claudication refers to your arteries having a difficult time delivering blood to the muscles in your lower leg. This is a treatable condition, but the treatment approach is very different from low back pain.

Be wary of the signs/symptoms discussed above in “General Special Concerns.” It is very important to monitor the strength in your legs as well as your bowel/bladder habits. If one or both of your legs become weak, or you lose control of your bowel and/or bladder, it is possible that there is pressure on your spinal cord. You should go see a doctor immediately.

What to Expect From the Doctor:

You primary care physician may send you to an orthopedist, or order X-rays himself. Most of the time physical therapy is suggested. Postural strengthening, exercise tolerance management, and pain relief are the typical goals that will be discussed.

Expected Recovery Time:

4-6 weeks with a proper exercise program and frequent rest periods.

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Sample Rehab Program – add 3x Plank for 30 seconds to each workout

	Phase 1 (1 st -2 nd week)	Phase 2 (3 rd -4 th week)	Phase 3 (5 th -6 th week)
Day 1: 10 reps	Post. Pelvic Tilts Crossed Flexion QL Side Bridge Hand/Foot Ball Switch	TB Rows Post. Pelvic Tilts Crossed Flexion QL Side Bridge Hand/Foot Ball Switch	Middle Trap Lower Trap TB Rows Bridges
Day 1: 15 reps	TB Rows		Post. Pelvic Tilts Crossed Flexion QL Side Bridge Hand/Foot Ball Switch
Day 2: 10 reps	Side Squat Step Free Squat Ball Squat	Side Squat Step Free Squat Ball Squat Static Lunge	Crossed Extension Green TB Plank Hip IR on Chair Hip ER on Chair
Day 2: 15 reps	Green TB Plank Hip IR on Chair Hip ER on Chair	Green TB Plank Hip IR on Chair Hip ER on Chair	Side Squat Step Side Squat Med Ball Static Lunge Med Ball Rear Lunge Med Ball Free Squat Ball Squat Static Lunge

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Piriformis Syndrome **Facet Joint** **Malalignment/Poor Posture**

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Day 3: 10 reps	Post. Pelvic Tilts Crossed Flexion QL Side Bridge Hand/Foot Ball Switch	TB Rows Post. Pelvic Tilts Crossed Flexion QL Side Bridge Hand/Foot Ball Switch	Middle Trap Lower Trap TB Rows Bridges
Day 3: 15 reps	TB Rows		Post. Pelvic Tilts Crossed Flexion QL Side Bridge Hand/Foot Ball Switch
Day 4: 10 reps	Side Squat Step Free Squat Ball Squat	Side Squat Step Free Squat Ball Squat Static Lunge	Crossed Extension Green TB Plank Hip IR on Chair Hip ER on Chair
Day 4: 15 reps	Green TB Plank Hip IR on Chair Hip ER on Chair	Green TB Plank Hip IR on Chair Hip ER on Chair	Side Squat Step Side Squat Med Ball Static Lunge Med Ball Rear Lunge Med Ball Free Squat Ball Squat Static Lunge

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SI Joint

Classic Symptoms:

- Pinpoint pain in lower right, left, or both sides of back
- Pain that shoots from center of low back out towards your side – across hip bone
- Complaints of “walking like a duck”
- Feeling “off balance”

SI joint problems can be caused from several different scenarios. If you lift something too heavy, especially with one leg in front of the other, or with a bit of rotation in your spine, you may hurt your SI joint. Also, if you step off of a curb in an unbalanced way, or climb up the stairs and miss a step, these reasons may cause you an SI joint problem. If you are pregnant, your body is producing a hormone called Relaxin. Relaxin functions to loosen the ligaments around your pelvis to aid in the birth process. Because of their laxity, increased rotation is possible. Typically, a pregnant woman is trying to get used to her new body, is less aware of her center of balance, and can easily miss a step, causing SI joint rotation.

When you are pregnant you are at greater risk of SI joint dysfunction:



Self Tests:

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Muscle Strain **Herniated disc** **Stenosis** **SI Joint** **Spondylolysis/Spondylolysthesis**

Piriformis Syndrome **Facet Joint** **Malalignment/Poor Posture**

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Movements that hurt with SI Joint injury

- Transition movements:
 - Standing up from sitting down
 - Sitting down from standing up
 - Getting out of bed
 - Stepping up/down on a curb
 - Some pain bending forward (sometimes just tightness)
 - Some pain leaning backward (also can be a feeling of tightness)
- Daily tasks that will bother you if you have this problem:
 - Getting up from a chair
 - Sitting onto a chair
 - Sleeping on your side
 - Bending forward to pick something up
 - Getting up from the floor

How to Manage the Injury:

SI joint pain responds extremely well to a combination of flexibility and strengthening exercise, as is listed below. Its important to focus on symmetry when working on your SI joint. By definition, an SI joint problem involves some degree of torsion of the sacrum and/or rotation of the pelvic bone. As a result, muscles and ligaments on one side of your pelvis are stretched, while muscles and ligaments on the other side are contracted. This means muscles on one side of your pelvis are going to have an easier time contracting muscles on the other side. Cater to the weaker side. This means if you feel your left glute working harder than your right, back off a bit on the left. You cannot expect to create a firmer contraction on the right, or you already would be doing it. Instead, stop the left from pulling you further into rotation on that side. Make sense?

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What Someone at Work Can Do:

Practice posterior pelvic tilts at work by squeezing your glutes together and focusing on both sides working evenly. This can be done in sitting and standing. Also, give yourself extra support when transitioning from sitting to standing and vice versa by adding a light contraction of your abs and glutes.

Special Concerns:

One of the biggest concerns with SI joint pain is thinking that you are done taking care of your back because the pain has gone away. In truth, you should be participating in a thorough exercise program aimed at stabilizing your SI joint for a minimum of a couple of months following SI joint injury. Most of the pain can disappear quickly, if properly treated, so people end up discontinuing their exercise programs. This is NOT what you should do. You are at greater risk of re-occurrence unless you take steps to prevent this.

Be wary of the signs/symptoms discussed above in “General Special Concerns.” It is very important to monitor the strength in your legs as well as your bowel/bladder habits. If one or both of your legs become weak, or you lose control of your bowel and/or bladder, it is possible that there is pressure on your spinal cord. You should go see a doctor immediately.

What to Expect From the Doctor:

Your primary care physician may send you to an orthopedist, or order X-rays himself. Most of the time physical therapy is suggested. Postural strengthening, exercise tolerance management, and pain relief are the typical goals that will be discussed.

Some doctors believe in SI joint problems, while some do not. The doctors who do not believe SI joint pain exists believe that there is no rotation that occurs in the SI joint except during childbirth. Physical therapy research has done a poor job of proving that SI joint rotation does occur, and therefore, the doctors present a logical and sound argument.

Conversely, SI joint pain is treated regularly by D.O.'s (Doctors of Osteopathic Medicine), chiropractors, and physical therapists. From a clinical standpoint, there is great relief of symptoms through proper strengthening and stretching. In fact, when treating someone with an SI joint problem, many times you can hear a click as you help them “rotate back into place.”

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If a doctor does not believe in SI joint pain, then s/he will send you to be treated for lumbar pain. If s/he does believe in SI joint pain, then s/he will send you to be treated for this condition. In either case, physical therapy and exercise are typically recommended.

Expected Recovery Time:

Pain relief and restored function can usually occur within 2-4 weeks of proper rest, exercise, and medical attention. However, your strength training program should continue for at least 2 months in order to stabilize your pelvis and prevent re-occurrence.

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Sample Rehab Program – add 3x Plank for 30 seconds to each workout

	Phase 1 (1 st -2 nd week)	Phase 2 (3 rd -4 th week)	Phase 3 (5 th -6 th week)
Day 1: 10 reps	TB Rows Post. Pelvic Tilts Inverted Lat Rows Bridges Back Ext. on Ball	TB Rows Inverted Lat Rows	TB Rows
Day 1: 15 reps	Middle Trap Lower Trap	Middle Trap Lower Trap Post. Pelvic Tilts Bridges Back Ext. on Ball	Middle Trap Lower Trap Post. Pelvic Tilts Inverted Lat Rows Bridges Back Ext. on Ball
Day 2: 10 reps	Flexibility Squat Crossed Ext. Free Squat Ball Squat Static Lunge	Flexibility Squat Static Lunge Med Ball Rear Lunge Med Ball Crossed Ext.	Side Squat Med Ball
Day 2: 15 reps	Quick Kicks	Side Squat Med Ball Free Squat Ball Squat Static Lunge Quick Kicks	Flexibility Squat Static Lunge Med Ball Rear Lunge Med Ball Crossed Ext. Free Squat Ball Squat Static Lunge

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			Quick Kicks
Day 3: 10 reps	TB Rows Post. Pelvic Tilts Inverted Lat Rows Bridges Back Ext. on Ball	TB Rows Inverted Lat Rows	TB Rows
Day 3: 15 reps	Middle Trap Lower Trap	Middle Trap Lower Trap Post. Pelvic Tilts Bridges Back Ext. on Ball	Middle Trap Lower Trap Post. Pelvic Tilts Inverted Lat Rows Bridges Back Ext. on Ball
Day 4: 10 reps	Flexibility Squat Crossed Ext. Free Squat Ball Squat Static Lunge	Flexibility Squat Static Lunge Med Ball Rear Lunge Med Ball Crossed Ext.	Side Squat Med Ball
Day 4: 15 reps	Quick Kicks	Side Squat Med Ball Free Squat Ball Squat Static Lunge Quick Kicks	Flexibility Squat Static Lunge Med Ball Rear Lunge Med Ball Crossed Ext. Free Squat Ball Squat Static Lunge Quick Kicks

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Spondylolysis/Spondylolysthesis

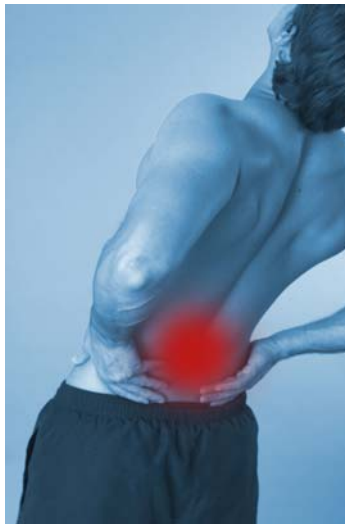
Spondylolysis – fracture of the vertebrae (at a section called the pars intertransversaria)

Spondylolysthesis – fracture + slipping of that vertebrae forward (**DANGER!**)

There are 2 Types of Spondylolysthesis:

- L4-L5 – spinal segment L4 moves forward on L5 – this happens mostly to adolescents
 - Sometimes worth repairing surgically, although strengthening always helps – go see a doctor
- L5-S1 – spinal segment L5 moves forward on S1 (this happens later in life – middle aged)
 - Exercise helps quite a bit, but be careful not to make it worse.
 - Again, surgery is sometimes recommended here, but not always.

Caution: This movement could cause serious injury!



Classic Symptoms:

- Can be asymptomatic or vague back pain when fractured, without slippage.
- Feeling of pain when leaning backwards.

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In adolescents, it is usually caused by a predisposition to fracture. In adults, this can be the result of forcefully being bent backwards, or with great resistance as you extend your back.

Self Tests:

None. This should be evaluated by a professional. Go to see your doctor if you think you might have this condition. If you cannot get an appointment right away, be sure to go the emergency room.

How to Manage the Injury:

Strengthening your low back with a lot of abdominal exercises (i.e. flexion exercises) will markedly decrease your symptoms and improve surgical outcome. Therefore, you should always try to strengthen first (if pain free).

However, in order to know the severity of this condition and the safety with exercise, you should have guidance when performing any exercise program.

Movements to avoid:

Extension – leaning backwards when standing up (careful: This is dangerous if your vertebrae has begun to slip. Try to avoid this movement until you have been seen by your physician and/or physical therapist)

Twisting – especially to reach for something behind you.

What Someone at Work Can Do:

Try to avoid carrying anything while walking. Sitting is better for you than standing when given the choice. As you rise to stand, you should contract your glutes (buttocks) muscles together to help rotate your pelvis backwards. This acts much like bending forward on your spine and will help protect you.

Special Concerns:

If exercising improperly, it is possible to cause damage to your spinal cord and result in paralysis. It is important that your exercise be composed of “flexion-biased” exercises (i.e. abs, not back extensors)

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Daily tasks that will bother you with spondylolisthesis:

- Standing up from a seated position
- Sleeping on your stomach without pillows
- Lifting objects in front of you with your elbow straight
- Twisting, reaching, and grabbing objects to your side or behind you.

What to Expect From the Doctor:

Your family doctor will most likely refer you to an orthopedist, where X-Rays will likely be ordered. S/he may suggest surgery or at least bracing to stabilize the fragments, depending upon the severity. If slippage has occurred, they will want to perform surgery to stabilize your bones so that you no longer will have risk of paralysis. Following surgery or bracing, physical therapy is often recommended to redistribute stresses along the spine and strengthen surrounding musculature.

Expected Recovery Time:

4-6 months. The strengthening process will show dramatic results within a matter of 4-6 weeks, but it is a long process before you can return to full activity. In fact, it takes 8 weeks for the fracture to heal, then up to a year before it is at full strength. For this reason, avoiding sports like gymnastics, football, rugby, hockey, and other physically demanding sports is wise.

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Sample Rehab Program – add 3x Plank for 30 seconds to each workout

	Phase 1 (1 st -2 nd week)	Phase 2 (3 rd -4 th week)	Phase 3 (5 th -6 th week)
Day 1: 10 reps	Post. Pelvic Tilts Hand/Foot Ball	TB Rows	Middle Trap Lower Trap TB Rows Inverted Lat Rows
Day 1: 15 reps	TB Rows	Post. Pelvic Tilts	Post. Pelvic Tilts
Day 2: 10 reps	Green TB Plank Crossed Flexion	Free Squat Ball Squat Green TB Plank Crossed Flexion	Side Squat Med Ball Crossed Ext. Static Lunge Hip IR on chair Hip ER on chair Green TB Plank
Day 2: 15 reps	Hip IR on chair Hip ER on chair	Hip IR on chair Hip ER on chair	Free Squat Ball Squat Crossed Flexion
Day 3: 10 reps	Post. Pelvic Tilts Hand/Foot Ball	TB Rows	Middle Trap Lower Trap TB Rows Inverted Lat Rows
Day 3: 15 reps	TB Rows	Post. Pelvic Tilts	Post. Pelvic Tilts
Day 4: 10 reps	Green TB Plank	Free Squat	Side Squat Med Ball

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Muscle Strain **Herniated disc** **Stenosis** **SI Joint** **Spondylolysis/Spondylolsthesis**

Piriformis Syndrome **Facet Joint** **Malalignment/Poor Posture**

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	Crossed Flexion	Ball Squat Green TB Plank Crossed Flexion	Crossed Ext. Static Lunge Hip IR on chair Hip ER on chair Green TB Plank
Day 4: 15 reps	Hip IR on chair Hip ER on chair	Hip IR on chair Hip ER on chair	Free Squat Ball Squat Crossed Flexion

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Piriformis Syndrome – refers to a muscle that originates on the bottom of your spine (sacrum) and inserts onto your upper leg bone (femur.) It's purpose is to externally rotate the hip. While standing with your knee straight, external rotation would be turning your toes towards the outside of your body.

In about one-tenth of the population, the sciatic nerve passes through this muscle. When the muscle is overstretched, contracted for a prolonged period of time, or injured, sciatic nerve pain may arise. Your sciatic nerve originates in your lumbar spine and goes all the way down to your heel (although it changes names along the way). When this nerve is irritated, depending on how much, you may feel pain along the back of your leg.

For the other 9/10 of us that do not have this nerve passing through our piriformis, it still lies close to it. Over time, if we injure and reinjure the piriformis muscle, we may also have this scenario. It is possible to see this anomaly on MRI and CAT scan, but rarely is the test performed for this reason.

Daily tasks that will bother you with piriformis syndrome:

- Running – (“I feel like I have a butt cramp!”)
- Lifting leg to the side (“The pain shoots down my leg”)
- Bending over to pick something up – at the end of flexion, especially, you might feel the tingling sensation and/or pain in your buttocks.

Classic Symptoms:

- Pain in right or left buttocks, sensitive to pressure
- Pain can radiate down one leg. Pain can be:
 - Burning
 - Tingling
 - Numbness
 - Shooting
- Feeling of tightness, especially when bending forward.

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Many runners experience this problem. Also, people who have spinal stenosis and have learned to compensate to decrease the pain in their backs sometimes have flares of this muscle that produce piriformis syndrome. It's important to do a proper posterior pelvic tilt, instead of contracting your piriformis, in order to prevent this issue. Also, anatomy can cause this problem in the one-tenth of the population that have this predisposition (see section above.) Finally, in any case where the sciatic nerve has been irritated (i.e. spinal stenosis, herniated disc, etc.) you may be at risk for piriformis syndrome.

With piriformis syndrome, you will have an increase in symptoms with any of the following activities/movements:

- External rotation – laying on your stomach, knees bent with thighs together, soles of feet pointing directly towards the ceiling; rotate your feet out to the side, both at the same time.
 - You will notice that your injured side is not moving as far out to the side and may be increasing in symptoms.
- Abduction– standing with your legs shoulder-width apart, feet forward, slowly raise your leg out to the side.
 - You may have pain when standing on your injured side and moving your leg on the uninjured side.
 - You may have pain when standing on your uninjured side and moving your leg on the injured side.
- Internal Rotation– this is like kneeling with your feet outside of your legs.
- Long periods of time with no movement, in a seated position

How to Manage the Injury:

Ice, rest, massage (deep tissue massage on your buttocks really helps this.) After one week, begin lightly stretching into your pain, but not intensely. Your nerve and muscle will respond much better to light stretching than anything at else. The piriformis stretch is the most important muscle to stretch on a daily basis. Additionally, strengthen all surrounding musculature as much as possible.

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What Someone at Work Can Do:

It's great to be able to sit on a cushioned surface at work. My personal preference is to sit on a Balance Disc (see product recommendations below), although any pillow would certainly help. You should also be as active as possible, so try to go for a walk at least once an hour for 5 minutes, if at all possible.

Special Concerns:

Careful that the pain is not going further down your leg. Most often, in order for this injury to heal, the nerve needs to heal. Nerves heal by moving from your foot to the center of your body, so it's important that the pain is going up your body, not down, even if it is getting worse. In fact, an increase in pain, but over less area, can show improvement. Conversely, if your pain gets better but goes further down your leg, this could be a sign of worsening.

Be wary of the signs/symptoms discussed above in "General Special Concerns." It is very important to monitor the strength in your legs as well as your bowel/bladder habits. If one or both of your legs become weak, or you lose control of your bowel and/or bladder, it is possible that the bulging disc is pressing on your spinal cord. You should go see a doctor immediately.

What to Expect From the Doctor:

Your doctor will probably perform an examination and then either send you for more workup from an orthopedic, or recommend rest and anti-inflammatory medication. Normally, it is recommended to reduce the amount of running/activity that you are doing but not stop completely. A series of stretches may be provided, or a physical therapy referral might be offered.

Expected Recovery Time:

4-6 weeks or proper rest, ice, massage, medication, and strengthening will be sufficient to calm down the area and have you back to normal activity levels. However, if you have the anatomical anomaly (see above section), then it is possible that the best case scenario is a reduction in pain.

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Sample Rehab Program – add 3x Plank for 30 seconds to each workout

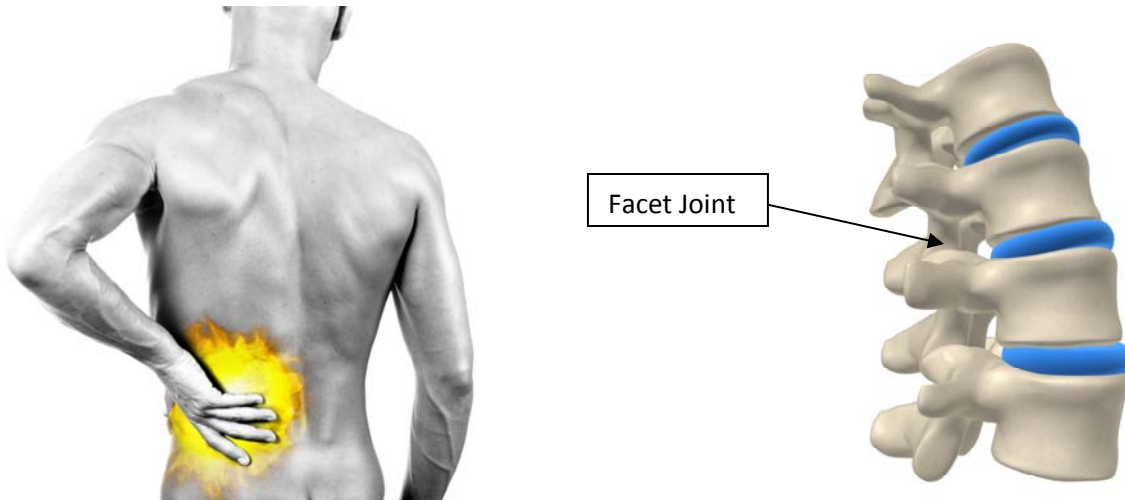
	Phase 1 (1 st -2 nd week)	Phase 2 (3 rd -4 th week)	Phase 3 (5 th -6 th week)
Day 1: 10 reps	TB Rows Post. Pelvic Tilts Inverted Lat Rows Bridges Back Ext. on Ball	TB Rows Inverted Lat Rows	TB Rows
Day 1: 15 reps	Middle Trap Lower Trap Quick Kicks	Middle Trap Lower Trap Post. Pelvic Tilts Bridges Back Ext. on Ball Quick Kicks	Middle Trap Lower Trap Post. Pelvic Tilts Inverted Lat Row Bridges Back Ext. on Ball Quick Kicks
Day 2: 10 reps	Flexibility Squat Crossed Ext. Free Squat Ball Squat Static Lunge	Static Lunge Med Ball Rear Lunge Med Ball Crossed Ext. Static Lunge	Side Squat Med Ball Static Lunge Med Ball Rear Lunge Med Ball
Day 2: 15 reps	Side Squat Med Ball Static Lunge Med Ball Rear Lunge Med Ball	Flexibility Squat Side Squat Med Ball Free Squat Ball Squat	Flexibility Squat Crossed Ext. Free Squat Ball Squat

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			Static Lunge
Day 3: 10 reps	TB Rows Post. Pelvic Tilts Inverted Lat Rows Bridges Back Ext. on Ball	TB Rows Inverted Lat Rows	TB Rows
Day 3: 15 reps	Middle Trap Lower Trap Quick Kicks	Middle Trap Lower Trap Post. Pelvic Tilts Bridges Back Ext. on Ball Quick Kicks	Middle Trap Lower Trap Post. Pelvic Tilts Inverted Lat Row Bridges Back Ext. on Ball Quick Kicks
Day 4: 10 reps	Flexibility Squat Crossed Ext. Free Squat Ball Squat Static Lunge	Static Lunge Med Ball Rear Lunge Med Ball Crossed Ext. Static Lunge	Side Squat Med Ball Static Lunge Med Ball Rear Lunge Med Ball
Day 4: 15 reps	Side Squat Med Ball Static Lunge Med Ball Rear Lunge Med Ball	Flexibility Squat Side Squat Med Ball Free Squat Ball Squat	Flexibility Squat Crossed Ext. Free Squat Ball Squat Static Lunge

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Facet Joint – The facet joints of your spine function to help you bend forward/backward/to the side and twist. If they are aligned correctly with limitation, you will move freely through these motions. However, the feeling of “throwing out your back” may many times be related to a stuck facet joint. It’s the same concept as having a “crick in my neck,” but in your low back.



Classic Symptoms: You will have a feeling of movement restriction

- “I just can’t bend forward any further”
- “I’m leaning backward, but I can’t lean straight back...I feel like I’m going to the (right).”
- “When I bend to one side, I just can’t bend as far to the other.”

Awkward positioning without being warmed up is the most common reason why you may experience a stuck facet. This can also be a result of sleeping in a strange position, and waking up feeling like you can’t stand up straight (or bend forward, depending.) Also, following periods of muscle spasm, which occurs with other injuries causing great amounts of pain, facet joints can become bound down and stuck in one place.

Self Tests:

- Bending forward – if you lean to the right or left, you may have a stuck facet
- Bending backward – if you lean to the right or left, you may have a stuck facet

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- Bending to your side – if one side goes much further than the other, you may have a stuck facet (Hint: Sometimes we bend forward on the limited side to compensate and it seems like we're moving just as far, but we're not. Pay attention to your position!)
- Twisting to one side or the other – same as bending to your side – one side may move further and sometimes we compensate when limited, so be on the lookout.

How to Manage the Injury:

Facet joint pain can be relieved by ice and non-aggressive movements. Normally, you will have a constant feeling of “just needing to stretch,” that corresponds to movements that hurt such as:

- Bending forward
- Bending backward
- Bending to your side
- Twisting to one side or the other

Normally, only one or two of these movements will feel restricted, depending on how the facet joint is stuck. More importantly, one of these movements will feel the most restricted.

Daily movements you'll want to avoid with a stuck facet joint:

- Any task corresponding to the above movement that causes you pain.
 - For example (in the order above):
 - Picking something up off of the floor
 - Leaning back in your chair
 - Scratching the side of your leg
 - Reaching behind you to grab something

What Someone at Work Can Do:

Try to sit up straight, maintaining good posture whenever possible. When bending, lifting, or twisting, be particularly careful that you are attempting to move with symmetry. If one side is limited, try not to go further on your good side. Let your nervous system realize that there is something wrong by catering to symmetrical movements on both sides. A towel roll, placed

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vertically along your spine, may be very helpful when sitting to keep good posture. Also, try to get up and move around as much as possible. Increased blood flow helps relieve tight tissues.

Special Concerns:

With a stuck facet you are at greater risk of other injuries. For example, because of the increased pressure on one side of a disc, there is greater opportunity to herniate a disc. Therefore, it is wise to always take extra precaution until you are able to move freely again. A physical therapist, chiropractor, or D.O. can help you through a mobilization/manipulation of your facet joint to fix the restriction. It's wise to first restore normal movement and then begin an exercise program to strengthen you into this position.

Be wary of the signs/symptoms discussed above in "General Special Concerns." It is very important to monitor the strength in your legs as well as your bowel/bladder habits. If one or both of your legs become weak, or you lose control of your bowel and/or bladder, it is possible that something (i.e. a disc) is pressing on your spinal cord. You should go see a doctor immediately.

What to Expect From the Doctor:

Rest is usually the first advice prescribed by most doctors for this. They may also suggest anti-inflammatory medication to assist with pain and swelling. Gentle stretches and aerobic exercise are often recommended. If a stuck facet is restricting you from daily activity, your physician may suggest that you seek care from a physical therapist, chiropractor, or D.O.

Expected recovery Time: 2 weeks of rest + 6 weeks of strengthening and flexibility exercises to balance out muscles and reduce chance of re-injury.

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Sample Rehab Program – add 3x Plank for 30 seconds to each workout

	Phase 1 (1 st -2 nd week)	Phase 2 (3 rd -4 th week)	Phase 3 (5 th -6 th week)
Day 1: 10 reps	Middle Trap Lower Trap TB Rows Post. Pelvic Tilts Inverted Lat Rows Bridges Back Ext. on Ball QL Side Bridge	TB Rows Inverted Lat Rows Bridges Back Ext. on Ball	TB Rows
Day 1: 15 reps		Middle Trap Lower Trap Post. Pelvic Tilts QL Side Bridge	Middle Trap Lower Trap Post. Pelvic Tilts Inverted Lat Rows Bridges Back Ext. on Ball QL Side Bridge
Day 2: 10 reps	Flexibility Squat Side Squat Med Ball Crossed Ext. Free Squat Ball Squat	Flexibility Squat Side Squat Med Ball Crossed Ext. Ball Squat	Static Lunge Med Ball Rear Lunge Med Ball

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	Static Lunge		
Day 2: 15 reps	Static Lunge Med Ball Rear Lunge Med Ball	Static Lunge Med Ball Rear Lunge Med Ball Free Squat Static Lunge	Flexibility Squat Side Squat Med Ball Crossed Ext. Free Squat Ball Squat Static Lunge
Day 3: 10 reps	Middle Trap Lower Trap TB Rows Post. Pelvic Tilts Inverted Lat Rows Bridges Back Ext. on Ball QL Side Bridge	TB Rows Inverted Lat Rows Bridges Back Ext. on Ball	TB Rows
Day 3: 15 reps		Middle Trap Lower Trap Post. Pelvic Tilts QL Side Bridge	Middle Trap Lower Trap Post. Pelvic Tilts Inverted Lat Rows Bridges Back Ext. on Ball QL Side Bridge

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Day 4: 10 reps	Flexibility Squat Side Squat Med Ball Crossed Ext. Free Squat Ball Squat Static Lunge	Flexibility Squat Side Squat Med Ball Crossed Ext. Ball Squat	Static Lunge Med Ball Rear Lunge Med Ball
Day 4: 15 reps	Static Lunge Med Ball Rear Lunge Med Ball	Static Lunge Med Ball Rear Lunge Med Ball Free Squat Static Lunge	Flexibility Squat Side Squat Med Ball Crossed Ext. Free Squat Ball Squat Static Lunge

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Malalignment/Poor Posture - There are four main components of poor posture in the back:

- Forward head – if someone looks at you from the side, your ear is further forward than your shoulders
- Forward shoulders – if someone looks at you from the side, your shoulders are rounded forward (most of us have this)
- Anterior pelvic tilt – the easiest example to think of here is a fat guy leaning slightly backward, with his belly sticking out
- Posterior pelvic tilt – rarely the issue – flat back, no curve in lower spine

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Correct Posture:



Rounded posture creates abnormal stress patterns in the spine:



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Classic Symptoms: Symptoms vary according to where the most stress is placed. Your pain pattern and movement restriction can be a mixed bag, similar to:

- Herniated disc (without the leg pain)
- Muscle Strain (because muscles are being over compressed and over lengthened)
- Facet joint pain – you may feel “locked up” or restricted with certain movements because of posture.

Pain is caused from the daily effects of poor posture, which include:

- Decreased energy – as a result of less oxygen being delivered to your tissues
- Low back pain (imitating other back problems)
- Eventual overuse of some spinal segments in your low back, while under using the rest of your spine – poor posture *does* lead to more serious issues, such as muscle strains, herniated discs, movement restriction, and increased symptoms from already known issues.
- Rounded back (hunchback)
- Neck pain
- Substitution of ligament stability for muscle stability with poor posture
- Resting on your hips, by leaning backwards, instead of using the strong muscles of your buttocks to support you.
 - This is the example of the anterior pelvic tilt (see section above)

Self Tests:

Some Movements are restricted with poor posture, including:

- All bending movements at end ranges (“I just can’t move all the way forward, back, left, or right anymore”)
- Standing up straight, without a lot of effort to maintain the position
- Looking straight in front – instead we tend to extend back at the neck to make up for our rounded shoulders and curved backs

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- Twisting – reaching for an object and just not getting there
- Side bending – standing with your arms at your sides, slowly run your right arm down your leg towards your right knee. This would be an example of right side bending. You may want to compare to the other side.

How to Manage the Injury:

If you have a secondary injury from a history of poor posture, focus on the recommendations for that injury, in specific. If you are concerned with enhancing posture for decreased joint pain, better oxygen to your tissues, etc., refer to the exercise suggestions below for a postural strengthening program.

Once you stand up tall, you should be able to relieve most if not all of the pain. Also, any restriction of movement will disappear once you stand up tall, squeeze your shoulder blades together, and contract your glutes lightly.

What Someone at Work Can Do:

The best thing you can do at work is find a way to make your posture better without having to concentrate on it. First of all, keep the mouse, phone, and any other daily items you use within reach at all times. Try to keep your elbows close to your side, rather than reaching your arms far out in front of you. Adjust the height of your seat to have a 90 degree angle at your hips and knees, and provide a pillow or towel roll as support for your low back.

Special Concerns:

Normally, the only concern is the increased chance of injury as a result of poor posture. This places abnormal stress patterns on your spine.

Be wary of the signs/symptoms discussed above in “General Special Concerns.” It is very important to monitor the strength in your legs as well as your bowel/bladder habits. If one or both of your legs become weak, or you lose control of your bowel and/or bladder, it is possible that something (i.e. a disc) is pressing on your spinal cord. You should go see a doctor immediately.

What to Expect From the Doctor:

In most cases, you will only see your doctor if you have pain. In this case, the doctor’s visit will correspond closely to one of the above mentioned injuries.

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Expected Recovery Time:

You will notice a dramatic improvement in your posture within 6-8 weeks of a postural strengthening program. Please refer to the sample rehab program below for suggestions on a powerful postural strengthening program.

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Sample Rehab Program – add 3x Plank for 30 seconds to each workout

	Phase 1 (1 st -2 nd week)	Phase 2 (3 rd -4 th week)	Phase 3 (5 th -6 th week)
Day 1: 10 reps	Middle Trap Lower Trap Post. Pelvic Tilts Inverted Lat Rows Bridges Back Ext. on Ball	TB Rows Inverted Lat Rows	TB Rows
Day 1: 15 reps	TB Rows QL Side Bridge	Middle Trap Lower Trap Post. Pelvic Tilts Bridges Back Ext. on Ball QL Side Bridge	Middle Trap Lower Trap Post. Pelvic Tilts Bridges Back Ext. on Ball Inverted Lat Rows QL Side Bridge
Day 2: 10 reps	Flexibility Squat Crossed Ext. Free Squat Ball Squat Static Lunge	Side Squat Med Ball Static Lunge Med Ball Rear Lunge Med Ball Crossed Ext. Static Lunge	Side Squat Med Ball Static Lunge Med Ball Rear Lunge Med Ball
Day 2: 15 reps	Side Squat Step Side Squat Med Ball	Flexibility Squat Side Squat Step	Flexibility Squat Side Squat Step

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	Static Lunge Med Ball Rear Lunge Med Ball Green TB Plank	Free Squat Ball Squat Green TB Plank	Crossed Ext. Free Squat Ball Squat Static Lunge Green TB Plank
Day 3: 10 reps	Middle Trap Lower Trap Post. Pelvic Tilts Inverted Lat Rows Bridges Back Ext. on Ball	TB Rows Inverted Lat Rows	TB Rows
Day 3: 15 reps	TB Rows QL Side Bridge	Middle Trap Lower Trap Post. Pelvic Tilts Bridges Back Ext. on Ball QL Side Bridge	Middle Trap Lower Trap Post. Pelvic Tilts Bridges Back Ext. on Ball Inverted Lat Rows QL Side Bridge
Day 4: 10 reps	Flexibility Squat Crossed Ext. Free Squat Ball Squat	Side Squat Med Ball Static Lunge Med Ball Rear Lunge Med Ball Crossed Ext.	Side Squat Med Ball Static Lunge Med Ball Rear Lunge Med Ball

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	Static Lunge	Static Lunge	
Day 4: 15 reps	Side Squat Step	Flexibility Squat	Flexibility Squat
	Side Squat Med Ball	Side Squat Step	Side Squat Step
	Static Lunge Med Ball	Free Squat	Crossed Ext.
	Rear Lunge Med Ball	Ball Squat	Free Squat
	Green TB Plank	Green TB Plank	Ball Squat
			Static Lunge
			Green TB Plank

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What is Substitution? How Do We Compensate?

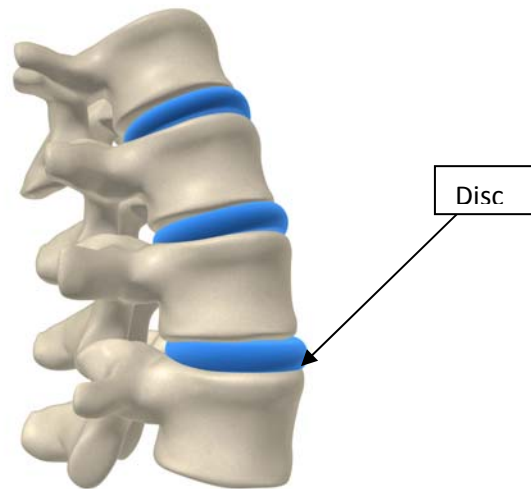
Substitution is when you use the wrong muscle to try and take over the movement of the correct muscle. It is your body's natural way of protecting itself. We compensate with our low backs by:

- Resting on our ligaments (anterior pelvic tilt)
- Overusing long, thin muscles in our back to help us extend instead of using bigger, broader muscles to help us maintain a more stable posture
- Using our legs to do all of the work, when really our abs and glutes could be doing much more

Muscle guarding – Muscle cramps can lead to back pain and more serious issues if the contraction is sustained for an abnormally long period of time. These muscles can be so strong that they create rotations in your spine, ultimately affecting the way that you move. In order to avoid muscle guarding, it is important to always do your best to reset your posture before each and every repetition. If you align your body correctly, your body has a much better chance of firing the right muscles at the right time. In the low back, we constantly overuse our erector spinae muscle group when we have injury. This prevents stronger, more effective muscles from performing their duties. Sometimes it's a matter of muscle firing patterns. This means that certain muscles are supposed to be recruited before others. In the case of injury and/or poor posture, it is much more difficult for these muscles to fire in the correct pattern.

Joint mobility:

The Vertebral Column



Sometimes it's not only what your muscles are doing to help your joint move, but the joint itself. In the case of your back, each vertebral segment has to move correctly on the next in order for you to have normal movement. However, we spend our youth in school, seated in a chair for long periods of time. Normally, we follow this with sitting at a desk at work, for several more years. We become accustomed to moving from only a few spinal segments, as opposed to moving from all of them. Typically, we develop too much movement in our most mobile segments.

- In the neck: C5-C6, C6-C7, C4-C5 (in this order)
- In the low back: L5-S1, L4-L5 (in this order)

For this reason, it's important to stabilize segments of the spine that move too much. Exercise is a great way to stabilize segments that are moving too much.

In order to physically move the segments that are not moving enough, there is a very specialized technique that physical therapists, chiropractors, and D.O.'s (doctors of osteopathy) use in order to help facilitate correct movement. Unfortunately, there is no safe way to explain this to you to do on your own.

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However, a proper exercise program can help eliminate a lot of otherwise unnecessary office visits. Why?

- Because once you stabilize segments that move too much, your body will look for the movement from elsewhere and you'll begin to restore normal movement.
- In the case of no relief and very restricted movement, you'll need a healthcare professional to help you. Otherwise, there is a good chance that it will correct itself once your posture, strength, and flexibility have been addressed.

Healing

Rest – you should rest your back from any painful activities/sports until you have reached at least the beginning of week 4 (the end of Phase 2.)

- Proper rest is an essential component of the strengthening process.
- After you begin these activities again, be sure to rest whenever you have pain that is >3/10. Immediately ice when this occurs.

Ice - prevents new inflammation, but does not take away swelling that is already there.

- 5-7 minutes with a single layer of a wet paper towel directly over your back and a Ziploc bag of ice over the paper towel.
 - First thing every morning when you wake up
 - After any painful activity - IMMEDIATELY
 - Last thing every night before you go to bed

Circulation/Joint Nutrition

Any form of exercise, even far away from your back (i.e biking on a recumbent bike) brings extra blood and circulation to your injured back.

- Blood carries nutrients and oxygen – 2 essential components for successful healing.

Strengthening - Strengthen any support structures that do not involve your injury as much as possible. By strengthening surrounding muscles, you are able to re-distribute the stress on your back, allowing more healing time for the injured tissue.

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- All surrounding structures are accounted for in your exercise program below.
- The injury itself – rest early in the program and ease into strengthening as you progress.
- See phases on strengthening for more details on exactly how much to do here.

Posture is Key! Good posture allows key muscles in your back to be able to rest and recover. The posture you lift with is likely the posture you'll stay in.

Think about it: When you are sore from your workouts and you try to stretch, it hurts. Therefore, if you slouch, you will be stretching muscles out of the position you strengthened them, and they will be sore. This serves as a great reminder to enhance posture.

Re-distribution of Stress:

Try to hold objects close to your body. Keep your elbow close to your side when lifting (heavy) objects in order help recruit larger muscles from your back. This allows smaller and injured muscles to have more rest time and less chance for re-injury.

Timeline: 6 weeks – careful strengthening

3 Phases of strengthening

Phase 1 (weeks 1-2)

Do all pain-free exercises – see sample rehab program for suggestions

Do very light resistance of painful exercises (this is coded as 15 reps on your sample rehab program.)

Aim for 15 repetitions at very low resistance. These may cause pain, but do not allow your pain to become greater than a 3/10 (see scale above)

Phase 2 (weeks 3-4)

Begin light resistance with all previously painful exercises. Aim for 15 repetitions at a very low resistance

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Muscle Strain **Herniated disc** **Stenosis** **SI Joint** **Spondylolysis/Spondylolysis**

Piriformis Syndrome **Facet Joint** **Malalignment/Poor Posture**

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Increase resistance and decrease repetitions with the exercises that were previously 15 repetitions. (see sample rehab program for exercise selection)

Aim for 10 repetitions of these exercises at a moderate resistance.

Phase 3 (weeks 5-6)

Strengthen all noted Phase 2 exercises from 15 reps to 10 reps

See sample rehab program for suggestions of appropriate exercises.

Continue strengthening all 10 repetition exercises

Aim for 10 repetitions at a relatively high resistance

Modify as needed to reduce pain with exercise. Never allow pain to climb above 3/10 on pain scale.

Products/Services that I Recommend:

Fish Oil + Omega 3 Fatty Acids - speeds the recovery of your injuries by stimulating your lymphatic system. Personally, I use EFA Icon. [Click here.](#)

A Workout Recovery Shake composed of carbohydrates and proteins – enhance muscle recovery, and offer you a healthy snack for after a workout to keep your metabolism up all day. I like to use Prograde Workout. [Click here.](#)

Eating a healthy snack is a great way to keep your metabolism up throughout the day. This helps to avoid “crashing in the middle of the afternoon. Some good options are:

- Almonds
- Low fat cottage cheese & crackers
- Or, my favorite snack - Cravers - Try this. [Click here.](#)

Exercises to Strengthen Your Back:

1) Middle Trap on Ball

- a. Place feet against the wall and lay face down on ball (ball should be at pelvic to mid-abdominal level)
- b. Extend the full length of your wingspan, so that there is a 90 degree angle at your armpit. Turn your palms up to the sky.



- c. Gently move your arms up and down as a bird does its wings. Focus on the movement being guided by your shoulder blades. You should be pinching your shoulder blades together at the top of the motion and spreading them at the bottom of the motion. (Hint: it's not important how high your arms can go in the air)



2) Lower Trap on Ball

- a. Assume same position as 'middle trap on the ball', face down, with feet against the wall.
- b. Place arms diagonally out in front of you, creating a 'V', with thumbs facing up.



- c. Guide your arms up and down maintaining the shape of a 'V', while attempting to relax the top of your shoulders as much as possible (Hint: Release the tension in your neck)



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3) T-Band Rows

- a. Wrap Theraband around a pole at eye level, grasping one end with each hand.
- b. Squat slightly as if you were about to sit into a chair. (No leaning backwards or forwards, sit up tall!)



- c. With shoulder blades squeezed together, and palms up, pull Theraband into side while keeping your elbows close to your body. Rotate your palms to face down as you perform this rowing movement.



- d. Slowly return to starting position, while de-rotating your to end with your palms facing upward once again.
- e. Re-assess your posture and squatting position and then perform the next repetition. (Hint: The top of your shoulders and neck should be relaxed... this movement comes from lower)

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Muscle Strain **Herniated disc** **Stenosis** **SI Joint** **Spondylolysis/Spondylolysthesis**

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4) Plank

- a. Place forearms and elbows onto balance discs, with elbows directly under your shoulders, and palms facing up. If you don't have balance discs, place forearm & elbows directly on floor or pillows.
- b. Assume push-up like position, with your feet on the ground, and the rest of your body braced into position. (Hint: It helps to have light tension in your abs and glutes in order to maintain a straight back... no mountains or valleys here!)
- c. Hold for 30 seconds.



5) Posterior Pelvic Tilt

- a. Lay down on your back, bend your knees, and put your feet flat on the floor.
- b. Imagine a glass of water on your belly, balanced perfectly.
- c. Now, tip that glass of water so that it would spill onto your chest. You should feel some tension in your glutes now.
- d. Hold this position for 10 seconds and then relax.
- e. Repeat, always using the mental imagery of spilling water.



6) Inverted Lat Rows (feet on ground)

- a. Stand just behind bar, with bar at waist level
- b. Grab bar with hands shoulder-width apart and lower yourself to the ground.
- c. Walk out with heels of feet while holding onto bar until hands are just above shoulders and you are in a diagonal position to the ground.



- d. Squeeze your shoulder blades together for stability, then pull your chest towards the bar, keeping your elbows as close to your torso as possible.



- e. Slowly lower yourself to the starting position by straightening your elbows, but maintaining the diagonal position. Repeat.

7) Flexibility Squat

- a. Raise arms diagonally in the air so that your fingers are pointing to opposite corners of the ceiling, stand 1.5x wider than shoulder-width apart, toes forward.



- b. Slowly squat down and back as if you were going to sit in a chair. Maintain upright posture and stop as soon as you feel unbalanced and/or lean forward. This is your stopping point.



- c. Gradually progress your stopping point until you have reached a 90 degree angle at your knees with fully upright posture. (Hint: This will likely take several weeks/months before you move through this easily, but the goal is to go as far as your body allows with each repetition...not a bit further, not a bit less!)

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8) Free Squat

- a. Stand 50% wider than shoulder width apart, toes facing slightly outward, erect posture.



- b. Squat down and back as if you were going to sit into a chair. (Hint: Do not let knees move forward past your toes as you squat. This places the stress of your entire body weight on the front of your knee.)
- c. Squat until your knees reach a 90 degree angle (not beyond)



- d. Squeeze buttocks (“glutes”) and maintain tension as you stand.
- e. Reset posture and begin next repetition.

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9) Ball Squat

- a. Place exercise ball against wall in line with your low back (the small of your back and upper buttocks). Lean back against ball.
- b. Stand 50% wider than shoulder width apart, toes facing slightly outward, erect posture.



- c. Squat down and back as if you were going to sit into a chair. (Hint: Do not let knees move forward past your toes as you squat. This places the stress of your entire body weight on the front of your knee.)
- d. Squat until your knees reach a 90 degree angle (not beyond). The ball should now be supporting your low back.



- e. Squeeze buttocks (“glutes”) and maintain tension as you stand.
- f. Reset posture and begin next repetition.

10) Static Lunge

- a. Stand with feet shoulder width apart, right foot in front, left foot behind.



- b. Lower left knee towards the floor, carefully watching that your right knee moves forward as little as possible.



- c. Just before reaching the floor, rise up to standing position, focusing on contracting your right 'glute' as you stand. (Hint: You may want to stand sideways to a mirror to verify that your front knee is not moving forward beyond your toes)
- d. Repeat with other side after desired repetitions.

11) Side Squat Step

- a. Stand with your feet touching, toes facing forward.



- b. Take a large step to your right.
- c. Begin squatting down and back (Hint: Pretend that you are about to sit down into a seat, only your legs are wider. Sit towards your heels.) until you reach a 90 degree angle at your knees or until you feel unbalanced.



- d. Squeeze your glutes together and stand up while drawing in your left leg towards your right leg. (Hint: Always squeezing your glutes as you stand will take away the pressure from your low back.)
- e. You are now in the starting position, one step to the right. Repeat to the left side.

12) Side Squat Med Ball Push

- a. Stand with your feet touching, toes facing forward.



- b. Take a large step to your right.
- c. Begin squatting down and back (Hint: Pretend that you are about to sit down into a seat, only your legs are wider. Sit towards your heels.) until you reach a 90 degree angle at your knees or until you feel unbalanced.



- d. Squeeze your glutes together and stand up while drawing in your left leg towards your right leg. (Hint: Always squeezing your glutes as you stand will take away the pressure from your low back.)

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- e. You are now in the starting position, one step to the right. Repeat to the left side.

13) Static Lunge med ball chop/reverse chop

- a. Stand shoulder-width apart, left foot forward, right foot back, and medicine ball supported by your right hip with both arms.



- b. Gently guide your right knee towards the ground, while preventing your left knee from moving forward. (Hint: It really helps a lot to stand sideways next to a mirror and watch yourself as you go down. The goal is to prevent the front knee from moving forward beyond your toes.)
- c. As you lower your right knee towards the ground, move the medicine ball diagonally up and to the left by twisting your upper body in that direction.



- d. Contract your left buttocks and stand up, while returning the medicine ball to the starting position.
- e. Perform for desired number of repetitions and then switch sides.

14) Rear Lunge swiss ball chop/reverse chop

- a. Stand shoulder-width apart.



- b. Lunge backward with left foot (maintain right foot forward). As you do this, twist medicine ball diagonally up and to your right.
- c. Gently guide your left knee towards the ground, while preventing your right knee from moving forward. (Hint: It really helps a lot to stand sideways next to a mirror and watch yourself as you go down. The goal is to prevent the front knee from moving forward beyond your toes.)
- d. As you lower your left knee towards the ground, move the medicine ball diagonally up and to the right by twisting your upper body in that direction.



- e. Contract your right buttocks, push up, and bring your left foot to the starting position, while returning the medicine ball to your left hip.

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- f. Perform for desired number of repetitions and then switch sides.

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15) Bridge

- a. Lay down in hooklying position (on your back, knees bent, feet flat on the floor, shoulder width apart.)
- b. Squeeze glutes together.



- c. Raise your bottom up in the air and hold for 5 seconds.



- d. Slowly lower yourself (still maintaining tension in the glutes) until you touch the ground.
- e. Relax your glutes, then repeat.

16) Back Extension on Ball

- a. Place feet against the wall and lay face down on the ball, with the top of the ball against your lower abdomen.



- b. Cross your arms over your chest, and extend backwards slowly.



- c. Lower yourself towards the starting position SLOWLY. (Hint: This is an excellent exercise to strengthen your low back and prevent herniated discs. However, if done improperly (i.e. coming down too fast [fast, forward flexion] you may herniated a disc. There is no risk if you go slow, but there is risk if you do not. Be careful.)

17) Crossed Extension

- a. Position yourself on all 4's, with both knees under your hips, and both hands under your shoulders.



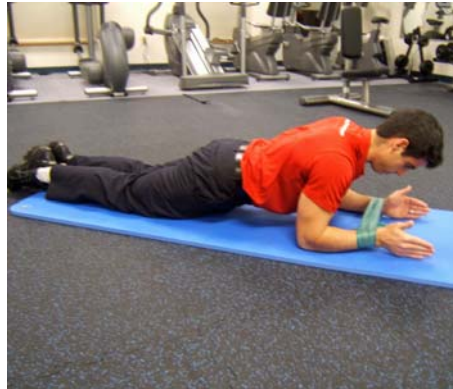
- b. Slowly extend out your right arm and left leg, without allowing any rotation to occur at your spine.



- c. Slowly return them to the starting position, on the ground.
- d. Repeat on opposite side, alternating after each repetition. (Hint: It's not important how far you can stretch your arm and leg out... rather focus on keeping your spine stable. You will progress over time.)

18) Green Tband Plank on Knees

- a. Place forearms and elbows onto floor, with elbows directly under your shoulders, and palms facing up. Loop green theraband around both arms such that there is light tension in the band in order to maintain your arms shoulder width apart.
- b. Assume push-up like position, with your knees on the ground, and the rest of your body braced into position. (Hint: It helps to have light tension in your abs and glutes in order to maintain a straight back... no mountains or valleys here!) Keep your shoulder blades squeezed together while resting the top of your shoulders.
- c. Hold for 30 seconds.



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19) Crossed Flexion

- a. Lay on your back with arms overhead and legs extended out in front of you.



- b. Reach left arm towards right leg, as you lift both and meet in the middle.



- c. Return slowly to starting position and repeat with other side

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20) QL Side Bridge

- a. Position yourself on your side with your elbow underneath the middle of your rib cage and feet stacked, one on top of the other.



- b. Push through your elbow, forearm, and feet so that your body curves upward, to form a 'c' underneath you.



- c. Slowly return to starting position and repeat.

21) Hand/Foot Ball Switches

- a. Lay on your back with your arms extended above your head, holding an exercise ball between your hands, and your feet extended straight out in front of you.



- b. Slowly raise arms and legs at the same time meet in the middle, while preventing your back from arching.



- c. Once you reach the middle, switch the ball from your hands to your feet and extend out towards starting position for as far as you can go with arching your back. (Hint: For most of us, going all the way out to starting position without our backs arching can be very difficult. Start with a smaller range of movement and progress when you are ready.)

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22) Hip Internal Rotation on chair – Tband

- a. Sit on the chair with left leg back and right leg forward.
- b. Place theraband so that it is looped around the outside of your leg and fixed on another non-moving object.



- c. Keeping your upper leg and knee relatively still, move your right foot out to the right.



- d. Slowly return to starting position, perform desired number of repetitions, and repeat with other leg.

23) Hip External Rotation on chair – Tband

- a. Sit on the chair with left leg back and right leg forward.
- b. Place theraband so that it is looped around the inside of your leg and fixed on another non-moving object.



- c. Keeping your upper leg and knee relatively still, move your right foot in towards the middle of your body (left.)



- d. Slowly return to starting position, perform desired number of repetitions, and repeat with other leg.

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24) Quick Kicks

- a. Stand with theraband tied to non-moving object and looped around the front of one of your right leg with light tension to start.
- b. Standing with your left leg straight, begin moving your right leg forward and backward quickly (not forcefully, just quickly.)
- c. Continue for 30 seconds and repeat with opposite side.

