

## **NON-SURGICAL SPINE REHAB PROTOCOL**

NON-SURGICAL SPINE CARE consists of three components. The first is adequate pain control with medication or injections. The second and the most important is proper body mechanics education and practice. The third is a series of exercises designed to strengthen the abdominal musculature and the spine stabilizers to provide lumbar support and to stretch tight musculature that may be inhibiting proper movement.

Repetitive torsional stress and flexion to the lumbar intervertebral discs can contribute to injury and chronic pain. Learning how to stabilize the spine and perform proper body mechanics and movements to avoid that stress is very helpful in reducing pain and further damage to the lumbar structures. These structures include the intervertebral discs, the facet joints, and the deep layer of muscles that control movement in the spine.

Strengthening exercises for the spine are called Dynamic Lumbar Stabilization or exercises that strengthen the CORE musculature. These exercises begin with learning to activate the Transverse Abdominus and the deep level of spine stabilizers that control deceleration of lumbar motion.

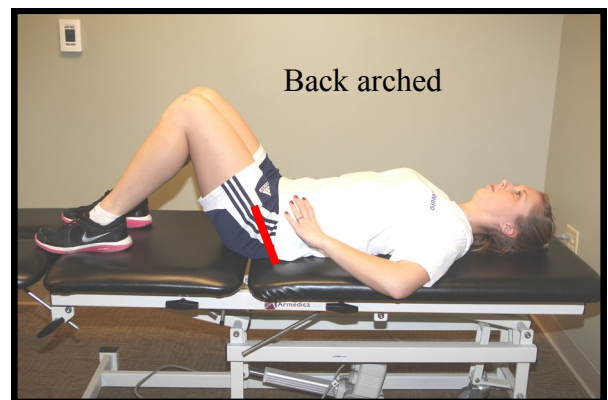
Combining these exercises with proper movement patterns and body mechanics must become a lifestyle change to avoid pain and aggravation of your condition. The key element is gaining control of the abdominal musculature and using it throughout your daily activities. Flexibility of the trunk and hips is also important and it is advised to follow the stretches in the packet rather than YOGA or other exercise classes that may not be safe for your condition.

Please consult your doctor for further information and take your packet to a physical therapist of your choice for instruction and modification.

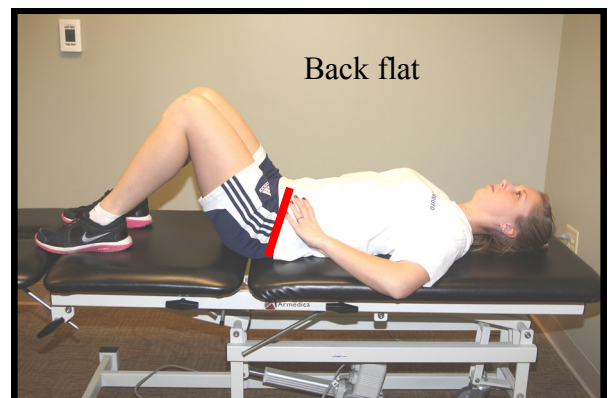
## Neutral Spine

You can develop and maintain a relaxed, neutral position of your spine while lying down. To find this neutral position practice the following exercise:

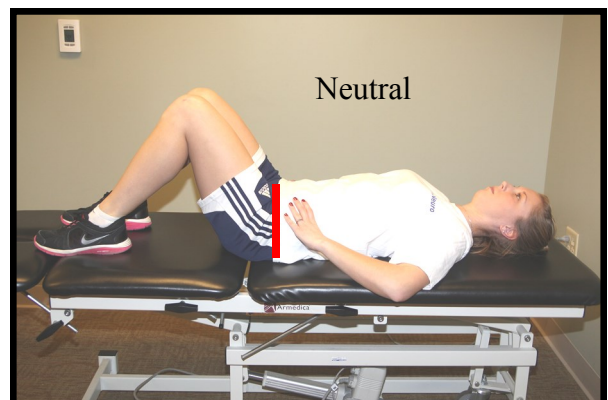
- Lie on your back on a firm, flat surface with your knees bent.
- Place your feet a comfortable distance apart.
- Rest your hands on your chest, hips or alongside your body.
- Arch your back slowly and lift your abdomen towards the ceiling.



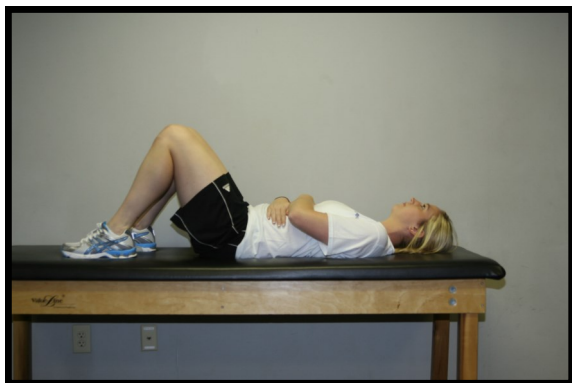
- Press your back flat into the floor.
- Slowly repeat these movements within your comfortable range of movement.



- Slowly move from the flattened position to find a relaxed, balance, comfortable position. This is the neutral position for your spine.



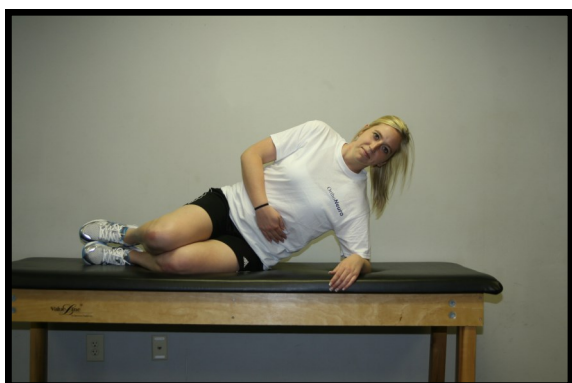
## Supine to Sitting Position



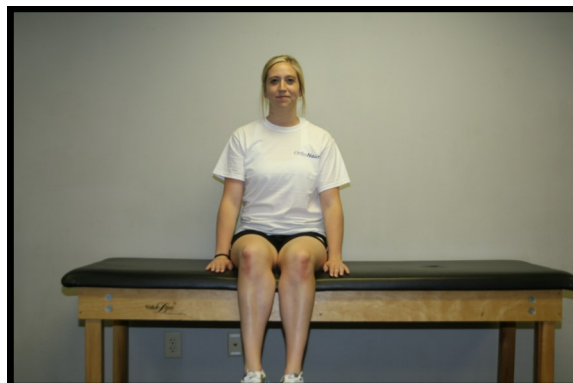
Starting Position



Roll to Side



1/2 Sit



Finished Position

From your back, roll to your side and use your arm to help push up.

Hold \_\_\_\_\_ Sets \_\_\_\_\_ Reps \_\_\_\_\_ Times/Day \_\_\_\_\_

## Abdominal Bracing and Supported Overhead Reach



Abdominal Bracing

Lay on your back. Breath in, squeeze the Foam roller, tighten your abdominals, while holding the contraction as you slowly exhale. Keep pelvis stable as you perform the exercise.

Hold 5 sec Sets 1

Reps 10 Times/Day 1



Supported Overhead Reach



From start position, squeeze a foam roller between your knees. Raise arms above your head while holding your core in a neutral position. Return arms to start position and relax knees.

Hold        Sets 1-3 Reps 10-15 Times/Day 1

## Supported Deadbugs - Level 1

While maintaining a tight core, perform the exercise as prescribed by your therapist 1 times/day.



Abdominal Bracing with Foam Roller

Squeeze knees, tighten abdominals, and slowly exhale.

Hold 5 sec Sets 1 Reps 10



Abdominal Bracing

Squeeze knees, tighten abdominals, and slowly exhale.

Hold 5 sec Sets 1 Reps 10



Foot Lift

Maintain neutral, tighten abdominal raise foot with bent knee. Alternate feet.

Hold — Sets 1-3 Reps 10-15



Alternate Leg Kicks

Maintain neutral, tighten abdominals, raise foot. Alternate feet.

Hold — Sets 1-3 Reps 10-15

## Supported Deadbugs - Level 1

While maintaining a tight core, perform the exercise as prescribed by your therapist 1 times/day.



Weighted Overhead Reach

Tighten abdominals, raise arms overhead and return.

Hold \_\_\_\_\_ Sets 1-3 Reps 10-15



Alternate Arm and Leg Raise

Maintain neutral. Lift opposite arm/leg. Repeat with opposite extremities.

Hold \_\_\_\_\_ Sets 1-3 Reps 10-15

## Double Knee Fallout



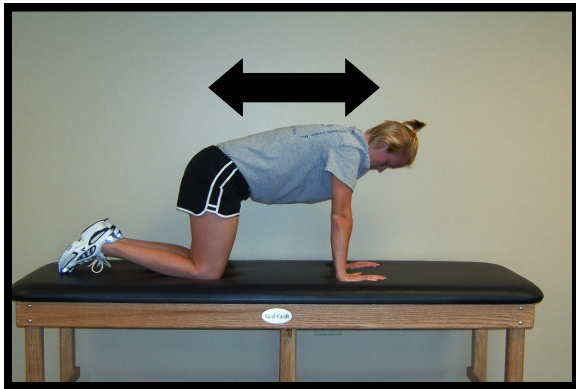
Lay on your back with knees bent  
and feet flat on the table/floor.



Keeping feet in the same position, let your  
knees “fall out” keeping your pelvis stable and  
the opposite leg in place.

Hold \_\_\_\_\_ Sets 1-3 Reps 10-15 Times/Day 1

## Quadruped Exercises



Weight Shifts

On hands and knees sway forward and backward while maintaining a neutral position with a flat back.



Arm Raise

Maintain neutral position, alternate arm raise.



Leg Raise

Maintain neutral position, alternate leg raise.



Opposite Arm/Leg Raise

Maintain neutral position, alternate opposite arm and leg raises.

Hold 5-10 sec Sets 1 Reps 10 Times/Day 1

## Double Leg Bridge



Start Position



Start Position with Band



Finish Position



Finish Position with Band

Tighten glutes and hamstrings then lift hips up keeping back straight.  
Keep tension on band by pushing knees apart while performing double leg bridge.

Hold        Sets 1-3 Reps 10-15 Times/Day 1

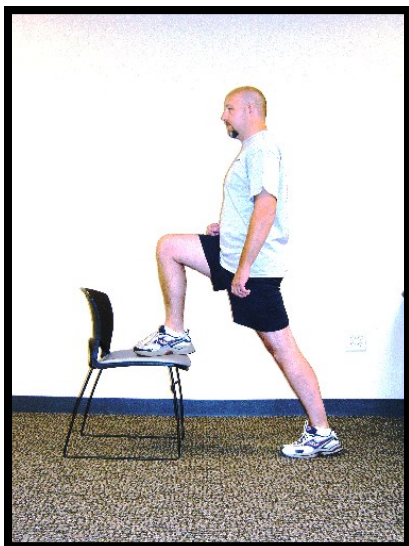
## Clams



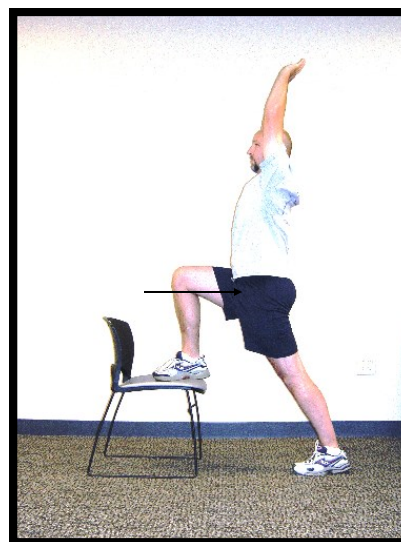
From the start position, lift your top knee while keeping your feet together.  
Maintain a neutral spine and hip position by not rolling backwards.

Hold \_\_\_\_\_ Sets 1-3 Reps 10-15 Times/Day 1

## Hip Flexor Stretch in Standing



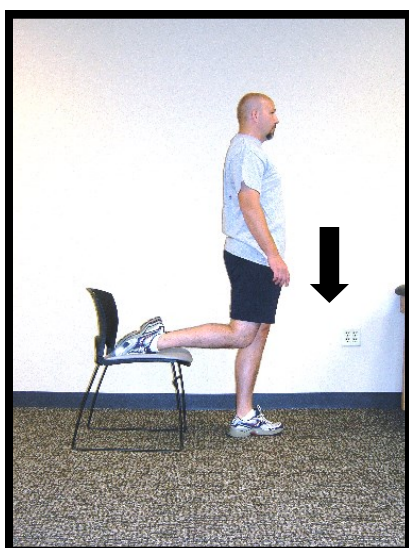
Start Position



Finish Position

Stretch **RIGHT/LEFT/BOTH** hip flexors as directed by your therapist. Lean into your leg on the chair. You should feel a comfortable stretch on the front of the leg that is straight.

Hold 15-30 sec Sets 1 Reps 3 Times/Day 1



Alternate Stretch

Stretch hip flexor by bending the leg on the ground until you feel a comfortable stretch in opposite hip.

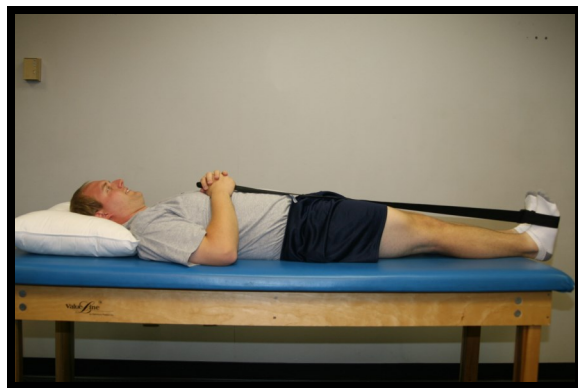
Hold 15-30 sec Sets 1

Reps 3 Times/Day 1

## Hamstring Stretch with Strap in Supine



Bent Knee Starting Position



Straight Knee Starting Position



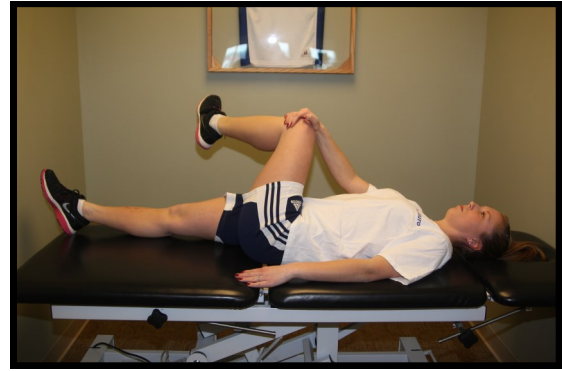
Wrap strap/towel around one foot/knee and pull upward. Keep your knee straight on the leg being stretched. You should feel a comfortable stretch on the back of your leg.

Hold 15-30 sec Sets 1 Reps 3 Times/Day 1

## Piriformis Stretches Level I



Bent Leg Piriformis Stretch  
above 90 degrees



Straight Leg Piriformis Stretch  
above 90 degrees.



Straight Leg Piriformis Stretch  
below 90 degrees

Grasp leg at the ankle and pull towards you. If you are unable to reach the ankle, grasp at knee as shown in the pictures above.

Stretch should be felt in the buttock region. Avoid over rotation of the spine.

Hold 15-30 sec Sets 1 Reps 3 Times/Day 1

## Hip Flexor Stretch Off Table



Start Position



Finish Position



Start Position



Finish Position

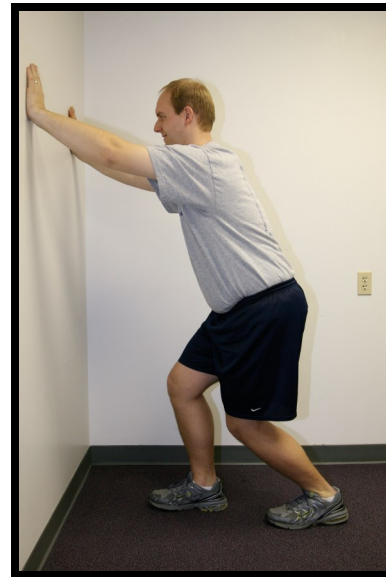
Start with both knees pulled into your chest. Slowly allow one leg to drop.  
Feel the stretch in the front of your lowered hip and thigh.

Hold \_\_\_\_\_ Sets \_\_\_\_\_ Reps \_\_\_\_\_ Times/Day \_\_\_\_\_

## Gastroc and Soleus Stretch



Gastroc Stretch



Soleus Stretch

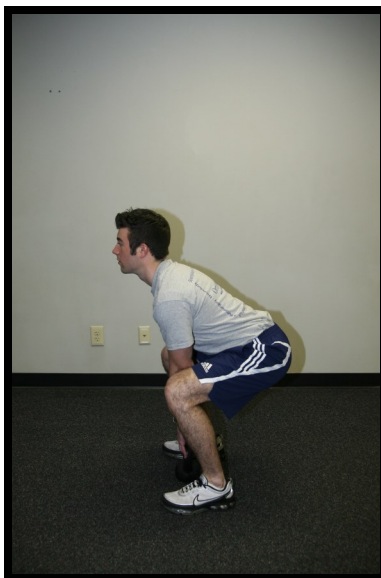
Stretch **RIGHT/LEFT/BOTH** calf/calves as directed by your therapist.

Hold 15-30 sec Sets 1 Reps 3 Times/Day 1

## Lift Technique



Start Position



Mid-Stance



Finish Position

Squat down by sitting back and keeping back flat. Grab the object to be lifted and lift with the legs by contracting the quads and gluts keeping the back flat the entire time. Push through your heels.

Hold \_\_\_\_\_ Sets \_\_\_\_\_ Reps \_\_\_\_\_ Times/Day \_\_\_\_\_

## Squat with Vertical Dowel Rod



Start Position



Finish Position

Squat down keeping back flat and chest forward. Maintain dowel contact with head, back and pelvis. Keep knees behind or in line with toes. If needed, you can face a chair and use that as a reference.

Hold \_\_\_\_\_ Sets \_\_\_\_\_ Reps \_\_\_\_\_ Times/Day \_\_\_\_\_

## Good Working Positions

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To understand the best way to set up a computer workstation, it is helpful to understand the concept of neutral body positioning. This is a comfortable working posture in which your joints are naturally aligned. Working with the body in a neutral position reduces stress and strain on the muscles, tendons, and skeletal system and reduces your risk of developing a musculoskeletal disorder (MSD). The following are important considerations when attempting to maintain neutral body postures while working at the computer workstation:



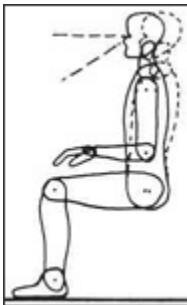
- **Hands, wrists, and forearms** are straight, in-line and roughly parallel to the floor.
- **Head** is level, or bent slightly forward, forward facing, and balanced. Generally it is in-line with the **torso**.
- **Shoulders** are relaxed and **upper arms** hang normally at the side of the body.
- **Elbows** stay in close to the body and are bent between 90 and 120 degrees.
- **Feet** are fully supported by the floor or a footrest may be used if the desk height is not adjustable.
- **Back** is fully supported with appropriate lumbar support when sitting vertical or leaning back slightly.
- **Thighs** and **hips** are supported by a well-padded seat and generally parallel to the floor.
- **Knees** are about the same height as the hips with the **feet** slightly forward.

Regardless of how good your working posture is, working in the same posture or sitting still for prolonged periods is not healthy. You should change your working position frequently throughout the day in the following ways:

- Make small adjustments to your chair or backrest.
- Stretch your fingers, hands, arms, and torso.
- Stand up and walk around for a few minutes periodically.

These four **reference postures** are examples of body posture changes that all provide neutral positioning for the body.

**Upright sitting posture.** The user's torso and neck are approximately vertical and in-line, the thighs are approximately horizontal, and the lower legs are vertical.

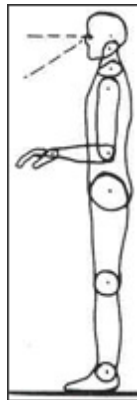


**Figure 1.**  
Upright sitting posture



**Figure 2.**  
The user's torso and neck are approximately vertical and in-line, the thighs are approximately horizontal, and the lower legs are vertical

**Standing posture.** The user's legs, torso, neck, and head are approximately in-line and vertical. The user may also elevate one foot on a rest while in this posture.

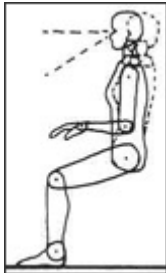


**Figure 3.**  
Standing posture



**Figure 4.**  
The user's legs, torso, neck, and head are approximately in-line and vertical

**Declined sitting posture.** The user's thighs are inclined with the buttocks higher than the knee and the angle between the thighs and the torso is greater than 90 degrees. The torso is vertical or slightly reclined and the legs are vertical.



**Figure 5.**  
**Declined sitting position**



**Figure 6.**  
The user's thighs are inclined with the buttocks higher than the knee and the angle between the thighs and the torso is greater than 90 degrees. The torso is vertical or slightly reclined and the legs are vertical

**Reclined sitting posture.** The user's torso and neck are straight and recline between 105 and 120 degrees from the thighs.



**Figure 7. Reclined sitting posture**



**Figure 8.**  
The user's torso and neck are straight and recline between 105 and 120 degrees from the thighs