

Rehab Following Lumbar Fusion

Recovery from a lumbar fusion requires a disciplined rehabilitation program.

Proper exercise selection and correct exercise technique can relieve pain and restore function.

The main goal of rehabilitation is to promote strength of the back and abdominal muscles to support your spine. All your exercises need to be done in the neutral position (see attached).

The exercise included in this packet are guidelines and should be started gradually and with supervision of your health care provider.

Lumbar Fusion

Includes the following:
PLIF : Posterior Lateral Interbody Fusion
ALIF : Anterior Lateral Interbody Fusion
Minimally Invasive Lumbar Fusion

2-3 Months Post-Op:

PRECAUTIONS:

- No lifting >10 lbs
- No spinal ROM upon evaluation
- No double knee to chest stretching for 6 months
- Be careful with treadmill if gait pattern is abnormal
- Contact physician if symptoms of pain or parasthesia in the leg worsens

TREATMENT:

- Pool exercises with neutral concepts
- Teach abdominal bracing
- Postural retraining
- Proprioceptive and balance training
 - Double leg toe raises
 - Single leg stance activities
- Review body mechanics
 - Sit to stand
 - Supine to sit
 - Overhead reach
 - Hip hinge squat
- Flexibility exercises
 - Hamstrings, hip flexors, hip adductors, hip external rotators, lattissimus, gastrocs and quads
- Neural mobilization
- Cardiovascular conditioning
 - Walking 2x per day, up to 1 mile
 - Stationary bike or elliptical requires adequate hip ROM
- Tens unit for pain management
- Discuss work options

3-4 Months Post-Op:

TREATMENT:

- Phase I dynamic lumbar stabilization exercises
 - Isometric abdominals
 - Foot lifts
 - Supported dead bugs
 - Curl ups and obliques
 - Prone gluts with pillow
 - Bridges
 - Quadruped arms and legs
 - Hip hinge squats
- Use pelvic clocks to teach neutral, NOT as an exercise
- Increase lifting capacity to 20 lbs depending on trunk strength
- Functional drills
 - Tubing DLS
 - Lunges
 - Step ups
 - UE and LE reaches
 - Balance board
- Watch body mechanics and neutral position with all activities

4-5 Months Post-Op:

TREATMENT:

- Phase II dynamic lumbar stabilization exercises
 - Unsupported dead bugs
 - Bridge marching
 - Stability ball activities
- Advance functional drills
- Increase lifting capacity to 30 lbs depending on trunk strength
- Circuit training
- Increase positional tolerances to sitting and standing

6 Months Post-Op:

PRECAUTIONS:

- No loaded forward bending and lifting
- No heavy weight equipment
 - No excessive lumbar flexion with seated leg press
 - No loaded squats
 - No rotary torso
 - No prone hamstring curls
 - No military press or bench press with spine in hyperextension
- Running is physician dependent
 - Should be at Level II squats and able to perform 20 single leg toe raises

6 Months Post-Op con't:

TREATMENT:

- May begin forward bending and double knee to chest to stretch
- Work Conditioning if returning to a medium or heavy job classification
- Vocational evaluation
- Functional Capacity Evaluation
- Home program established

DISCHARGE CRITERIA:

- Goals met with adequate fitness program and precautions established
- Demonstrate safe body mechanics to avoid re-injury
- Met maximum improvement with services

Abdominal Bracing and Supported Overhead Reach



Abdominal Bracing

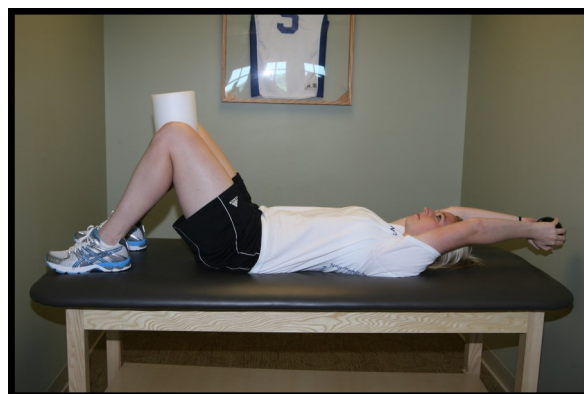
Lay on your back. Breath in, squeeze the Foam roller, tighten your abdominals, while holding the contraction as you slowly exhale. Keep pelvis stable as you perform the exercise.

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

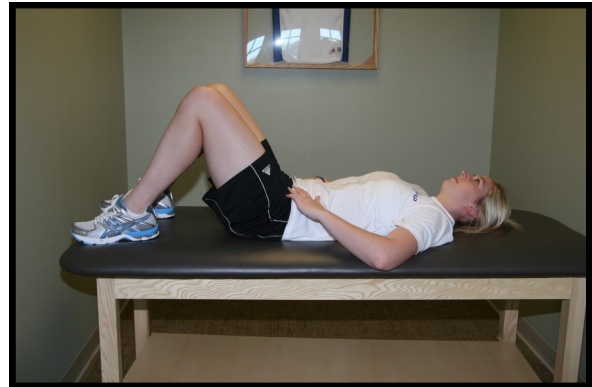
While maintaining a tight core, perform the exercise as prescribed by your therapist 1 times/day.



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

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

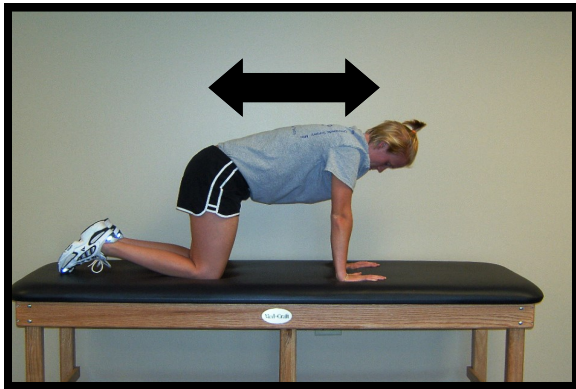
Clams



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

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

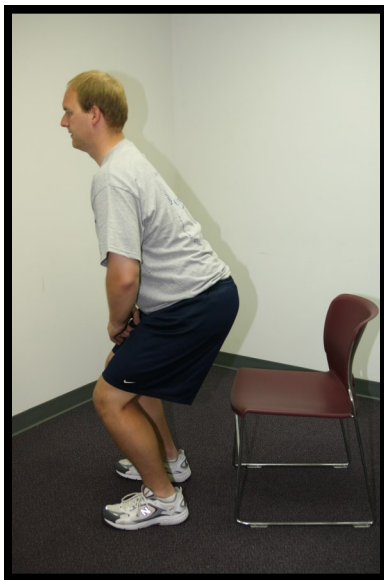
Maintain neutral position, alternate opposite arm and leg raises.

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

Sit to Stand



Start Position



Mid Stance Position



Standing Position

With feet shoulder width apart and weight evenly balanced, stand up while maintaining square hips and a flat back.

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

Heel and Toe Raises



Toe Raise Standing

Stand tall and maintain square hips and shoulders during exercise. Stand on the heels of your feet and raise toes up and then lower back down.

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



Heel Raise Standing

Stand tall and maintain square hips and shoulders during the exercise. Stand on the balls of your feet on the floor, raise up and then lower back down.

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



Toe Raise Sitting

Raise toes off the floor.

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



Heel Raise Sitting

Raise heels off the floor.

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

Balance Progression in Single Leg Stance



Single Leg - On Ground
Eyes Open



Single Leg - On Pillow
Eyes Open



Starting Position



Single Leg - On Ground
Eyes Closed



Single Leg - On Pillow
Eyes Closed

Hold 5-30 sec Sets 1 Reps 10 Times/Day 1

Single Knee to Chest



Single Leg

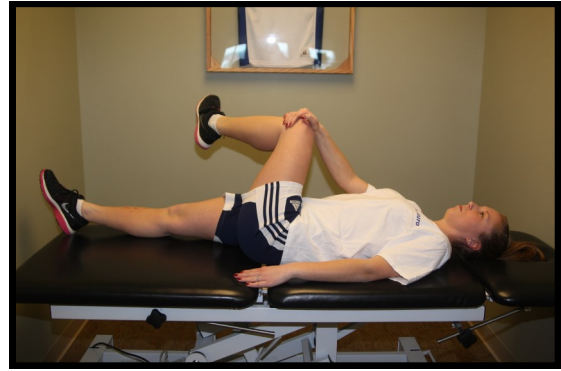
Pull one knee towards chest as prescribed by your therapist.

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.

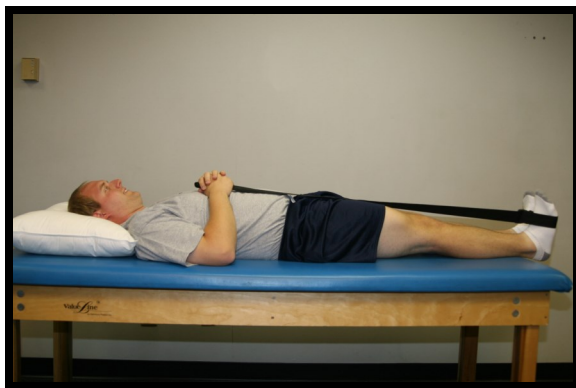
Stretch should be felt in the buttock region. Avoid over rotation of the spine.

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

Hamstring Stretch with Strap in Supine



Bent Knee Starting Position



Straight Knee Starting Position



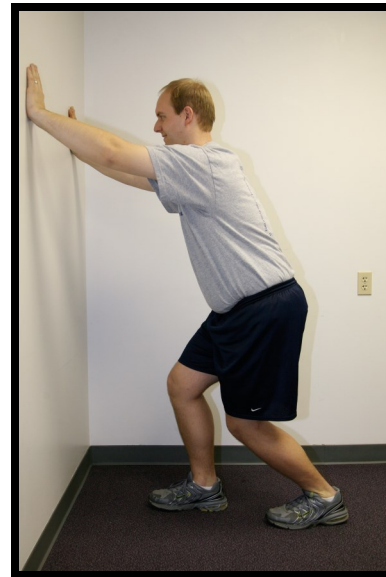
Wrap strap/towel around one foot/knee and pull upward. Keep your knee straight on the leg being stretched. You should feel a comfortable stretch on the back of your leg.

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

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

Good Working Positions

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.

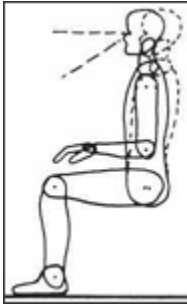


Figure 1.
Upright sitting posture



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.

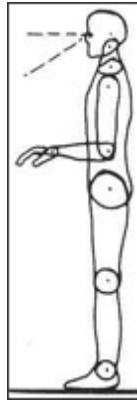


Figure 3.
Standing posture



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.

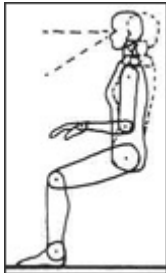


Figure 5.
Declined sitting position



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