Ortho Bethesda
PHYSICAL THERAPY

THE CAMALIER BUILDING, SUITE 303 • 10215 FERNWOOD ROAD • BETHESDA, MD 20817 • TEL (240) 482-2438 • FAX (301) 530-3030

Protocol for Lumbar Fusion Surgeries

This should be divided into 3 phases primarily based on the post-surgical time frames. However, if patient cannot demonstrate tolerance to, or correct completion of program progression, phases may be prolonged as necessary. Please note that this protocol should not serve as a substitute for clinical judgement. Therapists should take into consideration additional factors, such as patient age, prior functional status, as well as concurrent health conditions when implementing this rehabilitation program. Initiation of outpatient physical therapy will be determined by surgeon on a case by case basis.

PHASE 1

Rehabilitation Goals for 1-6 weeks:

1. Be sure patient knows home exercise (mostly isometric) and beginning muscle recruitment for stabilization and postural support.
2. Increase lower extremity function; work on restoration of any losses, mostly with walking and calf pumping.
3. Remind patient to continue to observe precautions as instructed below.
4. Reinforce use of corset or brace if patient has been instructed to use one. Re-evaluate effectiveness of brace.
5. Initiate home walking program, trying to increase distance to one to two miles if appropriate by six week checkup with the surgeon.
6. Determine mechanical means of pain control for the patient using physical agents, positioning, support, or peripheral movements, as needed.
7. Release soft tissue restrictions/muscle spasms. Soft tissue mobilizations appropriate during this initial phase, once incisional areas are fully healed.
8. Reinforce proper posture and body mechanics for all activities of daily living (ADLs). Prepare to wean from brace after 6 weeks, if brace has been used. Ensure that patient can correctly complete log roll with positional changes.

   Precautions:
   No lifting greater than 15 pounds until cleared by surgeon (usually by 4-6 weeks s/p procedure).
   No bending, or twisting of Lumbar spine.
   Avoid prone lying.
   No sudden, jerky spinal motions.
   No high impact activity.

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Rehabilitation Program, 1-6 weeks

- Exercises appropriate for this phase include:
    a. Heel slides
    b. Calf pumping
    c. Isometric abdominals. Progress spine stabilization through fully supported exercise to upright exercise and then involve balance. Emphasize correct muscle recruitment. Transverse abdominus (Tra), and multifidi should be primary areas of focus during this initial phase. Position of training these muscles is dependent on patient tolerance, and therapist discretion.
    d. Upper body theraband exercises in supine, for more advanced patients.
    e. Isometric seated hip abduction and adduction.
    f. Glute sets.
    g. Bent knee fall out stabilization in hook lying.
    h. Wall assisted squats to progress sitting-standing, and standing-sitting.
    i. Lower extremity neural glides to prevent dural scarring; exercise caution to avoid inflaming neural tissue.
    j. Gentle gastroc-hamstring stretches are appropriate, but monitor for neural symptoms.
    k. Walking (no bike).
    l. Gentle stretches for hip musculature to optimize function with activities of daily living while maintaining neutral lumbar spine position.

Promote neutral spine with all therapeutic exercises.
**If patient cannot complete these correctly, they should not be performed independently.

- Review of all precautions. Reinforce lifting limit.
- Continue to emphasize basic stabilization exercises, emphasizing abdominal bracing and maintaining neutral spine. Use fully supported positions until patient shows good control and has minimal symptoms during exercise.
- Encourage walking, repeated hip hinge in a small range with strict attention to neutral spine, and slow sit downs to help functional leg strength.
- Reinforce use of brace if required. If brace is optional, reassess patient's capability to do functional activities without pain with and without the brace. Start to wean the patient from the brace as pain-free function improves.
- Have patient record walking times or distances each day, starting with 10 minutes, or less, 1-2 times per day, progressing tolerance to 30 minutes. Set distance, time, or step goals for 6 weeks post-surgery.
- Review pain control strategies each visit. Incorporate with self-help care.

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- Work on specific stretching and soft tissue/joint mobilization to maximize function in adjacent areas, such as thoracic spine, hips, and pelvis. Gentle thoracic spine mobilizations may be performed (if no contraindications for mobilizations) while maintaining neutral lumbar spine position.

PHASE 2
Rehabilitation goals for 6-12 weeks:

1. Continue spine stabilization exercises.
2. Progress aerobic program in intensity and/or duration in improve aerobic level and achieve at least three miles/day walking distance by twelve weeks if appropriate, based on prior level of function.
3. Continue release of soft tissue restrictions/muscle spasms using manual therapy if appropriate.
4. Include motor control considerations in the treatment program. Integrate coordination and quality of movement in the exercise. Test and train balance as part of the program.
5. Instruct in proper body mechanics and postures for patient's ADLs.
6. Continue with neural mobilization and attention to lower extremity flexibility.
7. Once 10-15 pound lifting restriction has been lifted during follow up visit with surgeon, gradual increments in resistance are appropriate during exercise program, and daily activity.
8. Continue work on specific stretching and soft tissue/joint mobilization to maximize function in adjacent areas from fusion site, such as thoracic spine, hips, and pelvis. Gentle thoracic spine mobilizations may be performed (if no contraindications for mobilizations) while maintaining neutral lumbar spine position.

Precautions:
Patients should seek clearance from surgeon for lifting greater than 15 pounds if daily function of patient requires them to do so. Most limitations will be determined on individual basis based on patient age, and prior functional status.
No bending, or twisting of Lumbar spine.
Avoid prone lying.
No high impact activity.

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Rehabilitation program for 6-12 weeks

Exercises appropriate for this phase include:

A. Continue with previously mentioned phase 1 exercises as appropriate.
B. Static sitting with narrow base of support, begin with eyes open, progress to eyes closed. This may be progressed to performing on physio ball.
C. Mini squats.
D. Theraband rows.
E. Continued lower extremity stretches: Hamstring, quads, gastroc, soleus, and hip flexors. Gentle stretches for hip musculature to activities of daily living while maintaining neutral lumbar spine position.
F. Introduce single leg standing balance, progress to static standing with arm movements. Introduce pertubations as appropriate.
G. Stationary bike, recumbent or stationary.

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PHASE 3

Rehabilitation Goals for 12-18 weeks following surgery, or through next six weeks of therapy. Some patients may also require more than 6 weeks at the previous stage.) Patients may be discharged during, or towards the conclusion of this phase once they can demonstrate independence with home exercise program, and appropriate activity modifications. While spinal motions may begin at this stage, it is important to educate patients on expected long term spinal motion limitations based on patient age, and prior functional status to minimize risk of future injury.

1. Continue to maximize soft tissue function and mobility.
2. Seek continued improvement in muscle balance through the lower quarter, and minimize or eliminate radiating symptoms.
3. Restore needed lifting and strength capacity for return to work or work hardening if needed, based on physician recommendations.
4. Maximize trunk strength and capability to isolate abdominals, back extensors, and hip musculature (for dynamic spine stabilization).
5. Continue to reinforce body mechanics and maintaining neutral spine throughout all conditioning exercise.
6.

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7. Recreational activities that may be resumed after this phase include: hiking, swimming, outdoor biking, and pilates. Patients should consult with their surgeon regarding return to higher level activities for their specific case.

Rehabilitation Program, 12-18 weeks

- Continue to work on specific stretching and soft tissue/joint mobilization to maximize function in adjacent areas, such as thoracic spine, hips, and pelvis.
  Continue spine stabilization exercise, emphasis on neutral spine, upright posture and balance/coordination challenges.
- Progress lifting with a high repetition low weight increase regimen. Our recommendation is 15-20 reps with proper form before increasing weight, in 3-5 pound increments.
- Continue progress with cardiovascular conditioning.
- Follow with FCE and work hardening, if needed.
- After week 12, (at the earliest), re-introduce Lumbar flexion of adjacent segments. This should begin in supine position. Once patient can complete repeated Lumbar flexion without a reported increase in pain, or radiating symptoms for a week, it may be progressed
- to seated position. The same time frame should be followed before progression to standing trunk motions.
- If appropriate for specific case, gradual re-introduction of spinal extension to adjacent segments is appropriate.
- Appropriate exercises during this phase include:
  A. Continue with previously mentioned phase 1 and 2 exercises as appropriate.
  B. Bridges
  C. Quadruped hip extension
  D. Side lying abduction
  E. Modified Planks
  F. Side bridges
  G. Weighted upper extremity elevation exercises.

Promote neutral spine with all therapeutic exercises with exception of re-introduction of spinal motions as stated above.
**If patient cannot complete these correctly, they should not be performed independently.

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