MOUNTAIN
ORTHOPAEDICS

SPINAL SURGERY
REHABILITATION PROTOCOL

LUMBAR SPINE

- When developing a postoperative Physical therapy plan, pathoanatomic abnormalities, surgical procedure, and patient's psycho-physical state should be considered. However, here are some general rehabilitation guidelines with regards to activity and patient education:

MICRODISCECTOMY/ DECOMPRESSION

Weeks 0-2:

- Decrease inflammation, encourage wound healing and monitor for signs of possible infection
- Initiate daily walking routine on even surface; start with short walks (5-7min), 2-3x per day at a comfortable pace
- Initiate Glut and Quad sets, ankle pumps, light abdominal bracing instructed by a PT
- Educate on how to assume and maintain neutral spine position during static (sitting) and dynamic (walking) activities.
- Bed mobility: Teach proper bed mobility, positioning with pillows under/between legs, and transfers (log roll)
- AVOID prolonged sitting and car rides to minimize intradiscal pressure; Use lumbar roll when sitting; Educate on proper sitting ergonomics in the car; Consult with doctor before you start with independent driving.
- AVOID Bending, Lifting, Twisting (BLT)!

Postoperative pain control (modalities, medication, controlled activity) is crucial for successful progression of the rehabilitation process.

- GOALS:
  - Pain control in all positions;
  - Proper mechanics with ADLs/ANLs

Weeks 2-6:

- Body Mechanics training and Postural Exercises; It should include training about appropriate body mechanics for bending, lifting, bed transfers, body hygiene (i.e. brushing teeth)
- Limit lifting 10-15 lbs with proper lifting mechanics
- Passive stretching (HS, Quads, hip/pelvic musculature)
- Neural Mobilization (sciatic and femoral nerve), including as part of HEP
- Pelvic and Core neuromuscular re-education and stabilization progression (static dynamic)
- Progress low impact aerobic conditioning (walking, recumbent bike) up to 30 min/day
- Low impact functional activity is encouraged and should be progressed as tolerated.
- Initiate Aquatics if available and indicated

- GOALS:
  - Walking up to 1 mile/day
  - Pain control

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Week 6+:
- Advanced core and pelvic girdle stabilization (multi-plane stabilization)
- Activity specific training and conditioning; Work hardening activity (i.e. lifting and bending mechanics, squatting)
- Coordination and proprioceptive re-training to improve static and dynamic balance of the core and extremities
- Advanced aerobic conditioning (Elliptical Machine)
- Gradually resume with all ADLs/ANLs, guided by pain
- FCE / Return to work program if indicated

- GOALS:
  - Walking up to 2 miles/day
  - Able to lift up to 20lbs with proper mechanics
  - Pain-free ADLs/ANLs

LUMBAR FUSION

0-3 Months:
- Decrease inflammation, encourage wound healing and monitor for signs of possible infection
- Bed mobility: teach proper bed mobility, positioning side-lying and supine with pillows, and bed transfers (log roll)
- Initiate deep breathing exercises and ankle pumps/glut/quad sets to help with circulation
- Sit at 30-minute intervals throughout the day, including meals; Avoid prolonged sitting/car rides
- Ambulation progression as tolerated; initially with assistive device if needed to normalize gait and postural mechanics
- AVOID Bending/Lifting/Twisting (BLT)!

- GOALS:
  - Pain control
  - Short walks/cycling but avoiding as much lumbar and lumbopelvic motion as possible, 5-10 minutes 2-3 times per day
  - In the first 3 months, we're purposefully avoiding any type of core stabilization (including isometrics) in order to prevent any excessive pulling on the fusion site and therefore promote proper healing
  - from bone to bone. (good bone healing takes about 12 weeks)

3 months +:
- After a follow up with the surgeon, formal PT may be initiated.
- Gradually progress core and pelvic girdle stabilization
- Focus on pelvic, hip, and lower quadrant flexibility (HS, piriformis, gluteals, hip flexors)
- Thoracic spine mobilization (manual joint mobilization and passive stretching)
- Progress low impact aerobic conditioning (walking, recumbent bike)
- Consider aquatic therapy with intent to become an independent maintenance program

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- GOALS:
  - Walking up to 2 mi/day
  - Bending, Lifting, Twisting as tolerated without pain.
  - Goal is to slowly and gently return to full pre-surgical activity by 6 months.

CERVICAL SPINE
Anterior Cervical Discectomy/Decompression and Fusion (ACDF)
Consider the following guidelines after anterior cervical spine fusion:

0-6 weeks:
- Decrease inflammation, encourage wound healing and monitor for signs of possible infection
- Low impact aerobics reconditioning (walking, stationary bike)
- Initiate neural gliding (median, ulnar, radial nerve)
- Shoulder shrug, rowing type exercises are encouraged to help with feeling of tightness in posterior cervical area.
- No need to restrict lifting and carrying much.
- Avoid any significant cervical ROM and stretching until 6 weeks or when cleared by MD (ADLs are generally ok)

- GOALS:
  - Return to most daily activities and non-hard-hat work and avoid excessive guarding.
  - Most patients can return to an office job right away and can resume most ADLs without restriction when comfortable.

6 weeks +:
- Gentle active cervical ROM, avoiding end range stretch (less than 50% of pre-operative range
- Address potential hypomobility in T/S and Cervico-thoracic junction
- Soft tissue mobilization, stretching, and taping as indicated to help with muscle spasm and guarding sometric neuromuscular re-education for deep neck flexors (start in gravity-eliminated position);
- Progress periscapular, thoracic, and core stabilization exercises
- Low impact aerobics reconditioning (walking, stationary bike)
- Educate on proper lifting mechanics, ergonomics/work station set up
- No contact sports until 12 weeks.
- Advance to regular activities from 6-12 weeks.

POSTERIOR CERVICAL FUSION WITH OR WITHOUT DECOMPRESSION
- Often much of the posterior musculature at the cervicothoracic junction is taken down and repaired in surgery, so it is paramount to avoid activation of the periscapular muscles for 8-12 weeks.
- Otherwise spreading of these muscles is worsened and a very unsightly appearance of the posterior neck occurs (spinous processes stick out significantly)
- Posterior cervical procedures are much more painful than anterior procedures. Generally, patients will be much slower to recover and return to activity.

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0-8 weeks:
- Decrease inflammation, encourage wound healing and monitor for signs of possible infection
- Low impact aerobics reconditioning (walking, stationary bike)
- Initiate neural gliding (median, ulnar, radial nerves). Care with push/pull as above.

8-10 weeks:
- May begin gentle shoulder shrug exercises and pushing exercises.
- May begin gentle flexion, extension exercises of neck.
- Avoid rowing/pulling exercises.
- Continue low impact cardio exercises.

10-12 weeks:
- Slowly add rowing/pulling exercises to regimen.
- May advance neck range of motion exercises keeping in mind that if this is a fusion, the loss of range is permanent and pushing past the endpoint will cause pain but not produce more motion (fusion = permanent sacrifice of motion)
- Advance low impact cardiovascular program as able.

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