

CERVICAL ANTERIOR FUSION

POST-OPERATIVE REHABILITATION PROTOCOL

- No driving while on narcotics
- NSAIDs are okay 3 months after surgery
- +/- C-Collar per surgeon order based on history of osteoporosis, poor bone quality noted during surgery or smoker, and extent of surgery
- Initiate PT 4-6 weeks status-post surgery
- No scar mobilization until closure (approximately 6-8 weeks)
- Sedentary occupation- return 4-6 weeks post-op
- Heavy labor occupation- restricted activity between 4-16 weeks post-op
- May initiate jogging/running after 3 months
- Progress as appropriate

Phase 1 (POD 1 - 6 weeks post-op)

Goals:

- Wound healing (<10 lb lifting limit, +/-C spine collar as ordered)
- Performing ADLs correctly
 - Don/doff shoes, correctly picking items off ground, etc
- Sitting no greater than 30 minutes at a time
- Appropriate sitting posture- suggest using a lumbar roll and cervical/thoracic retracted positioning
- Walking program (30 minutes per day)
- Correct usage of assistive device as indicated

Phase 2 (4-6 weeks post-op)

- Begin regimented PT program (2-3x/week) for recommended 6-8 weeks (12-24 visits)
 - NDI at initial evaluation
 - Education on precautions, prognosis

Goals:

- Pain control (modalities, soft tissue mobilization as needed)
- Wound healing (<10 lb lifting limit, C collar may be discontinued between 6-12 weeks post-op)
- Improve endurance
 - Maintain erect posture throughout the day
 - Encourage position changes, limit sitting to 30 minutes
 - Appropriate body mechanics with ADLs (<10 lb weight limit)
 - Re-establish neuromuscular control of cervical and scapulothoracic muscle stabilizers
 - Continue progressive walking program and progress towards discharging assistive device

Suggested Interventions:

- Ambulation/endurance - Progress toward discontinuing assistive devices
- Initiate aerobic conditioning
 - UBE no resistance/treadmill/recumbent bike

- Cervical/Upper Extremity/Core conditioning
 - Gentle cervical retractions
 - Scapular retractions
 - Biceps/triceps/shoulder ER/IR/Flex/EXT
 - Fine motor function with hands
 - Core: tra/multifidi/glute med/max isometrics
- Flexibility, mobility
 - Soft tissue mobilization for hypertonic paraspinal muscles
 - Encourage movement
 - Avoid sitting for prolonged periods of time (30-45 mins)
- Balance, posture, gait training
 - Heels together, semi-tandem, tandem, SL stance with eyes open/closed
 - Functional activities
 - Functional movements
 - Bend with knees to reach towards floor
 - Lift close to body

- Control pain, inflammation
 - Grade I-II joint mobilizations above/below surgical site for pain
 - Ice/modalities for pain/inflammation
- Facilitate healing of incision (watch for redness, drainage, swelling, etc)

Avoid:

- Lifting, push/pulling (yardwork, chores) >20 lbs up to 3 months post-op
- End range cervical stretching/movements
- Overhead lifting

Other Considerations/Precautions:

- Consult doctor for return to driving, returning to work
 - Return to work may be shorter for sedentary jobs
- Sitting
 - No longer than 30-45 mins
 - Good work/home ergonomics
- Avoid lotion/cream, submerging incision underwater until fully healed

Phase 3 (6 weeks - 3 months post-op)

Goals:

- Achieve functional shoulder AROM (avoid overhead reaching until 8 weeks)
- Improve UE strength (<20 lbs through 12 weeks)
- Gentle cervical AROM until 3 months
- Demonstrate proper posture, ergonomics and work simulation
- Continue progressive walking program

Suggested Interventions:

- Progress strength, endurance
 - Aerobic conditioning
 - UBE, treadmill, upright/recumbent bicycle, progress towards discharging assistive devices for patients healing from severe myelopathy
- Muscle conditioning of cervical and scapulothoracic spine
 - Gentle cervical mobility
 - Cervical isometrics in neutral
 - Shoulder shrugs, scapular clocks
 - Incorporate resistance bands/light weights/pulley system including in standing/sidelying including: mid back rows, lat pull downs, high rows, PNF D1/D2 pattern, shoulder ER/IR, shoulder ADD/ABD
 - Dynamic core co-contraction conditioning (2-3_x_x_1_0_ → 1_5_ → 2_0_)
 - Hooklying pelvic neutral (hip at 90°): marches → SL heel slide → leg lift c knee ext., dead bugs
 - Sitting or standing pelvic neutral: alt. UE → marching → marching c alt. UE
 - Bridges with postural cuing
 - Quadruped progression
- LE strengthening with neutral spine (progress with resistance band, 2-3 x 10 → 15 → 20)
 - Stability ball wall squats
 - Standing steam boats
 - Side stepping
 - Lunges (forward, lateral, posterior)
- Mobility/flexibility
 - BUE pectoralis major/minor stretching (supine/standing)

- Balance
 - DL → DL, EO → EC, no UE movement, stable → unstable surface, dynamic movements
- Initiate simulated work activities
- + / - pool therapy based upon wound healing
- Pain modulation - Grade I-II joint mobilizations above/below surgical site
- Ice/modalities as needed for pain management

Avoid:

- Lifting >20 lbs up to 2 months post-op
- Cervical AROM exercises or prone exercises
- Avoid running/jumping/high intensity activities/weightlifting riding for 3 months

Phase 4 (3-6 months post-op)

- Return to baseline standing/walking duration and distance
- Discharge cervical collar
- Increase weight limit by 5 lbs every other week as tolerable
- May begin overhead activities (progress slowly)
- May initiate elliptical training
- Hold run/jog/horseback riding/contact sports until 6 months
- Independence with home exercise program
- NDI at discharge

Goals:

- Proper sitting/standing posture
- Minimal to no pain with all or most activities
- Return to work/prior level of function or greater

- Within normal limits of cervical AROM and shoulder AROM
- Independent with home exercise program
- Achieve MCID on the Neck Disability Index outcome measure questionnaire

Suggested Interventions:

- Muscle endurance of cervical and scapulothoracic stabilizers
 - UBE (fwd/retro standing), standing cervical retractions, prone off end of table cervical retractions, prone superman's, prone on stability ball Y, T, W, push up plus, rhythmic stabilization training (Thera band/body blade) and medicine ball wall circles.
- Trunk and LE strengthening 2-4 sets x 10 → 15 → 20 repetitions
 - Stabilization exercises
 - Bridges
 - Planks
 - Upward/downward chops (cable column)
 - Walkouts/rollouts on stability ball
 - Cable column resistance walking (close to body → away from body or OH)
 - Loaded carries (farmers walks, 90/90 bottoms up, kettle-bell carries)
 - Paloff Press
 - LE conditioning/balance with neutral spine 2-4 sets x 10 → 15 → 20 repetitions with progressive resistance or on unstable surface
 - Squats (Double leg → Single leg)
 - Lateral band walks, lateral walks with shoulder abduction
 - Lunges with military press

Phase 4 (6+ months post-op)

- Return to baseline function
- Be consistent with a home exercise program
- May initiate jogging/running/horseback riding
- May progress core stabilization to forward/side planking/dead lifting
- May return to taking NSAIDs

Recommendations for return to work based on physical demand:

Work Type:

Sedentary (<10lbs) or
Light (frequently 10lbs)

Return to Work:

- Within 6-12 weeks

Moderate (frequently
20lbs, occasionally
50lbs)

- 1-6 weeks restrictive duty (less than 10 lbs)
- 8-12 weeks restricted to less than 20 lbs and no overhead lifting
- 12-24 weeks, return to moderate to full duties progressing 5 lbs every other week from 20 lbs starting week 12

Heavy (frequently
50lbs, occasionally
100lbs)

- 1-8 weeks, patient may return to light duty if available – no lifting >10 lbs the first 6 weeks and no greater than 20 lbs up until 8 weeks – no overhead reaching
- 8-12 weeks no overhead lifting and less than 20 lbs lifting restriction
- Between 12-24 weeks, return to moderate to full duties – start at 20 lbs and progress 5 lbs every other week

Return to Sport Guidelines (discuss with Dr. Krob if any concerns exist):

Activity	No earlier than	Activity	No earlier than
<i>Walking Progression</i>	<i>At least 30 minutes per day</i>	<i>Skiing</i>	<i>12-16 weeks</i>
<i>Stationary Bike</i>	<i>Gradual increase in resistance over 4 weeks</i>	<i>Yoga</i>	<i>12-16 weeks</i>
<i>Hiking</i>	<i>6 weeks</i>	<i>Swimming</i>	<i>6 weeks (incision entirely healed)</i>
<i>Outdoor Biking</i>	<i>8 weeks</i>	<i>Running</i>	<i>12-16 weeks</i>
<i>Pilates (neutral spine)</i>	<i>8 weeks</i>	<i>Golf</i>	<i>12-16 weeks</i>
<i>Elliptical</i>	<i>8 weeks</i>	<i>Soccer/Basketball/Contact sports</i>	<i>16 weeks (Contact sports clear with Dr. Krob)</i>

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