

## ACDF/Laminectomy/Disc Replacement Protocol

### Phase 1: Initial evaluation (PT to Begin At 6 Weeks Post-op)

<b>Rehabilitation Goals</b>	<ul style="list-style-type: none"> <li>Educate patient on physical therapy and expectations of recovery</li> <li>Pain/surgical sequelae management via passive and active modalities</li> <li>Protect surgical site, promote bone healing and cervical AROM within tolerance</li> <li>Discharge of any collar/brace unless instructed otherwise</li> <li>Maintain UE, periscapular and thoracic mobility</li> <li>Initiate walking program if not done so already</li> </ul>
<b>Precautions*</b>	<ul style="list-style-type: none"> <li><b>No cervical PROM/stretching with OP</b></li> </ul>
<b>Interventions</b>	<p><b>Edu:</b></p> <ul style="list-style-type: none"> <li>Gradual reintroduction of lifting/functional activities (10# initially, progress slowly), return to driving if narcotics d/c</li> <li>Scar management with gentle mobilization, may benefit of scar care lotion</li> </ul> <p><b>Modalities:</b> heat prior to PT, ice after PT, TENS/IFC (if needed)</p> <p><b>Manual Therapy:</b></p> <ul style="list-style-type: none"> <li>STM peripheral cervical, thoracic and upper quarter tissues per need</li> <li>Thoracic GRI-II joint mobilizations, scapular mobilizations</li> <li>Scar mobilization</li> </ul> <p><b>Therex:</b></p> <ul style="list-style-type: none"> <li>PROM- of shoulder if necessary</li> <li>Cervical AROM: all planes of cervical spine within tolerance, avoid end range/discomfort.</li> <li>Cervical Isometric: gentle submaximal 2 finger isometrics in all planes</li> <li>Peripheral mobility:             <ul style="list-style-type: none"> <li>Scapular elevation/depression, retraction/protraction, rolls forward/backward</li> <li>Thoracic mobility: chair flx/ext, rot</li> <li>Upper quarter: pec stretch, lat stretch, wall slide flx/abd, post capsule stretch, IR stretch</li> <li>Elbow/wrist: elbow and wrist flx/ext/pro/sup</li> </ul> </li> </ul>
<b>Red/Yellow flags</b>	<ul style="list-style-type: none"> <li>Incision: s/s of infection/cellulitis</li> <li>Pain: normal to have pain but should be improving and should not be excessive at this time</li> <li>Neurological: some symptoms may persist and new symptoms may arise due to post-op swelling. Symptoms should not be worsening significantly. Monitor for myelopathic symptoms.</li> <li>ROM: excessive loss</li> <li>Fear avoidance behavior</li> </ul>

### Phase 2: weeks 6–12

<b>Rehabilitation Goals</b>	<ul style="list-style-type: none"> <li>Continue protecting surgical site</li> <li>Progress strength and mobility exercises</li> <li>Improve functional tolerance</li> <li>Edu on proper postural control/ergonomics</li> </ul>
<b>Precautions</b>	<ul style="list-style-type: none"> <li>In the older population and in multilevel fusions, avoid PROM for 12-weeks</li> <li>Avoid excessive lifting/carrying (gradually increase from 10# restriction in phase 1)</li> <li>No impact activities until 12-weeks</li> </ul>
<b>Interventions</b>	<p>Modalities and Manual therapy: Continue as necessary, should be discontinued by end of this phase</p> <p>Activity progressions:</p> <p><b>Mobility:</b></p> <ul style="list-style-type: none"> <li>PROM/stretching cervical spine in single level/younger population</li> <li>Supine cervical rotation, SL open book, foam roller thoracic and upper quarter mobility</li> <li>Self STM with foam roller/tennis ball/lacrosse ball/peanut</li> </ul>

### Phase 2: weeks 6–12 (continued)

<p><b>Interventions</b></p>	<p><b>Mobility:</b></p> <ul style="list-style-type: none"> <li>• PROM/stretching cervical spine in single level/younger population</li> <li>• Supine cervical rotation, SL open book, foam roller thoracic and upper quarter mobility</li> <li>• Self STM with foam roller/tennis ball/lacrosse ball/peanut</li> </ul> <p><b>Progressive loading:</b></p> <ul style="list-style-type: none"> <li>• Chin tuck: pillow &gt; towel under neck &gt; unsupported &gt; w/head lift (~8 weeks) &gt; w/rot</li> <li>• Retraction: seated &gt; w/resistance &gt; w/rotation &gt; quadruped &gt; w/resistance&gt;w/rotation</li> <li>• Prone: hip ext UL/BL, shoulder ext &gt; abd &gt; W &gt; Y, thoracic ext &gt; on ball Is/Ts/Ws/Ys</li> <li>• Weight bearing (~8 weeks): Quadruped &gt; modified plank &gt; high/low plank &gt; side plank &gt; wall push up &gt; table push up &gt; full</li> <li>• Band/cable/dumbbell resisted exercises to shoulder height</li> </ul> <p><b>Functional resistance training</b> (lifting/carrying/pushing/pulling/overhead activities) as patient approaches 8-10 weeks post-op</p> <p><b>Balance/proprioceptive training</b></p> <p><b>Cardiovascular trainin:</b> Bike, TM, Elliptical</p>
<p><b>Progression Criteria</b></p>	<ul style="list-style-type: none"> <li>• Adequate tolerance to activity progressions made</li> <li>• Min pain/limitations with functional activities/PT interventions</li> </ul>

### Phase 3: (12+ weeks)

<p><b>Rehabilitation Goals</b></p>	<ul style="list-style-type: none"> <li>• Continue to progress axial/UE loading</li> <li>• Introduce PROM if not already done so</li> <li>• Introduce impact activities if needed</li> <li>• Work hardening if necessary</li> <li>• Return to PLOF</li> </ul>
<p><b>Interventions</b></p>	<p><b>Activity progressions:</b></p> <ul style="list-style-type: none"> <li>• Return to work, non-contact sporting activities and higher-level activities including swimming, jogging, agility and racket sports             <ul style="list-style-type: none"> <li>• See interval return to sport protocols</li> </ul> </li> <li>• No contact sports until 12+ months</li> <li>• Lifting/carrying progressions:             <ul style="list-style-type: none"> <li>• Hip hinge &gt; RDL &gt; kb dead lift from box &gt; kb dead lift from ground</li> <li>• Lift and carry from box/table &gt; lift and carry from ground &gt; farmer's carry &gt; chaos carry</li> </ul> </li> </ul> <p><b>Education:</b></p> <ul style="list-style-type: none"> <li>• Mobility, strength and residual pain/neurological symptoms will continue to improve slowly over the course of 12+ months</li> <li>• Multilevel fusion will regain less mobility as compared to single level</li> <li>• Some neurological deficits will take over a year to improve, others may be permanent based off of patient condition prior to surgery</li> </ul>