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Hip, Knee, Shoulder &amp; Sports Medicine Surgery

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**ACL RECONSTRUCTION REHABILITATION PROTOCOL**

Phase	Restrictions	Therapeutic Exercises
<b>Phase 1: Weeks 0-2</b>  Goals: Reduce swelling and edema, minimize pain, retard muscle atrophy, protect the surgical repair, range of motion restoration	-Sleep with the brace locked in full extension at night for the first 7 days -Brace locked in extension for ambulation until full extension with adequate quad control is achieved -Begin crutch and brace wean after 7 days if indicated -Patient must obtain full extension by 14 days s/p	-Unrestricted range of motion -Goal of 0-90 degrees of motion by 14 days s/p -Quad sets with NMES as indicated -Heel slides, hamstring curls, stretching -Gait training -Edema Control -Pain management -Patellar glides in all directions -Quad sets, straight leg raises, hip ab/adduction strengthening -Modalities PRN
<b>Phase 2: Weeks 3-6</b>  Goals: Reduce swelling and edema, minimize pain, retard muscle atrophy, protect the surgical repair, range of motion restoration	-Must be able to perform a quad set and SLR without extension lag  -Should have a minimum of 90 degrees of flexion -Protect graft and graft fixation -If necessary, wean from crutches and brace  <b>Criteria for progression:</b> <b>-Must perform a SLR without extension lag</b> <b>-ROM 0-120</b> <b>-No change in pain or effusion</b> <b>-Quadriceps control (MMT 4-/5)</b>	-Restore range of motion -Continue phase I treatments and exercises -Initiate closed chain exercises -Soft tissue mobilization, patellar glides -Quad sets, straight leg raises, hip ab/adduction strengthening, gluteal strengthening, core strengthening -Modalities PRN -Home exercise program -UBE for cardio
<b>Phase 3: Weeks 7-12</b>  Goals: Full range of motion, minimal pain, increase resistance exercises, restore normal gait pattern, protect graft fixation	-Patient should have a minimum of 120 degrees of knee flexion -Sufficient strength to begin proprioception exercises -Minimal swelling/inflammation -No patellofemoral pain	-Progress to full passive, active, and active assisted range of motion -Progressive resistance exercises -Initiate closed chain exercises -Toe Raises, Mini Squats to 90 degrees, PNF with resistance, lower extremity stretching -Balance exercises -Hamstring curls

	<b>Criteria for progression:</b> <b>-Full, pain free ROM</b> <b>-No pain or tenderness</b> <b>-Normal gait pattern without device assistance</b>	-Aquatic therapy with emphasis on gait normalization -Hamstring stretches -Stationary biking without resistance until week 8
Phase 4: Weeks 13-24 (3-6 months)  Goals: Proper gait mechanics, improve lower extremity strength, full range of motion, neuromuscular control	-Functional ACL brace to be worn during high-risk recreational/sports activity -May begin road cycling in the brace -Discourage functional and sports specific activities  <b>Criteria for progression:</b> <b>-Full, pain free ROM</b> <b>-No evidence of patellofemoral joint irritation</b> <b>-Adequate proprioceptive control</b> <b>-Quadriceps control (MMT 4+/5)</b> <b>-Patient must complete 6-month sports test prior to 6-month recheck with surgeon</b>	-Progress flexibility and strengthening -Elliptical begin at week 13 -Stairstepper begin at week 16 -Eccentric strengthening -Advanced closed chain activities (leg press, single leg squats, step up progression) -Progress proprioceptive activities (slide board, challenging balance activities, etc.) -Progress aquatic program to include pool running, and swimming (NO breaststroke) -Jogging to start at week 16 (inline on flat ground, NO cutting, NO sprinting) -Functional walk/jog/run progression (Please refer to Dr. Lee's protocol (If you need this, please contact 970-456-2798))
Phase 5: Months 7-8  Goals: Full pain-free range of motion, no evidence of patellofemoral joint irritation, strength and proprioception restoration, power progression	-Functional ACL brace to be work during high-risk recreational/sports activity x1 year at least  <b>Criteria for progression:</b> <b>-Completion of jog/run program without pain, effusion, or swelling</b> <b>-No valgus collapse</b> <b>-No femoral adduction/IR pelvic drop or excessive trunk lean when performing single leg endurance tasks</b> <b>-Physician clearance to initiate functional activity progression</b>	-Continue and progress previous flexibility and strengthening activities -Agility testing, cone drills, slalom test, etc. -Vertical jump test, Figure-8 Hop test, Up-Down test, Single-leg squat test -Achieve maximal strength -Advanced core strengthening program with HEP: Segmental multifidus test, Trunk curl up test, Double-leg lowering test, Side bridge test, Prone bridge test, Supine single-leg bridge test, extensor endurance test -Forward and backward running progression ( $\frac{1}{2}$ , $\frac{3}{4}$ , full speed) -Please refer to Dr. Lee's running progression (if you need this, please contact 970-456-2798)  <b>-With surgeon clearance and PT guidance: patient may begin more strenuous hiking, road biking, golf chipping and putting, rafting, paddle boarding, etc. Please inquire about the specific recreational or sports activity.</b>

<p>Phase 6: Months 9+</p> <p>Goals: Completion of appropriate functional progression, strength maintenance, patient education</p>	<p>-Functional ACL brace to be worn during high-risk recreational/sports activity x1 year at least</p> <p>-Physician clearance to resume partial or full activity</p> <p><b>Criteria for discharge:</b></p> <p>-Physician clearance</p> <p>-Hamstring strength index &gt;90% as compared to the contralateral limb</p> <p>-Quadriceps strength index &gt;90% as compared to contralateral limb</p> <p>-Y Balance anterior reach within 4cm of contralateral limb</p> <p>-No complaints of pain or instability</p> <p>-Patient must complete 9-month sports test prior to 9-month recheck with surgeon.</p>	<p>-Functional progression including but not limited to:</p> <ul style="list-style-type: none"> <li>•Plyometric exercises as appropriate to patient's Goals</li> <li>•Sport-specific drills</li> </ul> <p>-Safe, gradual return to sports after successful completion of function progression and sports test</p> <p>-Maintenance program for continued strength and endurance</p> <p><b>-With surgeon clearance and PT guidance: Patient may begin skiing, mountain biking, golfing, rafting, high-risk sports, tennis, etc. Please inquire about the specific recreational or sports activity.</b></p>
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