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**OSTEOCHONDRAL AUTOGRAFT TRANSPLANTATION SYSTEM (OATS) PROCEDURE REHABILITATION PROTOCOL**

Phase	Restrictions	Therapeutic Exercises
Phase 1: Weeks 0-3 Goals: Reduce swelling and edema, minimize pain, retard muscle atrophy, protect the surgical repair, range of motion restoration	-Patient may only weight bear with the brace locked in extension x6 weeks -Patient permitted to use crutches as needed -Range of motion 0-60 degrees x3 weeks -Begin isometric quadriceps strengthening immediately	-Range of motion 0-60 degrees x3 weeks -Edema Control -Pain management -Patellar glides in all directions -Quad sets, straight leg raises -Hip ab/adduction strengthening -Hamstring and calf stretching -Ankle pumps, full ankle range of motion -Modalities PRN
Phase 2: Weeks 3-6 Goals: Reduce swelling and edema, minimize pain, retard muscle atrophy, protect the surgical repair, range of motion restoration	-Patient may only weight bear with the brace locked in extension x6 weeks -Begin increasing range of motion -No aggressive strengthening until 6 weeks	-Range of motion 0-60 degrees. Increase range of motion by 10 degrees per week until 90 degrees is achieved. Continue range of motion 0-90 degrees until 6 weeks s/p -Soft tissue mobilization -Continue with previous exercise programs -Gluteal strengthening: clams, reverse clams, side lying hip abduction, prone hip extension -Modalities PRN
Phase 3: Weeks 6-12 Goals: Full range of motion, minimal pain, increase resistance exercises, restore normal gait pattern, protect graft fixation	-Patient may begin to wean from the brace and crutches -Weight bearing as tolerated -Full range of motion -Begin strengthening	-Progress to full passive, active, and active assisted range of motion by 10 degrees per week until full range of motion is achieved -Progress gluteal strengthening -Progress quad strengthening -Aquatic therapy with emphasis on gait normalization -Hamstring stretches -Stationary biking without resistance once full range of motion is achieved (operative leg along for the ride)

<p>Phase 4: Weeks 12-16</p> <p>Goals: Proper gait mechanics, improve lower extremity strength, full range of motion, neuromuscular control</p>	<p>-Unrestricted weight bearing -Unrestricted range of motion -Increase strengthening progression</p>	<p>-Progress strengthening program -Begin closed chain strengthening: toe raises, mini squats, PNF with resistance -Progressive resistance exercises (1-5lbs) -Balance exercises -Hamstring curls -Stationary biking with increasing resistance as tolerated</p>
<p>Phase 5: Months 4-6</p> <p>Goals: Full pain-free range of motion, no evidence of patellofemoral joint irritation, strength and proprioception restoration, power progression</p>	<p>-Strengthening progression -No range of motion or weight bearing restrictions -Glute med and max isometric strength to reach >80% of the contralateral limb</p> <p>Criteria for progression: -No valgus collapse -No femoral adduction/IR rotation pelvic drop or excessive trunk lean when performing single leg endurance tasks</p>	<p>-Continue and progress previous flexibility and strengthening activities -Functional walk/jog/run progression -Forward and backward running progression (½, ¾, full speed) -Progress lower extremity strengthening: squats, single leg (elevated split squat, TRX) -Progress dynamic balance -Increase aerobic conditioning (elliptical, swimming, biking)</p>
<p>Phase 6: Months 6+</p> <p>Goals: Completion of appropriate functional progression, strength maintenance, patient education</p>	<p>-N/A</p> <p>Criteria for discharge: -Surgeon clearance -Hamstring strength index >90% as compared to contralateral limb -Quadriceps strength index >90% compared to contralateral limb -Y-Balance anterior reach < 4cm -No complaints of pain or instability</p>	<p>-Functional progression including but not limited to:</p> <ul style="list-style-type: none"> • Cutting, crossover, carioca, etc. • Plyometric exercises as appropriate to patient goals: med ball work, sled drills • Agility drills: shuffles, ladder footwork, cone drills, z-cuts, w-cuts, multi-planar sport specific drills