LAKESHORE
Bone & Joint Institute

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ACLR Protocol with Patellar Tendon Autograft AND meniscal repair

Name _____**Date** _____

Procedure _____

Procedure Date _____

Frequency 1 2 3 4 5 times/week **Duration** 1 2 3 4 5 6 weeks

Range of motion is an important progression of therapy, but limiting swelling is important. Respecting swelling will decrease pain and improve motion.

Meniscal Repair Protocol (this will delay the protocol for ACLR)

1. Delay weight bearing exercises ___ weeks.
2. Avoid ranging past 90 degrees ___ weeks (ok to do it past 90 degrees in therapy after week 3, under controlled pain and combined minimizing loading). Therapist should use best clinical judgment.
3. Brace locked in extension for 2 weeks. Could open 0-90 degrees for frequent ranging, but should stay locked at 0 degrees for ambulation.
4. In ___ weeks when WB begins, progress as tolerated. Brace may be open 0-90 degrees if good quadriceps control.
5. Start closed kinetic progressions in inclined machines or with low loads at week 6, but no squatting or leg press past 90 degrees.
6. At week 8 focus on single leg squat, and other single leg closed kinetic chain activities. Start ACL protocol combining Phase I and II.

ACLR with BTB Protocol

	MILESTONES	WEIGHT BEARING/ BRACE/ROM	THERAPEUTIC EXERCISE
PHASE I 0-4 weeks	1. Knee flexion greater than 110° (90 in first 10 days encouraged) 2. Walking without crutches 3. Use of cycle/stair climber without difficulty 4. Walking with full knee extension 5. Reciprocal stair climbing 6. Straight leg raise without a knee extension lag 7. Knee Outcome Survey activities of daily living (KOS-ADL) greater than 65%. (Ok to use any other knee outcome)	**WB As tolerated with crutches** **BRACE 0-1 week**: locked in full extension for ambulation and sleeping **1-*4 weeks***: *unlocked for ambulation remove for sleeping* **ROM** as tolerated - Consider alteration of knee flexion angle to most comfortable between 45° and 60° for MVIC assessment and NMES treatments	Week 0-2 Heel slides Quad/hamstring sets Patella mobs NWB gastroc/soleus stretch, SLR with brace in full extension until quad strength prevents extension lag Week 2-4 (Delay WB if Meniscal repair) Step-ups in pain-free range Portal/incision mobilization as needed (if skin is healed) Bike, StairMaster. Wall squats/sits Prone hangs if lacking full extension Patellar mobilization in flexion (if flexion is limited)
PHASE II 4-6 weeks	1. Knee flexion ROM to within 10° of uninvolved side 2. Quadriceps strength greater than 60% of uninvolved side - Be aware of patellofemoral forces and possible irritation during progressive resistive exercises - Graft protection is still critical. Avoid high risk situations	Gradually discontinue crutch use Discontinue use when patient has full extension and no extension lag Maintain full extension and progressive flexion	Progress to weight bearing gastroc/soleus stretch. Begin toe raises Closed chain extension Begin balance and proprioceptive activities Hamstring curls Tibiofemoral mobilizations with rotation for ROM if joint mobility is limited Progress bike and StairMaster duration (10-minute minimum) - Treat patellofemoral pain if it arises: modalities, possible patellar taping
PHASE III 6 – 12 weeks	1. Quadriceps strength greater than 80% of uninvolved side 2. Normal gait pattern 3. Full knee ROM (compared to uninvolved side) 4. Knee effusion of trace or less	Full without the use of crutches and a normalized gait pattern No Brace, but assessment for functional brace as early as week 9 if not atrophied Full and pain-free ROM	Advanced closed chain strengthening, progress proprioception activities. Begin Stairmaster, Elliptical and running straight ahead at **12 weeks** if OK by Surgeon (see below) - Progress exercises in intensity and duration

PHASE IV 12-24 weeks	1. Maintaining or gaining quadriceps strength (greater than 80% of uninvolved side) 2. Hop tests greater than 85% of uninvolved side (see below) at 12 weeks 3. KOS-sports questionnaire greater than 70% Treatment	Measurements for Functional Brace	- Begin running progression (see running progression below); on treadmill or track with functional brace (if all milestones are met; may vary with physician or delayed if meniscal repair) - Transfer to fitness facility (if all milestones are met) - Progress flexibility/strengthening, progression of function, forward and backward running, cutting, grapevine, etc. - Initiate plyometrics double leg program at week 16 and sport specific drills. Progress to single leg plyometrics and lateral progressions around week 20 - Sports-specific activities - Agility exercises - Functional testing (see description below).
PHASE V 6+ months	1. Maintaining gains in strength (greater than or equal to 90% to 100%) 2. Hop test 90% or greater 3. KOS-sports 90% or greater 4. Return-to-sport criteria (see below) • Recommend changes in rehabilitation as needed. Progression may emphasize single-leg activities in gym, explosive types of activities (cutting, jumping, plyometrics, landing training)	None	Gradual return to sport participation, maintenance program for strength and endurance Neuromuscular or any sports specific injury prevention program is encouraged (FIFA 11+, Sports Metrics, etc.)

Running progression to be started if strength, ROM, effusion and pain milestones have been met (week 13 to week 20 or delayed 4 weeks if meniscal repair):
In place on mini-trampoline or any other compliant surface is encouraged first (at around week 12 to evaluate symmetry)

Level 1 0.1 mile running, 0.1 mile walking, total 1 mile
Level 2 0.2 miles running, 0.1 mile walking, total 2 miles
Level 3 0.4 miles running, 0.1 mile walking, total 2 miles
Level 4 0.5 miles running, 0.1 mile walking, total 2 miles
Level 5 0.7 miles running, 0.1 mile walking, total 2.4 miles
Level 6 1 mile running, 0.2 mile walking, 2 cycles
Level 7 1.25 miles running, 0.25 mile walking, 2 cycles
Level 8 1.5 miles running
Level 9 2 miles running
Level 10 track running

Initially, no back-to-back days running. Stop or decrease a level if effusion or soreness increase.

Comments:

FCE _____ Work Conditioning/Work Hardening_____ Teach HEP_____

Every patient's therapy progression will vary to a degree depending on many factors. Please use your best clinical judgment on advancing a patient. If other ideas are considered to improve patient's outcome do not hesitate to call.

Patient's recovery is a team approach: Patient, family/friend support, therapist, and surgeon. Every team member plays an important role in recovery.

Signature_____ **Date** _____