LAKESHORE
BONE & JOINT INSTITUTE
ORTHOPEDIC EXCELLENCE. KEEPING YOU IN MOTION.

Neel P. Jain, MD
Orthopedic Surgery
Sports Medicine
Direct Line (219) 250 - 5038
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ACLR Protocol with Quadriceps 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

FIRST THERAPY VISIT

- Therapy appointment should be scheduled for 3-5 days postoperatively.
- Goals of therapy visit include:
  - Surgical site evaluation (see below for instructions)
  - Brace/sling education and adjustment as needed
  - Review of therapy protocol, expectations, and plan
  - Initiation of early phase therapy ONLY if applicable (follow protocol as outlined below)
- Surgical site evaluation
  - Incisions are closed with one or combination of below methods
    - Staples
    - Nylon sutures (black sutures)
    - Monocryl sutures covered with steristrips or glue
    - Prineo dressing (clear adherent glue dressing)
  - Anytime the dressing is changed or examined, ***please wash hands*** prior with antibacterial soap.
  - There will be gauze and padding over the incisions and the extremity may be wrapped with an ACE wrap. The surgical dressing should be changed by the therapist using ***sterile*** technique. This includes sterile field, sterile gloves, betadine or chlorhexidine skin cleanser and sterile supplies when redressing the wounds. Do NOT remove steri-strips or glue dressing. DO NOT remove sutures or staples. The new dressing should include dry gauze and ACE wrap. Before the new dressing is applied the wounds should be clean and dry (without removing steri strips or glue dressing). Please do not use tegaderm unless it was used at the time of surgery or if specifically stated on the orders. If there are any concerns with the incisions or dressings, the therapist should call the office immediately – (219) 250-5038.
  - Unless otherwise instructed, incisions must remain dry for 7 days. They must be sealed off in the shower. The Prineo dressing/glue dressing is water resistant, and incisions covered by this dressing may get wet after 3-5 days. Once you are permitted to get the incisions wet, warm soapy water should *gently* rinse the surgical area. Do NOT scrub the area. Pat the area dry with a clean towel and keep free of lotions or creams. Do NOT soak in a pool, bath or hot tub until permitted by the surgeon's office. Please wear clean clothes following shower and be conscious of any pet hair or other contaminants near the surgical area. Do not apply any ointments or medications to the area.

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

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

1. Delay weight bearing exercises 4-6 weeks (**CHECK END OF OPERATIVE NOTE)**.
2. Avoid ranging past 90° 4-6 weeks depending on weight bearing progression above (ok to do it past 90° 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° for frequent ranging, but should stay locked at 0° for ambulation.
4. In 4-6 weeks when WB begins, progress as tolerated. Brace may be open 0-90° 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°.
6. At week 8 focus on single leg squat, and other single leg closed kinetic chain activities. Start ACL protocol combining Phase 1 and 2.
7. Do not weight bear past 90° for 12 weeks

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Quad Tendon Autograft ACLR

	REHAB GOALS	PRECAUTIONS	THERAPEUTIC EXERCISES	PROGRESSION CRITERIA
PHASE 1 0-3 WEEKS	***FIRST 10 DAYS LIMIT ROM 0-90° TO PROTECT THE QUAD TENDON REPAIR/GRAFT HARVEST SITE*** Full extension symmetric to contralateral knee by 2 weeks Flexion to 120° (unless meniscal repair) 20° SLR without quad lag DC crutches	WBAT Brace should be locked at 0° extension until first visit with therapist. If uncomfortable, may loosen but keep the knee straight. Always wear the brace when getting up Brace will be open at therapy for exercises and patient will be given instructions on when/how to unlock it (based on the progression of quad control)	CPM machine 2 hours 3-5x per day Start 0-45°, increase 10° everyday Prolonged extension- prone hangs, supping with roll under ankle Heel slides, wall slides, prone knee flexion Isometric quad set then SLR Hamstring isometrics 4-way hip and ankle exercises including calf pumps Initiate proprioceptive/balance exercises to include single leg stance, weight shifts forward, retro, lateral Patellar mobilizations (especially cranially) Ice 5x/day, 20 min each <u>Cardio</u>: stationary bike without resistance	DC crutches when quad control returns, full extension achieved, stable with low fall risk May be weaned to 1 crutch with full extension if steady in gait
PHASE 2 3-6 WEEKS	Full ROM Advance strengthening Consider early neuromuscular retraining	Wear brace except for sleeping and exercises	**Avoid open chain resistance especially with weights! Resistance bands okay for hamstring/quad.** Quad: mini squats/wall squats, step ups	Full ROM Minimal effusion Functional control for ADLs DC brace: only with adequate quad control

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			Hamstring: bridge, standing hamstring eccentrics Calf: heel raises, calf press Hip: extension, ABD, ADD Consider balance board/wobble board for early neuromuscular retraining Cardio: stationary bike, elliptical, stair master, pool-walking, aqua jogging, NO kicking until 4-6 weeks	for gait on level surfaces if inside 6 weeks post op
PHASE 3 6-12 WEEKS	Maintain full ROM (full extension to 135° flexion) Progress neuromuscular retraining program Core integration	**NO** downhill walking/running, downhill skiing, downhill biking until 4.5 months	HEP 5x per week Progress neuromuscular proprioceptive/balance exercises including single leg balance progression, varying surfaces Pool: begin 4-way hip, lateral movements, deep water jogging in place (no freestyle or breaststroke kicking) Strengthening: lunges, sport cord, wall squats, step up/down Cardio: may begin road biking outdoor on flat roads only, may begin treadmill walking	Neuromuscular exercises without difficulty
PHASE 4 3-5 MONTHS	Running: light running/hopping without pain or swelling (12 weeks), progress to running patterns at 75% speed Good jumping mechanics- NO DYNAMIC VALGUS	**NO** downhill walking/running, downhill skiing, downhill biking until 4.5 months	HEP 5x per week Agility drills: shuffling, hopping, running patterns Sport specific: closed-chain exercises including leg presses (0-60°), step ups, mini squats (0-60°), short arc quad (30-90°), hamstring curls with light weight/high repetition	Running without knee effusion Hopping/agility drills without knee pain or effusion

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	Hop drills without difficulty		Cardio: Begin endurance closed chain exercises 3-4x/week; stair master, stationary bike, elliptical; focus on increasing endurance Gait training: progress jogging on treadmill or even ground to running patterns at 75% Pool: may start freestyle swimming (avoid breaststroke), progress to shallow water jogging	
PHASE 5 5-8 MONTHS	Able to complete a running program May begin plyometric program, jump rope exercises Hamstring and quadriceps strength at 90% normal leg Return to sports will be discussed among patient, therapist and surgeon. Will be based on functional testing performed in late stage months. Most likely return to competition will be by month 9.	Earliest return to sports = 9 months	HEP 4-5x per week Agility drills: shuffling, hopping, running patterns Sport specific: plyometric program, fast straight running, backward running, cutting, crossovers, carioca, etc. in controlled environment	Criteria for return to sport: Quadriceps and hamstring strength at least 90% of opposite leg Single leg hop test and vertical jump at least 90% of opposite leg Jog, full speed run, shuttle run, figure of 8 running without a limp Full controlled acceleration and deceleration Squat and rise from a full squat No effusion or quadriceps atrophy

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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):

Running should only start if the patient meets ALL the following:

- Full, pain-free ROM
- No effusion
- Quad strength at least 70% of the uninvolved limb
- Hop testing at 85% symmetry

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** _____