UNION GENERAL ORTHOPEDICS & SPORTS MEDICINE
AFFILIATE OF: UNION GENERAL HEALTH SYSTEM

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MCL REPAIR/RECONSTRUCTION PHYSICAL THERAPY

Philosophy

This protocol is to be utilized as a guideline. There will always be individual differences amongst patients regarding progression and tolerance of specific activities. Progression through the protocol will depend on successful accomplishments of set milestones as assessed by the physician and the physical therapist/athletic trainer.

The patient's home exercise program is of utmost importance and should be monitored and emphasized. Initially, patients should be performing their exercises several times a day to regain motion. Due to the importance of regaining early motion, Dr. Stirton's patients are to be seen 3x/week for the first month.

Rehabilitation should create the optimal environment for the natural process of healing to occur. Initially, there should be a strong emphasis on minimizing swelling and pain as well as motion restoration. If a patient's progress is significantly delayed, please contact the physician office to keep them informed.

If you have any questions regarding this protocol, please contact the UGH Orthopedics and Sports Medicine Department at (706) 439-6858.

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WEEKS 1-6 (Early POST-OP PHASE)

TREATMENT GOALS:

- Minimize swelling/pain.
- ROM: 0-60 degrees up until week 2, then 0-90 until week 4, then full ROM after week 4.
- Achieve full knee extension both active and passive measured prone and supine. **If full passive extension not achieved by 4 weeks – notify physician prior to one-month appointment.**
- Achieve quad activation and improve quad set.
- No active extensor lag with SLR.

Note: It is essential to monitor trunk/core for proper proximal control while doing exercises to avoid substitution.

PRECAUTIONS:

- No weight bearing ROM exercises yet.
- Gradually increase exercise ROM as dictated by patient response including swelling and soreness response. Articular soreness should be less than 12 hours without medication needed to alleviate symptoms.

MANUAL THERAPY:

- Patellar mobilizations at every session (patient taught to do at home daily).
- Physiologic stretching flexion/extension.
- Gentle posterior tib-fem mobilizations to start and progress based on patient presentation.

SUGGESTED EXERCISES:

- Isometrics (quadriceps, gluteals, hamstrings).
- Ankle pumps-> heel raises.
- SLR's (supine with prop under heel as needed, advancing to standing next phase).
- Heel slides (seated or supine); can also do flexion over end of mat table.
- Long sit hamstring stretches (be mindful in patients with hamstring graft).
- AROM knee extension from 60 to 0 degrees.
- Prone hangs working up to 30 minutes/day (3x10 minutes extension stretching daily).
- Prone flexion ROM assisting with opposite LE if needed.
- Prone TKE over ball.
- Prone hip extensions.
- Weight shifting with an active quad set.
- Side lying Abduction series (straight plane ABD, circles, swings) emphasizing neutral spine.
- Trunk stabilization exercises in supine/prone.

Note: High reps, low resistance with focus on proper muscle recruitment.

MODALITIES:

- NMES quadriceps until no lag sign with SLR, biofeedback with quadriceps exercise, cryotherapy, vasocompression

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WEEKS 6-10 (ROM, EARLY Strengthening Phase)

TREATMENT GOALS:

- ROM 0-120 degrees by end of week 6. Full ROM by week 8.
- Moving towards closed chain/proprioceptive activities within limited ROM and proper use of brace.

PRECAUTIONS:

- Weight bearing as tolerated in TROM unlocked starting week 6 provided good quad control.
- To minimize joint stress, it is recommended that patients perform closed kinetic chain exercises only in 0-45 degree range with resistance less than full body weight on the injured limb (e.g., leg press, total gym, or bilateral small range squats).
- Gradually increase exercise ROM and weight as dictated by patient response including swelling and soreness response. Articular soreness should be less than 12 hours without medication needed to alleviate symptoms.

MANUAL THERAPY:

- Continue previous manual interventions. Progress intensity of mobilizations dictated by patient presentation.
- Add in scar/soft tissue mobilization as appropriate based on wound healing.

SUGGESTED EXERCISES:

- Stationary cycling (when ROM allows) with no resistance.
- SLR standing.
- Single leg standing balance progression.
- Wobble or BAPS board, half Styrofoam roller with brace locked.
- Mini squats: 0-45 degrees.
- Band resisted: Standing TKE (closed chain, band behind proximal knee).
- Side stepping (straight, diagonals, circles).
- Seated hip internal and external rotation.
- 4-way stabilization kicks (if good quad control present).
- Leg press/Total gym to 45 degrees.
- Open Chain knee extension: 90-45 degrees WITHOUT RESISTANCE.

*Note: Continue and advance previous exercises as appropriate and continue to focus on **ROM work/prone hangs.** Continue to educate patient so they have a clear understanding of their core home program. Activities to maintain general conditioning (upper body strengthening, cardiovascular endurance) may be initiated once post-operative pain and side effects are under control. These activities may include UBE, upper body weight lifting without stressing leg, pool therapy (after 4 weeks). HOWEVER, the patient should not shift their primary focus from rehabilitating the operative limb.

MODALITIES: Continue NMES until no lag sign with SLR, cryotherapy, soft tissue mobilization about incisions when appropriately healed, biofeedback with quadriceps exercise as needed.

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WEEKS 10-12 (Middle Strengthening Phase)

TREATMENT GOALS:

- Full flexion and symmetric to opposite side around weeks 6-8.
- Normal gait and reciprocal stair management without compensation.
- Fully resolve knee swelling.
- Progression of independent gym/home exercise program.

PRECAUTIONS:

- Weight bearing as tolerated in hinged knee sleeve starting week 10.
- To minimize joint stress, it is recommended that patients perform closed kinetic chain exercises only in 0-90 degree range with resistance less than full body weight on the injured limb (e.g., leg press, total gym, or bilateral small range squats).
- No impact activity, pivoting, or twisting.
- No WBing Flexion > 90 deg during exercises.
- Gradually increase exercise ROM and weight as dictated by patient response including swelling and soreness response. Articular soreness should be less than 12 hours without medication needed to alleviate symptoms.

MANUAL THERAPY:

- Continue with mobilizations as needed to diminish soft tissue and joint restrictions to normal mobility.

SUGGESTED EXERCISES:

- **Frequency:** Alternate cardiovascular and leg strengthening days with goal of exercising 6 days/week if the patient desires to eventually participate in competitive athletics.
- **Cardiovascular**: Bike, Stair stepper, Elliptical and Retro Treadmill.
- **Strengthening:** Important to focus on quad, hip, and core strengthening.
    - Squats progressing to weighted squats.
    - Progressive step ups/downs (forward, side, back, 4-8" step).
    - ½ Lunges and wall sits in appropriate ROM not to aggravate patellofemoral joint.
    - Single leg balance with opposite leg reaches.
    - One-legged deadlifts.
    - Slide Board.
    - Fast form walking (start in clinic with therapist and progress gradually outside of therapy).
    - Sport cord resisted walking forward/lateral/retro.
    - Swiss ball, planks, and trunk stabilization exercises.
    - 90-40 degree light open chain extension (0-10# ankle weights or TheraBand) in CLINIC ONLY.
    - Static balance exercises using balance cushions, BOSU ball, wobbleboard, half roller, etc.

MODALITIES: Cryotherapy, others PRN

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Months 3-4 (Impact and Late Strengthening Phase)

TREATMENT FOCUS:

- Maintain Strength and Endurance and Progress to Maximum Strength and Endurance
- Progress Skill Training
- Start Jogging and Progress to Running at 4-5 Months
- Progress Functional/Agility Exercises at 5-6 Months
- Return to Sport around 6 months and scores at least 90% on Functional Testing Compared to Contralateral Side

Running Progression:

- May begin walk/ slow jog interval progression starting with 1-minute walk and 1-minute jog. Progress increasing jog times by 1 minute and may keep walking time as needed (at least one minute though). When patient can jog 5 minutes straight – progress to a distance-based criteria progression starting at 1 mile. When the patient is running 2 miles without difficulty, then start to add in hills and work on speed.

Hop Training:

- Athletes should be instructed on proper hopping/landing technique. Appropriate cues must be given to the patient to ensure they do not land stiff. They also need cues to avoid LE internal rotation or valgus upon landing.

SUGGESTED ADDITIONAL EXERCISES:

- One-legged hop training
- More intense two-legged hopping activities
- Begin ¾ speed sprints if progressed as above on smooth surface
- Carioca drills (walking-> ½ speed-> ¾ speed)
- Figure 8 jogging progression
- Begin functional sport specific training in controlled environment with trainer or therapist

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FUNCTIONAL TESTING: Please attempt to complete functional testing at 6 months prior to the 6-month doctor's appointment to provide objective data to assist in return to play decision-making. Please make comments on movement quality as well – especially if there are concerns.

- **HOP TESTING**: Include the following hops if possible:
  - Single leg vertical hop
  - Single leg hops for distance
  - Single leg 6m timed hop
  - Single leg triple jump for distance
  - Single leg triple crossover hops for distance
- One-minute front step down test at 6-8-inch height. Assess quantity and quality looking for deviations from proper body mechanics
- Hip/Core strength and control assessment (e.g., planks, one-legged bridge, etc.)
- Sport Specific Testing

RETURN TO SPORTS CRITERIA (typically 6 months):

- >90% functional hop testing (limb symmetry index) with good movement quality
- >90% quadriceps strength
- >90% One-minute step down test with good movement quality
- 5/5 hip MMT including hip ER, ABD, and extensors.
- Running/Agility/Sports specific activities are WNL.
- Patient has confidence in leg and does not demonstrate apprehension.