Indiana University Health

IU Health Physicians Orthopedics & Sports Medicine

ANTERIOR CRUCIATE LIGAMENT (ACL) RECONSTRUCTION, MEDIAL COLLATERAL LIGAMENT (MCL) REPAIR

PHYSICAL THERAPY PROTOCOL

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Patient Name: _____ **Date of Surgery**: _____

___ Evaluate and Treat **___ Provide patient with home program**

Frequency: _____x/week x _____weeks

Associated Procedure (circled if applicable):

1) Medial/Lateral Meniscectomy
2) Medial/Lateral Meniscal Repair

Key Features of protocol:

- Weight Bearing: TDWB x 4 weeks (foot or toes may touch the floor, but there is no weight bearing). PWB (partial weight bearing) starts at 4wks, increase 25% per week to 100% by week 7.
- Brace use: 10 weeks.
- Return to Sport: 9 months.
- If meniscal repair performed, ROM is limited to 90° for 4 weeks.

__ **Phase I (0-4 wks):** ***Period of protection***

- **Weightbearing:** NWB x4 weeks.
- **Brace:** Locked in extension during ambulation. Locked during sleep for first 6 weeks (longer if terminal extension not reached at 2 weeks). Unlocked only while working on ROM.
- **ROM:** Progress PROM/AAROM/AROM. Goals: full extension by 2 weeks; 90° by 3 weeks (4 weeks if meniscal repair performed). Increase 10° per week after with goal 120° by 6 weeks.
- **Therapeutic exercises**:
    - *0-2 weeks*
        - Extension exercises: prone hangs, passive terminal knee extension with overpressure to tolerance
        - Patellar mobilization 5-10 minutes daily.
        - Quad sets
        - Straight leg raises with knee brace locked in extension until quadriceps strength prevents extension lag.
        - No restrictions to ankle/hip strengthening.
    - *2-4 weeks*
        - As above plus:
        - AA knee flexion
        - Heel Slides
        - Wall slides
        - Sit and reach for hamstrings
        - Lying Rectus
        - Runners stretch for calf and Achilles

__ **Phase II (4-8 wks):**

- **Weightbearing:** PWB starting at 4 weeks. Increase 25% per week to 100% by week 7.
- **Brace:** Unlocked during ambulation if no lag with SLR. Locked during sleep only if terminal extension not reached.
- **ROM:** Full. Continue extension board and prone hang with ankle weights (up to 10 lbs) if any flexion contracture.
- **Therapeutic exercises as above plus**:
    - Quadriceps strengthening: straight leg raises (10 sets of 30 repetitions each), quad setting (10 sets of 30 repetitions each), and short arc quadriceps extension.
    - Abduction and Adduction strengthening
    - Biking (no resistance)
    - Aqua jogging at 6wks

    - Rowing at 6 wks
- **Restrictions:** No elliptical, no running, no jumping.

__ Phase III (8-12wks):

- **Weightbearing:** Full weightbearing with normal gait.
- **ROM:** Full and painless.
- **Brace:** Discontinue at week 8
- **ROM:** Continue with daily ROM exercises (goal: full ROM)
- **Therapeutic exercises**:
    - Elliptical
    - Stair Master
    - Hip Muscle Groups: may progress by adding weights above the knee. Hip abductors, flexors, abductors, adductors, and extensors (10 repetitions, 4 sets daily).
    - Hamstring Curls: may add weights around the ankle (10 repetitions, 4 times daily.
    - Leg press with minimal resistance (flexion up to 90˚).
    - Swimming (10wks): Flutter kick only – gently. No whip kick.
    - May begin outdoor biking program: avoid hills. A good rule of thumb for those interested in returning to athletics is that you need three minutes of biking to substitute for one minute of running.
    - Walking (level ground and treadmill): Build up pace gradually. Feel big toe of affected foot push off as you walk to ensure normal gait pattern. Start off at one mile at brisk pace, increase to three miles. No limping allowed.

__ Phase IV (3-4mo):

- **Weightbearing:** Full weightbearing with normal gait.
- **ROM:** Full and painless.
- **Precautions:** Post-activity soreness should resolve within 24h. Initiation of impact may occur if the involved leg has at least 80% of the strength of the uninvolved leg when measured using a single leg squat test.
- **Therapeutic Exercises:**
    - Continue with exercise program from week 8–12.
    - Side to side agilities
    - Leg Press: press body weight as many times as possible on nonsurgical side (to fatigue). Follow same sequence on surgical side.
    - Squat Rack: half squats (not past 70˚) at one-half body weight, 10 repetitions; progress to full body weight as tolerated.
- **Continue biking and/or swimming on a daily basis.** No whip kicks.

___Phase V (Months 4-6)

- **Goals:** Improve quadriceps strength/function, improve endurance, improve coordination/proprioception.
- **Weightbearing:** Full weightbearing with normal gait.
- **ROM:** Full and painless.

- **Precautions:** Post-activity soreness should resolve within 24h.
- **Jogging (level surfaces only):** 15 minutes at >/=10 minutes per mile pace. Add 5 minutes per week.
- **Biking:** By now the amount of set resistance should be increasing. Perform daily at 20 minutes per day. Legs should feel drained once off the bike.
- **Step-ups:** Face the step. Put foot of operative knee on step and step up on the step. Repeat with gradual build up in repetitions until doing 100 step-ups per day. Try to lower from the step twice as long as it takes to raise up on the step.

__ **Phase VI (6mo-9mo):** ***Sport-specific conditioning.***

- **Rehabilitation Goals:** Good dynamic neuromuscular control and no pain with multiplanar activities; functional sports specific progression.
- **Weightbearing:** Full weightbearing with normal gait.
- **ROM:** Full and painless.
- **Precautions:** Post-activity soreness should resolve within 24h. Initiation of impact may occur if the involved leg has at least 80% of the strength of the uninvolved leg when measured using a single leg squat test.
- **Therapeutic Exercises:**
  - Advance strengthening as tolerated
  - Sports specific balance and proprioceptive drills
  - Initiate and progress impact control exercises to reactive strengthening and plyometrics
  - Initiate a running program
  - Movement control exercise beginning with low velocity, single plane activities and progressing to higher velocity, multi-plane activities from one foot to the other and then one foot to same the foot
  - Hip and core strengthening.
- **Progression Criteria to Functional Sports Assessment:** Dynamic neuromuscular control with multi-plane activities without instability, pain or swelling; ability to land from a sagittal, frontal and transverse plan; leap and jump with good control and balance.
- **Goal:** Return to sport by 9mo.

__ **Other:**

__ Modalities __ Electrical Stimulation __ Ultrasound
__ Heat before/after __ Ice before/after exercise
__ May participate in aquatherapy after week three, begin aqua-running week 6

By signing this referral, I certify that I have examined this patient and physical therapy is medically necessary. This patient __ would __would not benefit from social services.

_____ Date:_____

Bryan M. Saltzman, MD