Center for Athletic Medicine

Dr. Preston Wolin

Anterior Cruciate Ligament (ACL) Reconstruction

Please call 773.248.4150 with any questions, or if patient is not progressing

The following guidelines are to outline the rehabilitation program for the physical therapist and athletic trainer. The protocol is designed to expeditiously and safely return the athlete/injured worker to sports/work.

Please note the following:

- **For Isolated ACL Reconstruction:** a knee immobilizer is not issued, except during the winter season, if the patient is routinely around large crowds, or as otherwise specified
- **For Combined ACL Reconstruction and Meniscal Repair:** a knee immobilizer is used as a quadriceps assistive device only; if a meniscal repair is performed, the knee immobilizer is to be worn for the first 6 weeks (may be removed for therapy, bathing, etc.)

  ****Refer to meniscus repair protocol for further detail****
- Isokinetic testing and exercise are not utilized during the patient's rehabilitation
- **For Revision ACL Reconstruction:** please use clinical judgment and progress slower with strengthening, including delaying start of eccentric step downs; NO running or jumping x6 months

- Days 1-2
  - Dressing Change
    - Patient to be seen post op day 1 for initial PT evaluation
    - *Please perform post-op dressing change utilizing aseptic technique
    - Do not remove steri-strips
    - Place bandages over arthroscopic portal sites
    - Place 4x4 over patellar incision, if present, and wrap with Kerlix, if available
    - Remind patient to make an appointment for suture removal at CAM 10-14 days post op
      - incisions must stay dry until that time with waterproof band-aids or saran wrap when showering
  - Weight-bearing restrictions
    - WBAT if no meniscal repair was performed
    - See separate Meniscal Repair Protocol if meniscal repair was performed
  - ROM Restrictions
    - PROM: advance as tolerated
    - See separate Meniscal Repair Protocol for ROM restrictions, if meniscal repair was performed

- Manual therapy intervention
  - Initiate patellar mobilization, with emphasis on superior and inferior mobility
- Therapeutic intervention
  - Emphasize knee extension ROM-> may initiate prone hangs without weights and heel propping for a low load long duration extension stretch
  - NMES to facilitate quadriceps recruitment
  - Quad sets
  - AROM knee flexion (hamstring activity) *proceed with caution if patient had a hamstring autograft
  - SLR (4-way) when patient has solid quad set and demonstrates no extensor lag
    - May use post-operative knee brace, if patient has one, initially, in order to assist in performance of this activity, and to avoid extensor lag
- HEP
  - Continuous Passive Motion (CPM) machine to be used daily for up to 3 weeks (increase flexion as tolerated)
  - Educate patient on self-patellar mobilization

- Days 3-13
  - Weight-bearing restrictions
    - If using crutches, d/c by 7-10 days post-op and focus on proper gait training
  - ROM restrictions
    - Continue to emphasize terminal knee extension
    - Continue to progress with knee flexion as tolerated
    - Patient should demonstrate full extension to 120 deg knee flexion by post-op day 14
  - Manual therapy intervention
    - Continue to emphasize superior and inferior patellar mobility
  - Therapeutic intervention
    - May use stationary bike for active warm-up
    - Continue to emphasize terminal knee extension- may initiate prone hang with weight
    - Continue to emphasize quadriceps recruitment/VMO activation/NMES as needed
    - Hamstring sets/hamstring curls without weight
    - May initiate closed chain quadriceps strengthening (for patients with meniscal repair, please follow meniscal repair protocol for lower extremity strengthening precautions)

            - Mini squats
            - Step ups (2”-4”)
            - Eccentric step downs (2”-4”) **avoid compensatory strategies such as hip drop and/or valgus collapse
    - HEP
        - May discontinue CPM when 125 deg of knee flexion is achieved (may contact office to confirm)

- Weeks 2-4
    - Therapeutic intervention
        - Increase height of step ups and eccentric step downs gradually (2”-4” at a time)
        - Continue with partial squatting activity
        - Calf raises
        - Leg press (bilateral and unilateral) **if using leg press shuttle, no more than 4 bands on single leg press x5 weeks
        - Terminal knee extension with theraband
        - SAQ
        - SLR 4-way (continue to progress with ankle weight as tolerated as long as patient demonstrates proper form)
        - Hamstring curls
    - Functional activity restrictions
        - Patient may shoot basketballs in a controlled, safe environment
        - Injured worker may return to desk work with the following restrictions
            - No prolonged standing, running, stooping, squatting, kneeling, bending, crawling, and limited stair use.
    - HEP
        - Please continue to update HEP every 2-3 weeks

- Weeks 5-12
    - ROM restrictions
        - Patient should demonstrate full AROM/PROM at this time
    - Therapeutic intervention
        - Continue with progression of all exercises above
    - Functional activity restrictions
        - Initiate work conditioning for the injured worker when cleared by physician
    - HEP
        - Please continue to update HEP every 2-3 weeks

- 3 Months
    - May initiate full lunges (forward, diagonal, lateral, retro) and full squats (double limb and single limb)

- 4 Months
    - May initiate running, jumping, and high-level plyometric activity if patient demonstrates adequate lower extremity strength and proprioceptive control
    - Please note: injured workers will be returned to full duty status (pending physical demands of their job) when they can run, perform stair negotiation well, and tolerate kneeling, stooping, and squatting; or with modifications.

- FUNCTIONAL HOP TESTING PROCEDURES
    - Typically, functional hop testing is performed at the patient's 6-month post-op MD follow-up visit in the Center for Athletic Medicine PT department
    - The following functional hop tests are utilized to determine discharge and return to sport planning
        - Single leg hop (for distance)
        - Timed 6 m hop
        - Triple hop (for distance)
        - Cross-over hop (for distance, 3 forward hops over 15 cm width testing area)
    - Patients should demonstrate 90% or better of uninjured leg prior to discharge and clearance for return to sport
    - Please call office at 773-248-4150 ext 226 with any questions regarding functional hop testing
    - Reference for functional hop testing
        - Reid A, Birmingham TB, Stratford PW, Alcock GK, Giffin JR. Hop Testing Provides a Reliable and Valid Outcome Measure During Rehabilitation After Anterior Cruciate Ligament Reconstruction. Physical Therapy. 2007; 87 (3): 337-349.