South County Orthopedics
Orthopedics & Sports Medicine • Physical Therapy • Sports Performance

Anterior Cruciate Ligament (ACL) Reconstruction Protocol

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This protocol provides general guidelines for initial stage and progression of rehabilitation according to specified time frames, related tissue tolerance and directional preference of movement. The intent is to provide the therapist with a general framework.

General Principles:

- Progression of rehabilitation
- Closed-chain exercises
- Post-operative soft tissue swelling and effusions
- Splinting and bracing
- Goal return to sport-specific activity 4-6 months depending on progress

Patient may progress more quickly in the first two phases if appropriate and specific requirements are met.

Phase I: Weeks 1-3 (Range of Motion) **Clinic visits: 2x/week**

- If suture meniscus repair: No weight bearing flexion > 90^{o} for 3-4 weeks

WEIGHT-BEARING

- Use immobilizer while sleeping, until full extension has been reached and can perform straight leg raises
- Crutches: progress
  - FWB in immobilizer using crutches
  - FWB in immobilizer without crutches
  - FWB without immobilizer or crutches
  - Patient may use crutches until they develop strength to keep the knee fully extended while WB.
- Walk with a smooth, even paced heel-toe lift off gait. DO NOT LIMP. Do not walk on toes or with a bent knee. Establishing a normal gait early is important.

ROM

- Flexion as tolerated.

- Regain/maintain full knee extension
- At the end of 3 weeks: ROM goal is 120^{o} – full ROM with full extension
- May use ice, cryocuff, and compression boot during this phase to address soft tissue swelling and effusion

PHASE I EXERCISES TO BE DONE AT HOME
ROM

- Patellar mobilizations, other methods of ROM to attain full extension/hyperextension and 120^{o} of flexion. May use stationary bike for ROM

STRENGTHENING

- 30-40 repetitions, 1-2 times daily: quad sets along with Progressive Resistance Exercises (PREs) (3-way straight leg raises and prone knee flexion)

MODALITIES

- Ice: post exercise

Progression Criteria

- Gain and maintain full extension
- Minimum flexion to 100^{o}
- Decrease post-operative swelling
- Progress toward independent walking
- Initiate strengthening program

<u>PHASE II: Weeks 3-6</u> (Strength) Clinic visits: 1x/week
WEIGHT-BEARING

- FWB without crutches, smooth normal gait pattern, no limping.
- Can begin backwards walking on a treadmill once FWB without the immobilizer.

ROM

- Continue with Phase I exercises as needed.
- Continue flexion as tolerated and attain/maintain full extension.

PHASE II EXERCISES
STRENGTHENING: (Closed Chain)

- Proceed with AROM exercises: 30-40 repetitions.

CONDITIONING

- 3x/week for 20 minutes on an exercise bike – pedaling normally

Progression Criteria

- ROM: full hyperextension and 130^{o} of flexion
- Confident, smooth gait pattern
- Begin funtional strenthening

PHASE III: Weeks 6-10 (Power) **Clinic Visits: 2x/month**

WEIGHT-BEARING

- Independent with a heel toe gait pattern, equal strides, no limping.

ROM

- Full ROM in flexion and extension; continue ROM exercises in Phase I and Phase ii as needed. (These can be discontinued when ROM is equal on both sides).

PHASE III EXERCISES

STRENGTHENING

- Continue previous exercises as needed and add advanced closed chain activities.

CONDITIONING

- 3x/week for 20 minutes on an exercise bike – pedaling normally

MODALITIES

- Ice after exercises (20-30 minutes)
- Proprioception: progress from level plans, incline, and mini tramp surfaces
- Running Program: start basic running program at 8 weeks status post when leg strength and full knee ROM and no trace swelling are present. Emphasis on gait: normal with full knee extension
- Outcomes Testing: Single leg hop to determine funtion. Status post 8 weeks is recommended

Progression Criteria

- Attain full ROM
- Advance funtional strengthening
- Walk up and down stairs using both legs easily

PHASE IV: Weeks 10+ (Function) **Clinic visits: 1x/month**

Phase IV Exercises

- Exercise daily to maintain ROM and advance strength and function to return to regular activities
    - ROM – daily
    - Strengthening – 3x/week
- Functional Training: complete a stage prior to proceeding
    - Stage 1: support hopping – lean on table and hop side to side.
    - Stage 2: start with both feet and progress to involved leg
        - Unsupported hopping in a box pattern
        - Diagonal hopping
        - Straight line hopping – 4 hops forward, then backward

        - Zigzag hopping
    - Stage 3: hopping and running
        - Single leg hop
        - Landings – jump off 2" height forward, backward, and to each side – weight evenly distributed
        - Resisted jogging – elastic band at waist – jog backward, then forward; progress to forward shuffles, carioca
    - Stage 4: Progress to Running Agility Program (3x/week)

Sport Specific Functional Activities

- Complete specific sport-related activities

MODALITIES

- Ice after exercises (20-30 minutes)

Progression Criteria

- Advance agility and power training
- Achieve normal activities on uneven surfaces

This protocol provides you with general guidelines for the patient undergoing surgical reconstruction of the ACL.

Specific changes in the program will be made by the physician as appropriate for the individual patient.

Questions regarding the progress of any specific patient are encouraged, and should be directed to Dr. Tabaddor at 401-789-1422, ext. 104.

REFERENCE: Clinical Orthopaedic Rehabilitation, 2nd edition. SB Brotzman, KE Wilk. Mosby 2003.