

ANTERIOR CRUCIATE LIGAMENT (ACL) RECONSTRUCTION PROTOCOL

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. MOSMI staff will provide contact information for further individual-specific rehabilitation progression consultation and general questions regarding specific patients. Please fax initial assessment and subsequent progress notes directly to Dr. Corey Wulf at 952-944-0460.

General Principles:

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

Patient can progress more quickly in the first two phases if appropriate and meet specific requirements.

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

- **If suture meniscus repair: No weight bearing flexion > 90° ≈ 3- 4 weeks**

WEIGHTBEARING

- Use immobilizer while sleeping, until full extension has been reached and can perform straight leg raises.
- Crutches: progress
 - **TTWB for 6 weeks post-operatively**
 - 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° - 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° 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°
- Decrease post-operative swelling
- Progress toward independent walking
- Initiate strengthening program

PHASE II: Weeks 3-6 (Strength)

Clinic Visits: 1x/week

WEIGHTBEARING

- Full WB 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 normal.

Progression Criteria:

- ROM: full hyperextension and 130° of flexion
- Confident, smooth gait pattern
- Begin functional strengthening

PHASE III: Weeks 6-10 (Power)

Clinic Visits: 2x/month

WEIGHTBEARING

- 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 normal.

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 function. Status post 8 weeks is recommended.

Progression Criteria:

- Attain full ROM
- Advance functional 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: supported 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 backwards, then forwards; 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 REHABILITATION OF THE PATIENT WITH AN ANTERIOR CRUCIATE LIGAMENT (ACL) RECONSTRUCTION.

THE FREQUENCY OF VISITS MAY BE DETERMINED MUTUALLY BY THE PATIENT, THERAPIST, AND ATHLETIC TRAINER DEPENDING UPON PATIENT COMFORT LEVEL, PROGRESS, AND UNDERSTANDING OF THE HOME PROGRAM.

SPECIFIC CHANGES IN THE PROGRAM WILL BE MADE BY THE PHYSICIAN AS APPROPRIATE FOR THE INDIVIDUAL PATIENT. PATIENTS WITH PERSISTENT INSTABILITY MAY BE CANDIDATES FOR FURTHER EVALUATION AND/OR SURGICAL INTERVENTION.