



# THE STONE CLINIC

## ORTHOPAEDIC SURGERY, SPORTS MEDICINE AND REHABILITATION ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

### Post-Operative Rehabilitation Protocol

#### **General Considerations:**

- Progression should be based on careful monitoring by the Physical Therapist of the patient's functional status.
- Early emphasis on achieving full extension equal to the opposite side (including hyperextension within normal range, 10\*).
- Avoid direct palpation and mobilization on incisions/portals for 4 weeks.
- Exercises should focus on proper patella tracking and recruitment of the Vastus Medialis Oblique (VMO).
- Exercises should focus on lumbopelvic stabilization in all planes of motion and all transfers.
- No resisted leg extension machines (isotonic or isokinetic) at any point in the rehab process.
- No cutting or twisting until cleared by Sports Test I.
- Patient should be well aware that healing and tissue maturation continue to take place for 1 year after surgery.
- Patients are given Sports Test I at 3 months , Sports Test II at 6 months, Sports Test III at 1 year.

#### **PHASE I. (Status-post Weeks 1-2): Max protection phase**

Nurse appt on day 2 for dressing change and review of home program.

Ice/elevation every 2 hours for 15 minutes to minimize edema and promote healing (please refer to Icing handout).

**Manual:** -Soft tissue treatment to quads, posterior musculature, suprapatellar pouch, popliteal fossa, iliotibial band and Hoffa's fat pad. Extensive patellar mobilization.  
-No direct scar mobilization x 4 weeks.

**Exercise:** -Seated edge of bed dangle for knee flexion; prop for knee extension.  
- Quad sets/straight leg raises, hip abduction, calf presses, glut sets, and core exercises.  
-Upper body conditioning, well-leg stationary cycling or Upper Body Ergometer.  
-Gait training progression towards minimizing Assistive Devices (walker, crutches, etc).

#### **Goals:**

Range of motion: 0-90 degrees.

Pain < 3/10. Minimal Edema.

Gait weight-bearing as tolerated; Good quality gait with least amount of Assistive Device.

#### **PHASE II (Status-post Weeks 2-4) :Moderate protection phase**

Nurse appt for suture removal on day 14.

Walking for exercise for 15-20 minutes if no limp or swelling present.

**Manual:** -Continue with soft tissue treatment, effleurage for edema.  
-Extensive patellar mobilization.  
-No direct scar mobilization x 4weeks.

**Exercise:** -Range of motion and functional strengthening exercises: -Squats/Leg Press, Bridges/Hamstring Curls.  
-2" step up/down, intense core training.  
-Aerobic exercises as tolerated (bilateral stationary bike, Elliptical, arm bike).

#### **Goals:**

Active range of motion equal extension to uninvolved side and flexion to 120 degrees. No edema.

Full weight-bearing; normal gait without assistive device.

Single leg balance 60 seconds on level surface.

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#### **PHASE III. (Status-post Weeks 4-6) : Return to function/strengthening phase**

MD appt at 4 weeks.

Walk up to 1 hour for exercise.

**Manual:** -Continue with soft tissue mobilization. Apply direct scar tissue mobilization; can use instruments/tools.

**Exercise:** -Emphasize self stretching to both lower extremities.

-Increase intensity of resistance exercises (i.e. standing resisted squats, lunges, etc).

-Introduce eccentric exercises (4-6" steps).

-Increase single leg strength, challenge proprioceptive training.

**Goals:**

Full Range Of Motion equal to uninvolved leg.

Perform 4 inch step down.

Bike with minimal resistance for 20-30 minutes (in saddle), walking for 30 minutes, Elliptical, water-walking.

#### **PHASE IV (Status-post Weeks 6-10): Progressive Activity phase**

**Manual:** -Soft tissue mobilization and joint mobilization as needed.

**Exercise:-** Add lateral training exercises (lateral step ups, lunges, step overs).

Initiate tri-planar activities with the exception of closed-chain rotation (pivots).

-No cutting or pivoting.

**Goals:**

Activities should be pain-free:

Able to descend stairs, double leg squat hold for >1 minute.

Bike >30 minutes with moderate resistance, Elliptical with interval training, Flutter-style for swimming (no flippers, no breast-stroke kick).

#### **PHASE V (10-16 weeks): Training for Sport phase**

MD visit at 3 months.

-Complete sports Test I and return to pre-running program at 3 months (see handout for specific details)

-Fit for functional knee brace if requested by MD.

-Incorporate bilateral, low level jumping exercises.

-Continue to increase strength, endurance, and add sport specific training drills.

**GOALS:**

Pass Sports Test I.

#### **PHASE VI (16 weeks +) Return to Sport phase**

MD visit at 6 months.

-Sport test 2 at 6 months. Initiate return to run program.

-Implementation of jump training, agility training. Education of "at risk sports".

- After 6 months add lateral plyometric type drills, agility ladder

**GOALS:**

Initiate sagittal plane plyometrics, work towards single leg plyometrics.

Clearance by MD and pass Sportmetric training before returning to full athletics.

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