



ACL Reconstruction Rehab Protocol

The following is a protocol for post-operative patients following ACL reconstruction. The primary goal of this protocol is to protect the reconstruction while steadily progressing towards and ultimately achieving pre-injury level of activity. Please note this protocol is a guideline. Patients with additional surgery (i.e. collateral ligament repair, meniscal repair) will progress at different rates. Achieving the criteria of each phase should be emphasized more than the approximate duration. If a patient should develop an increase in pain or swelling or decrease in motion at any time, activity should be decreased until problems are resolved.

Phase I: 1-14 days

Goals:

- Protect graft and graft fixation with use of brace and specific exercises
- Control inflammation and swelling
- Early range of motion (ROM) with emphasis on full extension, patella mobilization and flexion. AROM 0-100 degrees. Caution: avoid hyperextension greater than 10 degrees
- Educate patient on rehabilitation progression
- Restore normal gait on level surfaces
- Independent SLR without extensor lag

Brace

- Post-op brace worn locked in extension for ambulation and sleeping
- May unlock for RANGE OF MOTION exercises

Weightbearing status

- Weightbearing as tolerated with crutches and brace locked in extension
- If meniscal repair or microfracture, non-weightbearing for 4 weeks

Exercises

- ROM exercises (see figures below)

Extension – no active terminal extension from 40 to 0 degrees

- Passive extension: Sit in a chair and place your heel on the edge of a stool or chair, relax thigh muscles and let the knee sag under its own weight until maximum extension is achieved.
- Heel props: Place rolled up towel under the heel and allow leg to relax
- Prone hangs: Lie face-down on a table/bed with the legs hanging off the edge of the table, allow the legs to sag into full extension

Flexion – limit to 90 degrees

- Passive flexion: Sit on chair/edge of bed and let knee bend under gravity. May use the other leg to support and control flexion
 - Wall slides: Lie on your back with the involved foot on the wall and allow the foot to slide down the wall by bending the knee, use other leg to apply pressure downward
 - Heel slides: Use your good leg to pull the involved heel toward the buttocks, flexing the knee. Hold for 5 seconds. Straighten the leg by sliding the heel downward and hold for 5 seconds
- Quadriceps sets in full extension
 - Straight leg raises in brace locked in extension
 - Hamstrings sets
 - Patella mobilization
 - Isometric hip abduction, adduction
 - Ankle ROM and gastroc soleus strengthening with tubing/TheraBand's

Phase II: Weeks 3-6

Goals:

- Restore normal gait with stair climbing
- Maintain full extension, progress toward full flexion range of motion
- Protect graft and graft fixation
- Increase hip, quadriceps, hamstring and calf strength
- Increase proprioception

Brace

- May wean out of post-op brace when demonstrating good quad control

Weightbearing status

- Weightbearing as tolerated, wean off crutches

Exercises

- Continue as above, maintaining full extension and progressing to 125 degrees
- No active terminal extension from 40 to 0 degrees
- Begin closed kinetic chain exercises
- Stationary bicycling, Stairmaster: slow, progressing to low resistance
- Hamstring curls
- Hip abduction, adduction, extension
- At 4-6 weeks, ¼ partial squats, use table for support

Phase III: Weeks 6-12

Goals:

- Full active range of motion
- Increase strength

Exercises

- Stationary bicycling, Stairmaster, elliptical: increases resistance
- Treadmill walking
- Swimming, water conditioning: flutter kick only
- Balance and proprioceptive training
- Closed chain quad strengthening: no knee flexion greater than 90 degrees with leg press

Phase IV: Months 3-6

Goals:

- Improve strength, endurance and proprioception
- Begin agility training

Brace

- Functional ACL brace

Exercises

- May start jogging program, forward/straight running only
- Continue and progress strengthening
- Progress to running program at 5 months
- Begin agility training at 5 months
 - Side steps
 - Crossovers
 - Figure 8 running
 - Shuttle running
 - One leg and two leg jumping
 - Cutting
 - Acceleration/deceleration/sprints
 - Agility ladder drills
- Initiate sport-specific drills as appropriate

Phase V: 6 months post-op

Goals

- Maintain strength, endurance and proprioception
- Safe return to sport

Brace

- Functional ACL brace for contact sports, jumping, and landing or cutting and twisting until 1 year post-op, then per patient preference

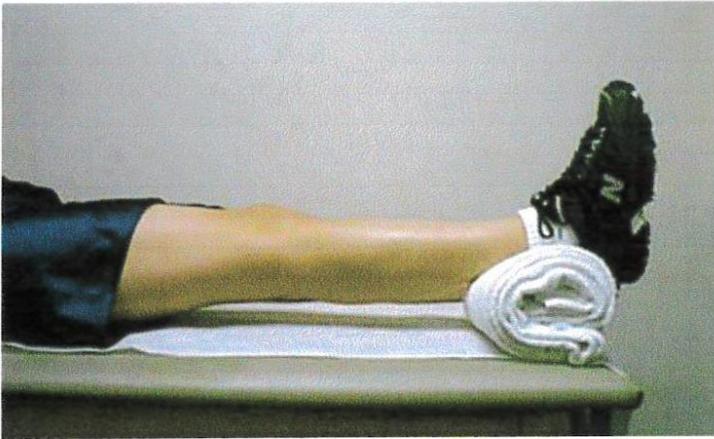
Exercises

- Gradual return to sports participation
- Maintenance program for strength, endurance

Return to sports criteria

- Pain free
- Symmetrical ROM
- No effusion
- Quad index > 90%
- Single leg press equal bilateral with 1 rep max test
- Jogging 2 miles pain free
- Functional hop testing 90% of non-involved extremity
- Y-Balance test: composite score > 90%
- Functional bracing discussion
- Discussion with patient about confident to RTS

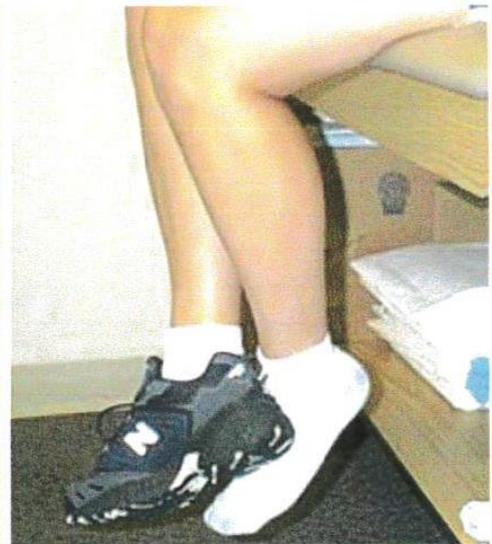
Heel Props



Prone Hangs



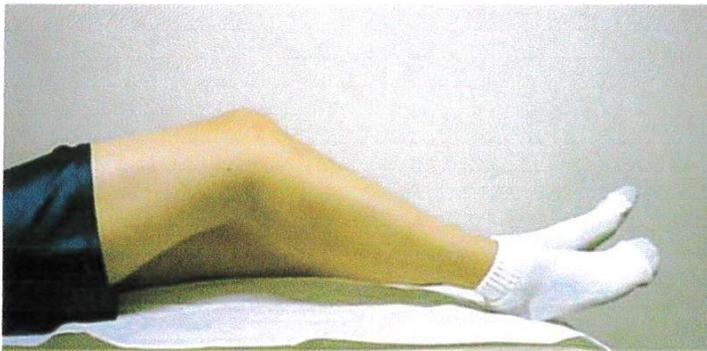
Passive Flexion



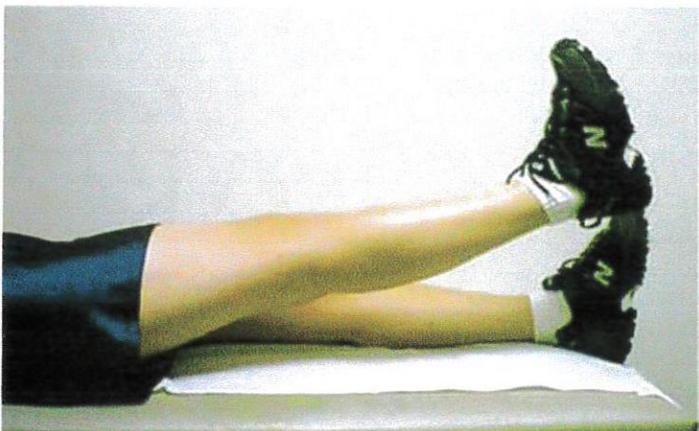
Wall Slides



Heel Slides



Straight Leg Raise



Partial 1/4 Squats

