



Orthopaedic Surgery - Arthroscopic Surgery - Joint Replacement - Sports Medicine - Fracture Care

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## ACL Reconstruction Postoperative Protocol: BTB and Hamstring

Patient Name: \_\_\_\_\_

DOS: \_\_\_\_\_

Please call with questions:

[ACL Reconstruction with *Meniscal Repair*:

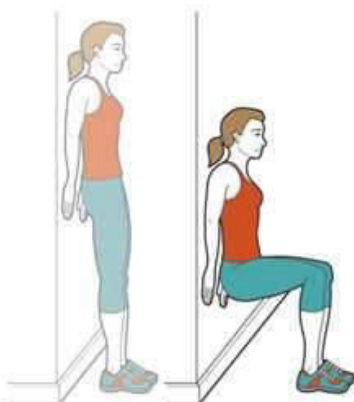
- PWB (50%) with brace (→→→→→→→→→→)  
locked in **extension** for 4-6 weeks
  - restrict NWB flexion to < 90°]

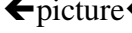


### PHASE I - 1-4 weeks:

activation, control effusion, early ROM, normalize gait, single leg balance  
30 sec.

T with crutches, brace locked in extension until good quad control.



- Patellar mobilizations
  - ROM:
    - Flexion:
      -  Wall slides [0-30 degrees until wk 3]
      - heel slides
      - stationary bike.
    - Extension: Prone hangs, heel sags if not equal to opposite

- Strengthening:

- Quad/Ham/Glut sets
- Straight Leg Raises x4
- Toe-raises
- Assisted squats
- Hip & core strengthening
- Leg-curls [as tolerated with hamstring graft]



- Stretching: Calves, hams (no quad stretch)

- Function:

- SLB (eyes open/closed) →→→→→
- weight shifting all planes

- Gait:

- Gait training with brace
- progress to without crutches (fwd, bwd, side-step, high knees, step-overs)

- Modalities:

- ES for quad activation as needed
- Ice
- IFC

- Aquatics: Address problem areas **[if wound healed, contact doc with wound issues]**

## **Phase II - 2-6 weeks:**

**Goals:** FWB without assistive device, no gait deviations AROM equal to opposite

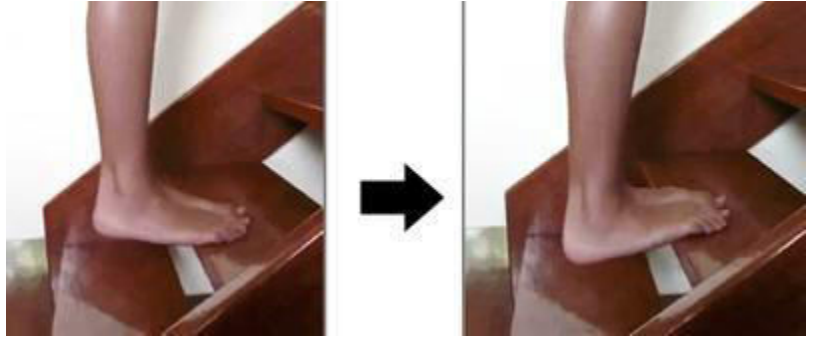
### **Exercises**

- ROM:

- Flexion: Heel slides, stationary bike, wall slides [0-60 degrees]

- Extension: heel sags➔

\*\*\*Add weight to prone hangs if ROM not equal to opposite side▼



- Strengthening:
  - SLR's x4 [add weight if no extensor lag]
  - assisted squats/ wall squats
  - bilateral leg press [0-60 degrees] / shuttle
  - hip and core strengthening
  - SL toe raises

- Hamstring only:

*Add isotonic hamstring curls at week 4*

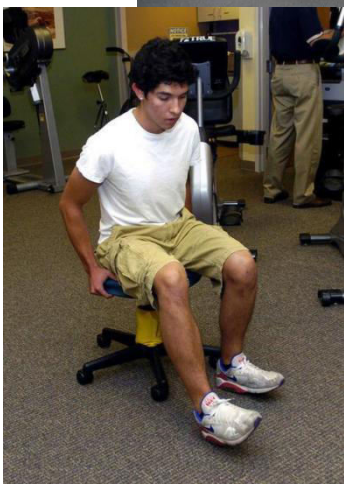
- Proprioceptive Exercises:
  - Dynamic SLB
  - standing Biomechanical Ankle Platform System [BAPS]
  - SLB reach progressing below waist level
    - *avoid rotation*
- CV conditioning:
  - Stationary bike [high seat/low resistance initially]
  - treadmill walking forward and backward
  - Stairmaster after week 4
- Aquatics: Address problem areas **[if wound healed, contact doctor with wound issues]**



- Function:

- Single leg step and squat
- ← side-step with tubing
- forward step-ups
- medial step-downs

- Gait: On land or in pool as needed, all directions



### **Phase III Progressive Rehabilitation- 6-12 weeks:**

**Goals:** No PF symptoms, increase eccentric neuromuscular control to allow acceptance of impact activities, full ROM



#### **Exercises**

- ROM: PROM or bike with low seat, if not meeting flexion goals, at 6 weeks may add quad stretch with belt
  - Strengthening: Advance as appropriate
    - Add unilateral leg press
- ➔ and/or shuttle if not doing so already
  - Hip and core strengthening
  - Leg extension 90°-40° if needed, single leg wall squats.
  - ▼ Stool scoots or MRE hams to increase ham strength.
- Proprioceptive Exercises:

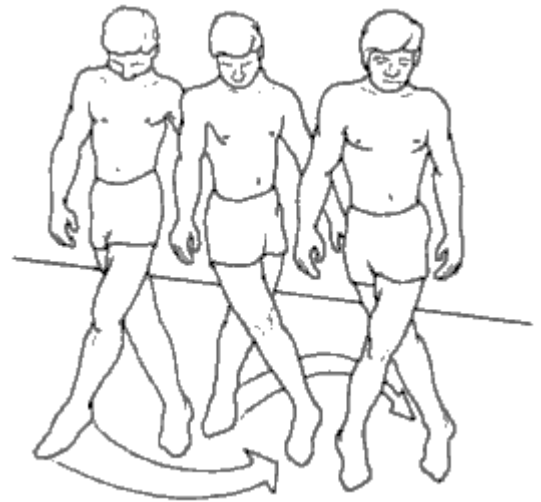
- Progress as tolerated on gradually less stable surfaces, eyes closed, perturbation training, sport-specific exercises, etc.

\*\*\*\**Avoid rotation.*\*\*\*\*

- CV Conditioning:
    - Stationary bike or in pool, treadmill walking, Stairmaster. Elliptical after 6 weeks
  - Functional exercises:
    - Progress step-ups medial step-downs
    - Progress to multi- plane strengthening and functional exercises
      - Forward, side, retro lunges, medial rotation lunges
- at 8-10 weeks
- Single leg squat
  - Pre-jump exercises (side jumps, calf jumps)
  - Single leg wall squats, slide board, sport cord.

### **8-10 weeks:**

- Begin walk/jog program
- Carioca →
- Side shuffle
- High knee skipping
- Jump rope
- Functional knee class if >70% pre-op scores. +/- functional brace



### **Phase IV- Return to Full Function: 10-16 weeks**

\*\*\**Progress to Phase IV when Phase IV goals met and MD approval*\*\*\*

**Goal:** Running/cutting without a limp

**Exercises:**

- Plyometric Exercises:
  - Start with two leg jumping on level surface
    - [Head up, Land soft, flexed knees, knees pointing straight ahead]
  - AP, ML, box, horseshoe patterns
- Ice skater
- Progress to single leg hopping program with good technique
  - (if can single leg press body weight)
- Running: Gradually progress program, add cutting, turns
- Strengthening:
  - Open chain knee extension full ROM if needed ➔





- Continue hip and core strengthening
- Function:
  - Progress difficulty of lunges
  - Sport specific balance
  - Agility and functional strengthening activities
- Proprioceptive Exercises: Progress difficulty; sport specific
- CV Conditioning: Continue as previous

### **Physical Performance Testing**

\*\*\*\*when requested by physician\*\*\*\*

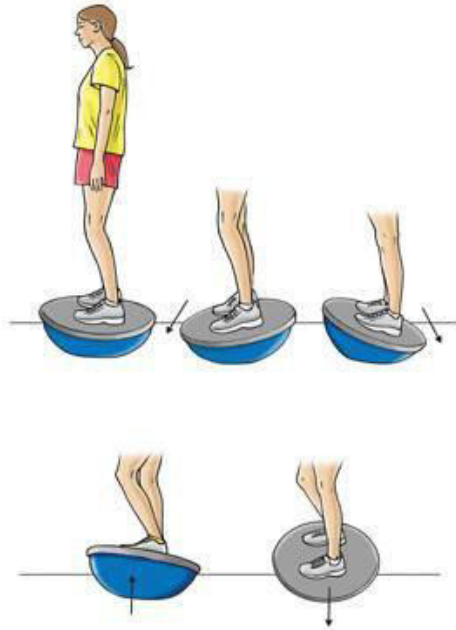
### **Pre-operatively**

- KT-1000 Arthrometry: bilateral
- Biodex of uninvolved LE: 6 reps at 60° and 180° per second
- Single leg balance reach of uninvolved LE, best of 3 attempts
- Single leg hop for distance of uninvolved LE, best of 3 attempts
- Range of motion of uninvolved LE

### **4 months Post-Operatively**

- KT-1000 Arthrometry: bilateral
- Biodex bilateral LEs: 6 reps at 60° and 180° per second: should be > 85% to return to sport
- Single leg balance reach of surgical leg(s), best of 3 attempts: should be > 85% to return to sport
- Range of motion of the surgical leg

# Anterior Cruciate Ligament (ACL) Injury Rehabilitation Exercises



Wobble board exercise: A



Wobble board exercise: B



Wobble board exercise: C



Wobble board exercise: D



Wobble board exercise: E

# Anterior Cruciate Ligament (ACL) Injury Rehabilitation Exercises



Heel slide



Quad Sets



Passive knee extension



Wall squat with a ball



Balance and reach exercise A



Balance and reach exercise B



Knee stabilization: A



Knee stabilization: B



Knee stabilization: C



Knee stabilization: D



Resisted terminal knee extension