

Non-Operative ACL Protocol

PHASE I, (Acute Phase)

Goals:

- Control pain and swelling
- Restore pain free ROM
- Improve flexibility
- Normalize gait mechanics
- Establish good quadriceps activation

Precautions:

- WBAT with crutches until demonstrates normal gait mechanics
- Alert physician is patient reports episodes of knee buckling

Recommended Exercises:

- Range of Motion
 - Patella mobilization (medial/lateral, superior/inferior) 2 sets of 20 repetitions
 - Belt stretch (calf/hamstring) Hold 30 seconds 3-5 repetitions
 - Heel slides 2 sets of 20 repetitions
 - Prone quad stretch hold 30 seconds 3-5 repetitions
 - Cycle (minimal resistance) 10-15 minutes daily
 - Quad sets 2-3 sets of 20 repetitions
- Strength
 - Add sets 2-3 sets of 20 repetitions
 - SLR *(no Lag)* 2-3 sets of 10-20 repetitions
 - Hip Abd/Add/Ext/ER (against gravity) 2-3 sets of 10-20 repetitions
 - Body weight squats (partial range) 2-3 sets of 10-20 repetitions
 - Standing TKE with Theraband/cable column 2-3 sets of 10-20
 - Standing or prone hamstring curls 2-3 sets of 10-20 repetitions
 - Heel raises 2-3 sets of 10-20 repetitions

Guidelines:

- Swelling and ROM deficits must be resolved before progressing to next phase. Use exercise bike daily if possible for 10-15 minutes. Perform ROM exercises 3-5 times a day. Perform strengthening exercises 1 time a day.

PHASE II, (Sub-Acute/Strengthening Phase)

Goals:

- Avoid patellofemoral pain
- Maintain ROM and flexibility
- Restore muscle strength
- Improve neuromuscular control

Precautions:

- D/C crutches if have not already
- Alert physician if patient reports episodes of knee buckling

Recommended Exercises:

- Range of Motion
 - Continue ROM and initiate LE flexibility exercises
 - Cycle/elliptical 10-15 minutes
 - Continue open chain hip and knee strength from phase 1 progress with ankle weights
- Strengthening
 - Hamstring strengthening (progress from standing curl, leg curl machine, to curl on pball, single leg dead lift) 2-3 sets of 15-20 repetitions
 - Leg press (progress from double-limb to single limb) 2-3 sets of 15-20 repetitions
 - Step-up progressions (forward and lateral) 2-3 sets of 15-20 repetitions
 - BOSU, *sport specific if applicable
 - Plank, side plank, single-limb bridge 2 sets of 30 seconds each (15 seconds each leg with bridge)
- Proprioception
 - Static single-limb balance 3 sets of 30-60 seconds (progress eyes open to eyes closed with stance on foam pad)

Guidelines:

- Perform all ROM and flexibility exercises once a day. If possible, cycle daily. Perform strengthening exercises 3-5 times a week (frequency and volume programmed by PT)

PHASE III, (Limited Return to Activity Phase)

Goals:

- Avoid patella femoral pain
- Maintain ROM and flexibility
- Progress with single leg strengthening to maximize strength
- Progress dynamic proprioception exercises to maximize neuromuscular control
- Initiate plyometrics and light jogging
- Gradually begin return to sport activities pending physician's clearance

Precautions:

- Must avoid patella femoral stress
- Caution pivoting and lateral movements
- Alert physician if patient reports episodes of knee buckling

Recommended Exercises:

- Range of Motion and Flexibility
 - Continue ROM and flexibility exercises as needed
- Cardio
 - Cycle/elliptical/treadmill with progressive resistance
- Strengthening
 - Continue progressing Phase 2 strengthening exercises
 - Step-up progressions (increase height of step) 2-3 sets of 15-20 repetitions
 - Single-limb dead lift 2-3 sets of 15-20 repetitions
 - Static lung progressions (forward/backward/lateral) 2 sets of 50 feet
- Proprioception
 - Single-limb balance with perturbations 3 sets of 30-60 seconds (progress eyes open to eyes closed, foam, BOSU, *sport specific if applicable)
- Plyometrics
 - Emphasize eccentric control, avoiding increased trunk flexion, dynamic genu valgum, and femoral internal rotation, must have appropriate strength to progress to plyometric program. Simple double-limb jumps
 - Complex double-limb jumps

Guidelines:

- Perform stretching program daily. Cardio exercise is recommended 3-5 times a week for 20-30 minutes. Perform strengthening/proprioception exercises 3 times a week. Perform plyometric/jumping exercises 2 times a week. Monitor increased swelling with plyometrics. Decrease intensity if swelling persists. Strict attention must be paid to form and to minimize patella femoral pain with exercises.

PHASE IV, (Return to Activity/Sport Phase)

Goals:

- Maintain adequate ROM, flexibility and strength
- Continue progressive/dynamic strengthening, proprioceptive, plyometric and agility training
- Achieve adequate strength to return to sport (pending physician's clearance)

Precautions:

- Limited and controlled lateral movements
- Gradual return to sport pending physician's clearance
- Work with physician and physical therapist to develop specific return to sport progression

Recommended Exercises:

- Stretching
 - Continue daily lower extremity stretching
- Cardio
 - Continue cardio program and progress intensity and duration
- Strengthening
 - Continue strengthening program from phase 3 (increase load and decrease repetition)
 - Progress from static to dynamic lunges
- Proprioception
 - Continue advanced proprioceptive training (increase difficulty of drills)
- Plyometrics
 - Emphasize eccentric control, avoiding increased trunk flexion, dynamic genu valgum and femoral internal rotation
 - Single-limb jumps
 - Combination double-limb jumps
 - Combination single-limb jumps
- Sport Specific Drills
 - Initiate sports specific drills
 - Begin speed/agility program

Guidelines:

- Perform stretching program daily. Cardio program is recommended 3-5 times a week for 20-40 minutes. Perform strengthening/proprioception exercises 3 times a week. Perform plyometric/jumping/agility exercises 2 times a week. Perform return to sport activities as directed.