



Matthew Gotlin, MD
159 East 74th Street
New York, NY 10021

REHAB PROTOCOL: Pediatric ACL Injury – Non-op

Name: _____

Date: _____

Diagnosis: _____

Date of Surgery: _____

Phase 1(Acute Phase) Weeks 1-3

Goals:

1. Control pain and swelling
2. Restore pain free ROM
3. Improve flexibility
4. Normalize gait mechanics
5. Establish good quadriceps activation

Precautions:

- WBAT with crutches until demonstrates normal gait mechanics
- Alert physician if patient reports episodes of knee buckling
- Fit for Functional ACL brace

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

Strength

- Quad sets 2-3 Sets of 20 Repetitions
- 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

159 East 74th Street
New York, NY 10021
Tel: 212-737-3301 Fax: 212-734-0407

2 Overhill Rd, Suite 310
Scarsdale, NY 10583
Tel: 914-725-6970 Fax: 914-725-6972

1600 Stewart Ave, Suite 100
Westbury, NY 11590
Tel: 516-243-8506 Fax: 212-734-0407

1870 Richmond Road
Staten Island, NY 10306
Tel: 718-285-7118 Fax: 212-734-0407

161 Atlantic Avenue
Brooklyn, NY 11201
Tel: 212-737-3301 Fax: 212-734-0407

200 West 13th Street, 6th Floor
New York, NY 10077
Tel: 212-737-3301 Fax: 212-734-0407

9226 Kennedy Boulevard
North Bergen, NJ 07047
Tel: 212-737-3301 Fax: 212-734-0407

- 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 2 (Sub-Acute/Strengthening Phase) Weeks 4-6

Goals:

1. Avoid patella femoral pain
2. Maintain ROM and flexibility
3. Restore muscle strength
4. 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

Strengthening

- Continue Open Chain hip and knee strength from phase 1 progress with ankle weights
- 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
- Squat progression (limit to 90 degrees) 2-3 Sets of 15-20 Repetitions
- 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, foam, BOSU, *sport specific if applicable)

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 3 (Limited Return to Activity Phase) Weeks 7-16

Goals:

1. Avoid patella femoral pain
2. Maintain ROM and flexibility
3. Progress with single leg strengthening to maximize strength
4. Progress dynamic proprioception exercises to maximize neuromuscular control
5. Initiate plyometrics and light jogging



6. 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 lunge 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 4 (Return to Activity/Sport Phase) 4 months

Goals:

1. Maintain adequate ROM, flexibility and strength
2. Continue progressive/dynamic strengthening, proprioceptive, plyometric and agility training
3. 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

159 East 74th Street
New York, NY 10021
Tel: 212-737-3301 Fax: 212-734-0407

2 Overhill Rd, Suite 310
Scarsdale, NY 10583
Tel: 914-725-6970 Fax: 914-725-6972

1600 Stewart Ave, Suite 100
Westbury, NY 11590
Tel: 516-243-8506 Fax: 212-734-0407

1870 Richmond Road
Staten Island, NY 10306
Tel: 718-285-7118 Fax: 212-734-0407

161 Atlantic Avenue
Brooklyn, NY 11201
Tel: 212-737-3301 Fax: 212-734-0407

200 West 13th Street, 6th Floor
New York, NY 10077
Tel: 212-737-3301 Fax: 212-734-0407

9226 Kennedy Boulevard
North Bergen, NJ 07047
Tel: 212-737-3301 Fax: 212-734-0407

- 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)

Plyometric

- 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 by physician and physical therapist. Alert physician if patient reports episodes of knee buckling.

Comments:

Frequency: _____ times per week

Duration: _____ weeks

Signature: _____

Date: _____