

## Sportshealing paediatric PCL rehab protocol

### General notes:

- “As tolerated” should be understood to include with safety for the reconstruction/repair; pain, limp, swelling, or other
- undesirable factors are indicators that you are doing too much too soon. If any of these should occur, decrease activity level,
- ice and elevate the leg.
- Ice should be applied to the knee for 15-20 minutes following each exercise, therapy, or training session.
- Return to sport based on provider team (physician, physician assistant, athletic trainer, therapist) input and appropriate testing.
- All times and exercises are to serve as guidelines. Actual progress may be faster or slower, depending on each individual
- patient, as agreed upon by the patient and his/her team of providers.

### Pre-op

Brace:

As needed

Weight Bearing:

Full, crutches as necessary

ROM (range of motion) Goals:

Extension: Full with back of leg supported at all times to protect from tibial sag

Flexion: 135 degrees

Therapeutic Exercise: Learn exercises for post-op regimen

Goal: Minimal to no swelling, full knee extension

### Post-Operative Phase I: (Weeks 0 to 4)

Brace:

- Locked in full knee extension

Function:

- Ambulation foot flat weight bearing; MUST use crutches

Therapeutic Exercises:

- Quad sets (tighten thigh muscles), three-way SLR (straight leg raises: backwards and each side, NO flexion)

- No open chain hamstring strengthening

- Upper body strengthening permitted when seated or lying down

**Manual:**

- Scar and soft tissue massage, patella mobilizations
- Passive knee flexion (someone bends knee for you) to 90°  
with anterior tibial force

**Cardio:**

- UBE (upper body ergometer)

**Modalities:**

- NMES for quadriceps atrophy, strengthening as needed
- HVPC for effusion reduction as needed
- Cryotherapy six to eight times per day for 15 to 20 minutes  
each

**Progression to Phase II:**

- Hip flexion SLR without knee extension lag
- Full active knee extension
- Minimal joint effusion
- Knee flexion to 90°

**Post-Operative Phase II: (Weeks 4 to 9)**

Brace:

- Open 0° to 30° weeks 5 and 6
- Open to 60° weeks 7 and 8

Function:

- Ambulating in brace partial to full weight bearing by week 9
- Wean off crutches by week 9

Therapeutic Exercises:

- Quad sets, four-way SLR
- Begin ¼ squat and step down weeks 7 and 8
- No closed kinetic chain (CKC) strengthening with knee  
flexion angle greater than 30°
- No open chain hamstring strengthening
- Core strengthening, not in standing

Manual:

## Sportshealing paediatric PCL rehab protocol

- Scar and soft tissue massage, patella mobilizations
- Passive knee flexion to 110° with anterior tibial force

Proprioception:

- Single limb stance (SLS), BAPS board
- Joint repositioning

Cardio:

- UBE, stationary bike without resistance and without toe clips

Modalities: • NMES for quadriceps atrophy, strengthening as needed • HVPC for effusion reduction as needed • Cryotherapy six to eight times per day for 15 to 20 minutes each

**Progression to Phase III:**

- Knee ROM 0°-110°
- No effusion
- Normal gait with brace without crutches
- No pain
- Good eccentric control of involved knee

**Post-Operative Phase III: (Weeks 9 to 24)**

Brace:

- Open

Function:

- Ambulating with full weight bearing in open brace

Therapeutic Exercises:

- CKC strengthening in unrestricted knee flexion ROM, ½ squats, step downs, progression to multi-lane CKC activities
- No open chain hamstring strengthening
- Hip and core strengthening

Manual:

- Scar and soft tissue massage, patella mobilizations
- Initiate and progress posterior tibial glides and joint mobilizations
- Passive knee flexion to full°

Proprioception:

- SLS, BAPS, unstable surfaces
- Joint repositioning
- Perturbation training

Cardio:

- UBE, stationary bike without toe clips, treadmill ambulation, elliptical machine

Modalities:

- Cryotherapy after activity for 15 to 20 minutes

**Progression to Phase IV:**

- Full knee ROM without end range pain
- Proprioception 80 to 100% of non-involved side
- Isometric quad strength 80% of non-involved side

Functional Training and Return to Sports

Phase:

Recommend pursuing Transitional Therapy for return to sport activities during this phase

- Transitional Therapy – a strength and conditioning program that is lead by medical professionals with a sports medicine background with the goal of transitioning from therapy back to sport
- Contact Elite Sports Medicine for details

In addition to ongoing strength, balance, and cardio conditioning, initiate agility drills and sport-specific plyometric activities as tolerated such as:

Soccer/Football: Two foot ankle hop, double-leg hop, front barrier hop, lateral barrier hop, single-leg hop, power skip, backward skip, double-arm alternate-leg bound, and cycled split squat jump

Basketball/Volleyball: Two foot ankle hop, double-leg hop, squat jump, double-leg vertical jump, single-leg hop, singleleg vertical jump, power skip, backward skip, double-arm alternate-leg bound, alternate-leg push off box drill, and sideto-side push-off box drill

Baseball/Softball/Overhead throwing sports: Two foot ankle hop, double-leg hop, front barrier hop, lateral barrier hop, single-leg hop, power skip, backward skip, double-arm alternate-leg bound, cycled split squat jump, and return to throwing program

**1 Year Follow up Testing:**

- Isokinetic testing to assess strength of hamstring/quadriceps
- Jump and hop testing