ORTHOPEDICS & SPORTS MEDICINE
BAYCARE CLINIC

Dr. Schock
PCL Reconstruction
Phase 1- Early Protective Phase
0 – 6 weeks

Goals for phase 1

- Protect integrity of graft
- Minimize knee effusion
- Restore quad function
- ROM per guidelines listed, emphasis on extension

Criteria for progression to Phase 2

- Minimal effusion
- Minimal pain with gait in brace
- Knee flexion ROM to 90°
- Able to perform SLR

Precautions

- No hamstring exercise for 6 weeks
- No hamstring stretching
- Avoid prone knee hangs

Brace

- Locked at 0° in extension at all times for 6 weeks

Weight bearing

- Initiate progressive weight bearing after 1st post-op visit with MD
    - 25% of body weight every 3 – 4 days based on pain and effusion

Range of Motion

- Limit ROM from 0 – 90° for 6 weeks

Manual Therapy

- Patellar mobility (superior, inferior, medial, lateral)
- Scar massage when incisions closed
- Gentle flexibility using deep tissue mobilization of hamstring quadriceps, gastroc/soleus, ITB

Strengthening

- Quad sets with towel behind tibia
- SLR in brace
- Multi-directional open chain hip strengthening
- SAQ from 60° - 0°
- NMES to quad
- Core Strengthening
- Initiate mini squats or light double leg press from 0 – 60° at 4 weeks

Neuromuscular Control

- Proprioception drills on stable surface

Modalities

- Vasopneumatic compression for edema management 2-3x/week (15-20 min)
- Cryotherapy at home, 3 x per day for 20 minutes each with knee elevated above heart

Phase 2- Progressive Stretching and Early Strengthening
6 – 12 weeks

Goals for phase 2
- Minimize knee effusion
- Progress range of motion, muscle strength, endurance, and balance

Criteria for progression to Phase 3
- Normalized gait
- Full ROM
- Good single leg stance control
- Pain free with squatting, lunging, and step down activities

Testing to advance to Phase 3 protocol
- Functional strength testing to be scheduled before 12 week follow-up with MD (appt must be scheduled with Aurora BayCare Sports Medicine department – East Side location to complete testing). Please contact physician office if unable to make this arrangement for alternative testing.
- Y-Balance testing within 6 cm of involved LE
- 3PQ isometric quadriceps testing (<25% difference)
- Single leg squat without display of knee valgus

Precautions
- No open kinetic chain hamstring strengthening or isolated hamstring exercises
- No hamstring stretching
- No forced hyperflexion

Brace
- Progressively open brace over next 1 – 2 weeks
  - Progress based on quad function and control
  - Discharge brace based on controlled pain, appropriate quad strength, and controlled effusion

Weight bearing
- Full weight bearing in brace

PROM
- Continue patellar mobilization as needed
- Restore full knee ROM
  - Minimize posterior tibial translation with ROM

Strengthening
- Upright bike
  - Low resistance, avoid excessive hamstring pull
- May begin active hamstring contractions
  - Initiate with isometric hamstring contractions
  - Progress to AROM
  - Initiate hamstring strengthening with double leg closed chain strengthening
  - No isolated resisted Hamstring strengthening for 12 weeks
- Begin total LE strengthening with SLR program
- Bilateral closed chain squatting
- Multi-plane open kinetic chain hip strengthening
- Step-up progression
- Core strengthening
- Pool Program
  - No Running or jumping

Proprioception
- Initiate on stable surfaces, progress to unsteady surfaces

Modalities
- Vasopneumatic compression for edema management 2-3x/week (15-20 min)
- Cryotherapy at home, 3 x per day for 20 minutes each with knee elevated above heart

Phase 3 – Advanced Strengthening and Plyometric Phase
12 - 26 weeks

Goals for phase 3

- Improve functional strength
- Initiate hamstring strengthening progression
- Good knee control with functional movements
- Good neuromuscular control with light impact and dynamic activities

Criteria for progression to Phase 4

- Normal gait
- Good knee control
- Able to perform multi-directional activities with good knee control
- No pain with dynamic activities

Manual Therapy

- LE stretching program as needed

Strengthening

- Full Gym Strengthening Program (single leg squats, eccentric leg press, lateral step-downs, advanced bridging, multi-direction lunges, CKC hamstring strengthening)
- Gradual progression of resisted hamstring strengthening
- Progress closed chain strengthening from bilateral to unilateral
- Continue to progress and advance core and hip strengthening program
- Initiate sub body weight jumping activities at 14 weeks
    - Must have adequate strength and neuromuscular control prior to initiation
    - **16 - 18 weeks** – low intensity ladder drills and sub body weight jumping activities
    - **18 - 20 weeks** – Initiate sub body weight running at low intensities
    - **20 – 26 weeks** – Initiate straight line jogging and gradually progress intensity to full running program by 26 weeks

Proprioception

- Advanced proprioception drills
    - Single leg unsteady surfaces
    - Progress to perturbation training

Gait Training Advanced

- Initiate sub body weight running progression in alter-g or pool at 16 weeks
    - Must have adequate strength and neuromuscular control prior to initiation
    - Progress to straight line running by weeks 18 – 20
    - No sprinting for 20 – 24 weeks

Modalities

- Continue ice as needed

Phase 4- Advance Strengthening and Return to Sport
~ 20 weeks – 8 – 10 months

Goals for phase 4

- Continue to improve functional strength
- Progress back to activity and sport specific movements
- Increase intensity of plyometric program

Return to Function Testing: Aurora BayCare return to function for the lower extremity protocol to be used

Months 8-10: Return to function testing per MD approval (appt must be scheduled with Aurora BayCare Sports Medicine department – East Side location to complete testing).

Please contact physician office if unable to make this arrangement for alternative testing.

- Criteria: pain-free, full ROM, minimal joint effusion, isokinetic strength and functional testing at 90% compared to uninvolved, adequate knee control with sport and/or work specific tasks

Manual Therapy

- LE stretching program as needed

Strengthening

- Full Gym Strengthening Program
- Sports specific strengthening drills
- Multi-directional functional strengthening
- Sport specific drills
- Advanced proprioception drills
    - Single leg unsteady surfaces
    - Progress to perturbation training

Gait Training Advanced

- Continue gradual progress of running to sport specific drills and intensities

Modalities

- Continue ice as needed

This protocol was reviewed and updated by Joseph Woldt DPT, SCS and Harold Schock, MD February 2018