

Knee PCL Reconstruction Rehabilitation Program

The Gundersen Health System Sports Medicine PCL Reconstruction Rehabilitation Program is an evidence-based and soft tissue healing dependent program allowing patients to progress to vocational and sports-related activities as quickly and safely as possible. Individual variations will occur depending on surgical details and patient response to treatment. Contact us at 1-800-362-9567 ext. 58600 if you have questions or concerns.

Phase I: 0-1 weeks	(Immediate post-op phase)
Goals	<ul style="list-style-type: none"> • Protect surgical graft • Prevent negative effects of immobilization • Diminish pain and effusion • Initiate range of motion within guidelines • Facilitate quadriceps activation
Brace and Weightbearing	<ul style="list-style-type: none"> • Brace ROM set from 0-90 deg x 2 weeks • Brace used 24 hours/day, can be removed 3-4 times daily for self-ROM + showering • NWB X 6 weeks
Precautions	<ul style="list-style-type: none"> • No isolated hamstring contractions until 16 weeks to prevent excessive posterior shear forces • No stretching into hyperextension to prevent excessive stress to graft
ROM Goals	<ul style="list-style-type: none"> • Gradually improve AAROM knee flexion to 90 deg
Immediate post-op exercises	Ankle pumps, NWB stretch of gastrocnemius/soleus, quadriceps sets, gentle AAROM knee flexion to 90 deg , knee flexion PROM in prone
Recommendations	<ul style="list-style-type: none"> • Ice 15 minutes 3-5x/day

Phase II: 1+- 6 weeks	(Intermediate protection phase)
Goals	<ul style="list-style-type: none"> • Protect surgical graft • Diminish pain and effusion • Progress range of motion within guidelines • Initiate total leg strength within guidelines • Gradual normalization of gait • Improve dynamic stabilization
Brace and Weightbearing	<ul style="list-style-type: none"> • WK 3: Open brace for full ROM
Precautions	<ul style="list-style-type: none"> • No isolated hamstring contractions until 16 weeks • No manual stretching into hyperextension until 8 weeks
AROM Goals	<ul style="list-style-type: none"> • Wk 1-2: 0-90 Wk 3-4: 0-120 • Wk 4+: 0-functional flexion ROM
Interventions for wk 1-4:	<ul style="list-style-type: none"> • Mobilization / ROM: scar tissue massage, patellar mobs, knee extension stretch to 0, knee flexion stretches to ROM limitations as outlined above • Flexibility exercises: hamstring and gastroc-soleus • Strengthening exercises: <ul style="list-style-type: none"> Quadriceps: Biofeedback QS SLR, multi-angle quadriceps sets 0, 30, 60; OKC knee ext 0-60 deg, Total leg: Hip 3 way SLR (no hip ext), ankle DF/PF, Well leg biking, prone knee flexion PROM • Ossur PCL Rebound brace x 3 months (full time use). • Ice 15 minutes 3-5x/day, electric stimulation (IFC or NMES) as needed

Phase III: 6+-12 weeks	(Minimal protection phase)
Goals	<ul style="list-style-type: none"> • Gradually increase the stress applied to the graft • Restore full ROM including extension to neutral • Improve muscle strength and conditioning • Improve proprioception and dynamic stabilization
Precautions	<ul style="list-style-type: none"> • Start weaning off crutches • Continue with Ossur PCL Rebound brace (for functional activity) • No open chain hamstrings x 16 weeks
ROM Goals:	<ul style="list-style-type: none"> • Attain full extension between wk 6-8. Maintain full flexion
Interventions: (Examples of exercises but not an all-inclusive list)	<ul style="list-style-type: none"> • Active warm-up: Bike (7 weeks+), Treadmill walking 7% incline (9 weeks+), Aquajogging (7weeks+), Swimming with fins (9 weeks+) • Mobilization / ROM: Prolonged end-range stretch and accessory mobilizations if necessary, knee extension and flexion stretching, • Flexibility: Hamstrings, gastroc-soleus, quadriceps • Strengthening exercises: <ul style="list-style-type: none"> Quadriceps: isotonic knee extension 0-60, CKC knee extension, wk 8: isotonic knee extension 0-90 Total leg: Hip and ankle strengthening Week 8+: Double leg squats, double leg bridges, reverse lunge (static holds), leg pres • Proprioceptive/neuromuscular control activities: advance drills as strength and muscle control allow (8 weeks+) • Cardiovascular conditioning, core stability • Modalities as needed
Recommendations	

Phase IV: 12 + weeks	(Advanced strengthening phase)
Goals	<ul style="list-style-type: none"> • Maintain full ROM, mobility, and stability • Implement isolated hamstring strengthening (16 weeks+) • Progress muscular strength, power, and endurance • Initiate higher level activities depending on functional demands and MD approval
Interventions	<ul style="list-style-type: none"> • Continue and progress program initiated in Phase III. Add: Hamstrings Strengthening: hamstring sets (week 16) Quadriceps/Hamstring Strengthening: Single leg squats, single leg deadlift • Elliptical Trainer (12 weeks+), Rowing (16 weeks+), Stair stepper (16 weeks+)
Testing	<ul style="list-style-type: none"> • Wk 16: Biodex knee flex/ext 0-90 • Wk 24: Biodex, Functional testing
Return to work/sport	<ul style="list-style-type: none"> • Based on MD approval, full pain-free ROM, minimal pain at rest or with activity, isokinetic strength and functional testing at 90 % compared to uninvolved side • Golf (16 weeks+), outdoor biking (16 weeks+), hiking (16 weeks+) • 6 months: Return to full sporting activities per MD approval
Recommendations	<ul style="list-style-type: none"> • Functional bracing at the discretion of MD, PT, and patient.

Updated 7/2017

PCL Reconstruction

Testing and Return to Running/Sports Recommendations

Testing:

20 weeks (5 months)

SL 60 deg Stork test
Hip strength:
 Abduction MMT
 Hip Abduction Side plank test
Biodex test :
 2 speeds: 180 deg/sec (5 reps) 300 deg/sec (30 reps)
Y balance test
FOTO

20 weeks (5-6 months) – RETURN to RUNNING

Repeat previous tests not passed
Anterior lateral hop to stabilization
Trial of running

24 weeks (6 months)

Biodex test: Full ROM with no ext block
 3 speed test: 60 deg/sec (5 reps),
 180 deg/sec (5 reps),
 300deg/sec (30 reps)
Jump test: no arm swing – submax for apprehension/technique
Single Hop test: no arm swing- submax for apprehension/technique
Single Hop test: no arm swing
Triple hop/Cross over hop test: arm swing-
Tuck Jump or Landing Assessment
Agility Test: LEFT test components or time
FOTO

Return to Running Criteria:

Return to Running Requirements:

Time: at least 5-6 months post-op
MD / PT clearance
No knee joint effusion
ROM: limb symmetry:
 extension within 5 deg
 flexion within 10 deg
Biodex:
 Limb symmetry of PT:
 Quad: 75%
 Hams: 80-90%
Proper running form: Treadmill running (6-10 mph, 5 min) with equal audibly rhythmic foot strike
Anterior lateral hop to stabilization drill completed with no apprehension and good movement control

Return to Running Recommendations:

Biodex:
 180 deg/sec:
 Quad PT/BW: Males: 65%
 Females: 55%
 H/Q ratio: 65%
 300 deg/sec:
 Quads Power :Limb symmetry:75%
 Hams Power: Limb symmetry: 75%
SL 60 deg stork test:
 Limb symmetry: 90%
Hip Abduction Side Plank test:
 Level II or greater
Y balance: Limb symmetry: < 4cm

PCL Reconstruction

Testing and Return to Running/Sports Recommendations

Return to Play Criteria:

Return to Play Requirements:

Time: at least 6 months

MD/ PT clearance

No knee joint effusion

ROM: limb symmetry:

 extension within 5 deg

 flexion within 10 deg

Biodex:

 Limb symmetry of PT:

 Quad: 90%

 Hams: 90%

Tuck Jump or Landing Assessment: no faulty movement patterns

Single Hop test: Limb symmetry: 90%,

Triple Hop test or Cross-Over Hop Test Limb symmetry: 90%

LEFT test or Agility Test with no compensation

Return to Play Recommendations:

Biodex:

60 deg/sec:

 Quad PT/BW: Males: 100%

 Females: 80%

 Hams PT/BW: Males: 60%

 Females: 60%

 H/Q ratio: 60 deg/sec : 60%

 180 deg/sec: 70%

 300 deg/sec: 80%

300 deg/sec:

 Quads Power : Limb symmetry:90%

 Hams Power: Limb symmetry: 90%

Hip Abduction Side Plank test:

 Level III or greater

Y balance: Limb symmetry: < 4cm