UCSF Physical Therapy Referral

UCSF Sports Medicine at the Orthopaedic Institute

Physical Therapy Prescription- PCL/Multiligamentous Knee Ligament Reconstruction -

Evaluate and Treat per therapist plan 1-2 times/week for 32 weeks/8 months. Please contact the office for renewal as needed

Early Post-operative (0-12 weeks)
BRACE: Patients are locked at 0 degrees for 12 weeks with cructhes. Open brace only for prone PROM, or CPM from 0 degrees to 60 degrees. Blue cloth pad placed behind calf to avoid posterior translation of tibia which stresses PCL reconstruction. Brace should not be removed at night to sleep. After 12 weeks, MD will place the patient in a PCL functional brace.

WEIGHT BEARING STATUS: Ambulation is non-weight bearing for 6 to 8 weeks with crutches, then an additional 6 weeks WBAT with crutches with the brace still locked straight

Electrical Stimulation may be used until the patient can generate a strong isometric quad contraction.

D. Patella mobilization is taught to the patient 1-3 days post- operatively including: inferior, superior and medial glides. Emphasize grade 1 and 2 mobilization techniques to avoid further inflammation of the knee.

E. Cryocuff or ice is applied immediately post- operatively over the sterile dressing. The brace is applied over the cryocuff. The cryocuff should be drained and refilled with cold water every hour while in the hospital, then used for 20- 30 minutes every 2-3 hours at home. Advise the patient not to use ice for more than 20-30 minutes at a time.

F. Exercises WEEKS 0-6

Most exercises during the first 6 weeks are done with the brace on and locked at 0 degrees, except PRONE PROM
Exercises initiated immediately post-op include:

PRONE Passive Range of Motion- administered by therapist. (Note: patient may perform passively at home in prone position using a seatbelt around foot/ankle, as long as he/she is good at avoiding varus/valgus stress to knee, with the brace on but unlocked). Flexion should be limited to 60 degrees for the first 6 weeks to avoid excess stress on PCL.
NO ACTIVE HAMSTRING SETS/HEEL SLIDES- will cause a posterior pull on the tibia and will stress PCL reconstruction
Quad sets in full extension- avoid hyperextension
Straight leg raises with the brace on and locked in full extension, blue pad behind calf
Avoid hyperextension of leg
Avoid Valgus stress to knee when a MCL reconstruction has been performed
Avoid Varus stress to knee when a posterolateral corner reconstruction has been performed
Calf Pumps

On POD #7 begin:

Active hip exercises -knee flexed to maximum of 60 degrees. May add resistance
Side lying Abduction - AVOID when a posterolateral corner reconstruction has been performed

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UCSF Health
Sports Medicine

Side lying Adduction - AVOID when a MCL reconstruction has been performed
Passive knee extension to 0 degrees in prone position. The quad should be silent. Full extension should be achieved by POD # 7, optimally.
No open chain exercises except straight leg raises with brace locked.
Quad sets in full extension. Utilize electrical stimulation and/ or biofeedback if the patient demonstrates difficulty in initiating quad set.
Calf stretches.

G. Exercises WEEKS 6-12

a. Resisted gastroc/ soleus exercise using rubber tubing. Progress to bilateral weight bearing toe raises as tolerated then to single toe raises as tolerated.
b. Heel Slides. NO OPEN CHAIN HAMSTRING EXERCISES UNTIL 3 MONTHS POST-OP
c. Passive and Active Assisted stretching exercises may be started to increase knee flexion, aiming to achieve full knee flexion by 10 weeks postop
d. Low resistance Stationary bike may be utilized
e. Closed chain quad strengthening may begin, with emphasis on avoiding excessive stress on collateral ligament reconstructions. Leg press from 0 degrees to 90 degrees.

II. Intermediate Post- operative period (12-16 weeks)
Discontinue post- operative rehabilitation brace. Dr. will put the patient in a PCL Functional Brace at this point that the patient will wear for at least 6 months when weight bearing.

May discontinue use of crutches, WBAT (with functional brace), if walking without a limp. Emphasis on gait training to establish normal patterns.

Exercises

1. Weeks 12-16
AROM with goal to increase flexion and gain full extension.
Stretching into flexion
Hamstring/ Calf stretching
Continue passive knee extension in prone position.
Continue with straight leg raises in full extension if no lag. Slowly progress to weighted straight leg raises.
Active knee extension from 90 to 0 degrees. Avoid pain and crepitation. No resistance applied in the range of 0 to 45 degrees. Add light resistance to short arc quadriceps exercises in the range of 90 to 60 degrees. Emphasis should be on low resistance/ high repetition within patient's tolerance.
Progress exercise on leg press/ hack squat machine as tolerated with emphasis on high repetition/ low resistance in the range of 0 to 90 degrees. Squats and press should not be performed deeper than 90 degrees knee flexion.
Partial squats 0 degrees to 30 degrees of knee flexion. (Perform bilateral and progress to unilateral as tolerated.)
Increase ROM for bilateral partial squats from 30 to 45 degrees of knee flexion. Progress to unilateral squats/ step- ups as tolerated.
Step ups/ step downs- start with 2" block and progress as tolerated.
Stationary cycle
Once sufficient motion is present, increase seat height and work on low load/ high speed for endurance. May pedal unilaterally to work hamstring using toe clips.
Continue with previous exercises progressing to weight machines as tolerated.
Resisted leg curl. Avoid knee hyperextension
Resisted hip extension.
Resisted hip ABduction
Resisted short arc quads in the range of 90 to 60 degrees
Begin hip and quadriceps stretching.
Stairmaster as tolerated. Begin when able to walk on level and stairs normally. Short steps and avoid hyperextension.
Elliptical machine if patient has good quad control.

Pool Activities
AROM 0 to 90 degrees with buoyancy assisting extension.
Flutter kicking performed with knee flexed and motion occurring at hips.
Walking in chest deep water forward and backward. Progress from chest deep water to waist deep water.
Hip Exercises

2. Weeks 16-20

Continue with exercises as above progressing as tolerated, emphasizing high repetition/ low resistance weights.
Increase cycle seat height to protect patello-femoral joint while pedaling the bike. Increase intensity and duration of pedaling as tolerated.
Progress multiple angle quadriceps isometrics up to 45 degrees.
Balance activities. Initiate with unilateral standing on flexed knee with eyes open. Progress to foam mat, BAPS board and/ or decrease visual input (close eyes).
Isometric and Isotonic training for hamstrings

III. Late post- operative Phase (5 - 8 Months)

A. Exercises:

1. Week 20 (5 Months) Progress above exercises as tolerated including:
    a. Stationary cycle

Pedal 30+ minutes to develop local muscular and cardiovascular endurance.
Unilateral pedaling to emphasize hamstrings
Exercise on weight machines.
1) Emphasis still on high repetition/ low weight. Perform sets of up to 100 repetitions to fatigue muscles. May push up weights to "bulk up" muscle as long as inflammation is low and minimal effusion.
2) Machines may include:
Leg press/ hack squat 0-90 degrees
Leg curls
Hip ABduction
Hip ADduction
Hip Flexion
- Hip extension

Progressively increase walking to tolerance on treadmill or level ground

2) Week 24 (6 Months)
    a. Continue exercises as described above
    b. Begin jogging

Up and down straight-aways, walk curves or stop at end and turn around
Gentle and easy at first,
Increase speed and reps gradually
Take day off between each workout to see how knee responds
If pain or swelling develops- back off!!
Ice after jogging

3) Week 28 (7 months)

Continue exercises as described above
Begin running around track, including gentle curves, in both directions
Progress speed, intensity and duration.

ADD:

Short arc quads 30-0 degrees with light weight/ high repetitions to eliminate lag as long as this does not irritate patello-femoral joint.
Flexibility exercises for lower extremity prn.

Multiple angle isometrics approaching full extension starting sub maximal, progressing to maximal effort
Weighted step- ups in the range of 0-30 degrees

4) Week 32 (8 Months)

Continue exercises as described above.
Progress running program
1. Begin figure 8's on straight- away, using entire length, with slow gentle turns.
2. Progressively shorten length of figure 8's to half the length of the track, then to quarter length.
Proprioceptive Training
Shuttle runs (forward/back, and side shuffle)
More aggressive running and cutting drills
Carioca's

ADD:

Full strengthening exercises if tolerated by patello- femoral joint
º squats with weights. Keep tibia perpendicular to floor
Isometric and Isotonic training for quadriceps.
Progress proprioceptive activities to include balance activities on foam mat, mini tramp, and other uneven terrain.

IV. Reconditioning and return to sports (Months 9-12)

A. Exercises

1. Continue to progress above exercises as tolerated.
2. Functional strengthening exercises, progress from slow speed to fast speed concentric/ eccentric activities including:

Mini-tramp
Jumping rope
Jumping

3. Progress proprioceptive activities and progress to foam and other uneven terrain.

Begin progression when torque, work and endurance testing is less than 20% deficit.
Progression must be gradual, progressive and sport specific

4. Gradual return to Sport

PCL Functional Brace use for all sports
Return to specific sports
Biking (no clips)- Ok at 12 weeks (note fall risks to patient)
Cutting sports (soccer, football, ultimate Frisbee, basketball, etc)- 9-12 months depending on strength, pain, effusion, progress with reconditioning and proprioception. Should check with MD first.

V. Maintenance

A. Exercise 2 to 3 times per week to maintain muscle function.

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