

## **Multi-Ligamentous Knee Reconstruction Rehabilitation**

- I. 0-6 Weeks
  - a. Non-weight bearing/FFWB ambulation with crutches
  - b. Brace locked in extension 24 hours/day
  - c. Cryotherapy
  - d. Quad Sets with low intensity E-stim
  - e. Patella mobilization
  - f. Ankle Pumps + ROM
  - g. Stretching—Gastroc-soleus and Gentle Hamstrings
  - h. Hip abduction
  - i. At 3 weeks: Begin Gentle Passive ROM out of brace
  - j. Goals:
    - i. Maximum Protection of grafts/repair
    - ii. Maintain patella mobility
    - iii. Maintain quadriceps tone
    - iv. Maintain full passive extension
    - v. Control pain and swelling
    - vi. Introduce Early ROM
- II. Weeks 6-12
  - a. Begin PWB (25%); increase by 25% over next 4 weeks
  - b. Open brace to full flexion—Wear brace at night w/PLC reconstruction
  - c. Prone Hangs
  - d. Passive Flexion; may start on CPM if no PCL reconstruction
  - e. Patella mobilization
  - f. High-intensity E-Stim at 60 degrees of flexion
  - g. Initiate closed chain strengthening once Full WB and quad strength is  $\geq 3+/5$
  - h. Stationary bike for ROM assist
  - i. Proprioception and weight shift (KAT or BAPS board)
  - j. Hip strengthening (no adduction of PCL reconstruction)
  - k. Discontinue brace at end of week 12
  - l. Goals:
    - i. Initiate weight bearing for articular cartilage nourishment
    - ii. Increase knee flexion
    - iii. Maintain quadriceps tone
    - iv. Improve proprioception
    - v. Avoid isolated quadriceps and hamstring contraction
- III. Weeks 13-24
  - a. Goals:
    - i. Increase knee flexion
    - ii. Maintain full passive extension
    - iii. Improve quadriceps and hamstring strength
    - iv. Improve proprioception
    - v. Improve functional skills
    - vi. Increase cardiovascular endurance
  - b. 4 Months
    - i. Close chain PREs—avoid flexion beyond 70 degrees

- ii. Isolated quadriceps and hamstring exercises—no resistance
    - iii. Single-leg proprioception exercises (KAT, BAPS, mini-trampoline)
    - iv. Closed chain conditioning exercises: stair climber, skiing machine, rower, etc
    - v. Aggressive flexion ROM (manipulation if ROM < 90 deg at month 4)
    - vi. Hip PRE's
    - vii. Straight-line jogging at end of post-op month 4
  - c. 5 Months
    - i. Initiate resisted quadriceps and hamstring exercises
    - ii. Progress closed chain strengthening and conditioning exercises
    - iii. Initiate low intensity plyometrics
    - iv. Progress jogging and begin sprints
    - v. Advance proprioception training
    - vi. Fit for ACL/PCL functional brace
  - d. 6 Months
    - i. Progression of all strengthening exercises and plyometrics
    - ii. Begin agility drills-carioca, figure 8's, zig-zag-slalom running, etc—in brace
    - iii. Sport-specific drills
    - iv. Isokinetic testing at end of post-op month 6
- IV. Months 7-12
- a. Assess functional strength—single-leg hop for distance, timed hop test, shuttle run, etc
  - b. Return to sports after:
    - i. Minimal or no pain or swelling
    - ii. Isokinetic and functional tests equal or greater than 85% of contralateral side
    - iii. Successful completion of sport-specific drills
    - iv. ACL/PCL functional brace as needed; discontinue after 1 year

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