Initial Guidance:
Monitor for evidence of infection & distal neurovascular deficit (including DVT and acute compartment syndrome).

Restrictions:
Patient to remain in long lever brace locked at 0° for 6 weeks.
NWB for 6 weeks.
Avoid external tibial rotation and varus postures for 4 months.
Avoid open chain hamstrings for 4 months.

Immediately Postoperatively
Goals: Protection, control of pain and swelling/effusion, quads activation, preserve patellofemoral mobility.
• Long lever brace (locked at 0°), applied in theatre.
• POLICE protocol for management of pain and swelling/effusion.
• Gentle passive/active-assisted knee flexion and extension.
• Patella mobilisation (superior/inferior, medial/lateral).
• TAQ's, SLR in brace until no lag (30 reps 5-6x daily) for quadriceps recruitment. 10 seconds hold, 2-3 seconds rest til fatigue.
• NWB for 6 weeks to allow healing and prevent stretching of the graft from varus loads during ambulation.
• Avoid tibial external rotation or varus postures, knee hyperextension, resisted or repetitive hamstrings to avoid graft stretching.
• Limit knee flexion closed kinetic chain exercises to <70° knee flexion for 4 months.
• Driving: 1 week if non-pedal leg operated and driving an automatic car. If manual car or pedal leg operated 7-8 weeks, when impairments resolved and patient safe to brake.

1 - 6 Weeks
Goals: 0-90° by 2/52 post-op, terminal extension and 120° by 6/52.
• Knee kept in full extension for 1-2 weeks then progressive ROM to stimulate collagen formation and alignment/modelling.
• Continue with patellar and tibiofemoral mobility exercises (avoiding hyperextension).
• Continue with SQ's and SLR in brace.
• NWB hip/lumbo-pelvic muscle maintenance exercises in brace.

7 - 12 Weeks
Goals: Restore FROM & start weight bearing ambulation.
• Open brace to allow FROM.
• Static bike no resistance (starting with 5 mins every other day, increase time as able).
• Start PWB, WBAT from week 9 if no limp and able to SLR without lag.
• Proprioceptive ex's once able to FWB (progressing from double to single leg).
• Flutter-kick swimming from week 8, avoidance of breast stroke, side stroke and whip kicking until 4/12.
12 - 16 Weeks
Goals: Restore normal ambulation & begin protected strengthening phase.
• Wean off brace as confidence allows from week 12.
• Single leg press <25% body weight to fatigue (<70° knee flexion).
• Squats initially <50% body weight (<70° knee flexion), increasing weight as able.
• CKC exercises: double to single leg as able (<70° flexion).

16 - 24 Weeks
Goals: Return to jogging and sport specific training.
• Brisk walking program (20 mins daily, add 5 mins per week).
• Add resistance to static bike aiming to fatigue the legs.
• Start OKC hamstrings.
• Increase weight bearing flexion to >70° flexion.
• Jogging once patient can walk briskly 3-5km over changing terrains without pain, and able to perform 20 single leg squats >60° flexion with sufficient control.
• Progress lunges from static to walking, add chop/lateral movements.
• Functional testing and training including timed balance, single leg squat for depth, single leg hop for distance, triple crossover hop for distance, timed hop for speed (6m).

7 Months +
Goals: Return to sport or physically demanding work if >90% limb symmetry index (LSl) for quadriceps strength, hamstring strength and hop battery tests.
• Build sports specific load regarding energy expenditure (aerobic, anaerobic) and surface (grass, court etc).
• Increase intensity of sport specific agility training.
• Increase difficulty of neuromuscular and perturbation training with single legged jumps and emphasis on sports specific movements.
• Restart training with patient’s team.

References: