

POST-OPERATIVE REHABILITATION PRINCIPLES FOR ANATOMIC MEDIAL KNEE RECONSTRUCTION

Phase 1: 0 to 2 weeks	<p>Goals:</p> <ul style="list-style-type: none"> • Control effusion and pain. • Flexion range of motion (within safe zone) to 90° of knee flexion. • Maintain full extension. • Reactivate quadriceps muscle. • Straight leg raises with no knee extension lag. • Patellofemoral mobility. <p>Weight bearing:</p> <ul style="list-style-type: none"> • Non-weight bearing. <p>Brace:</p> <ul style="list-style-type: none"> • Wear brace at full extension at all times, except for passive motion for therapy. <p>Range of motion:</p> <ul style="list-style-type: none"> • Emphasise full extension. • Knee flexion from 0° to 90°. <p>Therapeutic exercises:</p> <ul style="list-style-type: none"> • Cryotherapy for edema control. • Range-of-motion exercises. • Quadriceps and hamstring strengthening. <p>Precaution:</p> <ul style="list-style-type: none"> • Avoid valgus and internal and external rotation through the knee joint.
Phase 2: 2 to 6 weeks	<p>Goals:</p> <ul style="list-style-type: none"> • Effusion resolved. • Knee flexion range of motion >115°. • Preserve full knee extension. • Quadriceps and straight leg raises with no extension lag. <p>Weight bearing:</p> <ul style="list-style-type: none"> • Non-weight bearing. <p>Brace:</p> <ul style="list-style-type: none"> • Wear brace when up and about and while sleeping. • Hinged brace open into flexion per quadriceps functional control. <p>Range of motion:</p> <ul style="list-style-type: none"> • Full extension. • Progressive flexion as tolerated. <p>Therapeutic exercises:</p> <ul style="list-style-type: none"> • Continue per phase 1.



	<ul style="list-style-type: none"> • Initiate upright stationary bike at week 4 with no resistance. • Progress to intermediate core and proximal hip strengthening exercises. • Initiate prone or standing hamstring curls (active flexion, passive extension). <p>Precaution:</p> <ul style="list-style-type: none"> • Continue to avoid valgus and internal and external rotation strain through the knee joint.
<p>Phase 3: 6 to 8 weeks</p>	<p>Goals:</p> <ul style="list-style-type: none"> • Range of motion with no knee extension lag. • Quadriceps girth returning. • Normal gait mechanics performed. <p>Weight bearing:</p> <ul style="list-style-type: none"> • As tolerated with bilateral crutches. • Progress to full weight bearing per quadriceps control with no gait deviation. <p>Brace:</p> <ul style="list-style-type: none"> • Gradually open fully per quadriceps control. • Discontinue use when ambulating with full weight bearing and no gait deviation. <p>Range of motion:</p> <ul style="list-style-type: none"> • Full, symmetrical. <p>Therapeutic exercises:</p> <ul style="list-style-type: none"> • Initiate closed-kinetic-chain strengthening in bilateral support (<70° of knee flexion). • Continue to progress to intermediate core and proximal hip strengthening exercises. • Initiate basic lower extremity proprioception and balance drills with bilateral support. <p>Precautions:</p> <ul style="list-style-type: none"> • Limit bilateral squats to <70° of knee flexion. • No pivoting on a planted foot. • Observe and correct for knee / hip alignment with closed-kinetic-chain drills. • Observe for continued effusion, pain with weight bearing, and home exercise program progression.
<p>Phase 4: 8 to 12 weeks</p>	<p>Goals:</p> <ul style="list-style-type: none"> • Restore normal gait mechanics with closed-kinetic-chain lower extremity activities. • Resume normal stair climbing. • Normalisation of walking speed and distance. • Able to perform single-leg squat >45° of knee flexion with normal mechanics. <p>Weight bearing:</p> <ul style="list-style-type: none"> • Full weight bearing, no restrictions. <p>Brace:</p> <ul style="list-style-type: none"> • Protective use for dynamic activities when out of home, hinged brace open for quadriceps control. <p>Range of motion:</p> <ul style="list-style-type: none"> • Full, symmetrical. <p>Therapeutic exercises:</p> <ul style="list-style-type: none"> • Progress closed-kinetic-chain strength drills to single-



	<p>leg.</p> <ul style="list-style-type: none"> • Progress lower extremity proprioception and balance drills to single-leg. • Initiate light cardiovascular exercise with bike. • Add bilateral support for large muscle group weight training. <p>Precautions:</p> <ul style="list-style-type: none"> • Continue to observe for proper lower extremity alignment and mechanics with closed-kinetic-chain exercise. • No use of knee extension machine.
<p>Phase 5: 12 to 16 weeks</p>	<p>Goal:</p> <ul style="list-style-type: none"> • Able to perform single-leg squat > 60° of knee flexion with normal mechanics. <p>Weight bearing:</p> <ul style="list-style-type: none"> • Full weight bearing, no restrictions. <p>Brace:</p> <ul style="list-style-type: none"> • No brace. <p>Range of motion:</p> <ul style="list-style-type: none"> • Full, symmetrical. <p>Therapeutic exercises:</p> <ul style="list-style-type: none"> • Continue per phase 4. • Progress cardiovascular activity with bike, elliptical, walking, and flutter-kick swimming. • Progress weight training to single-leg. • Progress lower extremity proprioception and balance drills with surface challenge. <p>Precautions:</p> <ul style="list-style-type: none"> • Patient demonstrates good control in concentric and eccentric phases with weight-training exercises. • Able to preserve proper lower extremity alignment with proprioception, balance, and closed-kinetic-chain drills.
<p>Phase 6: 16 to 20 weeks</p>	<p>Goal:</p> <ul style="list-style-type: none"> • Patient demonstrates good self-awareness of proper lower extremity alignment with closed-kinetic-chain and impact drills. <p>Weight bearing:</p> <ul style="list-style-type: none"> • Full weight bearing, no restrictions. <p>Brace:</p> <ul style="list-style-type: none"> • No brace except for dynamic activities. <p>Range of motion:</p> <ul style="list-style-type: none"> • Fully, symmetrical. <p>Therapeutic exercises:</p> <ul style="list-style-type: none"> • Directional lunging. • Interval jogging (straight line, no hills). • Initiate basic agility / footwork drills. • Initiate basic double-leg plyometric drills. • Dynamic and directional challenge to lower extremity proprioception and balance drills. <p>Precautions:</p> <ul style="list-style-type: none"> • Continue to observe for proper lower extremity alignment and mechanics with closed kinetic chain.



	<ul style="list-style-type: none"> • Observe for continued effusion and pain control with initiation of impact activity.
<p>Phase 7: 20+ weeks</p>	<p>Goals:</p> <ul style="list-style-type: none"> • Patient to become independent with exercise program and demonstrate good self-awareness of proper lower extremity alignment during high-level drills. • Return to sport (once strength returns and clinical / objective stability is verified). <p>Weight bearing:</p> <ul style="list-style-type: none"> • Full weight bearing, no restrictions. <p>Brace:</p> <ul style="list-style-type: none"> • No brace except for sports. <p>Range of motion:</p> <ul style="list-style-type: none"> • Full, symmetrical. <p>Therapeutic exercises:</p> <ul style="list-style-type: none"> • Continue with weight-room strength training. • Progress plyometric drills. • Progress speed / intensity of agility drills. • Initiate acceleration / deceleration drills. • Initiate cutting drills. • Initiate sport-specific drills. <p>Precaution:</p> <ul style="list-style-type: none"> • Avoid functional valgus at knee with deceleration, cutting, and jumping drills.

