**Mr Gilbert**

**POST-OPERATIVE ACL RECONSTRUCTION PROTOCOL**

**Ensure patient achieves milestone prior to progression**

**No return to contact sports prior to 6 months post-op**

**Return to gentle non-contact, non-competitive sports at physiotherapist’s discretion but must be over 5 months post-op**

**Any problems during rehabilitation please contact Mr Gilbert**

**PHASE 1 POST-OP – Post ACL reconstructive surgery (day 1-10)**

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| **Goal** | **Treatment** | **Milestone to Progress** |
| Minimise swelling and pain | * Use of ice * Ensure adequate pain relief * Elevate leg * Use of crutches | * Minimal or no effusion * Full or nearing full extension * 90° knee flexion * SLR with no lag (10 reps) * Normal, symmetrical gait pattern with or without crutches |
| Regain full range of extension/hyperextension (compare to non-operative knee) | * Extension exercises: static quads, heel props, prone hanging * Passive stretching |
| Increase knee flexion as pain allows | * Active flexion exercises * Passive flexion over edge of bed * Patella mobilisations |
| Improve quads control and hamstring strength | * Static quads, SLRs. **Ensure patient can SLR with no lag** * Co-contraction quads and hams * Hamstring curls |
| Ensure flexibility | * Hamstring and calf stretches |
| Restoration of normal gait pattern | * Gait re-ed with elbow crutches, WB as pain allows * Weight transferring |

**PHASE 2 – Upon achievement of phase 1 goals: approximately day 10 – 6 weeks**

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| **Goal** | **Treatment** | **Milestone to Progress** |
| Minimise swelling and pain (ensure no swelling before progression) Prevent anterior knee pain | * Continue as above, as necessary * Patella mobilisations | * Minimal/no effusion * Full range of extension * Normal gait pattern without crutches * Full range of flexion * Single leg stand eyes shut at least 5 seconds * Bilateral squat, thighs parallel to floor with even, symmetrical weight bearing |
| Regain/maintain full range of extension/hyperextension (compare to non-operative knee) | * Extension exercises as above * Passive stretching |
| Restoration of normal gait pattern | * Ensure FWB, wean off crutches |
| Regain full range of flexion | * Active flexion exercises * Progress to quads stretch |
| Improve quads, hamstring and general lower limb strength | * CKC – wall slide squats with gym ball, squats, lunges, leg press, dips etc. * Hamstring curls, bridging * Calf raises, hip extensions, hip abd/add, glut med/max |
| Increase aerobic capacity | * Exs bike * Treadmill walking * Step ups * Cross trainer * Rower |
| Improve proprioception | * Single leg stand eyes open/eyes closed * Wobble board * Sitfit * Trampette |
| Neuromuscular control | * Core stability work * Knee alignment/prevent valgus – squats, lunges, step ups (ensure good hip/knee/ankle alignment) |

**PHASE 3 – Upon achievement of phase 2 goals: approximately week 6-12**

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| **Goal** | **Treatment** | **Milestone to progress** |
| Control activity related swelling and pain | * Use of cryotherapy post exercise if knee swells with increased activity | * Minimal/no activity related effusion * Full ROM * Normal gait and stair pattern – good alignment and control * 10 x single leg squats to 60° with good biomechanical alignment and control (i.e. no valgus and good hip/knee/ankle alignment) |
| Regain/maintain full range of movement | * Continue stretches |
| Normalise gait and stair pattern | * Treadmill walking – forward/backward/incline |
| Improve quads, hamstring, and general lower limb strength | * Continue CKC – double & single leg press, squats, lunges, increase weight * Hamstring curls – double & single leg, increase weight * Calf, gluteals, adductors, VMO strengthening |
| Increase aerobic capacity | * Exs bike * Treadmill walking * Step ups * Cross trainer * Rower * Pool walking/running |
| Improve proprioception | * + Single leg stand eyes closed   + Wobble board   + Sitfit   + Trampette |
| Neuromuscular control | * Core stability work * Knee alignment/prevent valgus as above – add trunk rotation |
| Commence bilateral load acceptance/ early plyometrics | * Bilateral drop jumps * Jumps with symmetrical squat landing * Progress to straight line jogging when good load acceptance |

**PHASE 4 – Upon achievement of phase 3 goals**

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| **Goal** | **Treatment** | **Milestone to progress** |
| No swelling or pain | * Continue as above if necessary | * Normal straight line running pattern * Single leg press >75% body weight * Single leg stand eyes shut >80% unaffected leg * Hop tests >85% LSI: single hop, triple hop, cross over hop, 6m timed hop, side to side hop |
| Normal straight line running pattern without pain and in full control | * Progress from jogging to running * Increase speed/distance * Change surface/incline * Forward running/backward running |
| Increase muscle strength and endurance | * Increase load on strengthening exs (60-80% 1RM) * Single leg press – push for >75% x body weight * Commence open chain quads and gradually increase resistance |
| Improve proprioception | * Increase dynamic proprioception |
| Progress bilateral load acceptance/commence unilateral load acceptance/plyometrics | * Tuck jumps with stable landing * Squat jumps, forward/ back/ rotational * Bilateral plyometric static and multi-plane exs * Single leg hop with controlled landing * Forward, side hops/ drops from step with controlled single leg landing * Unilateral plyometric static and multi plane activities |

**PHASE 5 SPORTS SPECIFIC – Upon achievement of phase 4 goals**

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| **Goal** | **Treatment** | **Milestone to progress** |
| Increase muscle strength and endurance | * Increase load on resistance work | * Symptom free sports specific training * Hop tests >90% LSI : single hop, triple hop, cross over hop, 6m timed hop, side to side hop * Single leg stand eyes shut, equal to unaffected side |
| Progress unilateral load acceptance and work to fatigue | * As above – increase speed/intensity to fatigue |
| Commence sports specific running agility drills | * Sprinting * Cutting and pivoting * Acceleration/deceleration |
| Commence sports specific skills | * Ball skills * Dribbling * Boxing * Kicking * Sports specific activity with controlled opposition e.g. one on one practice drills |
| Neuromuscular control following fatigue | * Ensure ability to control alignment under random practice and after fatigue |
| Return to non-contract sports (only when nearing 6months post-op) | * Golf/swimming/gentle racquet sports |

**PHASE 6 FULL UNRESTRICTED SPORTS TRAINING– Upon achievement of phase 5 goals: MUST BE AT LEAST 6 MONTHS POST-OP**

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| **Goal** | **Treatment** |
| Symptom free training | * Full, unrestricted training |
| ROM and muscular flexibility equal to other side | * Continue stretching |
| Good results of all functional testing | * Functional tests prior to returning to contact sports |
| Return to full unrestricted, confident activity | * Progress to uncontrolled practice situations and competition |

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