**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)**

|  |  |  |
| --- | --- | --- |
| **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**

|  |  |  |
| --- | --- | --- |
| **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**

|  |  |  |
| --- | --- | --- |
| **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**

|  |  |  |
| --- | --- | --- |
| **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**

|  |  |  |
| --- | --- | --- |
| **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**

|  |  |
| --- | --- |
| **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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