

STAGE OF REHAB: PRE-OPERATIVE

Goals:

1. Decide whether patient appropriate for ACL Repair (functional instability)
2. Ensure knee is in the best condition for the best possible outcome following surgery
 - a) Minimal swelling
 - b) Full range of extension
 - c) Good PFJ mobility
 - d) Good quadriceps activation
 - e) Correct gait pattern
 - f) Strength deficit as compared to the other side is <20%

Treatment:

1. Education about rehabilitation including
 - a) How to walk with crutches
 - b) What to expect immediately post-op
 - c) The whole rehabilitation period and process
2. Mobilisation techniques to increase range of movement as appropriate
3. Strengthening exercises (can be closed or open chain) – quads, hams, glutes, calves

STAGE OF REHAB: POST-OPERATIVE PHASE 1		
Goals:	Notes for Physiotherapist	Home treatment by Patient
1. Minimise swelling	AROM ankle	Rest, Ice, Elevation, Range of Movement Exercise sheet
2. Range of movement of the knee: I. Normal patella mobility at 4 -6 weeks II. Full extension (2-4 weeks) III. Flexion 120°-130° in 4-6 weeks	Mobilisations of the patella if there is a restriction Teach active/passive knee extension exercises when there is a deficit. If deficit >10°, use heel prop Teach heel slides	Patient may be taught to self-mobilise patella if required Phase 1 Range of Movement Exercise Sheet Phase 1 Stretching sheet
3. Strength Training: I. Voluntary quadriceps control II. Hamstrings III. Glutes	Use manual facilitation techniques if no voluntary contraction is possible. IRQ, aSLR, IRQ with towel, bridge, side lie abd, clam, hamstring static contractions, hamstring curls (after 6 weeks with no resistance), heel raises, step up/downs (ROM 0-60°), Squats (ROM 0-60°), BPTB graft – open chain kinetic quads (leg extension) can be done WITH resistance (machine or theraband) from week 4 in ROM 90-45° HS graft - open chain kinetic quads (leg extension) can be done WITHOUT resistance from week 4 in ROM 90-45° For both graft types, increase ROM by 10° every week from week 5 - week 5 90-30° - week 6 90-20° - week 7 90-10°	Phase 1 Strengthening exercise sheet

	- week 8 90-0°	
4. Begin Proprioceptive/ balance work	2 legs (begin forward/backward wobble board first). Progress to: <ul style="list-style-type: none"> - Add perturbation - Single leg - more difficult wobble board - eyes closed - add task – throw/catch/answer questions Encourage quality of performance	Balance work as instructed by your therapist
5. General Exercise		
I. Gait	Gait re-education, remove crutches as soon as possible whilst MAINTAINING normal gait pattern	Practise walking on different surfaces and at different speeds
II. Begin Cycling	Only when knee flexion reaches 100°	Use stationary bike
III. Core work	Pilates level 1 - Hip twist, Clam, Heel slides, Scissors	See Phase 1 Core work sheet Abdominal curls, mini crunches, Russian twists
Criteria to start phase 2: <ol style="list-style-type: none"> 1. Closed wound 2. No knee pain and correct technique with phase 1 exercises 3. Minimal swelling 4. Normal mobility of the patella (L=R) 5. Range of movement of the knee 0-120/130° 6. Voluntary control of the quadriceps 7. Normal gait pattern without crutches 		
Abnormal Progress – Your Physiotherapist will watch for any of the below and liaise with your surgeon. If you notice any of the following problems yourself, please discuss this with your Physiotherapist. <ol style="list-style-type: none"> 1. The wound does not close or is infected 2. After 6-8 weeks there is still considerable loss of patella mobility (risk of infrapatellar contracture syndrome) 3. Loaded extension is <0° after 6-8 weeks, or decreases (risk of arthrofibrosis or Cyclops) 4. There is still no voluntary contraction of the quadriceps after 6-8 weeks 		

5. Gait pattern is still abnormal

STAGE OF REHAB: POST-OPERATIVE PHASE 2 – perform sport specific tasks and physically demanding work without restrictions		
Goals:	Notes for Physiotherapist	Home treatment by Patient
1. Range of movement	Maintain FULL range of movement of the patella and knee joint	Continue range of movement sheet as necessary
2. Strength Training	<p>Increase closed kinetic chain quads in ROM to full ROM in week 8. Add one legged exercises</p> <p>Increase open kinetic chain quads exercises in ROM to full ROM in week 8 NB: patients with HS-grafts are allowed to perform open kinetic chain quads with resistance only from week 12</p> <p>Intensify strength training of the glutes, hamstrings and calf muscles</p> <p>Decrease repetitions and increase resistance for all exercises</p>	<p>Strengthening exercise sheet for phase 2</p> <p>At the gym – leg press (with resistance from week 12)</p> <p>Decrease repetitions and increase resistance for all exercises</p>
3. Progress Proprioceptive/balance work	<p>Change from static to dynamic training</p> <p>Add side-side perturbation (eg wobble board)</p> <p>Change predictability, speed, direction and amplitude of the disturbance e.g. on a moving platform</p> <p>Add two-legged jumps, including rotations</p> <p>Encourage quality of performance</p>	Balance work as instructed by your therapist
4. General Exercise		
Walking/jogging	Increase walking speed and distance and progress to jogging if able without pain and swelling in week 10-12	Build up walking tolerance and progress to jogging once your Physiotherapist has checked your technique
Cycling	Start cycling outside at the start of phase 2	Start cycling outside at the start of phase 2
Aerobic Training	Add cyclic training	Begin to use a cross trainer or rower

Core work	Continue Cardiovascular work Progress Core work	Continue swimming Core Exercises for Phase 2
5. Sport Specific Training	Agility Work Ensure correct quality of performance	Be guided by your Physiotherapist Discuss the possibility of a return to partial sports training
<p>Criteria to start phase 3:</p> <ol style="list-style-type: none"> 1. Correct qualitative performance of phase 2 exercises 2. >80% symmetry for quads/hamstring strength 3. >80% symmetry when hopping 		

STAGE OF REHAB: POST-OPERATIVE PHASE 3 – Return to sport or physically demanding work		
Goals:	Notes for Physiotherapist	Home treatment by Patient
1. Strength Training	Intensify sport-specific strength training	
2. Proprioceptive/balance work	Progress previous work Single legged jumps and sport specific movements	Liaise with your Physiotherapist
3. General Exercise	Progress cycling/jogging intensity and duration Sport specific demands – anaerobic/aerobic, surface type etc	Liaise with your Physiotherapist
4. Sport Specific Training	Increase and intensify agility training Restart training at patient's own sports club	Liaise with your Physiotherapist
<p>Criteria for return to play:</p> <ol style="list-style-type: none"> 1. No knee pain at sport specific activities 2. No giving way or fear of giving way during sport specific activities 3. Symmetrical walking/jogging pattern and correct quality of performance with all sport specific activities 4. >90% symmetry for quads/hamstring strength (consider leg dominance) 5. >90% symmetry on hopping including on hop and hold test 		