****

**Room GF03**

**Waterfall Hospital**

**Cnr. Magwa Crescent and Mac Mac Avenue**

**Tel: 011 304-7829**

**Fax: 011 304-7941**

**Jessica Barrow**

**BSc Physiotherapy (WITS)**

**083 256 0434**

**ACL REHABILITATION PROGRAMME**

|  |  |
| --- | --- |
| **Rehabilitation consists of:** | * Daily exercises (done 2 to 3 times daily).
* Stretching (to be done daily).
* Strength training (3 times weekly) starting week 3.
* Balance exercise / Perturbation training.
* Plyometric exercise.

**NB**: * For the first 4 months post-surgery, no repetitive terminal extension allowed.
* Open chain exercises restricted to 90° – 60° only. For a further 2 months 90° – 30° only.
* No active hamstring exercise for the first 4 weeks.
 |
| **Week 1 and 2** | * **Daily exercises:**
	+ Foot pump exercise.
	+ Self-tightening quads.
	+ VMO activation in prone lying (tummy lying).
	+ SLR – back lying.
	+ Heel slide, sitting 90°.
	+ Clam exercise (if pain-free).
	+ Hip abduction – side lying, knee 90° (progress to knee extended).
	+ Knee extension standing with theraband.
	+ Hip extension standing.
	+ Hip abduction in standing.
	+ Hip flex (straight knee) standing.
	+ Wall slide (once daily only).
	+ Toe raises.
	+ Balance, toe standing both legs.
	+ Balance, flat foot one-leg.
	+ RICE.
	+ Stretch: Passive knee extension – ‘torture pillow’ (20 minutes, 3 times daily).

**All exercises 3 x 8 to 15.** |
| **Week 3, 4 and 5** | * **Daily exercises:**
	+ Self-tightening quads.
	+ SLR – lying or sitting (add ankle weight if necessary).
	+ VMO sitting on a chair.
	+ Heel slide, sitting 110°.
	+ Hip abduction – side lying, knee extended (add ankle weight when ready).
	+ Hip extension / abduction in standing (add ankle weights when ready).
	+ Gluteus medius – side lying, hip in external rotation (toes pointing up).
	+ Back lying wall slide.
* **Stretching:**
	+ Dynamic stretching, sciatic nerve.
	+ Passive knee extension stretch (‘torture pillow’).
	+ Stretching of hamstrings and quads (use towel for quads if necessary).
* **RICE.**
* **Stationary bike (no resistance, 15 to 20 minutes daily).**
* **Strength exercise:**
	+ Mat exercise 1: Strengthen buttocks: one leg pelvis lift (repeat lifts).
	+ Mat exercise 2: Strengthen hamstrings: one leg pelvis lift and hold for 15 seconds, progress to heel raise (week 4).
	+ Mat exercise 3: Strengthen quads, hands on floor, one leg standing, knee flex (difficult exercise) – week 5 only.
	+ Hamstring exercise 1 in prone – week 5.
	+ Step-ups – forward and side.
	+ Squats - 45°.
	+ Wall slide - 45°.
	+ Toe raises.
	+ Stationary bike.
	+ Walking on treadmill backwards.

**All exercises 3 x 15.*** **Perturbation training:**
	+ Balance on one leg, open and closed eyes (hold for 10 second intervals).
	+ Balance on wobble board – both legs (hold for 10 second intervals).
	+ Balance standing on operated leg, slide good leg front / back and side.
 |
| **Week 6, 7 and 8** | * **Daily exercises:**
	+ Hip musculature as previous weeks (weight).
	+ Gluteus medius as previous weeks.
	+ Hamstring curls in prone lying (on tummy) and standing.
	+ Balance – one leg (foam mat / pillow).
* **Stretching:**
	+ Passive knee extension stretch.
	+ Stretch hamstrings, quads and iliotibial band.
	+ Dynamic knee stretch – sciatic nerve.
* **RICE.**
* **Stationary bike – increase duration and resistance as tolerated.**

**All exercises 3 x 15.*** **Strength exercises:**
	+ Mat exercise 1+ buttock – using step.
	+ Mat exercise 2+ hamstrings – pelvic lift and slide both feet or “run” on heels.
	+ Mat exercise 3+ quads – knee to touch floor.
	+ Hamstring exercise 1+ in prone with light weight / theraband (TB)
	+ Hamstring curls in standing position with theraband (TB).
	+ Additional hamstring exercises – supine lying, pelvic lift using big gym ball, pull ball towards buttocks.
	+ Leg extensions / leg abduction in standing (ankle weights if necessary).
	+ Squat – 45° to 90° as pain allows.
	+ Wall slide – 45° to 90°.
	+ Step-ups / Step-downs.
	+ One leg squats off step – only if patient is ready.
	+ One leg squat “hand to floor”.
	+ Squats on incline board.
	+ ‘Crab-walking’.
	+ Toe raises.
	+ Abduction / adduction (abd. / add.) machine at the gym.
* **Perturbation training:**
	+ Advance exercises:
* Skateboard.
* One leg standing – flex trunk forward / back.
* **Trampoline work – week 8.**

**All exercises 3 x 15.** |
| **Week 9, 10 and 11** | * **Daily stretching:**
	+ Stretch of quads, hamstrings and iliotibial band.
* **Strength exercises:**
	+ Mat exercise 3++ buttock - using ball – hands behind head.
	+ Mat exercise 2++ hamstring – pelvic lift and one leg slide (good leg off the floor).
	+ Mat exercise 3++ quads, hands standing on one leg, knee flex off step.
	+ Hamstring exercise 1++ in prone with weight.
	+ Hamstring curls in standing with weight.
	+ Hamstring exercise using gym ball.
	+ Squats (introduce weight).
	+ One leg squat.
	+ Wall slides (introduce weight).
	+ Gluteus medius exercise as per weeks 6 – 8 (then add weights).
	+ Leg extensions / abduction in standing (increase weight).
	+ Leg press.
	+ Toe raises.
	+ Abduction / adduction machine.
* **Perturbation training:**
	+ Balance 1 leg, bend down 3-12-9 o’ clock.
	+ Balance 1 leg on wobble board – head rotation / ball game.
	+ Advanced balance exercise on skateboard.
* **Plyometric exercise:**
	+ Side / forward / back jumps over towel – 2 legged – progress to operated leg only when tolerated.
	+ Twist both legs (soft knee).
 |
| **Week 12, 13 and 14** | * **Strength training** 3 to 4 time weekly with physio and at gym:
	+ Mat exercise 1, 2 and 3 as per week 9, 10 and 11.
	+ Hamstring exercise 1 in prone – can use gym machine.
	+ Hamstring curl machine at gym (sitting / standing).
	+ Leg extensions / abduction with bands or weights.
	+ Squats and wall slides – increase weight / one leg wall slide.
	+ Dead lifts – be careful with correct technique.
	+ Leg press – concentric work both legs, eccentric work operated leg only.
	+ Toe raises.
* **Stretching.**
* **Advanced perturbation training.**
* **Plyometric training:**
	+ Jump-ups sideways, 1 leg – onto step.
	+ Jump-ups forwards / backwards, 1 leg onto step.
	+ Skipping forwards 30m.
	+ Skipping with rope.
 |
| **Progression over the next 3 months:** | * **Strength training:**
	+ Squats and wall slides:
		- Increase weight.
		- Squat with one leg – introduce weight when tolerated.
		- Variation squats, i.e. non-affected leg up on chair – squat with jump.
		- Squat on wobble board.
	+ Leg press – increase to more explosive exercise.
	+ Hamstring curls prone / sitting / standing using machine – increase weight.
	+ Toe raises – increase weight.
	+ Dead lifts – increase weight.
	+ Lunges - progress to weight and reverse lunges.
* **Advanced perturbation training.**
* **Plyometric training:**
	+ One leg sideways and forwards onto step, increase pace and step height.
	+ Plyometric jumps “Burpies”.
	+ High jumps.
	+ Combination jumps.
* **Running:**
	+ Circle.
	+ Skate and direction change: 4 to 5 months.
* **Sport specific drills.**
* **Agility drills, i.e. cones, figure-of-eight.**
 |

|  |
| --- |
| **Cardiovascular Exercise:** |
| **Stationary bike** | 4 to 6 weeks. |
| **Treadmill** | Backwards at 3 weeks, and forwards at 8 weeks. |
| **Road bike** | 12 to 16 weeks. |
| **Elliptical machine** | 8 weeks. |
| **Swimming (crawl)** | 10 to 12 weeks. |
| **Jogging in a straight line** | 12 to 16 weeks. |
| **Running on an uneven surface** | 6 months. |
| **Biokinetics** | 4 months. |
| **Contact sport** | 9 to 12 months. |

**Good luck with your rehabilitation.**

