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ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

Rehabilitation Protocol

The anterior cruciate ligament (ACL) plays a key role in keeping the knee stable, but good muscle strength and neuromuscular control are equally important. Following ACL reconstruction, rehabilitation focuses on protecting the healing graft while rebuilding strength and coordination. The goal is to ensure the knee regains optimal stability and function before a return to sporting activity.

Recovery timelines can vary widely between individuals. Progress through rehabilitation may be quicker or slower depending on factors such as pain, swelling, and the specifics of the initial injury. Swelling can persist for several weeks, and the use of a compression sleeve (such as Tubigrip) along with regular icing is recommended during this time—often for up to 6–8 weeks. Ice can be applied using a cold pack or frozen peas for around 15 minutes, 3–4 times daily. Even beyond this period, applying ice after exercise or physiotherapy sessions may still help manage symptoms.

It is common to experience some numbness around the surgical scar, which typically improves over time. Bruising is also expected and may appear quite marked initially. For those who have undergone a hamstring graft, discomfort and bruising at the back of the thigh are common. As the hamstring tissue regenerates over the following 1–2 years, occasional sensations of pulling or tearing may occur due to minor disruption of scar tissue; this is usually short-lived and does not lead to long-term issues.

PHASE ONE – EARLY POST OPERATIVE (0–2 WEEKS)

- **Reduce pain and swelling**

Rest is important following surgery, keeping your leg elevated as much as possible. You can come off the crutches during the second week but keep walking to a minimum until the swelling has subsided. Ice is very helpful, use a bag of crushed ice or frozen peas for up to 30 minutes, 4-5 times per day. Ankle pump exercises also help reduce swelling and prevent clots.

- **Restore full extension**

This is extremely important, as loss of motion due to knee scarring is a known complication of ACL reconstruction, especially loss of extension (getting the knee out straight). When lying flat, push down to lock

your knee out straight and hold for 10 seconds. Repeat 3 times, at least 3 times per day. This exercise may be easier with a rolled towel under your heel.

- Restore quadriceps contraction

With your physiotherapist you will have a program focusing on range of motion, patellar mobilization, straight leg raise exercises progressing on to focused quadriceps strengthening.

Summary - RICE protocol, ankle pumps, quad sets, SLR

PHASE TWO – STRENGTH / RANGE OF MOTION / BALANCE (2–12 WEEKS)

During this phase you should focus on building strength and restoring range of motion, progressing as pain and swelling allow under the guidance of your physiotherapist. Regular icing may continue to help, especially after exercise.

- Build knee strength

Set aside time for your exercises 2-3 times per day. Your physio will work with you on a progressive program with quadriceps exercise such as straight leg raises, wall squats, and lunges. Hamstring curls should be avoided for the first 6 weeks if you have had a hamstring graft used.

- Restore full range of motion

You can start on an exercise bike as soon as you feel comfortable, initially you may have to raise the seat until your knee flexion returns. Aim to be on the bike by the end of the fourth week, initially with no resistance to work on motion then building the resistance up to work on strengthening.

You can get in the pool as soon as your wounds are healed (usually after 2 weeks) but avoid breaststroke. You can begin a gym programme as soon as directed by your physiotherapist, let them design the program to ensure the correct exercises are used which do not stretch the graft.

- Restore balance and walking

Your physiotherapist will work on balance 'proprioception' exercises such as one leg stands/squats, progressing to using a wobbleboard. From 6-8 weeks you can try walking/jogging on a mini-tramp, and treadmill walking

can build up to a fast walk. Towards the end of this phase supervised plyometric exercises can begin. No running before 12 weeks.

Summary - Exercise bike, closed chain quads, mini squats

PHASE THREE – FUNCTION (3–5 MONTHS)

- Restore 80% strength of opposite limb
- Begin running, jumping, hopping drills

During this phase continue your strengthening exercises, building resistance as your strength allows. You can start light jogging on grass or a treadmill, gradually building up to sprints.

Your physio will also start you on jumping, hopping, and landing drills. These work both on restoring strength and balance (proprioception) to your knee, re-training your muscles so they are able to protect the ACL graft from reinjury. Return to running is variable, and can take anywhere from 3-6 months

PHASE FOUR – RETURN TO SPORT (5–12 MONTHS)

The earliest you can return to sports is 6 months post-surgery, but everyone's recovery is different. Even professional sportspeople may need 9 or even 12 months before they can return to contact sports safely. Focus on achieving functional goals with your physiotherapist to determine when you are ready, rather than specific dates.

Some criteria that are often used:

1. Full range of motion
2. No swelling
3. Run without a limp
4. Squat and rise from squat
5. Figure 8 running without limitation
6. One-leg hop test 90% of opposite side
7. Single leg vertical jump 90% of opposite side

For any questions or concerns please email: johngibbonssec@gmail.com