

If you have any queries regarding the contents of this leaflet, please contact the RUH Physiotherapy Department. Telephone: 01225 824293

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Physiotherapy guidelines

Anterior Cruciate Ligament Reconstruction; patella tendon and hamstring autografts.

RUH Knee Team

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Pre-Surgery

Before an anterior cruciate reconstruction you may be seen by a physiotherapist. During these sessions the following should be considered:

- Information about the rehabilitation, aims and expectations
- The importance of reducing pain and swelling of the knee.
- The importance of achieving full movement of the knee.
- The importance of achieving full power in the major muscle groups including quadriceps, hamstrings and calf.
- Being able to walk normally without limping.
- Improve cardiovascular fitness using straight line activities such as bike, rowing machine and treadmill if able.

Post-Surgery

Phase 1 (week 1)

Aims:

- Control the pain and swelling by using ice and elevation as advised by your physiotherapist. Remember to take the medicines advised by your doctor.
- Obtain 0-90° of knee movement.
- Regain muscle control, particularly of your quadriceps.
- Improve your walking. Try to walk without limping initially using the crutches to help you.

Example exercises week 1:

- Seated heel slide.
- Straight leg raise.
- Static quadriceps (tensing thigh).
- Heel hangs (lying on your stomach with feet off the end of the bed).

Criteria for returning to sports (Month 6 onwards)

- No pain or swelling.
- Full flexion and extension of the knee is possible.
- Quadriceps and hamstring strength >85% compared to the other knee.
- Hop test >85% compared to other side (see above).
- Exercises of previous week are carried out properly, and the patient tolerates sport-specific activities and agility training with maximal duration and speed.
- To be able to perform all the exercises in the Prevent Injury and Enhance Performance programme (www.aclprevent.com). It is important to use the proper technique during the jumping moves.

Criteria for starting phase 2 (Week 2-9)

- Pain in knee is equal to previous week or less.
- Minimal swelling.
- Full extension and 90° flexion are possible.
- Good patellar mobility compared with contralateral side.
- Sufficient quadriceps control to perform mini squats 0°–30° and SLR.
- Ability to walk independently with or without crutches.

Aims:

- Continue to control the swelling as above.
- Work towards full movement by week 6.
- Walk without crutches not limping from day 4-10.
- Strengthen quadriceps, hamstrings and calf muscles. (**Avoid weights for the hamstrings until week 9, avoid leg extension with weight for quadriceps until week 8**)
- Improve balance.

Example exercises week 2-9:

- Week 2-Heel slides, prone lying heel hangs, static quads, straight leg raise, mini squats, and single leg balance exercise.
- Week 2-7 include squatting 0-60°, lunging, bridging with two legs, calf raises.
- Week 3 include cycling on static bike.
- Week 4 include step ups.
- Week 6 include straight leg swimming (no breast stroke until week12)
- Week 8 progress quadriceps strengthening, start leg extension with gentle weights.
- Week 9 start hamstring strengthening with gentle weights.

Caution: act promptly in cases of persisting pain, inflammation or limited ROM as there is a risk of developing arthrofibrosis (knee stiffness). If in doubt consult the orthopaedic surgeon.

Criteria for starting phase 3

(Week 9-16)

- Minimal pain and swelling.
- Full extension and flexion.
- Normal gait pattern.
- Exercises from previous week are performed correctly.

Aims:

- Maintain full movement.
- Achieve 75% muscle power compared to your other leg in quadriceps and hamstrings.
- Achieve 100% muscle power compared to your other leg in calf, and gluts.
- Return to normal function, jogging outdoors week 13, breaststroke from week 13.

Example exercises week 9-16

- Straight line then curved jogging.
- Hamstring curl, leg extension comparing strength and endurance to other leg.
- Various squat styles perhaps including a suspension trainer.
- Lunges in all directions and single leg hops - always being careful with alignment not allowing knee to collapse in during squats and lunges.

Criteria for starting phase 4

(Weeks 16+)

- No pain or swelling in the knee.
- Full flexion and extension of the knee.
- Quadriceps and hamstring strength >75% compared to other leg.
- Hop test >75% compared to other side (hop test: the distance covered over 3 consecutive hops).
- Exercises from previous week are performed correctly.

Aims:

- Maximise lower limb strength and endurance, checking the muscle bulk using a tape measure.
- Active full function and confidence in sports specific activities.
- Be confident in jumping, hopping, cutting, speed work.
- Return to sport when you are at least 6 months after your operation, have full movement, full power and almost full muscle bulk. You need to be able to do all the components of your sport.
- Check triple hop for distance test and drop vertical jump test.

Example exercises weeks 16+:

- Slalom run, shuttle runs and ladder drills.
- Box jumps.
- Sports specific actions and scenarios.
- ACL predictor tests listed above.