

Anterior Cruciate Ligament Reconstruction (with Hamstrings Graft) and Stability Plus Programme

Setting
Physiotherapy

Staff
Musculoskeletal Physiotherapists

Patients
ACL Reconstruction

PROTOCOL

This protocol is a general guide to rehabilitation. The time scales are an approximate guide and may be altered depending on various factors such as pain, swelling and muscle control. A knee injury is a common injury for the amateur and professional sportsperson. The treatment of sports injuries has developed in recent years. However, biology has not changed. The time it takes for the knee to heal and for the graft to transform remains the same.

Half of the success of ACL reconstruction comes in the physiotherapy. This stability plus programme gives the new ACL time to heal whilst keeping the knee strong. Once the graft has healed, the key is restoring strength and co-ordination to avoid reinjury. Work within the recommendations of your physiotherapist for the best results.

Rehabilitation aims to protect the reconstruction in the early stages and to maximise the range of motion, strength and function.

Please check the post-operative notes for any variation in management.

PREPARATION FOR SURGERY

- Build muscle strength. It will be easier to bounce back after surgery
- Ensure a full range of motion. Preoperative stiffness leads to post-operative stiffness
- Prepare your home. Stairs can be difficult in the first few days. Do you have a downstairs bed and bathroom?
- Social-supportive friends and family are very helpful
- Work preparation. Does your workplace know you are having surgery? Have you considered sedentary work whilst undergoing rehabilitation?
- Stop smoking and restrict alcohol intake

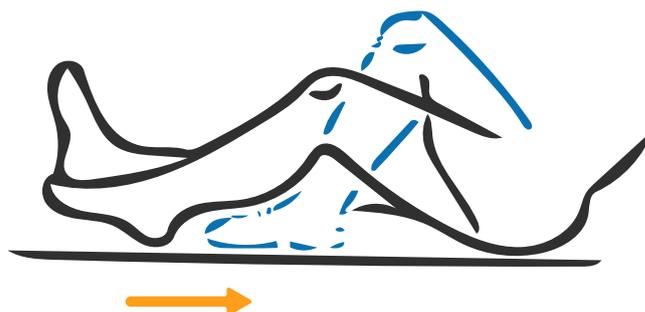
WEEKS 1-2

Aims

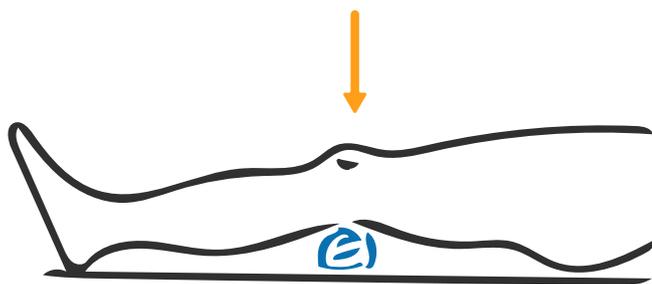
- Control swelling and pain
- Maintain range of motion 0°-90°

POST-OPERATIVE

- Toe-touch weight-bearing with elbow crutches
- Brace 0°-90°
- Full extension (avoid hyperextension for 12 weeks)
- Passive and active flexion exercises



WEEKS 1-2



POST-OPERATIVE

- Ice and modalities to reduce pain and inflammation
- Circulation exercises
- Patella mobilisations
- Static quads exercises (but not beyond 0°)
- Core stability and glutes exercises

Considerations

- ACL graft is at its weakest between 6-12 weeks
- No open-chain quads (between 0°-50°) for 18 weeks
- No hyperextension or flexion beyond 120° for 12 weeks
- No cyclical loading for 12 weeks (e.g. cycling/wall slides/sit to stand/step-ups/cross trainer)
- No manual or unpredictable work for 12 weeks

WEEKS 2-6

Aims

- Restore control
- Normalise gait

POST-OPERATIVE

- Continue brace 0°-90°
- Normalise gait—wean off crutches as pain and quadriceps allow
- Scar massage to prevent adherence
- Full patella mobility
- Hamstring management—soft tissue techniques/gentle stretching
- Commence wall push isometric quads and hamstrings—in supine with legs at 90° and feet against a wall (gravity eliminates ant tibial translation from quads)
- Commence proprioceptive control—single leg stand (from 3 weeks)

WEEKS 6-12

Aims

- Feel more independent

POST-OPERATIVE

- Wean out of brace
- Gradual increase intensity glut/core work (restore control and balance)
- Active ROM to 120°
- Gentle hamstrings strengthening exercises (prone knee curls)
- Continue swelling control, scar management and patella mobility
- No through range closed chain quads (e.g. no dips/squats/step downs)
- No gym work
- No treadmill or cyclical loading
- No swimming

WEEKS 12–18

Aims

- Build strength

POST-OPERATIVE

- Full ROM
- Commence aerobic work including cross trainer and cyclical loading
- Commence closed chain quadriceps strengthening (isometric/eccentric) e.g. squats, sit to stand, single leg dips
- Wall slides 60°–90° flexion (isotonic)
- Swimming—crawl/backstroke only (no breaststroke)
- No jogging
- No impact work
- Progress proprioceptive and rotational control

WEEKS 18–24

Aims

- Consolidate gains

POST-OPERATIVE

- Commence impact work/running only if full extension and good eccentric quads control
- Hamstrings and quads regained 80% compared to the unaffected limb—start with trampette, progress to straight line/flat jogging
- No plyometrics
- Begin open-chain quads with no resistance
- Consider Isokinetic Cybex Assessment if appropriate

MONTHS 6–9

Aims

- Prepare for full activities

POST-OPERATIVE

- Resisted open-chain quads
- Introduce plyometrics
- Progressive introduction of dynamic activity:
 - flat and uphill jogging, progress to downhill
 - jumping/hopping (start on the trampette, emphasis on alignment of both push off and land)
 - change of direction; start single direction and progress to cutting, multidirectional and pivoting
 - stopping/starting and acceleration/deceleration
 - lateral hops/z-hops/landing/skipping
- Before return to sports specific training, the patient must achieve satisfactory single limb dynamic control
- Consider Isokinetic Cybex Assessment if returning to sport

MONTHS 9+

Aims

- Unrestricted activities

POST-OPERATIVE

- If quads and hamstrings 80% power of contralateral consider return to non-competitive training initially, aiming for full competitive sport at 1 year



FUNCTIONAL MILESTONES

Activity

- Driving
- Swimming
- Cycling
- Golf
- Jogging

Timescales

- 6 weeks (dependant on range and quads)
 - 12 weeks (once wound healed), no breaststroke
 - 12 weeks (flat pedals only)
 - If right-handed, right ACL 6 months, left ACL 9 months
 - 18-24 weeks dependant on the range and quads strength
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REFER BACK TO THE CLINIC

- Signs of infection
- Thrombosis
- Instability
- Persistent stiffness > 8/52

Seen in the clinic at approximately

2/52, 6/52, 9/12

