

Rehabilitation Protocol

Arthroscopy (Investigative) Surgery

Knee arthroscopy is a form of surgery that involves a series of cameras being inserted into the knee to investigate the health of the structure in and surrounding knee. This procedure is used as an alternative to open surgery as it is less invasive and requires a shorter recovery time. The procedure is also used not only for investigating the knee but also to make minor repairs to knee structures in the knee such as meniscus and other surrounding ligaments.

Early phase of rehabilitation (Surgery to 3 weeks)

Appointments - Rehabilitation appointments should start 2-5 days post-surgery.

Rehabilitation goals

- Protect the wounds and the knee post-surgery
- Initiate exercises to restore range of motion
- Begin to normalize gait
- Decrease any swelling around the knee
- Restore strength and good leg control

Precautions

- Avoid impact-based rehabilitation for 6 weeks + (cartilage repair only)
- **IMPORTANT: Monitor wound**

If you have any concerns about your wound immediately contact us on:

OS Clinic: 0207 046 8000

- This would include any of the symptoms or observations below:
 - wound leakage – blood or discharge
 - redness around the area
 - excessive or worsening pain
 - raised temperature

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- **IMPORTANT: DVT awareness**

If you have any concerns that you may have developed a DVT (deep vein thrombosis) immediately contact us on this number:

- **WARD (please insert):**
- **OS Clinic: 0207 046 8000**

- This would include any of the symptoms or observations below:
 - sudden calf pain and swelling
 - pain, swelling and tenderness in one of your legs (usually your calf)
 - a heavy ache in the affected area.
 - warm skin in the area of the clot.
 - red skin, particularly at the back of your leg below the knee.
 - shortness of breath and chest pain (very rare)

Manage swelling

- Cryotherapy is advised
- **PHYSIOLAB portable S1 device** is the preferred cryo-pneumatic device of OS Clinic.
See Appendix B for contact details.

Rehabilitation outline

Range of motion:

- Knee extension on a towel
- Prone hangs
- Supine wall slides
- Heel slides

Further exercises

- Quadricep sets
- Straight leg raises (4-way leg lift)
- Gait drills
- Upper body circuit training / conditioning

Criteria to progress

- ✓ Normal gait
- ✓ No swelling around the surgical knee
- ✓ Full knee range of motion

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Middle phase of rehabilitation (Previous progression criteria all must be achieved)

Appointments – at this time depending on client progression, appointment should be 1 or 2 per week.

Rehabilitation goals

- Continue to protect the surgical knee
- Good control with single leg stand

Good control and no pain with functional movements:

- Step up
- Step down
- Squat
- Partial lunges

Precautions

- Post activity soreness should resolve within 24hours of activity
- Avoid exercise levels that will cause post activity swelling (minimize as much as possible)

Rehabilitation sessions

- Non-impact proprioceptive and balance drills
- Static bike (light intensity)
- Hip and core strengthening
- Stretching of soft tissue for muscle imbalances and hypertension
- Continuation of quadriceps strengthening
- If tolerable and quadriceps and leg control is good begin non-impact endurance training, static cycle training and deep water running

Progression criteria

- ✓ Normal gait on all surfaces
- ✓ Ability to carry out functional movements without unloading the affected leg or pain, while demonstrating good control
- ✓ Single leg balance greater than 15 seconds

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End stage of rehabilitation

Appointments - one session every 1 – 2 weeks

Rehabilitation goals

- Good LL control with no pain with work/sport specific movements, including impact training.
- Confidence within the client to continue work/ sport specific activities

Precautions

1. Post activity should resolve within 24 hours of activity
2. Keep progressively loading to ensure post activity swelling

Rehabilitation sessions

- Progression/continuation of balance and proprioceptive drills
- Impact/ plyometric training – jump onto box and off with good control mechanics
- Progression over the take-off and landing feet with control cues to ensure control loading mechanics.
- Impact progressions:
 - 2 feet to 2 feet
 - One foot to the other foot
 - One foot to the same foot
- Single plane progressive to multi directional activities and progressing to higher velocity activities with multidirectional involvement
- Continuation of hip and core strengthening
- Stretching for patient specific muscle imbalances
- Cardiovascular fitness should replicate sport or work specific energy demands

Return to sport criteria

- ✓ Dynamic neuromuscular control with all multiplane activities without post soreness that last longer than 24 hours.
- ✓ No post exercise swelling.

Return to sport

The return-to-play criteria should include a 3-tier system to allow the player to safely return to full sport physically and psychologically if sport is the level of activity they require to return to.

Return to participation – Modified sessions lower than the RTS level

Return to sport – The athlete has returned to sport but not at the required performance level

Return to performance - Extending the RTS element the athlete had gradually returned to sport and his performing inline or above the pre-injury performance level.

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Suggested outcome measures tests to be used to monitor progression throughout the rehabilitation

Bilateral Drop Jump Test

- Participant stands on a 30cm box
- Jump two footed off the box landing with feet either side of a line 30cm from the box
- Immediately attempt to undertake a maximum vertical jump reaching up to touch a target held above the line
- Score a zero if the appropriate strategy is used and one for inappropriate movements. (Best overall score is 0, worse is 10 points)

Qualitative Analysis of Drop Jump Landing			
Date: Left	Patient: Right	Condition: Bilateral	
		Left	Right
Trunk alignment	Leaning in any direction from midline		
Foot on landing	Initial foot contact not symmetrical (timing)		
	Initial foot contact not symmetrical (foot landing away from mark)		
	Significant ground contact time		
	Foot not neutrally aligned (facing forwards)		
	Failure to land on mid foot		
Limb on landing	Thigh pelvis angle <90 degrees		
	Stiff upright landing		
	Patella pointing towards 2nd toe (noticeable valgus)		
	Patella pointing past inside of foot (significant valgus)		
	Total:		



Tuck Jump Test

- Subjects stand in a 30cm box marked on floor
- Undertake tuck jump continuously for 10 seconds
- Must attempt to raise the knees above the hips each time and land and take off within the box
- Score a zero if the appropriate strategy is used and one for inappropriate movements. (Best overall score is 0 and worse is 10 points)

Tuck Jump Test Score Sheet

Date:

Patient:

Condition:

Left:

Right:

Bilateral:

	Score
Knee and thigh motion	
1. Knee valgus on landing	
2. Thighs not reaching parallel (peak of jump)	
3. Thighs not equal side to side (during flight)	
Foot position during landing	
4. Foot placement not shoulder width apart	
5. Foot placement not parallel (front to back)	
6. Foot contact timing not equal	
7. Does not land in same foot print	
8. Excessive landing contact noise	
Plyometric technique	
9. Pause between jumps	
10. Technique declines prior to 30 seconds	



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Qualitative Analysis of Single Leg Loading

Single leg squat

Single leg step down

Single leg hop for distance

- See page 12 for test descriptions
- Score a zero if the appropriate strategy is used and one for inappropriate movements. (Best overall score is 0, worse is 10 points)

Date:

Patient:

Condition:

Left:

Right:

Bilateral:

QASLS		Left	Right
Arm strategy	Excessive arm movement to balance		
Trunk alignment	Leaning in any direction		
Pelvic plane	Loss of horizontal plane		
Thigh motion	WB thigh moves into hip adduction		
Knee position	Patella pointing towards 2nd toe (noticeable valgus)		
	Patella pointing past inside of foot (significant valgus)		
Steady stance	Touches down with NWB foot		
	Stance leg wobbles noticeably		
	Total:		



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Qualitative Analysis of Single Leg Loading – Test Descriptions

Single leg step down

- Participant stands on a 30cm box
- Instructed to step off the box onto a mark, 30cm from the box and 5cm on the contra-lateral side to the midline

Single leg hop for distance

- Participant stands on mark at side of standard tape measure
- Hands resting on iliac crests
- Attempts to hop as far as possible staying parallel to the tape

Cross Over Hop Test

- Subject stands by two parallel lines 20cm apart extending at least 5m
- Undertakes four consecutive hops without pause crossing the grid lines each time

Star Excursion Balance Test

- Subject stands on leg to be tested in centre of star. Keep heel down.
- Instructed to reach as far as possible down the line without taking undue support from the reaching leg or stepping over onto that leg
- 4 practices then test 5 repetitions

General notes

- All landings for single leg step down and single leg hop for distance must be held for 3 seconds, emphasis during task instruction must be placed on this
- Evaluate all landings using the QASLS scoring system
- For single leg hop for distance also include the distance hopped and the leg length
- Position camera a minimum of 2m from the landing position, zoom in to maximise the size of the subject within the frame
- Allow the subject a minimum of two practice attempts (continuing until they are able to do tasks appropriately) then record a single attempt.



Appendix A: Use of crutches

- When standing up and sitting down, make sure you take your arms out of the crutches and hold them in one hand. This will help to avoid any shoulder injuries.
- When walking with the crutches, keep the handles pointing forwards and your arms close to your sides.
- Place both crutches forwards together with enough space in between them to step into.
- If you are advised that you are not allowed to put any weight through your injured leg (non-weight bearing), place your crutches forwards together. Now lean through your arms as you hop your uninjured leg up to the same level as the crutches. The foot on your injured leg must stay off the floor at all times when walking.
- If you are advised that you are allowed to weight bear, place the crutches forwards together and then step your injured leg up to the crutches. Now lean through your arms as you step your uninjured leg forwards to the same level.
- When climbing stairs, try to use a banister or rail in one hand and a crutch in the other (you can also carry the extra crutch in this hand):
 - GOING UP: Good leg, bad leg, crutch
 - GOING DOWN: Crutch, bad leg, good leg.
- Check the rubber stoppers regularly. If they are worn down, bring them back and the physiotherapist will replace them.

Appendix B: Physiolab

Link for hire:

<https://physiolab.com/products/to-rent/s1-portable.html>

Website: www.physiolab.com

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