Meniscus repair post-operation protocol

The meniscus includes a medial (inside) meniscus and a lateral (outside) meniscus. Together they are referred to as menisci. The menisci are wedge shaped, being thinner toward the centre of the knee and thicker toward the outside of the knee joint. This shape is very important to its function. The primary function of the menisci is to improve load transmission. A relatively round femur sitting on a relatively flat tibia forms the knee joint.

After meniscal surgery, rehabilitation with a physical therapist or athletic trainer is needed to restore range of motion, strength, movement control and guide the athlete's return to sport. When the meniscus is repaired there may be a period of restricted knee flexion, especially during weight bearing, to protect the repair sutures and the meniscus.

Early post-operative phase of rehabilitation (Surgery – 4 weeks)

Appointments – rehabilitation appointment should begin around 3 days post op and then 1 appointment per week.

Rehabilitation goals

- Protection of the post-surgical knee
- Restore full knee EXT
- Eliminate Effusion (knee swelling)
- Restore leg control

Precautions

1. The patient may gradually wean from two crutches to one crutch to no crutches as long as the knee is maintained within the knee brace locked
2. There must also be no increase in pain or swelling over 4 weeks
3. Knee locked in brace for 4 weeks for all weight bearing activity
4. No knee flexion greater than 90 degrees

- **IMPORTANT: Monitor wound**
    - **If you have any concerns about your wound immediately contact us on: OS group: 0203 397 7779**

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

- **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 group: 0203 397 7779**

    - This would include any of the below symptoms or observations;
        - 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 group. See Appendix B for contact details.

- **Reduce mobility**
    - Rest as much as possible
    - Limited walking to around the house
    - If using crutches please see appendix A for instructions on advice on their use.

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Rehabilitation outline

Range of motion exercises

- Knee extension on a bolster/towel
- Prone hangs
- Supine wall slides
- Heel slides (careful with progressions on medial meniscus repair)
- Knee flexion on the edge of table

Strengthening

- Quadriceps sets
- Straight leg raises
- 4-way leg lifts in standing (brace on) for balance and hip strength
- Core and trunk work

Progression criteria

- ✓ 4 weeks after surgery (this can be up to size dependent on the size of the repair/ medial lateral)
- ✓ Pain free gait without crutches
- ✓ No effusion (swelling)

Mid stage rehabilitation (4weeks +)

Appointments – appointments should be once every 1-2 weeks based on client tolerance and progressions.

Rehabilitation goals

- ❖ Regain good single leg stand control
- ❖ Normalize gait patterning
- ❖ Good control and no pain with step up and step downs. Ability to squat to 60-90 degrees knee flexion

Precautions

1. No forced knee flexion or any passive movement of the knee past 90degrees
2. Avoid post activity swelling
3. No impact activities

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Rehabilitation outline

- Non-impact balance and proprioceptive drills
- Stationary bike
- Gait drills
- Hip and core strengthening
- Stretching for patient specific muscle imbalances and hypertension (soft tissue where necessary)
- Quadriceps strengthening inner and outer range (making sure that closed chain exercises stay within he precautions knee flexions ranges for protection of the knee.
- Non-impact endurance training – static bike, swimming, deep water running.

Progression criteria

- ✓ Normal gait pattern and good control on all surfaces
- ✓ Ability to complete functional movements (step up / down, squat) without unloading injured side or knee pain all with good strength and control
- ✓ Single leg balance greater than 15seconds

End stage rehabilitation (3months+)

Appointments – continuing to be once every 1-2 weeks based on progression and adherence to HEP.

Rehabilitation goals

- Good neuromuscular control
- No pan with progression of exercises
- No pain complaints with work/sport specific activities
- No pain with impact work

Precautions

1. Post activity soreness should resolve within 24hours of activity
2. No post activity swelling
3. Avoid posterior knee pain with end range knee flexion (progressive from 90degrees to end range)

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Rehabilitation outline

- Beginning of impact training progressively (increasing box height once stage D is achieved)

A. 2 feet take-off – 2 feet landing
B. 2 feet take-off – 1-foot landing
C. 1 foot take of – opposing leg landing
D. 1 foot take of -same side landing

- Movement control exercises begin with slow single plane movements progressing into multi directional exercises with strong focus on strength and control of the movements
- Further strength and control drills related to work specific requirement or sports specific movements
- Increasing the progressions of hip and core strengthening
- Introduce heavier loading for upper body strength
- Further stretching and/ or soft tissue release with analysis of movement for muscle imbalances or compensatory movements
- CV fitness- needs to replicate energy demands for the client's sport or desired level of fitness (pre surgery as a minimum)

Return to work/ sport criteria

- ✓ Good dynamic neuromuscular control with all multi plane activities without any post exercises swelling
- ✓ Post activity soreness should resolve within 24hours
- ✓ Return to sports or work is permitted when all above criteria is achieved although progressively

- ❍ Return to participation
- ❍ Return to sports
- ❍ Return to performance

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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 and worse is 10 points)

Qualitative Analysis of Drop Jump Landing

Date. Patient: Condition:

Left Right 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 <90deg		
	Stiff upright landing		
	Patella pointing towards 2nd toe (noticeable valgus)		
	Patella pointing past inside of foot (significant valgus)		
	Total		

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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 10 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 14 for test descriptions
- Score a zero if the appropriate strategy is used and one for inappropriate movements. (Best overall score is 0 and 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 mid line

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.

Triple hop test

In the triple hop test, the aim is to jump as far as possible on a single leg three consecutive times, without losing balance and landing firmly. The distance is measured from the start line to the heel of the landing leg. The goal is to have a less than 10% difference in hop distance between the injured limb and uninjured limb

Broad jump

Stand with your feet shoulder-width apart. Arms up in the air. Begin exercise by swinging your arms back behind your body as you bend your knees and push your hips back. Swing arms forward as you drive your feet into the ground, push hips forward, and explode forward off the ground. Land on your feet and drop back down into the starting position. The goal sis distance and control of the movement.

Appendix A - 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 you 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 to the Physiotherapist will replace them.

Appendix B - Physiolab

Link for hire	https://physiolab.com/products/to-rent/s1-portable.html
Website	www.physolab.com