

## **GUIDELINES FOR PHYSIOTHERAPY FOLLOWING A HIP ARTHROSCOPY**

Hip arthroscopy procedures may include labral debridement/chondrolabral sealing/chondroplasty, labral repair, microfracture, iliotibial band (ITB) release, gluteus medius repair and iliopsoas release. It is vital to know which procedure(s) have been performed as the post-operative precautions and limitations will vary.

The following post-operative guidelines are based on tissue healing, patient tolerance and the ability to meet set treatment goals. Consequently the ability to progress through the protocol will depend on the specific procedure(s) performed, condition pre-operatively as well as rehabilitation compliance. Progression may also be affected by post operative hip and thigh pain as well as muscle inhibition due to traction on the hip in surgery and due to the penetration of the hip joint with arthroscopic instruments.

### **PHASE I (weeks 1-4)**

The initial post-operative phase encourages early range of movement (ROM) and strengthening exercises whilst protecting the surgically repaired tissue.

#### **AIMS**

- Reduce pain and swelling
- Protect the surgically repaired tissue
- Improve ROM
- Initiate early hip muscle and core strength exercises
- Normalise gait

#### **WEIGHT-BEARING**

- Weight -bearing is initially limited\* to allow for healing to occur and due to post-operative pain and muscle inhibition.
- Progressing to full weight-bearing (FWB) too soon without a normal gait may be detrimental to the healing process, may exacerbate symptoms and may lead to secondary muscle imbalances including tightness of the hip flexors.
- Gait re-education should emphasise hip and core control to maximise lower limb alignment. Patients may need to be encouraged to walk slowly and to shorten their stride length to decrease the load on the anterior hip joint.

### **\*Variations/Special Cautions**

Labral debridement/chondrolabral sealing/chondroplasty -

- Partial weight-bearing (PWB) for 2 weeks, progressing to FWB as tolerated only when pain is under control and a normal gait pattern has been achieved.

Labral repair -

- PWB for 4 weeks, progressing to full weight bearing as tolerated by 6 weeks.

Microfracture -

- Toe touch weight-bearing (TTWB) for 6 weeks, then PWB from 6-8 weeks, progressing to FWB by 8 weeks.

ITB release -

- PWB for 4 weeks.

Gluteus medius repair -

- PWB for 6 weeks.

Iliopsoas release -

- PWB for 3-4 weeks progressing to FWB by 6 weeks.

### **ROM**

- All ROM exercises should be within pain limits to avoid stressing healing tissues and exacerbating symptoms.
- In week 1-2 passive and active assisted physiological movements can be commenced in all planes unless otherwise stated in the cautions. If movements are not performed, especially internal rotation adhesion formation may occur between the joint capsule and femoral neck which may lead to impingement. Pain must be respected and extremes of motion avoided.
- Active hip flexion (heel slides) can be performed immediately though may need to be restricted to 90 degrees depending on the procedure performed\*.
- Active abduction on a slideboard can also be performed within pain limits unless a gluteus medius repair was performed\*.
- Active internal and external rotation can be commenced, unless otherwise stated in the operation note, but must be performed with caution in a pain free range. The position will depend on pain and control therefore this may vary from supine (log roll), bent knee fall out (BKFO) or prone.
- Prone lying should be encouraged from day 1. Early ITB stretches may also be indicated if an ITB release is performed. However other stretches (piriformis, psoas, quads, hamstrings, gluteals) should only be commenced cautiously within pain limits from week 2-4. Ballistic or forced stretches must be avoided. If stretches are pushed too early, especially of the hip flexors or adductors, it can lead to inflammatory type pain.

### **\*Variations/Special Cautions**

Labral debridement/chondrolabral sealing/chondroplasty -

- Avoid active hip flexion past 90 degrees for 2 weeks and avoid pushing range of motion to the point of pain in any plane for 4 weeks

Labral repair -

- Avoid active hip flexion past 90 degrees for 2 weeks and avoid pushing range of motion to the point of pain in any plane for 4-6 weeks

Microfracture -

- Avoid hip flexion past 90 degrees for 2 weeks.

Gluteus medius repair-

- No active abduction for 6 weeks.

## CONTINUOUS PASSIVE MOTION (CPM)

- If a microfracture is performed then CPM is recommended from immediately post surgery until 3-4 weeks post operatively to stimulate repair. CPM is considered to enhance cartilage healing whilst minimising deleterious compressive and shearing forces.
- It is recommended that CPM is used by the patient for 6-8 hours daily. It should be set for 1 cycle per minute at a ROM which is comfortable for the patient but not exceeding 90 degrees for the first 2 weeks. ROM is then increased as tolerated until full ROM is achieved.
- If a CPM is not available then the patient should perform heel slides. (500 reps x 3 sets per day).

## STRENGTHENING

- It is important to avoid straight leg raises (SLR) and excessive or repetitive hip flexion exercises due to significant forces across the anterior hip and the risk of developing secondary iliopsoas tendinopathy.
- From Day 1 commence isometrics (gluteals, quadriceps, trans-abdominals, abductors, adductors, internal and external rotators).
- Inner range quads (IRQ) may also be commenced immediately.
- Trans-abdominal setting can be progressed, as pain and activity allows, to add BKFO and/or heel slides staying within a pain-free range
- By week 2 if sufficient activation and pain not provoked standing hip abduction\* and extension can be added. This can be progressed to lying in week 3-4 as long as the patient does not compensate with the hip flexors or tensor fascia lata (TFL) when abducting or by over recruiting the hamstrings on hip extension. Any open kinetic chain (OKC) abduction exercise needs to be monitored and the range restricted if necessary to avoid impingement.
- By week 3-4 core exercises could also include;
  - Gluteus medius level 1: external rotation in side lying (the clam), working into a pain free range only without resistance.
  - Bridging with both legs, initially with the knees flexed to encourage gluteal maximus activity.
  - McGill's side bridge in standing, against a wall, for co-activation of the trans-abdominals, internal and external obliques and quadratus lumborum.
  - 4 pt kneeling for basic core activation exercises.

### **\*Variations/Special Cautions**

Labral debridement/chondrolabral sealing/chondroplasty or Labral repair -

- Avoid straight leg raises and exercises that engage the iliopsoas during the first 4-6 weeks after surgery. Only initiate thereafter gradually and if pain free.

ITB release -

- Avoid straight leg raise in lateral position for 4 weeks.

Gluteus medius repair -

- No active abduction for 6 weeks.
- Avoid straight leg raise in lateral position for 6 weeks.

Iliopsoas release -

- Avoid straight leg raise for 6 weeks.

### CARDIOVASCULAR (CV)

- Cycling on a static bike with NO resistance can be used, for ROM and early CV, within the first 4 weeks as pain allows. However the seat height and handle bars need to be adjusted to prevent hip flexion past 90 degrees.
- Excessive walking and treadmill use should be avoided due to repetitive hip flexion and risk of irritating iliopsoas.

### ADDITIONAL ADVICE/CAUTIONS

- Avoid sitting in low chairs (hip greater than 90 degrees).
- Avoid deep squatting.
- Avoid lifting heavy objects from the floor.
- Avoid pivoting/twisting on a fixed foot.

## PHASE II (weeks 5-8)

The primary focus of the second phase is to continue progressing ROM and soft tissue flexibility while beginning to transition the emphasis to strengthening.

### AIMS

- Restore full range of movement
- Improve muscle strength
- Improve core strength
- Improve balance
- Improve/maintain cardiovascular fitness

### WEIGHT-BEARING

- Regardless of the procedure and time scales\* **only** progress to FWB as pain allows and when a normal gait has been achieved.

### \*Variations/Special Cautions

Labral repair/Iliopsoas release -

- FWB as tolerated by 6 weeks.

Microfracture -

- TTWB for 6 weeks, PWB from 6 -8 weeks aiming towards FWB at 8 weeks

Gluteus medius repair -

- FWB at 6 weeks

### ROM

- Continue with ROM exercises as required aiming to regain full ROM.
- Passive ROM exercises, mobilisations and stretches can become more aggressive. Commence adductor stretches if not already given. Figure of 4 stretches in supine may also be provided to gently increase capsule flexibility.
- If capsule laxity was thought to be a contributing factor to developing labral pathology normal mobility and not hypermobility should be achieved.

### STRENGTHENING

- Aim to progress hip abduction and extension to lying if not already commenced in Phase I. Theraband resistance can also be added to standing hip abduction and extension if sufficient control has been demonstrated during 3X15 reps. However any OKC abduction exercise still needs to be monitored to ensure the patient is not impinging.
- Continue with gluteus medius exercises with external rotation in side lying aiming for active=passive external rotation with good pelvic control. Once the patient is able to demonstrate good control with X10 5-8 second holds resistance may be added.
- Bridging can be gradually progressed to unilateral bridging if the patient shows no signs of compensation (fixing with the head or arms) or pain. Once the patient has sufficient gluteus maximus strength bridging can also be performed on a gym ball.
- McGill's side bridge on the **contra-lateral** side can be progressed to side lying (initially with the knees flexed) once the patient can perform X10 5-8 second holds and as long as they are able to take load through the shoulder on the contra-lateral side.
- Seated resisted internal and external rotation can be added.
- Closed kinetic chain (CKC) strengthening exercises\* can be commenced if the patient has sufficient gluteal activity to maintain lower limb alignment. The exercises prescribed will

need to be monitored as if the patient performs the exercises too deeply or collapses in they will be at risk of impinging

- Exercises such as wall slides and mini squats should initially be performed bilaterally and in a small pain free range. Light theraband can be placed around the thighs during the exercise to encourage gluteus medius activity especially if the patient drops into valgus.
- Towards the end of Phase II, and dependent on the individual patient, progressions to supported lunges, leg lowers and step work can be included once the patient demonstrates good control with wall slides and mini squats during 3X15 repetitions whilst maintaining optimal lower limb alignment. Support is only removed if they can maintain optimal alignment. Once good control is demonstrated during 3X15 repetitions load can gradually be added.
- Side stepping with Theraband/Theratubing can also be included once the patient is able to perform abduction in standing, with resistance, with good control during 3X15 repetitions. Stepping with the pelvis in posterior tilt will bias TFL where as stepping with the pelvis in anterior tilt will bias gluteus medius.

#### **\*Variations/Special Cautions**

Following a microfracture CKC strengthening should be avoided until the patient has started to PWB at 6 weeks in order to minimise compressive forces at the repair site.

#### **BALANCE**

- Single leg stance (SLS) can be commenced once the patient is FWB and have demonstrated the ability to perform a double leg mini squat on a stable surface whilst maintaining alignment.

#### **CV**

- Non impact endurance training can include stationary bike, cross trainer and swimming (breaststroke should be avoided until after 8 weeks).
- Resistance can gradually be added to the static bike but the time should initially be reduced in order not to overload the joint with the aim of gradually building the time back up.
- It is not recommended to use the treadmill for walking or the stairmaster due to repetitive hip flexion and risk of irritating iliopsoas.
- The rowing machine should only be commenced after 6 weeks if the patient has regained full pain free ROM.

## PHASE III (week 9-12)

Objectives for Phase III are to ensure the patient has symmetrical ROM and to begin integrated functional strengthening.

### AIMS

- Improve functional strength and endurance
- Improve core strength and stability
- Improve Cardiovascular fitness

### WEIGHT-BEARING

- All patients should now be FWB with a normal gait.

### ROM

- Full ROM is now expected.
- Passive ROM and stretches should be more aggressive if limitations persist.

### STRENGTHENING

- Ongoing core strengthening is essential. Gradually progress core exercises ensuring sufficient control is demonstrated with the previous level without pain or compensations.
- Progress CKC exercises by performing unilaterally, increasing depth of movement and/or applying an external load. However monitor carefully for any reaction and to ensure not impinging.
- Incorporate multi-planar movements including directional lunges (forward, back, lateral, diagonal) as long as the patient is able to maintain good control and alignment during static lunges 3x10-15.
- CKC with perturbation (including theraband) or on unstable surfaces can also be added.

### BALANCE

- Single leg activities challenging proprioception and strengthening of the hip muscles in functional positions should be performed.
- Balance training can be progressed onto a wobble board when the patient can maintain optimal lower limb alignment with single leg stance on a stable surface and a single leg half squat and single leg calf raise. More functional and dynamic balance exercises can be integrated to the patient's rehabilitation if deemed appropriate and they have sufficient control.

### DECELERATION

- Commence deceleration training. This is required to teach a fundamental landing technique maintaining lower limb alignment with the aim of increasing lower limb force absorption ability and decreasing joint reaction forces. Consequently it is a vital component of any lower limb rehabilitation and a prerequisite to running and plyometrics. This can initially be done with a step down from a step then stabilising. With deceleration training the patient

must be able to land softly and correctly as well as stabilise in optimal alignment for 5 seconds 3X10-15 before progression

## CV

### **\*Variations/Special Cautions**

Labral debridement /chondrolabral sealing/chondroplasty -

• Towards the end of Phase III (10+ weeks) patients following labral debridement/chondrolabral sealing/chondroplasty could commence straight line jogging if they have met the set criteria for running. It should only be commenced in straight lines and stopped if the patient experiences any discomfort or demonstrates an altered running pattern (i.e. limps). Initially any change of direction should be at a slow speed (i.e. a power walk) and should be performed with a wide berth with the operated leg on the outside. As the patient's control improves this can be progressed gradually until they are able to pivot on the operated leg at speed. Lateral and backward movements can be progressed in the same manner.

### RUNNING CRITERIA

- No pain or swelling.
- Full pain free ROM; hip, knee and ankle.
- Normal gait.
- Total hip strength 80% or more of the contra-lateral limb.
- Squat; unilateral 3X10 maintaining optimal alignment.
- Calf raise; unilateral 3X10 with good control.
- Gluteus medius; (level 1) external rotation in side lying 10X 5-8 second holds.
- Trunk side flexors; McGill's side bridge 10X 5-8 second holds.
- Deceleration training; stabilise in optimal alignment for 5 seconds 3X10.



## PHASE IV (12+ weeks)

The primary objective of this phase is a safe and effective return to previous activity levels including work and sport.

### AIMS

- Gradual return (as applicable) to all work duties.
- Return to non-contact aspects of team training then return to full participation.

### REHABILITATION

- Continue with core strengthening and stretches.
- Progress balance and proprioceptive drills appropriate to the individual.
- Straight line jogging and agility work\* can be introduced once they fulfil the set running criteria.
- Lateral dynamic activities and sport specific drills are introduced once the patient demonstrates good control with impact control and multi-plane exercises and can tolerate a running programme without pain. Sport specific activities will vary for the individual.
- Plyometrics should only be included if the patient needs to perform this activity and they have demonstrated the required control and stability with deceleration training. However, additional pathologies throughout the lower limb should be considered. Plyometrics should be stopped if the patient shows signs of fatigue and is only progressed once a good landing technique has been achieved.

### **\*Variations/Special Cautions**

Microfracture-

- Running and agility work should be avoided for at least 4 months with small lesions (<2cm<sup>2</sup>) and at least 5-6 months for larger lesions.

### RETURN TO SPORT

- No pain or swelling.
- Full pain free ROM; hip, knee and ankle.
- Normal gait.
- Total hip strength 85% or more of the contra-lateral limb.
- Adductor strength 80% or more of the Abductor strength (Aim 1:1ratio).
- Squat; unilateral 3X10 maintaining optimal alignment.
- Calf raise; unilateral 3X10 with good control.
- Gluteus medius; (level 1) external rotation in side lying 10X 5-8 second holds.
- Trunk side flexors; McGill's side bridge 10X 5-8 second holds.
- Deceleration training; stabilise in optimal alignment for 5 seconds 3X10.

Return to sport/activity must be based on the individual presentation of each patient and their ability to fulfil set criteria (listed above). It will also depend heavily on the nature of the sport and can therefore vary from 4-12 months.