Knee Microfracture Surgery
Patient Information Leaflet

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1. Introduction

This information booklet has been written to give you a basic understanding of what is involved when you have microfracture surgery to your knee.

In this booklet we provide information, including things you should know before and after your operation. It is important for you to understand the advantages but also the possible problems, which may occur after this surgery. You must follow the rehabilitation protocol outlined in this information leaflet. Failure to do so can affect the outcome of the surgery.

Throughout your stay in Beacon Hospital, you will receive continuous advice and support from all members of the team

2. The Knee Joint Anatomy

The knee is a very important joint in the body and consists of the thigh bone (femur), the shin bone (tibia) and the kneecap (patella). It plays an extremely important role in supporting nearly the entire weight of the body and does this with the help of surrounding muscles, ligaments and cartilage.

Muscles: You have many muscles around your knee which help provide stability and allow movement. The main muscles surrounding the knee are the Quadriceps (front of thigh), Hamstrings (back of thigh) and Calf (back of lower leg).

Ligaments: Ligaments hold your bones together and are therefore integral to stabilising the knee. The Anterior Cruciate Ligament (ACL) prevents excessive forward movement of the tibia on the femur. Other important ligaments in the knee are the Posterior Cruciate Ligament (PCL), the Medial Collateral Ligament (MCL) and the Lateral Collateral Ligament (LCL).

Cartilage: 2 main types -
1) Menisci: Disc shaped fibrous cartilage situated between the femur and tibia. They provide stability, act as shock absorbers, provide lubrication and allow equal weight distribution.

2) Articular Cartilage: This covers the end of the bones and allows them to move smoothly against each other with less friction. It also helps spread the load applied to the joint.
3. Articular Cartilage Damage

Damage to your articular cartilage can be caused by trauma, degenerative changes (such as osteoarthritis) or an inflammatory disorder (such as Rheumatoid arthritis). This damage can lead to pain, swelling, locking, giving way, grinding sensation (crepitus) in the knee joint. Articular cartilage does not have its own blood supply therefore it has a limited ability to heal. If damage is severe enough, the surgical procedure known as microfracture may be suggested by your surgeon.
4. Microfracture Surgery of the Knee

Microfracture surgery is normally performed arthroscopically. This means a camera is used to look inside the knee and one or two instruments are inserted for the surgical procedure through small ‘key–hole’ incisions.

A Microfracture procedure involves the surgeon making multiple holes deep into the bone where there is no cartilage. This allows an influx of blood, rich in growth factors, to coat the bone surface. The blood forms a clot and over time develops into new cartilage, also known as fibrous cartilage. This allows for better shock absorption in the knee, better weight distribution to prevent further ‘wear and tear’ on the joint and better stabilize the knee joint.

5. Post Operative Pain and Swelling

Pain is a common occurrence following any surgical procedure. It can be well managed with medications, special pain management devices and ice. The pain will naturally reduce as your wound heals and with regular use of analgesics (pain killers). It is important to keep your pain well controlled so you can mobilise comfortably, perform your physiotherapy exercises and resume normal activities after your surgery.

You will be asked to rate or score your pain regularly after your surgery. The score will depend on how your pain feels to you.

0= No Pain, 10= worst pain imaginable

Assign the number you feel best describes your pain. The nurses will administer appropriate treatments/medications depending on your pain score. The nurse will
reassess your pain score after the treatment to make sure it has worked to reduce your pain.

6. Walking and Weight Bearing after the Surgery

You must walk with your crutches, using the same pattern taught to you by your physiotherapist. Toe touch weight bearing is the normal weight bearing status to be performed unless you are told otherwise. This means to walk using crutches and only touch the toes lightly on the ground (normally 10% of your body weight allowed through the leg) on the operated leg.

**Walking with Crutches**
- Place your crutches forwards
- Step your operated leg between the crutches
- Step forward with your non operated leg

![Walking with Crutches](image1)

**Using Stairs with Crutches**
- Lead with your un-operated limb (good leg) when climbing up stairs, then step up with operated leg, then bring crutches up onto the step.
- Go one step at a time, with both feet on each step, until instructed otherwise by your physiotherapist

![Using Stairs with Crutches](image2)
• When descending stairs, place crutch on step below, then step down operated leg followed by the non-operated (good leg).
7. Home Exercise Programme

- The physiotherapist will teach your exercise programme.
- The aim of the exercises is gentle range of motion to prevent joint stiffness and strengthening to maintain some strength in the leg. The muscles in the leg will weaken as you will not be putting full weight through the leg as normal.
- You will need to perform these exercises three times a day with 10 repetitions of each exercise each time unless instructed otherwise by your physiotherapist.
- Please be sure to read the exercises carefully and ask your physiotherapist any questions that you may have before you leave the hospital.

1. **Static Quadriceps Contraction with Heel Propped:**

- With your leg straight out in front of you, tighten the muscles at the front of your thigh, pushing the back of your knee down into the bed.
- The result should be straightening of the knee.
- Hold the contraction for 5 seconds. Repeat 10 times

![Static Quadriceps Contraction with Heel Propped](image)

2. **Knee Flexion/Heel Slide:**

- Lying on your back, bend your knee as much as possible by sliding the leg up and down.
- Ensure your foot is always supported on the bed and you can use a plastic bag or sliding board under the foot for comfort.
- Repeat 10 times.

![Knee Flexion/Heel Slide](image)
3. **Straight Leg Raise:**

- Start with the leg straight and tighten the quads muscle.
- Raise the leg off bed by approximately 12 inches.
- Hold for 5 seconds then slowly lower back down.
- Repeat x 10 times.

![Straight Leg Raise](image)

4. **Side lying Straight Leg Hip Abduction:**

- Start lying on your side with the leg straight and contract the quads muscle.
- Keep the bottom leg bent.
- Raise the leg off bed by approximately 12 inches.
- Hold for 5 seconds then slowly lower back down.
- Repeat x 10 times.

![Side lying Straight Leg Hip Abduction](image)
8) **Rehabilitation Guidelines Following Microfracture Surgery**

a. Full compliance to the guidelines following a microfracture procedure is essential to determining the success of surgery.

b. Time scales may vary with each individual depending on specific circumstances. The guideline below may change by the surgeon depending each individual patient’s progress.

<table>
<thead>
<tr>
<th>Predicted Timeline</th>
<th>Instruction</th>
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<tr>
<td><strong>1) 0-2 weeks:</strong> Ice, elevation, compression, rest</td>
<td>It is vital to try and reduce post op swelling as soon as possible by applying ice and keeping the leg elevated. Ensure you rest your leg with it in a straightened position by placing a rolled towel under your ankle. Ice should be applied regularly during the day and for 15 minutes at a time to help limit swelling.</td>
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<td><strong>2) 0-6 weeks:</strong> Touch weight bearing on crutches for 6 weeks following surgery</td>
<td>You will be using crutches for 6 weeks following your operation and must put very minimal weight through your operated leg. This is to protect the clot formed from the procedure. It can take up to 12 weeks to progress walking without crutches – your surgeon will guide you accordingly. Some patients will need to wear a knee brace during this period and your surgeon will alert the nursing and physiotherapy staff if this is required. The brace is to prevent any pivoting actions which can effect the clot.</td>
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<td><strong>3) 0-6 weeks:</strong> Active range of motion, strengthening exercises and cycling (stationary bike) with no resistance</td>
<td>It is extremely important to carry out daily range of motion exercises and cycling using a stationary bike to help stimulate new cartilage formation and regain full movement of the knee. Strengthening exercises as advised by your physiotherapist should also begin as soon as possible to maintain muscle strength in the knee. These exercises are performed lying on your back (supine) in a non weight bearing position such as on a bed/couch to ensure no large forces are place through the joint.</td>
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<tr>
<td><strong>4) 6 weeks – 3 months post op:</strong> Progressive weight bearing</td>
<td>You may be allowed to progress gradually back to full weight bearing, this is only when instructed to do so by your surgeon. This will take one to two weeks to wean off the crutches by gradually taking more weight thought the leg and then you will discontinue with the crutches when you can walk without a limp. If your surgeon requested a brace</td>
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this will typically be discontinued at 6 weeks post op. At 6 weeks post op you may attend follow up physiotherapy and your physiotherapist will guide your exercise programme.

5) 3 – 4 months post op: Progressive strengthening
   Progressive strengthening, cycling with increasing resistance.

6) 4 months post op: Running
   Your physiotherapist will guide you back to running activities when permitted by your surgeon.

7) 5 months post op: Plyometric training
   Jumping exercises can begin as the new cartilage should now be strong enough to withstand this pressure.

8) 6 Months post op: Pivoting activities
   Quick changing of direction and pivoting activities can begin.

9) 8 Months post op: Return to sport
   At this stage you should be able to return to high impact sport.

10) General Safety Advice for Home

**Hazards**
Please be aware and remove any hazards in your home whilst you are using crutches as this will make your recovery easier and safer.

- Move electrical cords, phone lines and ensure clear pathways.
- Store items within easy reach specifically in the kitchen and bathroom areas.
- Remove rugs including bath mats and entrance mats.
- Be careful with pets and young children.
- Be aware of water spills, slippery floors and always think before you move.

**Signs of Infection**
If you develop any of the following signs of infection, it is important to report them to your doctor. The signs of infection include:

- Redness around the wound site
- Increased pain in the wound
- Swelling around the wound
- Heat at the wound site
- Discharge of fluid – may be green or yellow
- Odor or smell from the wound
- Feeling of being generally unwell
- Fever or temperature

Most people will have sutures that will need to be removed approximately 10-14 days after surgery. This may be done by the GP, Dressing Clinic or consultant.

**Follow Up Physiotherapy**
You will be advised to attend outpatient Physiotherapy when cleared to by your surgeon. This is normally after the initial 6 week period of toe touch weight bearing. You may
either attend a private Chartered Physiotherapist here in the hospital or a Chartered Physiotherapist more local to your home. You will need to continue your physiotherapy for three to eight months after your surgery. Your physiotherapists will advise you after your surgery regarding your requirements.

11) Conclusion

We hope that you have found this booklet useful and that it has helped to relieve some of your fears and anxieties regarding your surgery and the rehabilitation process. During your hospital stay, your medical team will be available to answer any other queries you may have. Please ask your physiotherapist if you have any further questions. Should you need any further advice, please contact Beacon Physiotherapy on 01-2936692.

This Patient Education leaflet was developed by the Chartered Physiotherapists in Beacon Hospital.
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