



Surrey Orthopaedic Clinic

www.surreyorthopaedicclinic.com

Microfracture Knee Surgery



Patient Information

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Microfracture Knee Surgery

The knee joint

The knee is an important joint in the body and consists of the thigh bone (femur) and shin bone (tibia). It plays an important role to support the 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. 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).

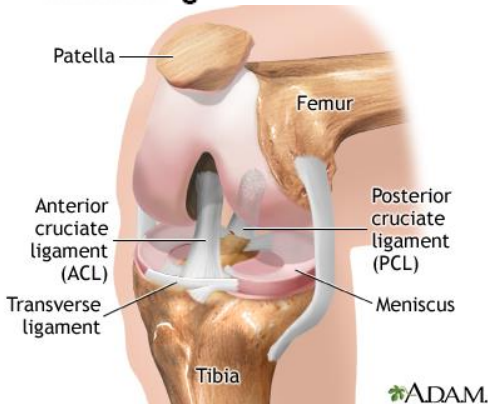
Cartilage: There are 2 main types -

- 1) Menisci: Disc shaped fibrous cartilage situated between the femur and tibia. They provide stability, act as shock absorbers, 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.

Damage to the Articular Cartilage

- Can be caused by trauma, degenerative changes (Osteoarthritis) or inflammatory disorders (Rheumatoid Arthritis).
- Leads to pain, swelling, locking, giving way, grinding sensation (crepitus).
- Articular cartilage does not have its own blood supply therefore it has a limited capacity to heal.
- If damage is severe enough, surgical procedure known as MICROFRACTURE can be performed.

Undamaged Knee Joint



Articular cartilage damage

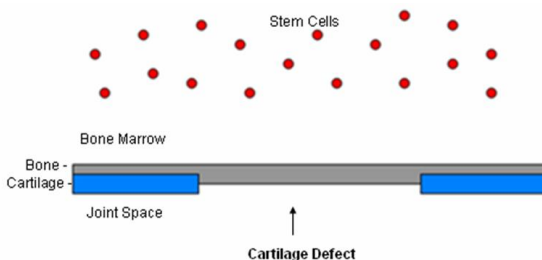


Microfracture Surgical Procedure

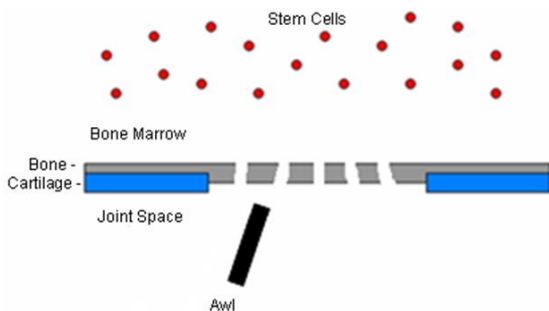
Microfracture surgery is performed arthroscopically. This means a camera is used to look inside the knee and one or two instruments are inserted for the surgical procedure through small

'key-hole' incisions. A Microfracture procedure involves the surgeon making multiple holes deep into the bone where the cartilage is absent and allowing an influx of blood, rich in growth factors, to coat the bone surface. This forms a clot and over time develops into new cartilage, also known as fibrous cartilage.

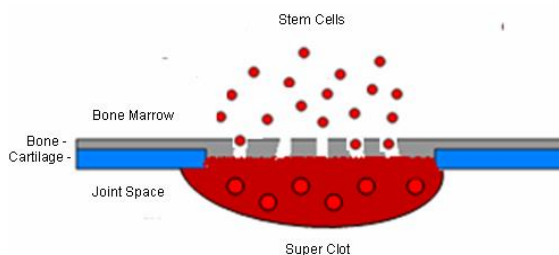
Stage 1 – shows area of cartilage damage (cartilage defect)



Stage 2 – surgeon makes small holes into bone where damaged cartilage was



Stage 3 – blood containing stem cells (cells that promote growth of cartilage) pour through holes made and form clot



Complications

These are rare but include infection, deep vein thrombosis (DVT - a blood clot in the leg) and extremely rarely death. Other complications include numbness around the scars, bleeding, residual pain and stiffness. Arthroscopic surgery is generally used to correct mechanical problems within the knee. If generalised osteoarthritis is causing your problem, an arthroscopy **will not** be of benefit as surgery will not be able to reverse the damage, which has already occurred

After your Microfracture

Rehabilitation

Correct rehabilitation and full compliance after a microfracture procedure is crucial to optimize the success of the surgery.

Your rehabilitation is designed to promote the ideal environment for the clot to form and develop into cartilage-like cells to repair the original defect.

The specific rehabilitation for each patient will vary depending on the following factors;

- Location of the defect
- Size of the defect
- Whether any other surgical procedure is performed at the same time (i.e ACL reconstruction)
-

Your rehabilitation will be guided by your Physiotherapist

Your Weight bearing status after the surgery is usually non-weight bearing for 6 weeks following your surgery then partial weight-bearing after for a further 6 weeks. If suitable and available an unloader brace may allow earlier weight bearing

You will be using crutches following your operation. Your weight bearing status determines how much weight you can put through your operated leg. This is to protect the clot formed from the procedure. It can take up to 6-12 weeks to progress walking without crutches – this is a rough guide and your physiotherapist will guide you further.

You may require a Knee brace after your surgery – this will be determined by the location of your surgery.

If you require a brace it should be in place when putting weight (standing) through your leg. Your brace prevents any pivoting actions on the knee which can disturb the clot. You can take the brace off when completing your exercises and resting.

Your Brace is generally set set unlocked (free to move) unless the microfracture is carried out at the patellofemoral joint (patella or trochlea) where the knee will be locked straight for walking.

The brace must be removed to allow free movement when not weightbearing

Rehabilitation Continued

Ice, Elevation and Rest

It is vital to try and reduce post op swelling as soon as possible by applying ice and keeping the leg elevated. Always rest your leg in a straightened position. If you want to rest the leg on a pillow, make sure it is placed **under the heel** and calf, this ensures the knee is straight.

Place a rolled towel under your ankle. Place an ice pack on your knee. Let the knee straighten. Ice should be applied every 2-3 hours for 20 minutes at a time in the first 2 weeks

Do NOT rest with the pillow under your knee.

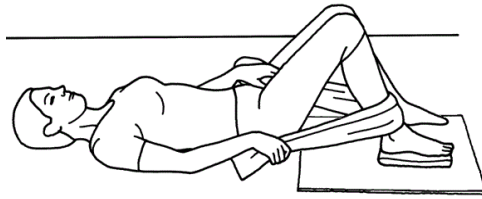
Exercises Start all exercises as soon as possible (excluding cycling – this will begin at 1 week after your surgery).

It is vital to carry out lots of range of motion exercises to help stimulate new cartilage formation and regain full motion of the knee. Strengthening should also begin as soon as possible to maintain your knee strength.

Range of motion exercise

1) Lying or sitting with a sliding board under your leg (use a smooth slippery surface to make the movement as easy as possible - for example a plastic serving tray). Place a towel around your ankle. Pull the towel to bend your leg as far as you can and then slowly release the towel to let your knee straighten, continue to slide your foot up and down the sliding board thus bending and straightening your knee.

Repeat for 20 minutes (500 repetitions), 3 times a day.



2) Cycling (if you have a stationary bike available to you).

1 week after your operation you can begin cycling with **NO** resistance.

Use your non-operated leg to push the pedals and create the movement and keep your operated leg relaxed.

Cycle for 20-30 minutes, 3 times a day.



Strengthening exercises

3) Lying or sitting with your leg straight. Bend your ankles and push your knee down firmly against the bed.

Hold 5 seconds – relax. Repeat 10 times. 3 times a day.

- 4) Lying or sitting brace your knee straight and lift your leg straight up about 20cm off the bed.
Hold 3-5 seconds. Repeat 10 times. 3 times a day.

Further Rehabilitation

3 – 4 months post op: Progressive strengthening

- Progressive strengthening, cycling with increasing resistance.

4 months post op: Running

- Your physio will guide you back to running activities.

5 months post op: Plyometric training

- Jumping exercises can begin as the new cartilage should now be strong enough to withstand this pressure.

6 Months post op: Pivoting activities

- Quick changing of direction and pivoting activities can begin

8 Months: Return to sport

- At this stage you should be able to return to high impact sport.

Note: Time scales may vary with each individual depending on specific circumstances. The above is a rough guide.

FURTHER INFORMATION:

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Contact:

After surgery care:

Contact the relevant ward:

BMI Runnymede: 01932 877800

Nuffield Hospital Woking: 01483 227800

BMI Princess Margaret: 01753 743434

BMI Chiltern: 01494 890890

Spire Thames Valley: 01753 662241

Appointments:

Surrey Orthopaedic Clinic

02031304050

Emergency Out of Hours Consultant: 020313034050

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