

# Proximal femoral derotation osteotomy

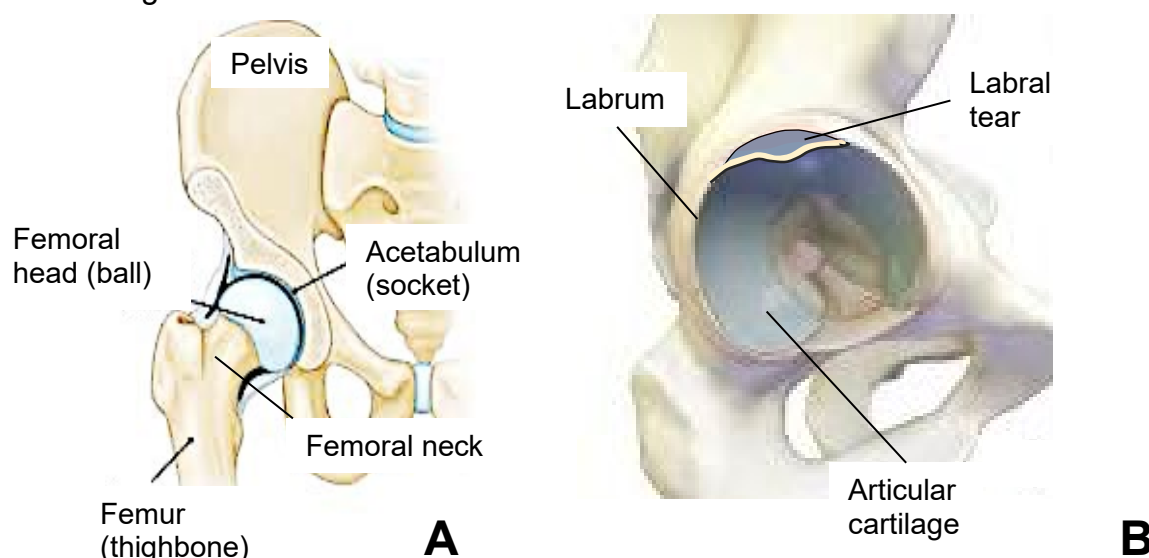
This leaflet is for patients having an operation called a proximal femoral derotation osteotomy for hip and/or knee pain, due to an abnormal twist in your femur (thighbone). It outlines what the surgery entails, including risks and benefits. If you have any questions, please discuss them with your consultant or one of the team.

## Thighbone torsion (twisting) and potential problems

Hip pain and other symptoms can result from an abnormal twist in your thighbone (femur). If the twist is very severe, surgery may be the best option to reduce the existing twist.

The hip joint is ball-and-socket joint. The ball (femoral head) is the top end of the femur and the socket (acetabulum) is part of the pelvis (see Figure 1A). The femoral neck connects to the head to the shaft of the femur. The hip joint is surrounded by ligaments and muscles, which provide support and generate movements of the joint.

The surfaces of both femoral head and acetabulum are covered by a smooth cushioning layer called articular cartilage (gristle) (see Figure 1B). It is needed for smooth gliding of joint surfaces during movements and absorption of the loads. The rim of the acetabulum is lined by a fibrocartilage structure called labrum.

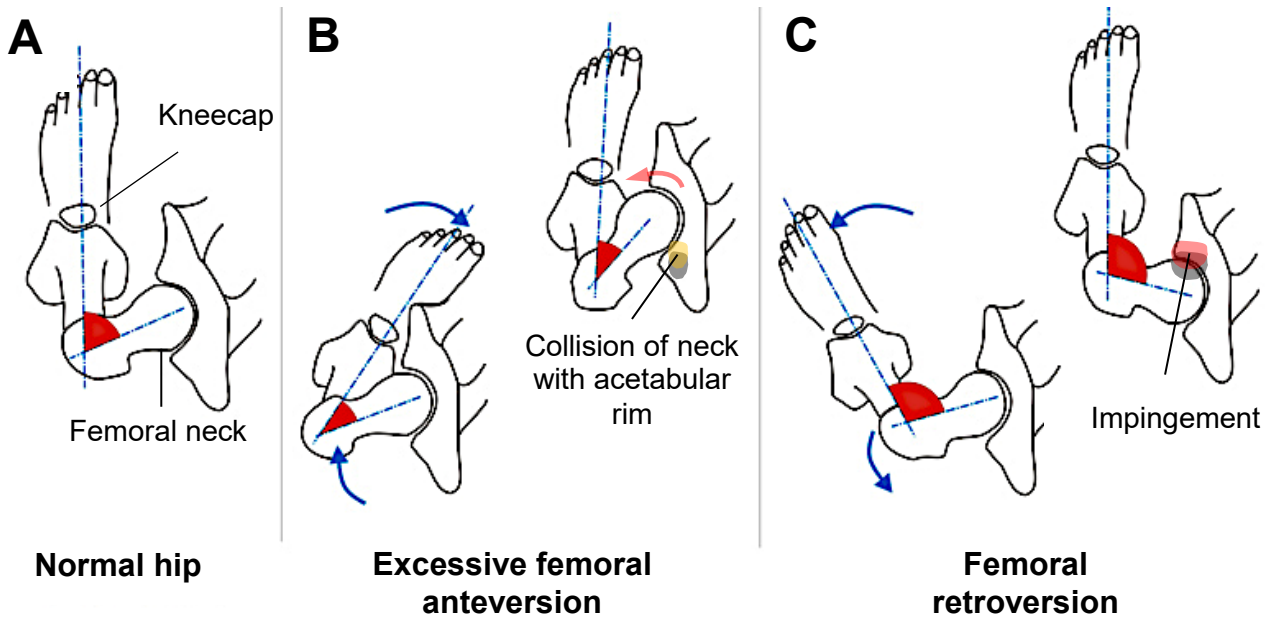


**Figure 1. A.** Diagram of a right hip joint. **B.** Diagram of right acetabulum

## Why do I need this surgery?

Under normal circumstances, femoral neck angles forwards by around 15 degrees (see Figure 2A). This forward orientation of the neck is called anteversion. However, sometimes the neck is pointing either too far forwards (excessive anteversion), or backwards (retroversion) (see Figure 2B and C), with both conditions leading to higher likelihood of hip impingement – femur

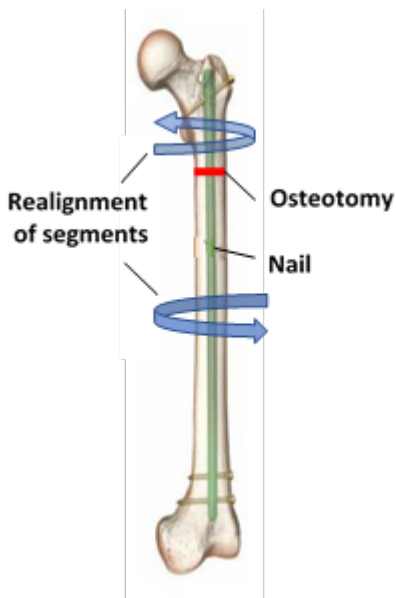
abnormally colliding against the rim of the acetabulum during hip movements. Repeated episodes of impingement over a long time can lead to the damage or tears of the labrum (see Figure 1B) as well as the articular cartilage, ultimately resulting in degenerative arthritis (osteoarthritis) of the hip joint.



**Figure 2. A.** Diagram of a left leg from above. Note normal femoral neck is rotated slightly forward, and the angle it makes with the line of the foot is usually around 75-80 degrees. **B.** When the neck is rotated excessively forward (anteversion), the foot either points inward or forward during walking. In latter case, the hip has to accommodate and bring the neck close to the back of the socket rim. Thus, the neck collides with the rim of the socket at the back (orange area), causing the head to be lifted out of the acetabulum at the front (red arrow). The labrum gets stretched and torn at the front. **C.** When the neck is rotated excessively backward (retroversion) the foot either points outward or forward during walking. In latter case, the hip has to accommodate and bring the neck close to the front of the socket rim. In turn, this causes narrowing of the space between the neck and the acetabular rim (impingement – red area) and entraps and crushes the labrum.

### What does femoral osteotomy surgery entail?

A femoral osteotomy is performed to restore a more normal rotation of your femur. The surgery involves making a cut (osteotomy) through the upper part of the femur (see Figure 2). The femur’s alignment is then corrected, and a long rod (nail) is inserted into the bone to hold it in place while the osteotomy heals. The rod does not necessarily need to be removed once the bone is fully healed.



**Figure 2.** Left femur with a rod inserted. Red line represents the osteotomy site across the top end of the femur. Once the femur is cut, its top end can be rotated in relation to the bottom end in order to improve the alignment of femoral head at the hip joint. The realigned segments are then held in place with a rod.

### What are the aims of this surgery?

- Reduce the twist in the femur
- Improve hip pain
- Improve hip function
- Improve overall quality of life and mobility

### What are the risks of this surgery?

- Wound or deep infection
- Nerve injury
- Blood loss sometimes requiring blood transfusion
- Osteotomy not healing (non-union)
- Over- and under-correction of the twist (malunion)
- Failure to improve symptoms/dissatisfaction
- Recurrence of symptoms
- Need for further surgery
- Heart attack
- Chest infection
- Clots in the veins of your legs that may travel to your lungs (deep vein thrombosis (DVT) and pulmonary embolism)

## Advice following surgery

**Pain relief:** Local anaesthetic is used at the end of surgery to numb the pain. It is normal to feel pain come back as the local anaesthetic wears off and you will need to take painkillers regularly to help with this. It is important to take the painkillers as prescribed to keep pain to a minimum and allow mobilisation.

**Hospital stay:** Your operation can take from 1.5 to 3 hours, depending on how much work needs to be performed. You will need to stay in hospital overnight or longer following your procedure. The length of your hospital stay may vary, depending on the extent of your surgery, your medical history and also on how you are managing to mobilise with help from the physiotherapists.

**Mobilisation:** After your surgery, a physiotherapist will come to see you on the ward. Initially, you may require walking aids (i.e. frame or crutches) to help you mobilise. In majority of cases you will be allowed to put all weight on your operated leg once it is comfortable to do so. You will also be shown how to safely get up- and down-stairs using your crutches, if required.

**How long does the osteotomy take to heal?** Following discharge from the hospital, you will have regular X-rays to monitor bone healing. Femoral osteotomy can take 6-9 months to heal. Smoking significantly delays the bone healing, so cut down or stop smoking completely. If during monitoring there are no signs of healing, further interventions, including dynamisation of the nail, bone marrow injections and ultrasound stimulation, can be attempted to stimulate the healing. If these steps fail, exchange of the nail can be performed.

**Range of movement and strengthening exercises:** It is important to build up your muscle strength and hip joint movements as soon as possible. Ensure that you take pain relief medications about one hour before your exercises. Following your surgery, you will go through a phased rehabilitation programme. The programme details will be explained to you by your physiotherapist, but generally your rehabilitation will include restoration of hip and knee joint range of movement, strengthening/conditioning muscle exercises, stamina, and exercises for return to specific sport.

You will also be referred for outpatient physiotherapy to ensure on-going progress with walking and exercises. If you have any questions or need any advice about your exercises, please contact the Physiotherapy Department between 9am – 4pm Monday to Friday on 0118 322 7811 (Royal Berkshire Hospital) or 0163 5273362 (West Berkshire Community Hospital).

**Self-care:** It is important to get back to your normal daily routine as soon as possible after the surgery. Initially on the ward, you will probably need help from the staff with mobilisation and self-care. By the time you go home, you are likely to be independent with normal self-care activities.

**Wound care:** Your wounds will need to be kept clean and dry. It is normal for the wound sites to sometimes leak a little bit of blood or fluid for the first few days after your surgery. The wounds will need to be redressed if the dressings become soaked. If you are changing the dressings, clean the wound with soap and clean water, pat it dry with a towel/paper towel and even use a hair dryer (on cool) to ensure maximal dryness of the skin before applying a new

dressing. If you feel the wounds are not healing (e.g. increasing wound discharge, increasing redness around the wounds) please book an appointment to be reviewed by a member of our hospital team as soon as possible. The nursing staff will also provide you with wound care information on discharge.

**Work:** Your return to work will depend on the job you do and the speed of your recovery. It may take a couple of weeks before you are able to return to an office job, and longer if the job is physical. Your physiotherapist or consultant will be able to provide further advice. An initial sick certificate can be provided by the ward – please ask the nurse before you leave the ward. Subsequent certificates will need to be obtained from your GP if required.

**Driving:** You should not drive while you are still using crutches. Once you feel you have sufficiently recovered and can perform an emergency stop, you can try to drive on a quiet road. You may need to inform your insurance company prior to returning to driving that you have had an operation and have now recovered.

**Leisure and sport:** Return to sports will be guided by your progress with rehab and the speed of the osteotomy healing. It can take 3-9 months before you are able to return to competitive sports (some sports patients can resume before complete bony healing).

## Glossary

**Femur** – thighbone

**Acetabulum** – socket of the hip joint

**Femoral head** – ball of the hip joint

**Femoral neck** – connects to the head to the shaft of the femur

**Articular cartilage** – gristle lining the surfaces of the hip joint absorbing the loads and allowing for smooth gliding of joint surfaces during joint movements

**Labrum** – a fibrocartilage structure lining the circumference of the rim of acetabulum

**Impingement** – an abnormal contact between the femur and the rim of acetabulum during hip movements

**Excessive anteversion** – femoral neck is angling too far forwards

**Retroversion** – femoral neck is angling too far backwards

**Osteotomy** – a break created in a bone in order to re-align its parts

**Derotation osteotomy** – an osteotomy performed to ‘untwist’ a twisted bone

**Non-union** – failure of osteotomy to heal

**Malunion** – healing of osteotomy with persistent twist

**Dynamisation of the nail** – a small operative step used to potentially stimulate bone healing. One of the screws attaching the nail to the femur is removed, allowing for compression of the osteotomy site

## Contacting us

Clinical Admin Team (CAT 5) Orthopaedics: 0118 322 7415 email: [rbbh.CAT5@nhs.net](mailto:rbbh.CAT5@nhs.net)

Redlands Ward: 0118 322 7484/5

Orthopaedic Outpatient Reception (RBH): 0118 322 8334

Outpatient Physiotherapy Department 0118 322 7811 (Royal Berkshire Hospital) or 01635 273362 (West Berkshire Community Hospital).

To find out more about our Trust visit [www.royalberkshire.nhs.uk](http://www.royalberkshire.nhs.uk)

**Please ask if you need this information in another language or format.**

Tony Andrade / Vitali Goriainov, RBFT Orthopaedics, July 2023

Next review due: July 2025