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A Patient's Guide to Knee Osteotomy Surgery

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Understanding Your Osteotomy Surgery

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INTRODUCTION

Having seen me in clinic I will have explained to you the fact that you have an issue in your knee that has caused malalignment of the leg. In order to correct this malalignment, we have proposed that you undertake a realignment osteotomy.

This information leaflet is designed to inform you of this condition and the surgical treatment that I have recommended. It will also give you insight into the rehabilitation that will be required in order to achieve an excellent outcome and a return to sporting activity.

Osteotomy surgery has undergone dramatic changes over the past decade largely due to extensive clinical experience, improved surgical techniques and a better understanding of rehabilitation. Pre- and post-operative rehabilitation is a major factor in the success of the operation. Early restoration of full joint movement and weight-bearing are of paramount importance for successful rehabilitation.

My aim is to ensure you have a complete understanding of the basic principles of osteotomy surgery, to help you restore a full range of motion, regain near normal strength and to prepare you for the operation and the rehabilitation.

The major goals of osteotomy surgery surgery and rehabilitation are:

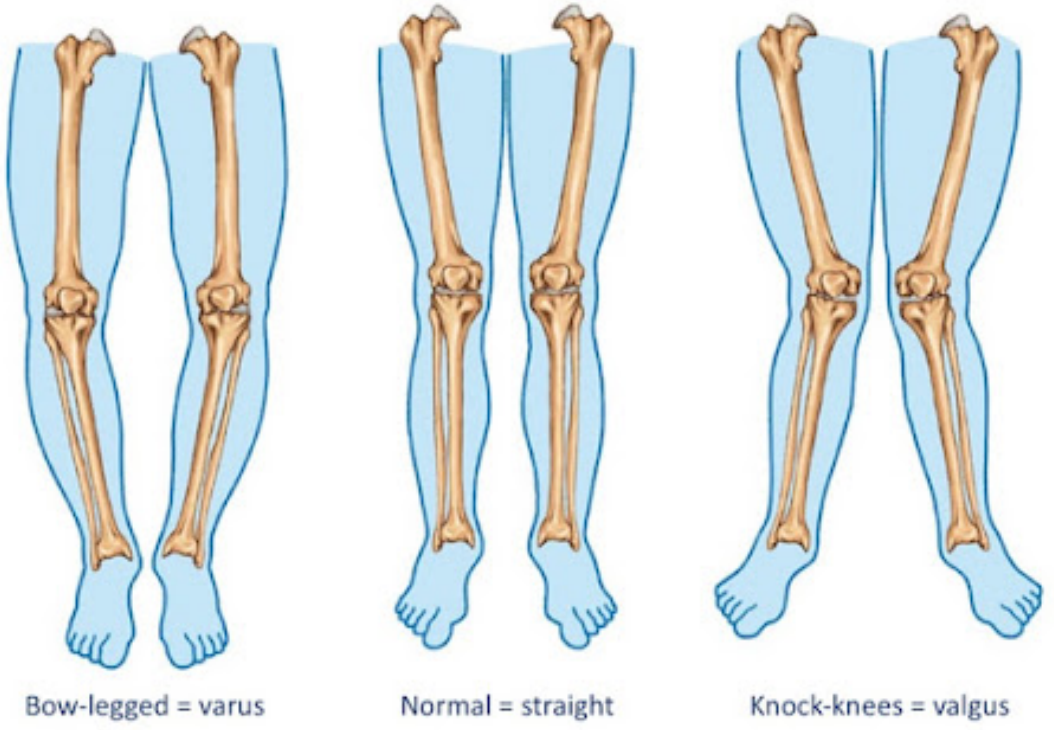
- to restore normal limb alignment
- to provide relief of pain and protection from further rapid deterioration in function
- to return to work and sport as soon as possible.

It is very important that you, the patient, takes an active part in the rehabilitation, both before and after the operation. My goal is to guide you through the rehabilitation without unnecessary restrictions. Please note this is not an absolute protocol or a strict regime, but an overall guide to be used alongside your physiotherapist's instructions.

Remember, if you have any questions or are confused about any part of this, it is better to ask now, so that you are clear in your goals.

ABOUT KNEE ALIGNMENT

The knee is a complex joint, which has the ability to bend and rotate slightly. Knee cartilage cushions and helps lubricate the joint. If you lose cartilage on one side of the need the gap between the bones reduces and the overall alignment of the knee changes to either a knock knee'd (valgus) or bow legged (varus) in appearance.



As the cartilage loss gets worse the deformity increases and the load through the damaged half of the knee worsens. This creates an exponential increase in pain, loss of cartilage, and development of deformity. Your proposed surgery involves dividing either the thigh bone or the shin bone, correcting its position and holding the new position with a plate to allow it to heal. This will then offload the damaged half of the knee, prevent further deterioration, and subsequently reduce your pain whilst improving your function.

Knee osteotomy is not an emergency operation. It is being suggested due to the level of discomfort that you have and the limitation in your function. You should have undergone a full course of physiotherapy and often injection treatment of bracing of the knee before proceeding with the surgery. If these options haven't been discussed with you, let me know and we can go through them in more detail.

PRE-OPERATIVE REHABILITATION

Pre-operative rehabilitation is extremely important for the successful outcome of any knee surgery.

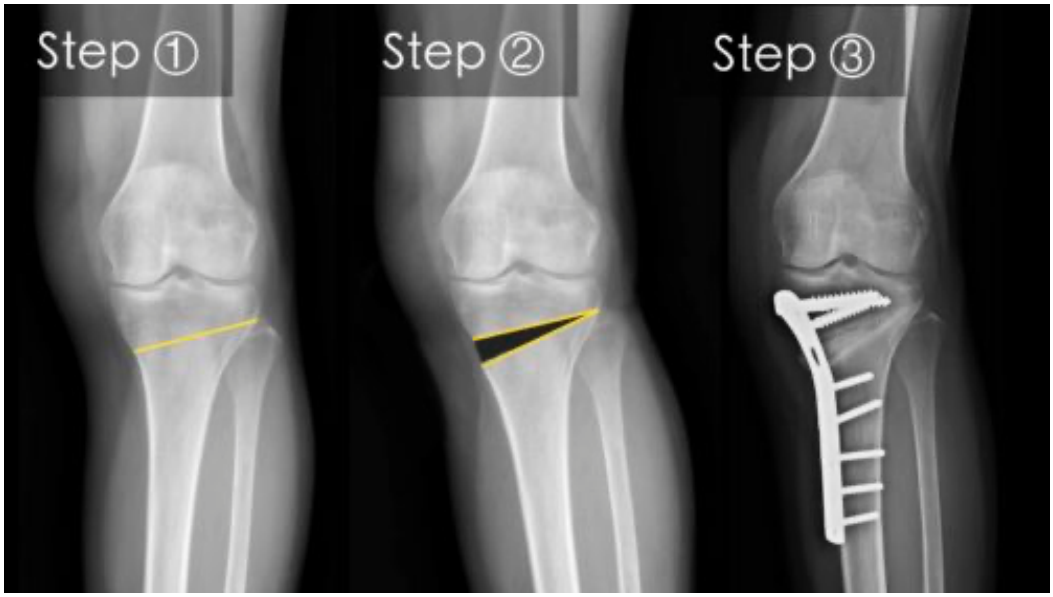
BEFORE THE OPERATION

- ❒ **Skin problems with your knee (wounds and cuts in any stage of healing) are not compatible with knee surgery as they increase the infection risk. They must be healed prior to surgery.**
- ❒ **Please do not shave your legs before surgery as this may increase the risk of wound infection.**
- ❒ **Do not forget to tell us if you have any allergies or any relevant medical problems.**
- ❒ You should have a good range of knee movement and ideally good leg muscle strength.
- ❒ You should be familiar with the full range of postoperative exercises.
- ❒ **On admission to the hospital:** bring your regular medication, relevant medical records and x-ray films and scans.
- ❒ You are allowed to eat solid food **up to 6 hours** and drink clear fluids **up to 2 hours** before the operation. Details will be confirmed in the pre-assessment clinic.

THE OPERATION

The operation is performed under spinal or general anaesthetic as a day case procedure and usually takes 60 to 90 minutes. I will often insert a camera into your knee before the surgery to confirm suitability for the procedure but also remove any cartilage fragments that may also be causing pain.

A 10 centimetre incision is made over the bone and the bone is divided as shown below. A plate is then applied to hold the bone in a new position. The amount of realignment is calculated pre-operatively using your long leg xrays with an aim to straighten your leg or take the correction slightly to the other compartment of the knee.



AFTER THE OPERATION

Day 1

- **Knee is usually placed into a brace.**
- **Pre-emptive and post-operative pain management with tablets** *(Co-dydramol and Diclofenac)* will be supplied.
- **DVT prophylaxis:** early foot and leg exercises and mobilisation are encouraged and aspirin is prescribed for 2 weeks.
- **Swelling control:** Game Ready / Aircast Cryocuff or cold pacs may be applied in the on the ward. **Use cold packs most of the time.** These are very good at reducing swelling.
- When you return to your room from recovery unit, start moving your operated knee gently *(bending and straightening)* as the brace allows.
- **Weight-bear as able**, aided with elbow crutches. Aim to progress to partial weight bearing by discharge (once you have satisfactory quadriceps control, gait and knee extension).
- **Discharge from the hospital, if progressing well, is usually on evening of the operation.**

2 to 14 days

- You will develop bruising in your shin and ankle, and some tightness of your calf. Some people experience numbness in the skin of your knee and shin – this is all normal.
- Reduce **dressings** to skin cover and tubigrip bandage only, 48 hours post-operatively.
- Do not wear the tubigrip bandage at night as it increases the risk of blood clots.
- **Active knee bending** in side lying, or on sliding board.
- **Static quads** in full extension *(active extension from 40 to 0 degrees is contraindicated).*
- **Patella mobilisation / glides**: teach self-treatment exercises and how to relax quads when doing this.
- **Discontinue any exercise that causes unexpected pain and discuss it with your physiotherapist or surgeon.**
- Continue to **regain full extension** with **straight leg** and **closed kinetic chain exercises** *(always exercising with partial weight through the leg).* **Flexion exercises:** wall and heel slides. Aim for 60 degrees by the end of second week post-operatively.
- Contact your physiotherapist if you have problems with your knee or exercises.
- **At 10 days to 2 weeks post-operatively you should have an appointment to see me in the outpatient clinic for a review.**

2 to 6 weeks

- ❒ **You need to be guided by a physiotherapist at this time.**
- ❒ **At 4 weeks: *usually* ready for driving and return to work.**
- ❒ **Continue to progress according to your abilities.**
- ❒ **Progress with closed kinetic chain exercises**.
- ❒ **Progress** unilateral exercises: sitting to standing, dips, exercise bike and step machines.
- ❒ **Progress with resisted hamstrings** exercises.
- ❒ **Progress with** dynamic proprioceptive exercises.
- ❒ Carefully resume **gym work** at week 6 on an exercise bike.
- ❒ **Swimming**: straight leg kick only, and pool exercises.
- ❒ **If you have patella problems** (clicking, grinding, pain) try taping patella medially. Pain at the front of the knee at this stage is **very common** and is due to your thigh muscles catching up with your level of activity. It will settle with time.
- ❒ **You should have a full range of movement** *(symmetrical full extension to full flexion)* **by the end of this period.**

6 to 12 weeks

- ❒ **At 6 weeks: I will review you again in the outpatient clinic and assess the graft healing.**
- ❒ **Usual milestones includes 0-130 degrees movement in the knee.**
- ❒ **Continue to progress:** increase gym workouts, step ups and step downs.
- ❒ **Continue to improve your confidence, gait and proprioceptive aptitude.**
- ❒ **Swimming:** continue regularly *(no breaststroke)*.
- ❒ **Cycling** on normal cycle.

6 to 9 months

- ❒ Participating in gym exercises as well as improving power and endurance.
- ❒ **Plyometric exercises**
- ❒ **Earliest return to sports** is at six months (provided: no swelling, no ligament laxity, full mobility, full muscle strength and proprioception, equal or better than the opposite leg).
- ❒ **Your outpatient review will be at 6 months. As long as your physiotherapist and I are happy with your outcome you will be discharged at this stage to return to full contact sport within the next 3-4 months.**
- ❒ **I recommend removal of the plate at approximately one year following surgery**

DRIVING

Very little information exists in current literature about the ability of reconstructed knees to respond to situation-specific stimuli, such as braking quickly while driving a car. It is difficult to determine when it is safe to return to driving following surgery. The decision is down to the patient. you must be able to perform an emergency stop and get out of your car quickly should you have an accident. Be sensible and when you feel safe to drive you probably are.

FLYING

There is no universal agreement as to when it is safe to travel by plane after a knee reconstruction. It seems that most Orthopaedic Surgeons advise their patients not to fly for 4 to 6 weeks following the surgery. Short flights do not seem to be a problem. However, long intercontinental flights are a potential problem as there is an increased incidence of spontaneous DVT (deep venous thrombosis), even in the young and healthy passengers. It is possible that sitting for long period of time, in a confined space could predispose to the development of deep venous blood clots, especially in people following recent knee surgery.

SUCCESS

Success of osteotomy surgery depends upon many factors of which rehabilitation is of utmost importance. The most perfectly performed surgery can be quickly undone by too much rehabilitation but equally, insufficient rehabilitation can lead to joint stiffness, muscle wasting and a poor functional result.

COMPLICATIONS

These are uncommon, but may occur occasionally:

Calf and hamstring pain and swelling are common and will settle within a week or two
Bleeding (2 in 100 patients) into the knee joint may require draining in the immediate postoperative period.
Infection (1%) may result in redness / heat in the skin or knee joint. DO NOT TREAT WITH ANTIBIOTICS until you have contacted your surgeon.
Bruising around your incision site, in the thigh or even appearing at your ankle is common and not of great significance.
Patch of numbness just next to your scar or on your shin is not serious and usually recovers.
Joint-line pain: Pain at the front of the knee during rehabilitation is almost universal and will settle with time and muscle building.
Proprioception loss may mean the knee does not feel right for a long time. Regular proprioceptive exercises and a simple **compressive knee sleeve** (elastic bandage, neoprene sleeve or double tubigrip) worn intermittently, is known to help with this problem by applying skin pressure, which indirectly makes the knee feel more secure.
Non or delayed healing of the bone: I have divided your bone and it needs to heal. Biology will do this in time but in a small number of patients, particularly smokers, bone healing can take several months longer than it should. Most osteotomies will be healed fully by six months but on occasion this can take longer. We will monitor your bone healing with xrays

QUESTIONS

If you have questions about your rehabilitation please contact your **physiotherapist**. If you have any problems, especially if you experience any excessive skin redness, persistent wound discharge, excessive swelling, or severe pain during or after exercise, call Mr Houlihan-Burne's secretary on the numbers given on the front of this pack.

Call your **GP** if you develop calf pain and tightness, shortness of breath, or if you develop a fever and feel unwell.

This rehabilitation guide is based on combined experience from a number of sports injury clinics performing osteotomies and rehabilitation. It has been developed according to contemporary high standards of leading national and international rehabilitation centres.

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