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## **INTRODUCTION**

Total joint replacements have made a significant contribution to the lives of millions of people by providing relief from pain and improvement in function and quality of life.

One needs to realize though, that your knee replacement is not the same as a normal knee and therefore requires care and consideration.

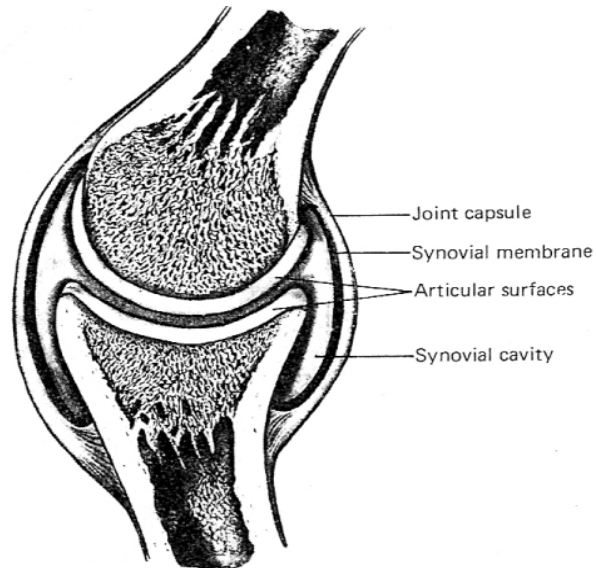
This booklet has been compiled to help you to understand exactly what is involved in a total knee replacement, the risks involved, the rehabilitation and the long-term precautions. It will assist you in knowing how best you can prepare yourself for the surgery and what to expect during your stay in hospital, as well as answer some of the more commonly asked questions.

If you have further questions please give us a call 021 5323203.

## WHAT DO JOINTS DO?

A joint is formed where two or more bones meet. The bone ends are covered with a smooth, shiny tissue called cartilage. This protects the bone from excessive force or pressure, and allows it to move easily without pain. The joint is then enclosed in a capsule that has a smooth lining called the synovium. This lining produces a lubricating fluid called synovial fluid, which helps to reduce friction and wear in the joint. Connecting the bones to each other are ligaments, which serve to keep the bones together and stabilize the joint. Crossing the joint are muscles and tendons whose main function is to move the joint. They also provide stability for the joint along with the ligaments

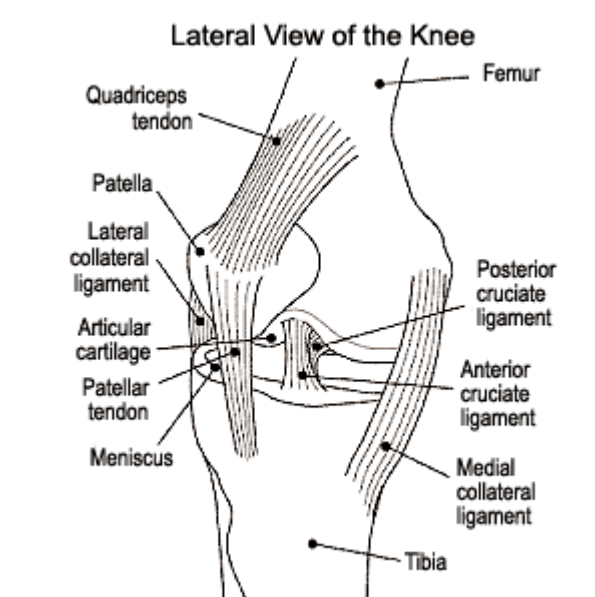
A typical joint looks like this:



A Typical Joint

## THE KNEE JOINT

The knee joint operates like a hinge. It also has a slight ability to move from side to side and to rotate. It is formed when the lower end of the thigh bone (femur) meets the upper end of the shin bone (tibia). The femur has two sections at its end that sit in the saucer-like shapes at the top of the tibia. It is a much shallower joint than the hip joint. The front of the knee is protected by the knee cap, which is held in place by muscles, tendons and ligaments.



## **WHAT IS ARTHRITIS**

The word “*arthritis*” means joint inflammation. arth = joint itis = inflammation. Arthritis results if any part of a joint becomes diseased – the lining, the joint fluid, the joint surface or the bones themselves. Direct injury to the joint, over-use or wear and tear, physical defect in the joint (which has been present since birth), may lead to arthritis.

## **INFLAMMATION**

This is the body’s normal response to an injury, infection or disease, resulting in temporary swelling, pain and stiffness. In arthritic joints the inflammation may be long term and may result in permanent damage and wearing away of the surface of the joint. This causes the bone ends to become roughened and makes movement difficult.

## **OSTEOARTHRITIS**

In osteoarthritis, the cartilage covering the bone ends becomes rough and wears away leaving the smooth ends of bone exposed. These surfaces then become uneven which results in the joint becoming painful and swollen. Some joints may become enlarged and develop bony growth or osteophytes which will cause pain.

## **RHEUMATOID ARTHRITIS**

This is a chronic inflammatory disease that affects mainly the joints, but can also affect other parts of the body. People of all ages, including children, can suffer from this disease. All the joints can be affected and many may be involved at the same time. In Rheumatoid Arthritis the smooth lining of the joint becomes inflamed and very painful. The joint then releases the chemical substances, which attack and gradually destroy the cartilage of the joint surface. Inflammation occurs in response to this, which results in swelling, pain and stiffness in the joint.

## WHAT CAN BE DONE?

Most people can be managed conservatively e.g. with medication, physiotherapy and modification of the activities that cause pain. However if the joint pain or disability cannot be controlled there may be an indication for surgery. Your orthopaedic surgeon will consider the impact on your social, domestic and professional life, whether affected by the condition or your independence threatened. There are two objectives for having surgery:

1. To reduce pain
2. To improve function

## TOTAL KNEE REPLACEMENT

A total knee replacement is a surgical operation designed to replace your damaged knee joint. The knee is replaced by an artificial joint, which is a replica of your own. The artificial joint consists of plastic and metal components, which are held in place by special bone cement. The patella is lined with a plastic component. The purpose of your new joint is to relieve stiffness and pain and hence improve your walking and ultimately the quality of your life.



The artificial joint has a limited life span, the length of which will depend on how careful you are in protecting the knee from stressful activities. With sensible use, the chance your joint will last more than 10 years, is greater than 95%. If the components do loosen, they can be replaced in what is called a revision operation. This is more difficult surgery and isn't usually as successful as the first total knee.

## WHAT IS EXPECTED OF YOU WHILST AWAITING YOUR OPERATION?

- Take painkillers to relieve pain as required, but try to take these as little as possible in the three weeks prior to the operation.
- Please let your surgeon know if you are taking any blood thinning agents such as Warfarin or Aspirin or anti-inflammatory.  
These need to be stopped as denoted:

Anti –inflammatory	- 5 days
Disprin	- 5 days
Warfarin	- 5 days
Oestrogens	- 1 month
- Bring your medication that you have been using, along when you come to hospital, but remember you will not always be given certain medication whilst in hospital.  
Anti hypertensives will be omitted as your blood pressure can drop after the anaesthetic.  
Certain anti inflammatory can cause bleeding and urinary retention, so they will be omitted  
Women on hormone replacement therapy should consult their gynaecologist, and if symptoms eg. severe headaches or hotflushes is experienced, a suitable prescription can be given.
- Tell your surgeon if you are allergic to plaster.
- If you perspire a lot or prone to heatrash, you may benefit from acquiring a KlaasVachi or Egg box mattress (at the hospital).
- Try to walk as much as possible, exercising within pain limits. If using a walking stick,. hold this in the opposite hand to the affected leg i.e. if the left leg is affected hold the stick in the right hand.
- Make all the necessary arrangements at home as you will be in hospital for approximately 7 days post surgery. Check with your medical aid, the amount of days they allow.
- With regards to your work, please seek advice from your surgeon as to how much leave you will need. It will be between 6-12 weeks depending on the type of work that you do.
- Ensure that someone assists you with your daily activities e.g. showering, shopping and driving for 3 months, as you will not be able to do these activities on your own. Although you will be independent on discharge, it is preferable that you have the assistance for the first few weeks, especially if you stay on your own. Home Nursing can be arranged, but at you own expense, as medical aids do not pay for this. If you cannot manage at home a step down facility can be arranged.
- Ongoing physiotherapy appointments once discharged, is essential to maintain and improve joint range of motion.
- Kim Murphy Registered Biokineticist can provide you with an exercise programme. See further for details.
- Jayson Chin, Orthotist Prosthetist have the required products to use post surgery. See further for details.

## PROCEDURE BEFORE YOUR SURGERY

Approximately a month before your surgery you will be required to consult a Physician for your pre-admission. This is a full medical examination to ensure that you are fit for surgery. Speak to your Physician or Surgeon about donating your own blood or having a family member donate for you. ( Please note this blood donation is at your own expense, as you medical aids do not pay for this.)

The following tests may be done:

- Blood tests, to check if you are anaemic and cross match blood if you need a blood transfusion after surgery.
- ECG (Electrocardiogram) or tracing of your heart beat to ensure that your heart is strong enough for the operation
- Chest x-rays
- Lung function test

You will also need to attend the pre-admission clinic where a nursing sister will take a medical history and discuss the nursing procedure to you regarding your hospital stay.

If you have a cold/flu a few days before scheduled surgery, please consult your doctor, before your admission to hospital, as you do not want to be cancelled on the day of admission. You also need to be cautious if you have an eye infection, ingrowing toe nails, even a scratch from a cat can cause infection in the area which might cause surgery to be postponed.

About two weeks before your surgery you will be visited by Mrs C Williams (Patient/Doctor Liason), who will answer any questions you may have, including assistance with home environment for your return.

You will need to come into hospital the day before your surgery. You will be admitted by the nursing staff, assessed by the physiotherapist and Anaesthetist, visited by the Surgeon, Physician, Liason - that saw you at home, and a Rep/Technician explaining the AV Impulse machine, that assists with circulation immediately post surgery.

More blood will be taken preoperatively, for blood grouping, even if you have donated your own blood.

White elastic stockings will be issued, which need to be worn all the time except when washed, these assist partly with preventing blood clots forming in your legs. Avoid walking on them as they can become slippery.

Earplugs will cut out noise, and make sleeping in hospital more adequate.

If you are by nature prone to constipation, mention this to the nursing sister, however constipation could be a problem post surgery and the appropriate remedy will be given.

You will be shown how to inject yourself with clexane, a blood thinning agent to assist with blood clot prevention. Your medical aid pays for 1 week supply, you will have to pay for the rest,. You will need ± one month supply.

HIV Counselling will be given pre operatively.

Eight hours before surgery, eating or drinking ceases, an enema will be given preoperatively.

## **THE DAY OF THE OPERATION**

### **BEFORE THE SURGERY**

The morning of your surgery you will need to have a shower and then you will be prepared for theatre. Your lower body up to your chest will be painted with Iodine mixture. You will be dressed in a clean gown, given some medication to make you sleepy and taken to theatre approximately one hour later.

### **THE SURGERY**

Depending on your general health, the Anaesthetist will decide whether you will have a general, epidural or spinal anaesthetic. The operation is performed in a special ultra-clean theatre. The duration of the surgery is about 1 ½ hours for routine cases. During the surgery and immediately afterwards you will be given antibiotics to prevent infection occurring in the new joint. You may or may not require a blood transfusion.

### **AFTER THE SURGERY:**

There will be a large bandage on your knee and your leg will be supported in a special long pillow (gutter pillow). You will be wearing the knee-high white elastic stockings that help prevent clots.

The Physiotherapist will start deep breathing exercises and coughing to keep your lungs clear and prevent chest complications. The foot pumps will be activated to prevent clots forming in the leg veins.

#### **Points to note:**

- **PAIN.** You have had major surgery so it is usual to feel quite sore. Please tell the nurse if you are in discomfort. The doctor will have prescribed medication to ease discomfort.
- **DRINKING AND EATING.** Once awake if you are not feeling too sick, you may try a ice cubes/water. If you are feeling alright after this, you may try tea or coffee with something light to eat.

If you feel sick or are sick (nauseous), call the nurse for assistance.

- **MOVING.** You will stay in bed today – call the nurse if you need anything.

On the first day you will rest in bed. The nurses will assist you with anything you may need. If you are managing to drink and eat normally, the drip will be removed. An x-ray may be taken of the knee for the doctor to check and a blood test may be performed. Continue to ask the nurse for pain-killing tablets if you are in any pain. If your heels feel burny/sore report this to the nurse/sister.

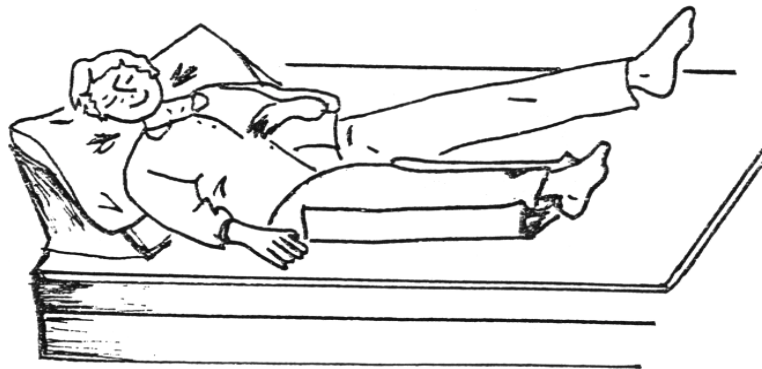
You must assist the nursing staff to move you in bed by using the overhead bar and your UNoperated limbs. In particular, lifting your buttocks off the bed is important for pressure care as is the use of bedpans initially.

You may sit upright in bed with the leg straight, you should not try to bend the knee, await the Physio's instructions. The drainage tube is removed. If you are taking fluids well orally and your antibiotics are completed your drip will be removed.

### Nursing points to remember

1. Usually day 3 the dressing over your knee will be removed and your wound checked.
2. Try not to interfere with your wound dressing as this can introduce an infection; re-dressing will be done as necessary.
3. Painkillers may cause constipation. If you have any problems, which last longer than three days, please inform a nurse. Medication may be prescribed.
4. Once you have recovered from your anaesthetic, try to eat a healthy diet, as this will help the wound to heal. If possible, try to drink at least 2 litres (4 pints) of liquid per day, as this helps to flush the anaesthetic out of your system.

### Lying in bed with the operated leg resting in the gutter pillow.



### POSSIBLE COMPLICATIONS

There is a risk of developing complications during or after *any* surgical procedure. The complication rate with knee replacements is low and special precautions are taken to prevent these occurring. Nevertheless, you need to be aware of all of these complications. Any of the following can occur:

#### During the operation:

- Anaesthetic complications
- Surgical complications – these depend on the quality of the bones and the muscles.

#### After the operation:

- Problems with wound healing
- Infection
- Blood clots – these may form in the veins and are usually harmless; there is, however, a risk of the clot breaking away and traveling in the bloodstream to the lungs. This can be fatal.
- Loosening – the prosthesis may loosen after years of use

If you would like to know more about the risks involved, please feel free to discuss them with your orthopaedic surgeon.

## **PHYSIOTHERAPY AND REHABILITATION PROGRAMMES**

In order for you to obtain the best results, it is essential for you to exercise your knee daily for months after your surgery. Walking alone is not sufficient.

**It is essential that you give your full co-operation to the physiotherapist from the beginning of your treatment.**

### **DAY 1**

Bed Exercises

Your PHYSIOTHERAPIST will show you a range of basic exercises you can start while you are still confined to bed. They consist of:

1. Breathing exercises continued as on day of operation.
2. Leg exercises for both legs to –
  - Minimise risk of blood clot formation
  - Strengthen the muscle and keep joints moving
  - Prepare your operated leg for improved walking technique

It is important to do these at regular intervals during the day. Your physio will start to encourage straight leg raising in preparation for activities such as getting out of bed etc.

Your catheter will remain in until the next day.

Take your pain tablets regularly, otherwise you will not cope with your physiotherapy exercises.

### **DAY 2**

Your catheter is removed. The Physio will get you up and standing for the first time. You will start walking on your crutches and will be advised by your Therapist how much weight you may place on the operated leg.

You will be required to use two crutches for the first 6 weeks after your surgery and then one crutch for approximately the next 2 weeks.

### **DAY 3 TO DISCHARGE**

Your large bandage will be removed on Day 3 and if the wound looks good you will start to bend the knee. The dressing will be waterproofed for showering purposes.

You will also start to sit in a chair, having all your meals in this position.

Each day the physiotherapist will try to get your knee to bend a little more. Before discharge you will need to attain a 90° bend.

It is important at this stage not to fiddle with your dressing or keep rubbing your knee at the dressing site.

The Physiotherapist will explain the following things to you: How to get in and out of bed, how to sit down and get up from a chair and how to climb stairs.

## SITTING DOWN AND GETTING UP FROM A CHAIR

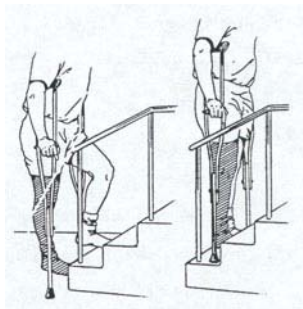
- If you want to sit, feel for the arm rests behind you and grasp them with both hands.
- Lean backwards, keeping your back straight, taking your weight on your arms.
- Sit down, bending the knee of your unoperated leg to support you.
- Place a small pillow behind you to support your back.
- Reverse this procedure when getting up.
- Always make sure that your crutches are within easy reach.
- Use the same procedure when using the toilet.
- Always make sure that you are well balanced once you have stood up before you take your crutches. Do not attempt to stand up with your crutches as you may overbalance and fall.
- When the operated knee bends more comfortably you can gradually sit down on the chair in a more normal fashion.



## STAIRS

**Ascending:** Put the unoperated leg on the step first, followed by the operated leg and lastly the crutches.

**Descending:** Put the crutches on the step below first, followed by the operated leg and lastly the unoperated leg.



**Ascending**



**Descending**

## DISCHARGE DAY

If your wound has healed successfully and you are coping well with your daily activities you will be ready for discharge.

You need to be collected at 12<sup>o</sup> clock, to avoid being charged for another day.

One of the nursing staff will assist you in getting in and out of a car.

The physiotherapist will give you an exercise program to follow, however you will need to arrange follow up appointments on a weekly basis for reassessment of joint range. Home visit arrangement can also be discussed.

Your stitches will be removed at home on Day 14.

You will be given a 6 week follow-up appointment to see your surgeon who will then evaluate your progress.

You will be required to come for a further check-up with your surgeon 3-6 months after that, followed by yearly examinations. These are of the utmost importance in order to timeously identify problems and to avoid complications.

### POST-OPERATIVE PRECAUTIONS

These precautions must be followed three months:

- Make sure that whilst you are walking and when you turn to either side, that you do not twist or rotate your knee.
- When walking keep the foot and knee facing forward.
- Do not kneel or put excessive pressure on the knee.
- Do not jump, jog, crouch or sit on your haunches.
- Do not drive a motor vehicle for 6 weeks.
- Your white elastic stockings must be worn at all times unless otherwise instructed by your doctor. When washing stockings, dry in shaded area away from direct sunlight, as sunlight would weaken the elasticity of the stocking.
- Should you experience pain in your leg or unusual leg swelling please contact your doctor **immediately**.
- 

### LONG TERM PRECAUTIONS

#### **6 weeks after surgery:**

- You may stop wearing your white stockings unless otherwise instructed by your doctor.
- You may return to work if it is a relatively sedentary job. Do, however, discuss this with your doctor.
- You may use one crutch on your doctor's advice and then gradually wean off it as your confidence allows. It is recommended that you still use a crutch for longer walks.

#### **3 months after the surgery:**

- You may return to a more active walking programme as well as other light sporting activities such as swimming.
- You may drive your motor vehicle again. (Check with your doctor, as to when you can start driving)

## PRECAUTIONS FOR THE REST OF YOUR LIFE

Do not apply excessive stress on your artificial knee.

### Avoid the following:

Ascending very steep steps (such as climbing)

Jogging, jumping or running

Picking up heavy objects

Walking long distances in loose soil or soft sand

Rotational forces on the knee

- All sports put more stress on your artificial knee than normal walking, but recreational sports e.g. golf, bowls, exercise bikes are relatively safe. Contact and high impact sports must be avoided. Please consult your surgeon before you embark on an exercise programme.
- Being overweight places abnormal stress on your joint. Always guard against this as it can reduce the life span of your new joint.
- If you develop an infection in any part of your body, the germs may spread through the bloodstream and infect your artificial joint. Please consult your home doctor/general practitioner immediately if you develop any of the following infections so that antibiotics can be prescribed:
  - Any bacterial infection
  - Tooth abscess or extraction
  - Boils
  - Infected cuts or sores
  - Bladder infections and procedures
- If your wound starts to ooze or show any sign of an infection contact your surgeon **immediately**. Do not interfere with the wound in any way.
- If you should undergo any operation you must inform your doctor that you have had a knee replacement so that appropriate antibiotics can be given.

## **Final Phase Rehabilitation for a total knee replacement**

### **What is Biokinetics?**

Biokinetics involves the prescription of exercise as a form of therapy pre-operative, post operative as well as in conservative treatment. This includes treatment of orthopaedic, metabolic, cardiac and exercise prescription for the normal healthy population. It also plays a large role in preventing medical conditions related to inactivity.

What does this involve for a total knee replacement patient?

- Pre-operative strengthening
- An evaluation of:
  - Muscle strength
  - Range of motion and flexibility
  - Balance
  - Gait or the way you walk
  - How you are coping with daily activities
  - Any other injuries or problems you may be experiencing
- Prescription of more advanced exercises that you can do at home or at gym.
- Advice on going back to recreational activities, sport or other activities.
- Follow up assessments on progress.

### **When am I ready for final rehabilitation?**

This varies for each patient depending on age, procedure, end goals and other associated medical problems. As a general guideline you can begin this rehabilitation at between 6-8 weeks.

### **Will medical aid cover this treatment?**

You will be charged according to BHF tariffs and codes. Whether or not your medical aid covers depends entirely on the policy, which you hold. It is in your interest that you inquire with your medical aid whether they will refund you.

### **How long is the treatment and how often will I need exercise sessions?**

This depends entirely on the individual. The time line below gives a nice idea of how often and when you will need therapy. Some people however opt to have supervised treatment once a week until they feel comfortable. Others are given a home programme, which they do on their own and return for further treatment when they feel they need. It is a good idea to have a follow up assessment at a year to ensure that you are doing 100%.

### **What type of exercise will it involve?**

Initially **hydrotherapy** will be the main mode of treatment. The pool is heated to 34° so it is very comfortable. Water therapy is fantastic as it allows one to work the joint in a safe range with the correct amount of resistance. The compressive nature of the water also reduces the chance of dislocation, and the load on the knee is reduced in water.

Once you are ready for land therapy the exercises will be "toning" in nature and will use your own body weight. This will include a lot of functional activities such as stair climbing, getting up off a chair and correcting the way in which you walk. If you want to get back to the gym or some other exercise mode you will be given a programme to follow that will ensure that you will not damage your knee.

KIM MURPHY BOKINETICIST

B.A. (HMS), B.Sc.(MED)(HONS) Exercise Science (Biokinetics), M.Sc (MED)

## **PROGRESSIVE ORTHOPAEDICS – Orthotist/ Prosthetist**

### Jayson's Products

- Crutches and/or walking frame
- Raised toilet seat
- Easy reach
- Elevation cushion to sit on
- Below knee TED stockings
- Frame to aid fitting stocking
- Egg box mattress

Contact at Rehab Centre 532 3203



## COMMON QUESTIONS AND ANSWERS

### **Will I have a lot of pain after the surgery and what will be done to combat that?**

You will have pain after surgery but this will be relieved by strong pain killing injections into your drip and epidural catheter. Once you are changed to pain tablets, we recommend that you take those regularly for your first couple of days. The pain will mainly be as a result of surgery on the area where the sutures are.

### **Will I have any pain once I get home?**

Yes, you may have the occasional pain and stiffness for a while after your surgery as the muscles heal and as your body adapts to the new joint.

### **Will I be able to shower once I am home?**

Yes, you will, however, need assistance with washing and drying your feet as well as putting on and taking off your stockings. You will shower in the hospital and a waterproof dressing will be applied to the wound.

### **Can I switch onto one crutch if it feels more comfortable?**

No, we prefer you to remain on two crutches until you come in for your six week check up and once the check x-ray has been taken, your surgeon may switch you to one crutch.

### **Is swelling of my knee and ankles normal after surgery?**

Yes to a degree. We do expect some swelling for a few months after surgery. This may be worse at the end of the day when you have been up for a while. The swelling should be reduced by the morning or after you have been lying down – if it does not go down or there is pain associated with the swelling please contact your surgeon immediately.

### **Will I need additional physiotherapy after I am discharged?**

A weekly follow up session with the physiotherapist is important, so that the range of movement is maintained or even increased. This should continue until you next see your surgeon. Discuss with your therapist about ongoing exercises after your doctor's follow up appointment.

### **When do I know if I am doing too much or too little exercise?**

Let your body be your guide. If you find that you are stiff one day, you have probably done too much the day before, just cut back a bit and build up slowly again. Build up in the number of exercises that your physio gave you but **do not** add any extra exercises. Your body needs time to heal.

### **How do I know if I am doing “well” or “badly”?**

There is no such thing. Everyone works at their own pace and achieves their goals in their own time. Never feel that you are slower than some else. There are no set times to achieve certain things and if you work hard you will get there.

### **Can I go out in the first six weeks or must I stay at home?**

There is no reason to stay at home, but you will probably find that for your first couple of weeks at home you are quite tired and don't really want to go too far afield.

### **Is it normal to feel tired and washed out when I get home?**

Yes, don't forget that you have had a big operation and that your body needs time and rest to recover. Take things easy and structure the activities in your day. Also try and have a rest on your bed after lunch, mainly to get your legs up and to reduce swelling.

### **Can I use ice packs to relieve my pain/ swelling?**

Yes you can, however it will give you temporary relief, as swelling will be there for a few months.

### **If I have any problems or queries, whom do I contact?**

The team is always available to deal with queries and problems. Please feel free to contact us at 021 5323203.

## **CONCLUSION**

As you work with your new knee you should see continued improvement in your strength and endurance for up to a year after your surgery.

Your total knee replacement is rated as one of the most successful orthopaedic operations and should enable you to return to work and cope normally with your activities of daily living.

Remember to come back for your follow-up appointments.

“Alone we can do so little: together we can do so much” Helen Keller

We are a team and looking forward to assist you. If you are at a place where you need encouragement or some direction from somebody who has been through it all, please feel free to contact the following lady – one of our previous patients - Elize Snyman 021 6742778

**WALK TALL AND ENJOY YOUR NEW KNEE!**

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Dr A van Zyl, D Los, R Enslin  
Dept of Orthopaedics National Hospital, Bloemfontein

## ACKNOWLEDGEMENTS

### Originally Compiled by:

L MacDonnel BSc Occupational Therapy

### Originally Revised by:

Sr K Davidson BSc Nursing (UCT)

A Wilkinson Bsc Physiotherapy (Wits)

### Revised 2004 by:

#### Physiopaedic Physiotherapy Practice

A Africa	BSc Physiotherapy	(UWC)
M Labuschagne	" "	(UCT)
B Crawford	" "	(Stell)

### With assistance of:

#### Orthopaedic Surgeon

Dr G P Grobler MBChB (UCT) FRCS (Edin)  
FCS (SA) Orth M.Med (UCT)

#### Biokineticist

Kim Murphy BSc (MED) (HONS) Exercise Science (Biokinetics)  
MSc (MED) Exercise Science

#### Progressive Orthopaedics

Jayson Chin Orthotist/Prosthetist

#### Nursing Sister

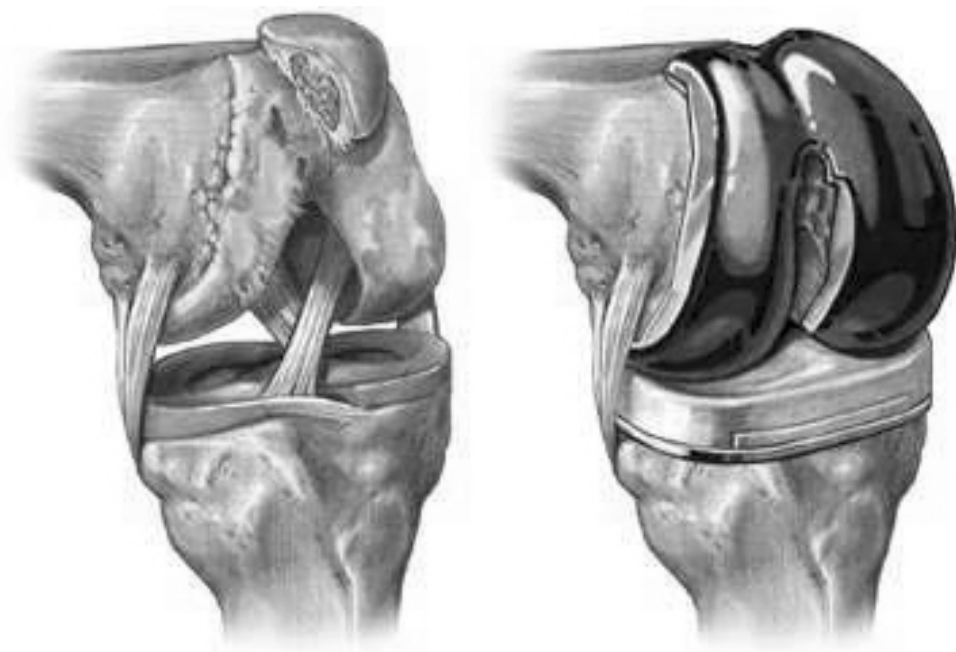
Sr T.Badria Orthopaedic Liason Nurse for Arthrocare

#### Patient ( had total knee replacement)

Ms Elize Snyman O.D.H.N. (Stell), H.O.D (Natal)

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**ORTHOMEDICS**

# TOTAL KNEE REPLACEMENT



Your Guide  
Pre-operative  
Post-operative  
Management