TOTAL HIP JOINT REPLACEMENT

YOUR HIP JOINT

The hip joint is formed by the top of the thigh bone (femur) which is shaped like a ball and the side of the pelvis (acetabulum), which is shaped like a socket or cup. This is why the hip joint is called a ball and socket joint. The joint is surrounded by ligaments and muscles.

The articulating surfaces are covered by cartilage which is a smooth and compressible material whose function is to act as a shock absorber and to allow easy movement of one bone on another.

WHEN DO YOU NEED A HIP REPLACEMENT?

- When pain and stiffness from your hip joint causes severe disability and stops you performing your job, or interferes with your walking or mobility, or wakes you at night despite non-operative treatment such as drugs, physiotherapy and aides like crutches or a cane.

- Pain and stiffness in the hip is commonly due to osteoarthritis, but may be due to inflammatory arthritis, e.g. rheumatoid arthritis or dislocation, avascular necrosis or fracture.

OSTEOARTHRITIS

This is a degenerative joint disease which affects the cartilage lining the ends of bones. In the majority of cases we call it primary osteoarthritis because we do not know the cause. Secondary osteoarthritis occurs secondary to another condition, e.g. fracture or dislocation.
In osteoarthritis, the cartilage becomes worn and thin and smooth painless movement is no longer possible.

The loss of articular cartilage means the bones grind together. The patients get pain, stiffness and deformity of the hip. One leg may become shorter than the other may.

INFLAMMATORY ARTHRITIS

This is a group of conditions where the lining or synovial membrane of the joint becomes inflamed and secretes material that destroys the articular cartilage. In these conditions more than one joint is usually affected.

The joints are hot, swollen and painful and deformity is characteristic. The cause is unknown, but may be an allergic-type reaction.

AVASCULAR NECROSIS

This is a condition where part of the bone supporting the articular cartilage loses its blood supply and dies. Often no cause can be found. However, drugs, trauma and certain diseases cause this condition.

The collapse of the bone leads to destruction of the cartilage with pain and stiffness. This pain often comes on more suddenly and may be rapidly progressive.

HIP DISLOCATION

Dislocation of the hip may be congenital, i.e. the patient is born with the condition or traumatic.

In congenital dislocation of the hip the head of the femur is not in the socket and the mechanics of the joint are poor with the production of secondary osteoarthritis at an early age, e.g. third or fourth decade. In this condition, severe shortening and a limp is characteristic. A lesser degree of congenital abnormality is known as hip dysplasia presents special, and often difficult problems during hip replacement surgery. Complications are more frequent and failure rates are higher. There is, for instance, higher incidence of sciatic nerve injury, mechanical loosening and instability. Bone grafts may be necessary to reconstruct the hip anatomy. Special prosthesis may be required. Recovery is usually longer than a standard hip replacement.

In traumatic dislocation of the hip secondary osteoarthritis may develop due to destruction of the blood supply or articular cartilage during the accident.

FRACTURE

Trauma, e.g. a fall or a motor vehicle accident may fracture the neck of the femur or the acetabulum and lead to secondary osteoarthritis due to loss of blood supply or damage to the articular cartilage. If severe bone loss or deformity is present, the hip replacement operation becomes more difficult. Special techniques may be required including osteotomies, bone grafts etc. Complications including haemorrhage, nerve injuries and infection becomes more frequent.

ARTHRITIS IN THE RELATIVELY YOUNG

Hip replacement surgery performed in the relatively young (under age of 60 years), require special care on the part of the patient to “look after their new hip”. The risk of loosening and component wear is higher and many patients in this category require a later day revision operation.

YOUR NEW HIP JOINT

Total hip replacement, although dating back to the 1940's, was advanced by the British in the 1960's. Further progress has been made in the 1980's.

The aim of the operation is to replace the head of the femur (ball) and the acetabulum (cup), with a man-made device. The devices are combinations of metal and plastic. They are fixed to bone using Methacrylate (type of cement) or by a prosthesis with a rough surface which relies on your bone growing into the implant to secure long term fixation.

The new joint relieves pain, decreases stiffness and in most cases restores leg length and corrects the limp.

Your surgeon chooses the best prosthesis for your particular problem and whether a cemented or non-cemented technique will be used.

COMPLICATIONS

Although every care is taken to avoid complications, they do occur. There may be complications during and after the operation. With attention to detail and pre and post operative precautions and your co-operation in following do's'' and dont's, these are minimised. Some of these complications are:-.

1. **ANAESTHETIC COMPLICATIONS**: Your Anaesthetist will discuss these problems with you prior to surgery. If you have any questions regarding the type of anaesthetic you are going to receive, or if you have had previous problems with anaesthesia, please do not forget to let your Anaesthetist know.

2. **INFECTION:** One to two percent of all Total Hip Replacements will develop some type of infection. This can be a superficial minor infection or can be a serious deep infection around the metal parts. This can be a very serious complication and can result in prolonged hospitalisation. Limb loss has been the result of some severe infections beyond surgical control. This is fortunately very rare. Treatment of infection is always difficult. It might mean multiple trips to theatre for cleaning and if the infection is deep your surgeon might elect to remove all metal and plastic, together with all non viable tissues and place you in hospital on bed rest with intravenous antibiotics for a period of two to six weeks. This can be followed, if the infection has been eradicated, by another operation to put in a new knee replacement. Infection is more common in people suffering from diabetes, rheumatoid arthritis and infection elsewhere in the body, such as in the urine or the chest and in patients who have a condition affecting their immune system.
3. **DEEP VENOUS THROMBOSIS AND PULMONARY EMBOLISM** : Clotting of blood in the veins of the lower limbs is a recognised complication of Total Hip Replacement surgery. These clots, unfortunately, sometimes detach and travel in the blood stream to reach the lungs. This is known as pulmonary embolism. This is a very serious condition and sometimes can be fatal. Every effort is made to try and minimise the occurrence of these complications. These measures include daily or twice a day injections of a substance into the tummy that thins the blood and reduces the risk of clotting. During surgery a mechanical compression device is applied to the leg that is not being operated on. This

helps to maintain the circulation. After surgery you are encouraged to exercise and move your lower limbs as soon as possible. Walking and returning back to normal activity as soon as possible, helps to prevent these problems. On some occasions you will be provided with a white leg stocking which you should wear in hospital and also after discharge. Usually this stocking is warn for a total period of six weeks.

4. **FAT EMBOLISM**: Fat from the bone marrow can reach the circulation and again travel to the lungs. This condition is quite similar to the previous complication of pulmonary embolism. That is why it is called fat embolism. Again, this can be a very serious problem.

5. **WOUND COMPLICATIONS**: Wound necrosis (which means that the wound edges turn black), and wound breakdown (which means that the surgical wound opens up), are two complications that sometimes occur. Early recognition and aggressive treatment, which might involve returning back to theatre for cleaning or re-suturing, can avoid long term problems. On occasions you will be provided with a white leg stocking which you should wear in hospital and also after discharge. Usually this stocking is warn for a total period of six weeks.

6. **GENERAL MEDICAL PROBLEMS**: Some complications do occur after major surgery. Fortunately these are rare. These complications include; Heart attacks, strokes, lung collapse, pneumonia, various heart problems, kidney dysfunction and bed sores.

SPECIFIC COMPLICATIONS FOR TOTAL HIP REPLACEMENT ARE:-

1. **DISLOCATION:** Dislocation is always a danger after a Total Hip replacement. Dislocation can occur either early in the post-operative period or many years after the operation. Careful attention to do's and don'ts at the end of this pamphlet should minimise the risk of dislocation. At times a dislocation results from mal position of the components and a revision operation may be necessary.

2. **VESSEL AND NERVE INJURY**: The hip is surrounded by a number of large blood vessels and the main nerves that supply the lower limb. These structures are always at risk from stretching or direct injury. Every precaution is taken to minimise the risk to these structures. The sciatic nerve is always at risk of injury. Other nerves and vessels can be compromised during surgery.

3. **FRACTURES**: These complications are considered serious. Fractures of the shaft of the femur and fractures of the hip bone sometimes occur, especially when the bones are soft and weak and also in revision operations. Fractures also occur if you sustain a heavy fall following the surgery.

4. **LOOSENING:** Your new hip replacement is not expected to last forever. Ninety seven percent of hip replacements are functioning adequately after fifteen years from implantation. One percent is expected to fail each year afterwards. This failure and loosening depends on multiple factors. You can help to prolong the life expectancy of your hip replacement by looking after it. This means that

you should remain active but not over active. Climbing stairs excessively, squatting, heavy impact sport and activities, and running should be avoided.

5. **LIMB LENGTH INEQUALITY**: Sometimes for the sake of achieving adequate stability and preventing dislocation of the prosthesis, your leg which had the operation will be slightly longer or shorter than the other leg, usually longer. This, unfortunately is unavoidable. If after six months this leg is still longer than the other side, with significant discrepancy (more than 2 cm) , a shoe lift on the other side will address this problem. It is a well known fact that about fifteen percent of normal people do have a limb length difference of up to 1.5 cm and they are not even aware of this.

6. **LIMP**: All patients after a total hip replacement have a limp for about six months. This of course depends on whether they had a limp before the operation and also depends on other factors. The limp usually disappears or at least subsides significantly after six months.

7. **OTHER SPECIFIC COMPLICATOINS** related to this type of surgery, like all other surgeries include; Infection, anaesthetic complications and general medical problems such as, stroke and heart attacks.

BEFORE SURGERY

- You have been referred by your local doctor to an orthopaedic surgeon who specialises in joint replacement surgery.

- Your orthopaedic surgeon will take your history including; Problems you have with your sore hip. Information about your past surgical and medical history. Any allergies you have and what medications you are on or have taken.

- Your surgeon is particularly interested in whether you have had a recent heart attack, or get chest pain, or shortness of breath. He should know if you have had a blood clot in the lungs or leg.

- He is interested in whether you are on the contraceptive pill, hormone replacement, Aspirin or blood thinning tablets.

- The surgeon will examine your hip. He may order new x-rays and blood tests. Make sure that you bring all your x-rays.

- To help yourself before surgery; lose weight and stop smoking.

- You may be referred to a Medical Specialist pre-operatively to maximize your fitness.
- You will be admitted to hospital 1 to 2 days pre-operatively.

- You may have some investigations repeated in hospital.

- You will be seen by your Ward Nurse and Physiotherapist pre-operatively. The nurse will explain the ward and operation routine and what to expect post-operatively.

- The physiotherapist will explain pre and post-operative exercises and how you will mobilise post-operatively.

- The Anaesthetist will see you pre-operatively and explain which type of anaesthetic is best for you.

- You will be asked to wear anti-blood clotting stockings (T.E.D. Stockings).

- You are given special lotions or soaps to shower with. This is to decrease the amount of bacteria on your skin and to avoid infection.

- You may have laxatives or enemas before surgery as constipation can be a problem post-operatively, as a new environment, different food and anaesthetic agents slow the bowel.

DAY OF SURGERY

- You will be fasted (no food or drink) for 6 – 8 hours before your operation.

- You will be given the time of the operation the day before but the time may vary due to changing circumstances on the day of the surgery.

- You will have a shower with a bacterial solution and the operative site may be shaved and prepped with an antibacterial solution..

- All prosthetic devices, e.g. dentures, glasses, hearing aids must be left in the Ward. All make-up and jewellery should be removed. Your may wear your wedding ring which will be taped to your finger but if the finger swells after the operation the ring may have to be cut off.

- You will be given an injection 1 hour prior to surgery which will relax you and make your mouth dry.

- You will be taken to the Operating Theatre on a trolley by an orderly and nurse.

- The Anaesthetist will meet you in the anaesthetic room and perform the anaesthetic that he has previously discussed with you.

OPERATION

- The operation takes one and a quarter to two hours and there is a surgeon, assistant surgeon, one or two scrub sisters a scout who fetches things needed during the operation and an Anaesthetist.

- The incision overlies the hip joint and is 20 – 30 cms in length.

- Antibiotics will be given to you in the operating theatre.

FOLLOWING SURGERY

You will be taken to the recovery room with a drip in your arm and several drains coming out of your hip. You may have a large pillow between your legs. There will be a bulky dressing on the wound. You will be groggy in this room and may not even remember it. An x-ray may be performed in recovery. You will be taken to the Ward in 1 to 2 hours.

POST OPERATIVELY

- Your fluid input and output is measured carefully. Intravenous infusions are used to give you fluid, replace blood lost at operations and for antibiotics.

- Drains are used to remove blood from the incision area.

- A catheter may be inserted into the bladder if you are unable to pass urine after approximately 12 hours.

- Pain is normal after this operation and you will be given injections and tablets for pain. Tell your nurse if your pain is not being relieved.

- The intravenous line and drains are removed on your doctor's advice at approximately 24 to 48 hours.

- Blood will be taken 24 to 48 hours after the operation to check your Hemoglobin and your blood Electrolytes. If you did not have an x-ray in recovery then you will have one later when you are in the Ward. These x-rays are to check the position of your new total hip replacement.

- Your exercise regime will begin as soon as you are capable and this would be explained to you pre-operatively.

- You will be discharged 5 – 7 days post-operatively depending on your progress. Sometimes you may be sent to a rehabilitation centre before you go home.

CARE OF YOUR WOUND

Your sutures are usually removed before you go home. Ask your surgeon when you may bath or shower. After your wound is healed and you are allowed to shower, massage your incision every day with a moisturiser.

PREVENTION OF INFECTION

If you get an infection anywhere in your body, (e.g. skin, urine, chest, throat, teeth), the infection can get into the blood stream and spread to your hip. Therefore call your doctor:-

- Before you have any dental work.

- Before any other operation or invasive procedure, e.g. Endoscopy, Sigmoidoscopy, Urinary Catheter, Gynaecological procedures.

- If you are put on antibiotics by your doctor.

- If you suspect you have an infection anywhere.

- If your wound becomes red, hot, swollen, more painful or discharges any fluid.

WHEN YOU GO HOME

- You will need crutches for about 6 weeks and then you may require a stick for a few weeks. (Do not walk without these devices even though you feel you can, as you must protect your hip during the healing phase).

- Most of the pain has stopped at 2 weeks, but you may have discomfort for 3 months. Your hip will feel unusual for about 4 – 6 months.

- Your surgeon will see you regularly after the operation to plot your recovery and the frequency of visits will decrease as you recover. Your surgeon will need to see you during your life to make sure the hip is not loosening.

- Your doctor will advise you if you need physiotherapy when you leave the hospital.

- Modern hip replacements may loosen 10 to 15 years after surgery and require revision with another total hip replacement.

DO'S AND DON'T'S

- DO always use your crutches when you walk until told otherwise.

- DO walk frequently on level ground when you go home.

- DO follow the directions given to you at the hospital.

- DO ring your doctor if you are worried.

- DON'T drive a car until your doctor gives you permission.

- DON'T bend your trunk forward more than 90 degrees when sitting or standing.

- DON'T cross your leg whilst sitting or lying down.

- DON'T twist at the hip – turn your whole body.

- DON'T stoop – use your extended hand or get someone else.

- DON'T sit on a normal toilet seat, use a raised toilet seat.

- DON’T sit on a low chair, use a firm high chair with arms.

APPENDIX (a)

CHOICE OF ARTICULATION

A variety of articulations are available today for Total Hip Replacement surgery. The choice of articulation depends on numerous factors including the anatomy of your hip joint, your age and physical expectation.

The conventional articulation consists of a metal ball head which articulates with a plastic cup. The plastic cup may be all plastic or it may have a metal shell. All forms of articulations wear over time. Wear debris may cause loosening of the prosthesis and even bone loss. The possibility of long term ill effects of wear debris on the body locally and systemically (including possible carcinogenic effects) is still under investigation and at the present time we cannot be certain that such debris material will not prove to be harmful. However follow-up of patients who have hip replacements for more than 30 years have not demonstrated significant problems with plastic debris. The long term effects of debris from other forms of articulations such as metal-on-metal and ceramics are still being investigated.

Alternatives to the conventional articulation are aimed at reducing the amount of wear. Ceramics-on-plastic, ceramics-on-ceramics and metal-on-metal articulations have been shown in the laboratory to give substantially less wear than the conventional articulation. Your surgeon may recommend one of these articulation for your hip replacement. Although these articulations have superior wear characteristics, long term studies are not yet available. These articulations are also less tolerant of variations in manufacture and mal-alignment of the prosthesis. Dislocation and breakage are potential problems.

APPENDIX (b)

SPECIAL CONSIDERATIONS FOR REVISION HIP SURGERY

Revision Hip Surgery constitutes major surgery which frequently requires blood transfusion, femoral osteotomies (controlled division of bone to obtain access to the interior of the thigh bone as to enable removal of the femoral prosthesis), use of a variety of internal fixation devices, e.g. cables, wires, and specialised prosthesis.

At times there is need for complex bone reconstruction and this may involve the use of bone grafting. Minor bone grafting procedures involve obtaining bone from the pelvic area. Major bone grafting procedure may require the use of Allografts. Allografts are bone obtained from donor material. Allografts are obtained from a number of bone banks in the country. The material is especially preserved and sterilised by either chemical or physical methods.

Complications are more frequent in Revision Hip Surgery compared to primary hip surgery. All the complications that had been detailed about complications associated with primary hip surgery pertain also to Revision Hip Surgery, although the frequency is increased by a factor of 2 to 3. The incidence of infection, femoral fractures, dislocation and neurovascular injuries are significantly higher. The long term success of Revision Hip Surgery is also significantly lower than primary hip replacement surgery.

Depending on the scale of surgery that is performed, there may be need for protection of the operated limb for extended periods of time. If major bone grafting is carried out, it is not unusual for your surgeon to require that you protect the leg from weight bearing for up to six months. The rehabilitation requirements will vary substantially from case to case.

CONSENT FOR OPERATION
HIP

I …….. (Name), of …… ……..

……..(Address)

hereby give consent to Dr Lee Woo Guan to perform the following operation/procedures).

……..……

I declare that the nature of the operation/procedure (operations/procedures) and the possible complications have been explained to me.

Type and specification of implant may differ from that listed on the operation prescription. I am aware that the following risks/complications may result from the operation:-

Anaesthetic related complications Allergic reactions to medications and material used before, during and after the operation Blood Loss/Haemorrhage Infection Fractures Mal-alignment of limb and components Loosened and unstable components; Dislocations and subluxations. Thrombophlebitis Wound breakdown Limb Length Inequality Metal Sensitivity	Sympathetic Dystrophy Painful, thickened or unsightly scar Joint Stiffness Residual or incomplete pain relief Clots (Thromboembolic disease) Strokes Myocardial Infarction Bed sores Chest complications, e.g. Pneumonia Urinary complications – Retention, Infection Renal Failure Limp Nerve Injury and Paralysis

COMMENTS: ……

……

I have read and understand all aspects of the proposed treatment, and I have been given a chance to ask questions and discuss all the issues related to my operation.

I accept the risks associated with the operation to be undertaken and give consent to the operation.

Signed: …… Date: ……

Name: ……Place: … ……. ……..
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Witness: …… Name: …. …….. Date: ……

C: Protocol – THR (old protocol) – Revised 7/7/03