Birmingham Hip Resurfacing

Hip resurfacing is an operation to relieve pain, stiffness, and disability caused by osteoarthritis. The Birmingham prosthesis has been in clinical use since 1993. Before a patient undergoes a hip resurfacing it's important to be sure the benefit exceeds the risk. Non-operative treatment includes paracetamol or other tablets, activity modification and physiotherapy.

What is osteoarthritis?

Osteoarthritis is a destructive process in a joint, leading to stiffness, pain, and disability. It has a variety of causes including family inheritance, childhood hip disorders, and injury. Inflammatory arthritis and avascular necrosis might also be treated with hip replacement but resurfacing isn't so successful. In traditionally hip replacements the ball of the joint was removed and replaced with a new one. It was fixed to the femur by placing a stem down the inside of the bone. The ball was typically smaller than the "native" femoral head, to fit against a plastic socket inserted into the pelvis.

Birmingham Hip Resurfacing

Resurfacing of the hip joint means placing a cap over the head of the femur, and a new socket inserted in the pelvis. The current Birmingham technology (used since 1993) uses a high carbide Chrome Cobalt (metal on metal) joint surface. It uses a 150um clearance for the bearing and a minimum cup thickness of 3mm, 8mm centrally.
A number of other metal on metal hip replacements have come and gone. Changing the formula from the 1993 design has invariably led to failure. There is work on a ceramic on ceramic resurfacing but it is currently experimental.

Advantages of Hip Resurfacing

- Lower incidence of dislocation
- More accurate leg length
- Lowers risk of blood clot complications
- industrial strength
- reduced risk of thigh pain related to the femoral stem ("Enigmatic Thigh Pain") which can bother some athletes.

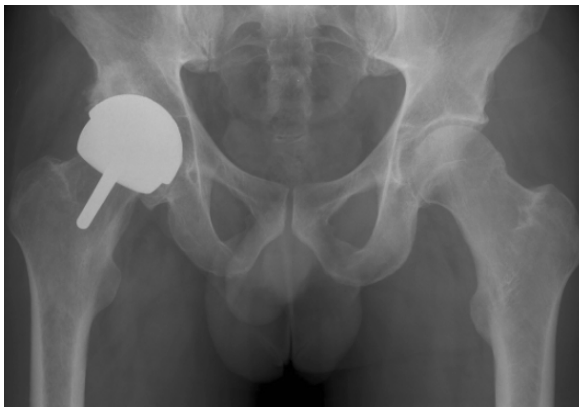

Figure 1. A Birmingham resurfacing showing the femoral neck has been retained, the head resurfaced, and bone preserved.

Down sides of resurfacing

Because resurfacing can't be used in osteoporosis, or in smaller sizes than 56mm cup size, roughly limits it to men under 65 years of age.

An early concern is the metal bearing surface will elevate blood levels of chromium, cobalt. Evidence to date (metal on metal has been used since the 1950's) demonstrates no problems such as tumours occur as a result of this. The chromium in question is "trivalent" as opposed to "hexavalent chromium" from the Erin Brockovich (Julie Roberts, 2000) movie fame.

Metal allergy cases have occurred, requiring further surgery. ALVAL is probably a metal allergy. In patients with metal allergies we use titanium stems and ceramic heads.

Birmingham Resurfacing is technically challenging surgery, and not all surgeons will do it. The surgeon also needs to understand what underlying problem has caused the arthritis, and treat accordingly.

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Other Hip Replacements

Taperloc Microplasty

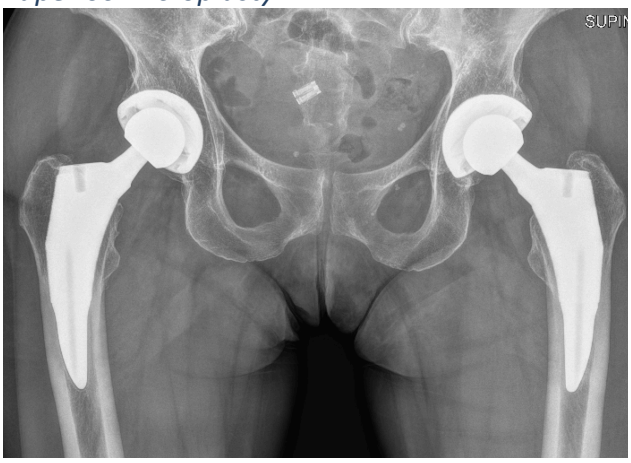

Figure 2. The Taperloc Microplasty hip.

This design is 30 yrs old with some recent improvements. It uses a polyethylene articulation made with a special process called E-Poly, with proven wear characteristics. I use this for people with metal sensitivity, as the stem is made with titanium, and the bearing surface can be ceramic. The short stem might reduce thigh pain incidence.

Other Uncemented Hip Replacements

The three implants with 10 year data best peforming in the Austrlaian Joint Registry are uncemented -, the Securefit, and the Synergy either with a R3 or Reflection aceabular component.

Some newer designs such as the Taperloc Microplasty with the G7 cup outperform these other designs on five year data.

Very short stems are interesting such as the Mathys Optimys and the Smith & Nephew Nanos. The results so far don't seem to exceed the Taperloc Microplasty.

Anterior Hip Replacement Approach

There are a variety of ways of getting into the hip joint, an incision at the front ("anterior") of the thigh & hip can also be called a DAA or even a Bikini incision. It is a particularly useful approach in people not suitable for a Birmingham.

The anterior approach still requires the whole femoral head and 1/2 the neck to be removed, it still uses conventional hip replacements - eg the Taperloc. The polyethylene might still wear out, but current polethylene seems pretty good. The dislocation rate isn't zero, but is lower than traditional posterior surgical approaches.

The down side in Australia seems to be an increased fracture risk - ie the 1% risk of dislocation has been replaced with a 1% risk of fracture of the femur.

Exeter & Cemented Hip Replacements

Cemented hip replacement is more commonly performed in older patients, but is also used where bone stock is questionable.

The ASR.

The ASR is similar to the Birmingham, however there were at least three different key design points. The cup on the ASR is relatively thin, and prone to deform, this increases the wear. The articular part of the cup is smaller for the diameter of the cup, increasing edge wear. The clearance of the bearing is 70um in contrast to 120um in the Birmingham. Its failure rate to 2011 in Australia is 14% and in one area of England 49%. It was the subject of a 4 corners report 16th May 2011 and has been off the market since 2010.

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Why is it better to have only one night in Hospital?

Firstly – reflect on the old days

When hip replacement was popularised around 1962, knee replacement over a decade later, the operations were painful, and the general consensus was that rest would be good for the patients. The old surgical approaches to the hip joint weren't great, and results might have been better by slowing down the patients. Patients were admitted to hospital often days prior to the surgery for tests and meeting other doctors involved in the care.

Two complications were particularly prominent: infections and blood clots. Antibiotics were added to the treatment, blood thinners also administered. Through the 1990's wound were more prone to bleed, more dressing changes required. Drain tubes were a routine part of surgery. To control pain morphine pumps were used, more recently "patient controlled analgesic systems". These required a drip to be running and oxygen administered. Urinary catheters were required in 80% of our patients in 2003, so it became routine to insert at the start of the operation. Patients were effectively tied to the bed.

Immobility adds to blood clots, chest infections, even pressure sores. Urinary catheters add to urinary infections. Bleeding from the wounds required dressing changes, exposing patients potentially to other patients bacteria, even in wards were single beds are available.

A new way of looking at it

If the surgery was not very painful, the patients could get up and move. We find the first time patients gets up they get dizzy, whether it is day three after surgery, or two hours. The next time they are usually fine. If they can get up and walk, they are less likely to get blood clots – in fact in the absence of a history or family history of blood clots, we virtually never see them. If the patient is comfortable, and only needs tablets for pain, there is no need for a morphine machine. No morphine machine means the patient need not be "tied to the bed", and probably won't have nausea or vomiting. We find patients are almost always independent by after lunch the day after surgery. There are surgeons in the USA doing joint replacements as day surgery!

If the patient is moving well, pain well controlled, not nauseated, and safe, why not go home? By getting out of hospital, the risk of being exposed to other patients' bacteria is dramatically reduced, and our lower infection rate reflects this. We do have a scoring system RAPT score to check it is plausible to go home. Scores of more than 9 will probably go home the day after surgery, scores less than 5 probably need to go to rehabilitation.

Perversely, the funding systems discourage the hospitals from short stay. The hospital is paid less for short stays, and the patients and their family need to work harder. But it is in the interest of better results to go home. Some people feel that they are being "thrown out of hospital" – no one goes home if they don't pass the checklist. By going home – less infections, and less clots.

Going to the patients own home is usually best. At someone else's house, there is a lesser tendency for the patient to get up and do things. Getting up and doing things is what we need! It is hard to check the temporary and permanent house are both safe.

Where people live alone, we'd like a friend or relative to stay the first night or two at home with the patient. Where family live next door, or within 15 minutes, even an empty house is often acceptable.

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The Process of having a hip replacement

Getting fit for surgery

The greatest predictor of recovery time is how fit you were prior to surgery. Walking or cycling for the weeks before surgery is a good idea. In the week prior to surgery – avoid gardening and other activities where you might get a cut on infection that could cause your surgery to be cancelled.

Pre-admission Clinic

At St John of God Hospital, most patients attend the preadmission clinic to ensure all the required tests have been done (including a urine test) and that you are familiar with the hospital. Sometimes this is arranged by telephone alone. They sometimes provide a "pre-op pack" of compression stockings, Losec (anti-acid tablets) and a bottle of Gatorade to drink before coming to hospital.

Stopping medications before surgery

Some anticoagulants like Plavix, Iscover, Xarelto, Aspirin &Warfarin are stopped up to 10 days prior to surgery, or changed to some other drug.

You will probably be told to NOT take certain blood pressure tablets on the day of surgery, and diabetic will need specific advice too. Ensure your surgeon knows what medications you normally take.

What to bring to hospital

You will only be staying a few days, so don't bring too much. Wear to hospital the clothes you will wear home. Night shirts/ boxer shorts have a modest advantage over long pyjamas – to allow access to the dressing and for local anaesthetic top ups. A second set of night attire allows for any drama like needing to wash the first set. Bring some magazines, but don't bother with laptops. A mobile phone has both positives & negatives! Do not bring any jewellery.

Admission to hospital

Typically patients are admitted on the day of surgery to the hospital through the Surgical Admission Unit. Same day admission has successfully reduced the risk of post-operative infections. Prior to surgery, no solid food is permitted for six hours but our aim is for you to have a sports drink (eg Powerade) two hours prior to surgery, about an hour before arriving at hospital.

Anaesthesia

The best anaesthetic overall is a combined spinal and general anaesthetic. This is used in conjunction with local anaesthetic infiltration. The anaesthetist will meet you before you go to the operating theatre to discuss any concerns. If you are a high-risk patient, it may be appropriate to meet the anaesthetist some weeks prior to surgery.

Recovery room

Typically you will wake up in the recovery room, adjacent to the operating theatre. The nurses there closely monitor you. They might ask you "do you have any pain" – and unless very uncomfortable – you should answer "NO" or "minimal". Having an iceypole and getting the oxygen mask off usually make you feel more comfortable. Having a chat with the surgeon can help too. The recovery nurses have a protocol allowing them to give you A LOT of drugs if you say you have pain. These drugs may make you feel sick or vomit.

Tubes

We aim to have a minimal number of tubes connected to you. The drip is usually disconnected the evening of surgery. Oxygen is rarely required once you're reasonably awake.

Orthopaedic Ward

Get some drink and food as soon as possible. If you're fairly sore, ask for some tablets. Avoid fruit juices to reduce nausea. Don't pick rich food off the menu! The aim is to get you out of bed as soon as possible - and if you get dizzy, ask for some drugs to fix it!

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Physiotherapy

Both hospitals in Ballarat have their own physiotherapy service paid for by your insurance. Our intention is to have you out of bed on the day of surgery to minimize the risk of blood clots. The physiotherapist may or may not be there to get you up the first time - the nurses can do it just as well. Our aim is to have 80% of people independent by 16 hours from surgery. Walking aids may start with a frame, and changed to using one crutch as soon as possible.

Post operative aims for recovery

First time up	3 hours (2.5-24)
Independent	16 hours (8-48)
Discharge home	1 days (1-4)
Inpatient rehabilitation	5%
Outpatient physiotherapy	95%

In bed

Unlike traditional hip replacements, you can lay in any position you like. Traditionally, you start off lying on your back for six weeks, but this seems excess. If you wish to "play it safe" for a period of four weeks you may still lie on the side operated on, but avoid lying with the operated side up.

What will the leg be like?

The wound will often be a bit tender and initially have a bulky dressing on it. Ice packs are used frequently to reduce pain and swelling. The swelling usually gets worse for the first week-10 days. The bruise will eventually go to your ankle.

Support person & discharge

The value of having a SINGLE family or other support person to deal with communications is impossible to value.

IF YOUR FAMILY STRONGLY FEEL YOU SHOULD STAY IN HOSPITAL MORE THAN ONE NIGHT - THEY NEED TO COME TO THE PREOPERATIVE APPOINTMENT TO EXPRESS THEIR CONCERN AND HAVE A RATIONAL DISCUSSION.

PATIENTS GENERALLY RECOVERY BETTER IN THEIR OWN HOME.

Do I need to go to inpatient rehabilitation?

People good enough for a Birmingham will almost NEVER need inpatient rehabilitation. Going to a friend's house is not ideal as there is less reason to get up and walk about if someone is nursing you. There is clear, published evidence that being in an empty house is BETTER than being in hospital.

Back up plan

A key part to going home is being aware that you can call me if there is a problem. In hours you can call the surgeon's rooms on 5332 969. Out of hours you can call the St John's Orthopaedic Ward on 53202140, or the Ballarat Base Hospital ward on 53204640. Your surgeon's mobile phone number will be on your discharge instruction sheet from the surgeon. Most problems only require advice, but perhaps one person per year needs to go to the emergency department.

Bowels

Constipation is a problem best avoided by eating plenty of fruit and walking frequently. In hospital we will prescribe Movicol. Avoid Panadeine Forte, a common painkiller (although all painkillers can lead to constipation). Prune or cloudy pear juice is a classic remedy and probably should be taken for several days after surgery.
If your bowels haven't worked within three days of surgery please seek advice from your local Pharmacy. If they still haven't worked the next day – contact you surgeon.

Driving after Hip Replacement

TAC regulations no longer prevent you driving for six weeks after surgery, but we generally recommend not to drive until you are no longer using a pain patch.

Checklist to drive:

- Not using strong painkillers.
- Automatic only helps if left hip
- Mobile phone & stereo turned off
- Short distances only
- Avoid school zones etc

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Weekly Progress

First week:

- Walking with a single crutch or stick
- Avoid excessive bending at the hip
- Panadol, Mobic, some Tramadol

Second week:

- Sutures are removed about 10 days after surgery at the surgeon's rooms
- Most people using a walking stick
- Take the Mobic

Third week

- Continue the Mobic unless a problem
- OK to lay on the operated side in bed

Fourth Week

- Stop the Mobic

Sixth week:

- In a sitting position, start bending your hip so your knee comes up to your chest, roll your knee OUTWARDS to put on a sock
- Now OK to lie in any position.
- OK to drive

Three months

Regain buttock squatting strength.

What to ring us about…

Nausea / vomiting
Black bowel motions
Constipation not fixed by three days
Unwell, or pain
Bleeding through the dressing

Avoiding Sources of Infection

Dental Procedures

Some dental work is particularly risky for getting infection into a joint replacement. Dental infections can get into a joint. The most common recommendation is to take 2-3g of amoxicillin one hour prior to procedures where there is a risk.
(Aust Dent J 2005:50 Suppl 2S45-S53)

Skin wounds

Rose thorns, shin cuts, and open foot injuries are all high risk. Gardening can be somewhat hazardous. The risk never completely goes away. Gardening gloves are essential and long sleeves add safety for pruning. Mowing should be done in trousers.

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Pain Management after Orthopaedic Surgery

Good pain control allows early mobilization, reduces complications, and home sooner.

Local Infiltration Analgesia

During joint replacement operations, local anaesthetic is infiltrated around the wound by the surgeon. This is mixed with Torodol (a NSAID), dexamethasone and adrenaline. The surgeon leaves a wound catheter buried in the bandaging so extra drugs can be injected around the joint replacement the following morning. It has a filter on it to avoid any contamination.

Pain Patch.

Norspan, a narcotic patch, is applied to the skin and gradually releases analgesia and avoids needing a drip. If the patch is too hot, you may become nauseous or drowsy – typically in the shower. Try to keep the patch out of hot water. If you joint is sore you can warm up the patch by giving it a rub, or put on a jumper. The Norspan patch typically changed six days from surgery, then stays on another 10 days, ie until after your review appointment.

Background tablets

Mobic is used twice a day for three weeks. For those that have a history of stomach ulcer, we ask you take an extra anti-ulcer tablet (eg Somac) the night before and morning of surgery. Panadol may be used for the first few weeks.

Pain score

Nurses in recovery and the ward will ask you whether you have any pain, and to score it out of ten. It is important that you tell them if the pain you complain of is somewhere different than where the operation was. Most patients have a score of zero in recovery. If you report 1-3, usually tablets are given, at 5/10 injections of morphine. For comparison – 7/10 has visible signs of pain – teeth clenched, pale appearance, sweaty brow. 10/10 pain is rarely seen, described as "screaming with pain". If you tell the nurses you have severe pain, they will give you morphine type drugs. These will make you feel nauseous or cause you to vomit. If you're OK but a bit achy, say 1 out of 10

Top up medications

Tramal is my preferred drug to top up. Typically the order is 1-2 tablets, 4 hourly as required. Tramal is not perfect, it can cause nausea or hallucinations, and can't be used with many antidepressants. Usually we have had an opportunity of trying them in hospital before you go home.

Swelling control reduces pain

Everyone who has sporting injuries knows Rest, Ice, Compression, and Elevation.

Rest means not bending it too much in first two days. It is still permissible to walk and exercise your feet up and down.

Ice packs are first applied in recovery, or as soon as possible after the surgery. Be a little careful with areas that have local anaesthetic that you may not be able to feel how cold it is. Do NOT apply ice directly to the skin, and apply it only 20 minutes at a time.

Compression is initially a bulky bandage. Venosan stockings (supplied by St John's) are worthwhile to minimise foot and leg swelling.

Elevation. In the first two weeks, put your leg up when you can. Lying on the couch is better than sitting and swelling the knee.

Avoiding nausea and vomiting

Our aim is to have you drinking fluid & eating as soon as possible after the surgery. We generally try to avoid fruit juices for the first three days as these sweet & acidic drinks can make you nauseous. Gatorade is a sugar & salt drink – this can be used up to two hours before surgery, and when you are alert after surgery. If you feel sick, tell the nursing staff. It can usually be fixed with drugs like Stemetil and Ondansetron. It is much easier to control it early, rather than to attempt to control it once you start vomiting

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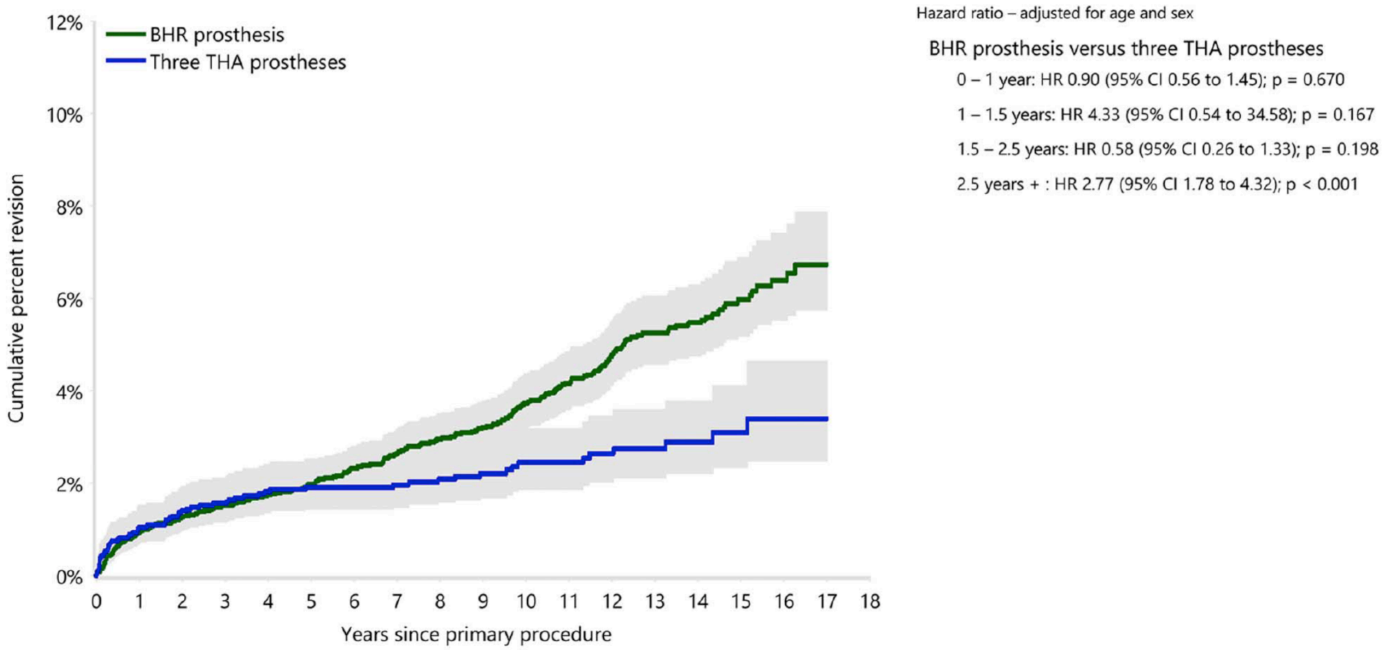
The Facts on Birmingham vs Hip Replacement

The Australian Orthopaedic Association, through the National Joint Replacement Registry track every hip replacement done in Australia using de-identified, grouped data. Previously, the Birmingham was achieving better results in a 2017 publication. It's not so clear now.



Ref: Stoney et al, "Is the Survivorship of Birmingham Hip Resurfacing Better Than Selected Conventional Hip Arthroplasties in Men Younger Than 65 Years of Age? A Study from the Australian Orthopaedic Association National Joint Replacement Registry ". Clin Orthop Relat Res (2020) 478:2625-2636

This graph indicates at 10 years from surgery, the chances of a Birmingham having a further major operation is about 4%. This used to be a great figure. Meanwhile total hip replacement has improved - anterior approach has reduced dislocations, and better polyethylene and ceramic on ceramic bearing surfaces has reduced wear and lysis. This graph is grouped data from ALL surgeons who have ever done a Birmingham resurfacing in Australia. This research paper is good in that it compares current patient selection for Birminghams, against age matched current hip replacements.

The fault with the paper is the Birminghams were predominantly done prior to 2010, the THR's predominantly afterwards. Furthermore, it is all surgeons, rather than Birmingham experts. If for instance a surgeon's Birminghams are performing three times better than the grouped data - that puts the 10 year and 17 year revision rates BELOW that for hip replacement.

So - Birmingham or Total Hip Replacement? If we had a 100% accurate metal allergy test, we'd be off to a great start. We don't. Patients who can't tolerate stainless steel jewellery may have a nickel allergy, which is a trace composition of the Birmingham. Surgeon skill of placing the femoral component seems to be the key to avoid fractures and loosening, the acetabular positioning to avoid psoas irritation and edge loading of the implant.

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Complications following hip resurfacing

A hip resurfacing is a major surgical procedure. Five percent of the time, something goes wrong with the perfect plan. Our aim is to minimise the risk, and quickly correct things that go wrong. This list of complications cannot be complete, but does deal with more common problems.

Pain

This is major surgery, and it does hurt. A variety of anaesthetic techniques including local infiltration of Naropin and multimodal analgesia are used. By three days, typically there is less pain than before the surgery. Some people get an intermittent groin pain that usually settles with time & exercise.

Urinary catheterisation

Urinary catheters are not used routinely. Since using local anaesthetic and early mobilisation, most patients have been able to use their bladder normally. However, a small number of patients may still require a urinary catheter. It is usually only left in overnight.

Fracture

Neck of femur fracture can occur after resurfacing. If displaced, the treatment is to exchange the head for a modular, stemmed prosthesis. It is particularly an issue in women who are more prone to osteoporosis and have smaller bones.

ALVAL & Metal Allergy

A small proportion of people seem to react to the metal implant. This is probably only 0.1% but not yet known with certainty. The problem could be the small amount of nickel on the metal, or if the cup position creates "edge wear". Further surgery is required.

Re-operation

X-rays are taken after the operation to check everything is in the right position. If it is not, then a further operation may be required to fix the problem. This can occur despite substantial pre-operative planning.

Stiffness

Hip resurfacing does not guarantee a normal range of movement of the hip. Patients with traditional hip replacements achieved easy application of shoes only in 50% of cases, this is better with resurfacing but still not perfect.

Heterotopic ossification

New bone can form around the hip joint after surgery. We prescribe anti-inflammatory tablets (Mobic) for three weeks to minimize the risk.

Bowel obstruction

Often the gut ceases to function for a period of 24 hours after surgery. During this time, only fluids are permitted. On occasions the gut gets worse, becomes distended and may require surgical treatment! This is usually a "pseudo-obstruction" and occurs in 0.5% of cases.

Scar pain and numbness

The hip surgery involves cutting a number of layers, and can damage small nerves. The current buttock incision has reduced this risk (no complaints of numbness). The scar invariably is tender for 3 months.

Squeaking

Sometimes "hard bearings"(such as, 'metal on metal' or 'ceramic on ceramic') squeak. This is thought to be a lesser problem than the plastic components wearing out. It usually is transitory and goes away after a day

Neurovascular injury

Passing around the hip are nerves and arteries that supply the leg. Rarely these can be injured. Injury can result in chronic pain, permanent loss of function, or viability of the limb, and rarely, vascular injury can cause death! If injured, re-exploring the nerve finds a reason only half the time, and it doesn't always help.

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Leg length discrepancy

Sometimes the leg feels longer after surgery. Usually it is the muscles on the side of the hip that feel tight for 6-12 weeks, and need to be stretched. Sometimes it feels short, but it is rarely out by more than 5mm.

Thrombosis & pulmonary embolism.

Clots can occur within the veins of the leg and pelvis before, during or after surgery. They are associated with a risk of dislodging and moving up to the lung. It can be fatal. Even if they remain in the leg, a "post phlebetic syndrome" where the leg remains swollen (and may ulcerate) can occur. Resurfacing has a much lower rate of these risks. Aspirin, stockings and early mobilization minimise the risk better than powerful blood thinners like Clexane injections or Xarelto tablets.

Dislocation

The risk of dislocation is about 0.1% in the post-operative period for Birminghams, and about 1% for traditional hip replacements, possibly 0.2% for anterior approaches. Most occurrences will be a single dislocation. Recurrent dislocations are very rare. Dislocations occur because the patient puts the hip into a position where it is unstable. The most common position is when sitting, leaning forward, and leaning towards the side of the hip replacement. Less common is with walking and turning abruptly away from the side of the hip replacement. Alcohol abuse and poor patient compliance have been factors in traditional replacements.

Infection.

Infections can occur directly after an operation, or even out of the blue many years later. The infection rate is quoted as 0.2 to 2%. It is hard to put a precise figure on it because an infection may not be apparent for some years. Some patients may carry additional risk factors. To minimize the risk of infection, we prepare the operation site with antiseptics, use antiseptic impregnated drapes, and use intravenous antibiotics at the time of and after surgery. In the first two years following surgery, other invasive procedures (such as dental extraction, urethral catheterisation, colonoscopy) are usually "covered" with antibiotics.

Loosening

For a variety of reasons, the fixation between the hip replacement and the bone may fail. This loosening may cause pain and require re-operation. Infection is a cause of loosening, but others exist.

Wear

One of the theoretical advantages of Birmingham Hip Resurfacing is the metal is unlikely to ever wear out. If the cup develops "edge wear" the metal debris is greater, and further surgery may be necessary.

What happens to the metal debris?

The kidneys function is to remove metal debris from the body. If kidney failure was present at the time of surgery, a problem could occur. The metal ions don't seem to cross the placenta, but there is an intention not to do this surgery on young females. There is no evidence to date it causes cancer, but a local reaction to the metal can cause a "pseudo-tumour" and some bone and soft tissue destruction.

Heart Attack and Death

Heart attacks are said to occur in approximately 1% of people undergoing hip replacement, more so in the older patients. Death after joint replacement or resurfacing under the age of 60 is exceedingly rare.

Other

It is not possible to provide a full list of complications. Extremely rare occurrences eventually happen to somebody. In short, having a hip replacement involves taking on an element of risk. New "copies" of the Birmingham may share the same results. If you have a specific question, ask your surgeon, and he will address your concerns.

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What is included in the cost of Joint Replacement?

Insurance generally pays for the "spare parts" and most of the hospital expense, but only covers a fraction of the doctors' fees. This is because Medicare hasn't adjusted their schedule to match CPI since 1983, or at all since 2014, Medicare is now worth less than one third of the real value of 1983. So there will be out of pocket expenses for doctors.

Doctors involved in the operation are: the surgeon, anaesthetist, surgical assistant, and if any medical problems occur, or are anticipated, a physician. The surgical assistant is a skilled nurse, doctor, or surgeon or a combination of these working alongside your main surgeon. The surgical assistant's billing will occur through Ballarat OSM. Typically there will be an out of pocket expense which contributes to paying the salaries of our nurses and our fellow. If a physician is required, please discuss his fees with him. The anaesthetist will arrange his/her own financial consent. Typical out of pocket expense after Medicare & private health insurance rebates (estimates) are $500 for hospital, $400 for anaesthetist, and $400 for surgical assistant.

Included in the **surgeon's fee** is performing the surgery, follow-up in the hospital and consulting rooms for twelve months is usually bulk billed - ie no additional charge to you. The surgeon takes responsibility for the whole process, and to solve whatever problems occur. The surgeon takes personal responsibility for the post-operative pain control –including extensive local anaesthetic infiltration around the wounds. For patients off track, the surgeon intervenes, or supervises interventions. The surgeon takes personal responsibility for achieving a low infection rate. If an infection does occur, aggressive surgical and antibiotic treatment is required.

The AMA calculates annually the change in cost of medical practice, covering practice staff, insurance, rent etc, which roughly follows the CPI. Following the AMA fee suggestion, the surgeon's fee for major joint replacements & the reinjection technique is **$4250** (item number 49318 & 18222). Insurers are only required by law to pay $339 towards the surgeon, Medicare pays $1017, thus you're $2895 out of pocket. Insurers require us to discount by 25-35% to allow "Gapcover" arrangements, even with moderate out of pocket expenses.

ESTIMATED FEES	Insured patients	Medicare only insurance	No Medicare
Surgeon	$ 2,633	$ 3,322	$ 4,354
Total	$ 4,427	$ 18,692	$ 20,275

Included in the package of estimated fees are:

- Hospital, surgeon, assistants, anaesthetist, prosthetic implants
- post operative ward rounds, usual blood tests and XRs
- followup phone call(s) after discharge, access to Ballarat OSM nurses for advice
- 2 & 6 week appointment at rooms, and any other visits to the consulting rooms required.
- 12 months followup appointment related to the hip
- Long term surveillance of joint replacement where needed & patient maintains contact

Excluded:

- Physician involvement
- Other orthopaedic or surgical problems

If you are experiencing personal financial hardship, please discuss this well prior to the surgery so an amicable arrangement can be made. Note that most our joint replacements patients are elderly and many have a part pension. The out of pocket expenses will be required to be paid two weeks prior to surgery to avoid cancellation.

BallaratOSM
orthopaedics | sports medicine | active recovery

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