

# ABEER SYAL

## BS MD FRCSC

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ORTHOPAEDIC SURGERY | SPORTS MEDICINE & ARTHROSCOPY | JOINT RECONSTRUCTION

## TOTAL JOINT REPLACEMENT GUIDE

### PATIENT EDUCATION

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## INTRODUCTION

Joint replacement surgery is an important decision that will have life altering effects. The benefit of joint replacement surgery is the immediate impact it has on a patient's quality of life. This begins with the decision to have a joint replacement and ends with a fully functional joint with minimal or no pain. The goal of this guide is to give you, the patient, information about joint replacement from beginning to end. This can also be a reference one can return to as needed to refresh your knowledge and understanding. It is Dr. Syal's belief that having knowledge is powerful and will help his patient's in making informed decisions which leads to best outcomes and patient satisfaction.

## CONSULTATION

Your initial consultation with Dr. Syal may take place as a telehealth visit (by video or phone) or it may take place in the office. This serves as an opportunity to review your history, all medical testing and physician reports. Once a decision to proceed with joint replacement surgery has been undertaken you come to the office for a pre-operative history and physical examination. This visit serves multiple purposes. The first is a physical examination is performed to make sure you are ready for surgery from an orthopedic standpoint. Occasionally, new x-rays may be ordered as well. The second is to complete the patient consent form and hospital required health questionnaire.

Dr. Syal reviews medical conditions to help determine whether you are medically suited for surgery. The pre-operative visit involves the following aspects:

- Reviewing of all medical testing and reports
- Performing a physical examination
- Repeating x-rays if necessary
- Reviewing all prescriptions: Narcotics, NSAIDS (Ibuprofen, Celebrex), Antibiotic, Blood Thinner (Aspirin or alternative)
- Patient Informed Consent Form
- FHA Patient Questionnaire Form

## MEDICAL OPTIMIZATION BEFORE SURGERY

In discussing the indication for joint replacement surgery, Dr. Syal is determining the severity of the arthritis on your x-ray imaging and also discussing how severely the pain and functional loss impacts your quality of life. He will also review past measures in conservative management that were taken to alleviate pain and improve function.

Many patients with significant medical history are often not optimized to reduce the risks associated with joint replacement surgery. After completion of your initial consultation and with the shared decision to proceed with joint replacement surgery Dr. Syal requests engagement of your family physician to optimize your health conditions and ensure these are optimized as best as can be done in order to reduce the perioperative risks.

There are several risk factors that have a significant impact on joint replacement surgery outcomes, some of the more common are obesity, diabetes, and smoking.

## INFECTION PRECAUTIONS

Health problems such as allergies, diabetes and obesity can raise the risk of infection. A sterile waterproof dressing will be applied to your surgical incision site. After your surgery, family and friends should not touch your surgical wound or dressings and they should wash their hands before and after visiting. Those caring for your wound should always wash their hands before and after contact.

Avoid touching your hands to your nose, mouth or eyes and do not set food or utensils on furniture or bed sheets. Germs can live for many days on surfaces and can cause infection if they get into your mouth.

## DENTAL WORK

If you need dental work, it is a good idea to get it done **at least four weeks before your surgery**. If you have not seen a dentist in the last twelve months, we request that you make an appointment for a dental exam, because the threat of infection is a major risk factor of joint replacement. An unknown infection in your mouth could travel through your bloodstream and cause an infection around your prosthesis which can be devastating to your new joint. Inform your dentist you will be having a total joint replacement, so the information can be placed in your dental record. Your dentist may want you to take antibiotics before any future dental work.

The official orthopedic guidelines for antibiotic use following a joint replacement were revised and published as the New AAOS-ADA Clinical Practice Guideline: "Recommendation 1 is supported by the highest grade of evidence of the three recommendations, and it proposes that the practitioner consider changing the longstanding practice of prescribing prophylactic antibiotics for patients who undergo dental procedures. The recommendation is founded in evidence that dental procedures are unrelated to periprosthetic joint infection (PJI) and that subsequent antibiotic prophylaxis does not reduce the risk for PJI. There is no conclusive evidence to support otherwise. High strength evidence suggests that antibiotic prophylaxis reduces the incidence of post-dental procedure related bacteremia, but there is no evidence that bacteremia increases the risk of PJI.

<https://www.aaos.org/research/guidelines/pudp/dentaeditorial.pdf>

## MEDICATIONS

Be sure to inform Dr. Syal's office of all the medications both prescription and non-prescription that you are taking. This includes vitamins, over the counter drugs or even herbals and "natural" products. Many of these can have unwanted side effects when combined with other medication and anesthesia. Some herbals must be stopped **at least two weeks before your surgery**. This is to minimize the risk of blood loss during surgery, you may also be asked to stop taking certain medications, many of which can affect blood clotting.

**Aspirin, Ibuprofen, Motrin, Advil, blood thinners, anti-arthritis medications, diet pills, and MAO inhibitors are examples of medications that can cause increased bleeding times.**

You will be instructed on which of your routine medications you will need to take the morning of surgery. You are encouraged to discuss any concerns you may have with Dr. Syal or your family physician.

## SMOKING

In preparation for your joint replacement surgery it is imperative that you stop smoking. **SMOKING IS A MAJOR RISK FACTOR FOR WOUND HEALING COMPLICATIONS.** Patients who smoke are three times as likely to develop a surgical site infection as non-smokers and have significantly slower recoveries. If you are a smoker, ask your family doctor what would work best for you to help you quit smoking. The longer you are smoke free, the healthier your body will be.

<https://www.webmd.com/smoking-cessation/news/20101019/smoking-raises-surgery-risks>

<https://www.facs.org/quality-programs/strong-for-surgery/patients/quit-smoking>

## BLOOD SUGAR

If you have diabetes, you know how important good blood sugar control is. Your surgeon needs to know what your recent blood sugar test results have been. On the day of your operation your blood sugar will be check before your procedure.

Having surgery puts stress on your body and stress can affect your blood sugar level. Blood sugar that is too high or too low can cause serious problems. Keeping blood sugar in control before, during, and after your operation will reduce your risk of infection in your incision and will help you heal better.

## OPTIMIZING NUTRITION

Good nutrition may be the most important predictor of your outcomes from joint replacement surgery. Eating healthy and avoiding unnecessary weight loss prior to your procedure is ideal. Nutritional status is a major determinant of outcomes for any type of surgery, especially for high-risk patients. Many patients are asked to lose weight prior to joint replacement surgery, Dr. Syal does recommend proper weight maintenance with adequate nutrition before heading into your procedure. This will ensure you have adequate strength post-surgery for rehabilitation. Prior to your surgery your diet should include:

- **protein:** high quality, low fat protein is a key component of a healthy diet
- **fruits:** 2-4 servings per day of your choice
- **vegetables:** 3-5 servings per day of your choice
- **dairy:** - 2-3 servings per day
- **fats:** use sparingly, some fat is necessary, avoid trans fats whenever possible

## ANESTHESIA

There are two anesthesia options when having a joint replacement – general anesthesia or spinal/regional anesthesia. For total shoulder placement only general anesthesia is performed, however a regional anesthetic block may be offered for better pain control management for post-surgery.

General anesthesia involves being placed “completely asleep” with a breathing tube placed down your trachea and gas or inhaled anesthesia used during the procedure. Spinal anesthesia refers to a single injection of a medication in the lower level of your spine that will make you completely numb from the bellybutton down for about 3 to 4 hours. This can be combined with regional anesthesia which is a local injection around one or more nerves to help reduce pain for up to 24 hours after surgery.

While general anesthesia has traditionally been used for joint replacement surgery, spinal anesthesia is now considered the standard of care by most physicians in most centers. Multiple studies have shown the advantages of spinal anesthetic and regional blocks for patients undergoing lower extremity joint replacement. These studies have shown that spinal anesthetic results in lower post-operative pain scores, lower blood loss, reduced risk of blood clots, faster mobility, and less nausea and mental confusion.

The principal advantage of spinal anesthesia is that the general anesthesia does not need to be quite as deep or extensive and therefore a breathing tube is not required. The other major advantage of regional anesthesia or spinal block is long term post-operative pain reduction which reduces the need for narcotics and other pain medications.

## HOME PREPARATION

It is a good idea to prepare your home for your return after stay in hospital prior to coming for your procedure. These are some of the recommendations to consider:

- if your bedroom is upstairs, you may consider setting up a temporary sleeping area on the first floor
- remove all throw rugs, loose rugs, electrical cords and clutter from hallways/walking areas, these pose a risk for falling
- have extra pillows or pads for chairs, sofas and automobile seats to elevate the seat to insure proper hip alignment
- install safety bars in the shower and near stair railings and put non-skid material in the bathtub or shower
- prepare an area for supplies you will need, such as a telephone, TV remote control, radio, tissues, medication, reading material, etc.
- make preparations for pets that may be underfoot
- make arrangements to have a family member or friend stay with you the first few days after you are discharged.
- rent or purchase ambulatory aids and helper items: cane, walker, raised toilet seat, reacher, bath chair, long handled shower sponge, practical nonslip shoes, these items can be obtained from local stores, pharmacies and local Red Cross
- CPAP device should be brought to hospital for the overnight stay, if you have obstructive sleep apnea.

## BATHING

Before surgery, patients can play an important role in their own health. Skin is not sterile, so one needs to be sure that the skin is as free of germs as possible before surgery. The number of germs on your skin by can be reduced by carefully washing before surgery. Patients will be instructed to do the following:

- You will need to shower with a special antibacterial soap called chlorhexidine gluconate (CHG).
- CHG is not to be used by people allergic to chlorhexidine. Shower or bathe with CHG the night before surgery and the morning of surgery. Apply the CHG soap to your entire body but only from the neck down.
- Pay special attention to the area where the surgery will be performed. Gently wash for 5 minutes, do not scrub the skin too hard. Do not use regular soap after the CHG is applied.
- Do not shave your body with a razor before surgery. Also do not use perfume, deodorant, powders, lotions or creams after showering.

## POST OPERATIVE RECOVERY

- Take your regular medications as instructed by the pre-operative anesthesia consult, you can restart pre-surgery medications.
- After hip & knee replacement, often 1 day in hospital is spent, occasionally patients may require 2 days to be safely discharged home.
- After shoulder replacement, 1 day in hospital is normally spent.
- Physiotherapy will start on post-operative day 1, instruction, observation and teaching is provided by hospital physiotherapy service to safely discharge home. It is safe to be full weight bearing on your knee or hip, immediately after your surgery is complete. Shoulders will be protected in a shoulder immobilizer.
- Rest, elevate, and ice can help decrease some of your pain and swelling. Use of cold & compression therapy can enhance postoperative pain and swelling management.
- Pain medication prescription will be provided upon discharge. Tylenol/ Advil and other over the counter pain medications can be used concurrently with the prescription and will decrease the amount of narcotics which are required.
- The formal outpatient physiotherapy program will begin 2-3 weeks following your surgery. If possible, start a private physio program within the first week while waiting for the hospital appointment. If a private physio program is not an option, follow the exercise sheet which is provided upon discharge.
- If you need a physiotherapist, please contact Dr. Syal's office to be directed to a nearby physiotherapy group.
- Anticoagulation (prevention of clotting) is extremely important after total knee and hip replacement. The most important thing you can do to prevent blood clots is to move regularly after surgery. This involves pumping the ankles, moving the knees, and getting up every hour and walking for at least 5 minutes.
- Low risk patients are given aspirin twice a day and high-risk patients are given either an injection or oral prescription for more aggressive blood thinning. You will take a blood thinner or aspirin for 4 weeks after surgery
- Coughing and deep breathing are also important to keep your lungs open. In the hospital you may be given a spirometer to help you take deep breaths. This exercise should be continued post-operatively.
- Constipation often occurs after surgery. This is due to a combination of narcotic pain medication, changes in diet, and lack of activity. It is important that you drink lots of water and other fluids such as prune juice to prevent constipation. An over-the-counter stool softener such as Colace is a good idea in the immediate post-operative period. If you have not had a bowel movement by your second or third day after surgery, please let our nurse know.
- The surgical wound dressing is covered with a waterproof Mepilex bandage that allows patients to shower immediately upon discharge home. The outer dressing is to be left on until follow up with Dr. Syal. Beneath the dressing is the Dermabond Prineo mesh glue dressing that seals the wound and protects it from the outside environment.

## RECOVERY MILESTONES

After surgery most patients are anxious about how often they should be walking and what types of activities they are expected to be doing at a few days and a few weeks following their procedure.

Walking	Day 0
Getting out of a chair	Day 0
Stairs	Day 1
Sleeping in a regular bed	Day 1
Showering	Day 1
Walking the dog	Day 1 - 14
Stopping narcotics	Day 7 - 21
Pain less than prior to surgery	Day 7 - 21
Return to work (office)	Week 2 - 4
Return to work (labour)	Week 8 - 12
Return to sexual activity	Week 2 - 6
Driving (left leg only)	Week 2 - 4
Driving (right leg / shoulder)	Week 6 - 8
Playing golf	Week 4 - 12
Playing tennis	Week 12 - 30
Stiffness resolved	Months 6 - 12

## ENHANCE SURGICAL RECOVERY

After surgery pain management and early return to movement are principle in achieving best outcomes and function. Important considerations in home are to install raised toilet seats, a bath chair, practical shoes and a long shoehorn, and also a reacher or grabber aid. Below are some recommended items to consider to enhance your recovery from joint replacement surgery.

- BREG Polar Care Wave™ | Cryotherapy & Compression Unit – available through the office, multiple studies demonstrate decreased narcotic requirements, decreased pain scores, quicker mobility and range of motion gains.
- DonJoy Ultrasling PRO® | Shoulder Sling – available through the office, offers more comfortable support of your shoulder.



## POST OPERATIVE RESOURCES

- Red Cross rentals – <http://www.redcross.ca>
- Orthopedic Equipment [www.bonefoam.com](http://www.bonefoam.com)
- REGENMD | Dr. Syal website – [www.regenlangley.com](http://www.regenlangley.com)
- Seniors Health Care support line – 1-877-952-3181
- Health link BC – [www.healthlinkbc.ca](http://www.healthlinkbc.ca)
- Health link BC hotline – 8-1-1
- Canadian Orthopedic Foundation – [www.canorth.org](http://www.canorth.org)
- Physical Activity community program – [www.physicalactivityline.com](http://www.physicalactivityline.com)

## THINGS TO AVOID

- Smoking – slows bone and soft tissue healing by 30-50%. Increases risk of infection, blood clots, etc.
- Hip replacements – Avoid greater than 90° pelvic bend for first 12 weeks post-surgery.
- Avoid creams or ointments on the surgical site.
- Showering can generally start after your discharge from hospital. However, baths and swimming pools should not be used for the first 4-6 weeks.

## AFTER SURGERY

**Post-operative pain** - this is a normal consequence of joint replacement surgery. This will be most significant in the first few weeks and gradually improve with time. Everyone handles pain differently and each subsequent surgery will likely differ from previous ones. Use the provided pain medications as well as enhancing recovery with cryotherapy and compression can help manage pain symptoms.

**Startup pain** - this is pain associated with the first few steps after a period of immobility. This is associated with the mechanical nature of the joint and is present with all hip & knee replacements. This is completely normal. Long-term low-grade pain may continue. Joint replacements are designed to decrease one's daily pain. Joint replacements are not designed to make you completely pain free. Most people with a successful joint replacement note a 2-4/10 pain after a long day of use. This is normal and expected.

**Contour changes of the joint** – The joint is now mechanical and post-operative scar tissue is present. The contours of a replaced joint will differ from that of a native joint. This is normal and expected.

**Swelling** – This is most pronounced in the immediate post-operative period and gradually improves with time. A small number of people can have persistent, long-term swelling.

**Clunking and squeaking** – mechanical components make different audible sounds compared to a native joint. This is completely normal.

**Numbness around surgical site** – small skin nerves are dissected when making the incisions for the joint replacements. This numbness generally decreases over time, however a small area around the incision generally persists. This is normal and expected.

**Foot “pointing in” following surgery** – this is common, specifically with hip replacements, as the short external rotators of the hip need to recover and re-strengthen post-surgery. This is normal and expected and resolves over 2-4 months following surgery

**Bleeding on the dressing** – you will likely see some minor post-operative spotting on the dressing in the immediate post-operative period. The dressing should be left undisturbed unless the bleeding bypasses the dressing. If this occurs, the dressing should be changed, and a pressure tensor should be applied to the leg for 30 minutes to 1 hour. If significant bleeding continues, present to the emergency department for assessment.

**Asymmetric gait and muscle atrophy** – your gait will likely change significantly in the immediate post-operative time period and slowly normalize with time. A full recovery from surgery requires a significant amount of physio and generally takes 6-12 months.

**Asymmetry in leg lengths** – arthritis generally creates a slightly shorter limb as the joint wears away. Surgery for hip replacement restores all or a portion of this lost length. Occasionally a limb needs to be lengthened slightly to help with stability of the hip joint. The body can generally accommodate changes in leg lengths, and this will likely become normal over the next 4-6 months. If changes in leg length continue to be present, shoe inserts/ shoe lifts can be used to accommodate the differences.

## POTENTIAL COMPLICATIONS

**Infection** – This is an extremely uncommon complication. A limb in the immediate post-operative state will appear very red, swollen, hot, and abnormal in appearance. Non-surgical medical professionals, who do not see many post-operative cases, can often confuse a normal post-operative state for an infection. If you are concerned about your joint, take a picture of the incision and email it to the office. Do not start antibiotics unless advised by your surgeon.

**Blood clots** – Very uncommon after knee and hip replacement with use of oral anticoagulant and a cold compression unit. Pain and swelling in the calf are common and this should decrease with time. If this doesn't improve and central calf pain persists, a further assessment for blood clots may be undertaken. Blood clots can occasionally travel to the lungs (pulmonary embolism). Signs of a pulmonary embolism include but are not limited to; severe shortness of breath, chest pain, and elevated heart rate (racing heartbeat). If you think you are experiencing a pulmonary embolism, present to your nearest emergency department for an assessment.

**Neurovascular injury** – Injury of major nerves and blood vessels are extremely uncommon. If you have concerns, bring these up at your post-operative visit and this will be addressed.

**Stiffness** – This is mostly concerning after knee replacements. Physiotherapy is extremely important in the post-operative period to help you regain your joint motion. A flexion of 110° allows an individual to perform all activities of daily living and hence is the goal post surgery. You will be assessed for motion at 8-10 weeks post-surgery. 95% of patients achieve the 110° knee flexion mark by this time frame. If you have not achieved 110° at this time period, you will undergo a manipulation under anesthesia to help mechanical break up scar tissue and gain motion.

**Dislocations** – Mainly concerning hip replacements. There is a 1-3% risk in the first 6-12 weeks. It is very important to follow hip precautions (no bending more than 90 degrees through the waist for the first 12 weeks). After 12 weeks, the soft tissues around the hip heal and the risk of dislocation is minimal.

**Complex Regional Pain Syndrome (CRPS)** – A very uncommon condition in which the pain response is exaggerated. Patients can experience severe pain from even minor stimuli such as touch and motion. This generally does clear however can take a significant amount of time. This process can lead to suboptimal outcomes as the severe pain makes it difficult to achieve timely motion and strength gains.

## FREQUENTLY ASKED QUESTIONS

### **What is my joint replacement made of?**

Joint replacements are made of alloys. They are a combination of surgical grade stainless steel, titanium, cobalt and chrome. The most common bearing surfaces are highly cross-linked polyethylene and occasionally ceramic.

### **What kinds of activities can I return to after I'm recovered from my joint replacement?**

The goal is for a complete return to a similar lifestyle as per pre-surgery lifestyle. This includes, skiing, pickle ball, tennis, hockey, etc.

### **How long do joint replacements last?**

Most recent studies demonstrate greater than 85% survivorship at 25 years.

### **How long is my expected recovery?**

Walking begins day 1 following hip & knee replacement surgery. By 2 months most people are walking short distances well with a cane or no walking aids at all. Full recovery takes 4-6 months for most and some can take up to 1 year.

### **When can I go back to work?**

Most people get back to work at around the 4-month period following surgery.

### **Do I need a doctor's note to get through airport security?**

There is no note that is required or necessary for crossing border security. Joint replacements and internal hardware are very common. Give yourself a little extra time when traveling, however most people with joint replacements do not encounter any significant delays while travelling.

### **Do you use staples in the skin?**

Generally speaking, Dr. Syal performs a layered closure of the deep tissue and skin that uses absorbable suture without staples. In fact, for most patients, the skin is super glued closed with a closure called Dermabond Prineo, this is a thin layer of mesh on the skin which is super-glued onto the skin to help reinforce the wound closure.

### **When are my post-operative appointments after a joint replacement?**

Approximately 4 weeks after surgery, 12 weeks after surgery, and 6 months after surgery. Some of these visits will be performed via telemedicine and save you a visit to the office.

**When can I drive?**

ICBC recommends a minimum of 6 weeks following major surgery. Following this timeframe they recommend returning to driving when, "one is able to operate a vehicle as per pre-injury/surgery form." They recommend practicing in an empty parking lot before embarking on road driving.

When can I shower after my surgery? When can I swim?

For the first 4 weeks the incision can be showered over with the waterproof dressing intact while bathing. You will be able to shower without covering the incision immediately following your 4-week visit. Swimming or submerging the incision is allowed at 4-6 weeks post-surgery when it is completely sealed and has the normal appearance of surrounding skin.

**When can I work out after a joint replacement?**

Dr. Syal encourages patients to get back in the gym as soon as they feel comfortable. Certainly, upper extremity exercises can be performed within days of knee and hip replacement surgery. Lower extremity exercises can be performed within days of a shoulder replacement surgery. Very low resistance leg exercises such as spinning on a stationary bicycle or light leg presses can be performed around 2 to 4 weeks after surgery. Symptoms dictate activity. Many patients have controlled pain and good strength 4 - 6 weeks after surgery and can be allowed to progressively increase their demands and exercises. A recovering joint replacement needs activity and rest in appropriate measure and some patients tend to overdo exercising and under do resting. Over-achieving in the early post-operative period may just set you further behind in your recovery.