



**St. Thomas-Elgin  
General Hospital**

*Working Together for Your Good Health*

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# PATIENT HANDBOOK FOR KNEE REPLACEMENT SURGERY



# INTRODUCTION

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This booklet has been prepared for patients who are about to have a Total Knee Replacement. This booklet will give you and your family some of the necessary information you will need in order to have a successful surgical experience. This booklet will also be a useful reminder when you leave the hospital.

Please keep this booklet. Feel free to share it with your family, close friends or caregivers. If you have any questions or concerns, please ask anyone on the team for help.

Read this booklet prior to your surgery and **write down** any questions you have and bring them with you.

**Questions to ask:**

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Acknowledgements: Mike Lalonde BScPT, Stephanie Vander Pol MScPT

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# UNDERSTANDING TOTAL KNEE REPLACEMENT

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## (Total Knee Arthroplasty)

The knee is a hinge-like joint which allows you to bend and straighten your leg. The joint is supported by muscles, ligaments and cartilage. When a knee becomes stiff and painful, it may be replaced with an artificial joint or knee prosthesis. This is known as a **total knee arthroplasty** or **total knee replacement**. This artificial joint should allow you to walk and move with less pain.

In a healthy knee, the surfaces at the ends of the thigh bone (femur), shin bone (tibia) and knee cap (patella) are lined with cartilage which provides a smooth surface. The cartilage allows the bones to glide easily over each other. Supported by muscles and ligaments and protected by the kneecap, the joint bends easily.

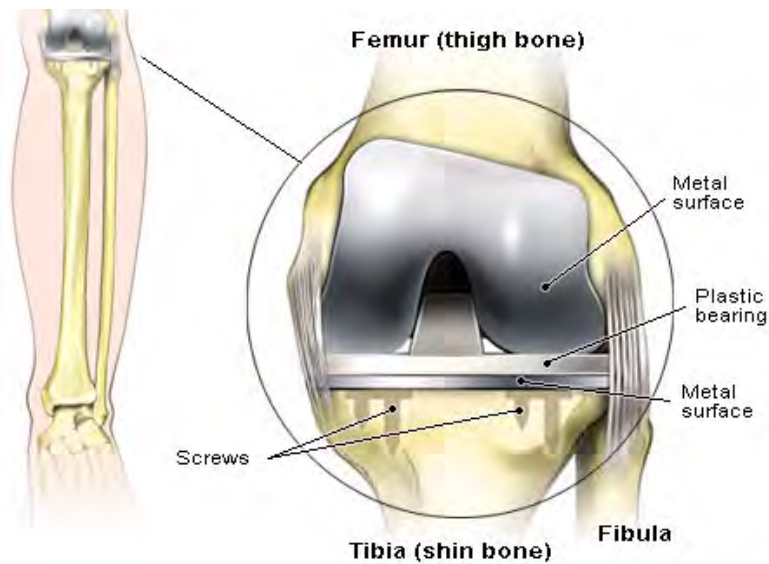


In an arthritic knee, the surfaces of the bones may become rough and cartilage may wear away resulting in bones rubbing together. The joint may become swollen or inflamed causing pain and stiffness.



Your damaged knee can be replaced with new parts to help eliminate the “bone on bone” pain. The knee joint is resurfaced to provide smooth surfaces that move well together.

A metal component will be placed at the end of your thigh bone and at the top of your shin bone. A plastic spacer will be inserted between the two metal pieces. A plastic button will usually be attached to the underside of your knee cap.



**Loosening**

Loosening of the artificial parts results over time. At the 15 year mark 7-10% of the parts will have loosened (failed). Another surgery may be needed.

**Material Failure**

Failure of the tibia (shin), femoral (thigh) metal materials and the patellar (kneecap) plastic materials has been reported on rare occasion. If it does occur, another surgery will be needed. If the kneecap fractures, moves out of proper place or the plastic liner wears through, you may need another surgery.

Questions:

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## **POSSIBLE COMPLICATIONS**

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### **Anesthesia**

Although problems with anesthetics are rare today, some still exist. The rate of unexpected death is about 1 in 200,000. Your anesthesiologist and surgeon will talk to you about any concerns.

### **Medical Health Concerns**

Heart disease, diabetes, chronic lung disease, smoking, anemia, rheumatoid arthritis, obesity, and other medical problems may slow your recovery.

### **Nerve or Blood Vessel Damage**

Nerve or blood vessel damage is rare. Injury to a blood vessel is quite rare but can be severe if it does occur. One of the nerves passing by the knee may be stretched. This may leave numbness, weakness, or paralysis in the foot. A brace or sometimes additional surgery may be required.

A small nerve in the skin may need to be cut during surgery causing a numb area outside of your knee. This often improves over time but may be permanent.

### **Blood Clots (Deep Vein Thrombosis or Pulmonary Embolus)**

Harmless blood clots in the veins of the legs can occur in as many as 40% of knee or hip replacement surgery. It is rare for them to travel to the lungs (less than 1%); however, if this occurs it could result in death. Likewise, material from inside of the femur can on rare occasions travel to the lung. Blood thinning medication is often used after surgery to help prevent this.

### **Pain**

Pain following knee surgery varies with each person. It is important to keep your pain under control in order to be able to do your physiotherapy. It is better to treat your pain when it is mild rather than waiting for it to become severe.

### **Swelling (Edema)**

The normal healing process may cause swelling in your leg. This may last several days or weeks. It will often improve if you ELEVATE your leg. If it becomes very painful or continues to increase despite elevation, you should call the surgeon's office.

**Infection**

The infection rate is less than 2%. If infection occurs, the artificial pieces may need to be removed and replaced after the infection has been controlled. If it is not possible, the knee may need to be fused together or possibly even amputated. This is a rare event.

**Late Infection**

You must always be careful to avoid infections (sinus, chest, dental, skin, etc.) and get treatment quickly. Infection can settle into your new knee with very serious results. We recommend that your dentist follow the **Canadian Dental Association (CDA)** guidelines for preventative antibiotics with dental work.

**Blood Loss**

You may lose large amounts of blood during or after the surgery. This is rare, but you may need a blood transfusion. There is a slight risk that you can develop an illness from a transfusion. It is possible to donate your OWN blood well before the operation. We cannot accept blood from family or friends for your personal use. Iron supplements (pills) are often used to help rebuild your blood.

**Confusion**

Short-term confusion following the surgery may be due to medications, anesthesia, or medical conditions. It usually resolves after a day or two. Regular alcohol or drug use before surgery can make post-operative confusion worse.

**Urinary Problems**

You may have trouble urinating (passing your water). You may need a catheter (flexible tube) to drain your bladder. If you feel pain or burning when urinating, tell your nurse. This may be a sign of infection.

**Bruising or Bleeding**

Sometimes blood can collect in the wound after surgery. Your body will eventually reabsorb this. Blood from your incision (cut) or dark bruising may occur. The nurses will teach you how to monitor this.

**Slow Wound Healing**

When the skin, tissues, muscles, and bone are cut during surgery, sometimes healing is slow. This may give some short-term local pain and swelling. With time, healing most often occurs.



## WHAT HAPPENS NEXT?

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### **Preadmission**

Before your surgery, you will have an appointment in the St. Thomas Elgin General Hospital's Preadmission Clinic. At the time of your appointment, you will have testing and assessments completed along with an education session. Please complete all forms in your surgical package (brown envelope).

Bring your medications in their original containers as well as a completed list of medications with dose and times taken- your local pharmacy may be able to assist you with this. Also, bring a list of your allergies and reactions.

### **Admission to Hospital**

You will be admitted to hospital on the morning of your surgery. Once again, bring your medications in their original containers, your completed list of medications including dose and times taken, and your list of allergies and reactions.

After your surgery, you will go to the Post Anesthetic Care Unit (PACU) to recover from your anesthetic, usually a few hours. Once you are ready, you will be transferred to the inpatient surgical unit. Discharge from hospital is planned for **Day 3** after your surgery (surgery day is Day 0).

### **Discharge to Home**

The majority of patients are discharged directly home with support of family and/or friends. Arrangements for Community Care Access Centre (CCAC) services may be made for you while you are in hospital. CCAC services may include nursing, physiotherapy, occupational therapy, or personal support. A decision about which services you may need will be made while you are in hospital.

If you do not feel that you will be able to return home, you must make other arrangements for care after discharge from hospital **prior** to your surgery.

Questions:

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## EXPECTATIONS

Day 0 (surgery)	Day 1	Day 2	Day 3
<ul style="list-style-type: none"> <li>• Sit to stand at bedside with Physiotherapy and/or nursing.</li> </ul>	<ul style="list-style-type: none"> <li>• Sit up in chair for 30 minutes in A.M. and P.M.</li> <li>• Basic exercises</li> <li>• Walk with walker in A.M. and P.M.</li> </ul>	<ul style="list-style-type: none"> <li>• Walk with walker out to hallway in A.M. and P.M.</li> <li>• Practice home exercises in A.M. and P.M.</li> </ul>	<ul style="list-style-type: none"> <li>• Walk with walker down the hallway in A.M.</li> <li>• Stairs in A.M.</li> <li>• Discharge</li> </ul>

For example: If you have surgery on Monday, expect to go home on Thursday, unless complications arise.

**\*Participation is expected in order to achieve the outcome desired by your surgeon.**

### Prior to your surgery please arrange:

- ☐ Walker (no wheels)
- ☐ Cane or crutches
- ☐ Please have railings installed on stairs inside and outside of your home

### Day of surgery please bring:

- ☐ Footwear with rubber/no slip sole and closed toe/heel (Velcro runners work well. It is good to get them ½ size too big to allow for any swelling)  
No open backed shoes/slippers
- ☐ A full change of loose fitting clothing
- ☐ Walker **and** cane or crutches with you on the day of surgery so that we can properly adjust it to your height (please label your equipment)
- If possible, have someone bring these items to your room **after** surgery

Questions: \_\_\_\_\_  
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## EXERCISE PROGRAM

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Please note: in all photos, the right leg is the operative leg.

The following exercises are designed to improve your mobility and muscle strength postoperatively. **Repeat exercise 10 times. Do 3 sessions per day.**

1. **Foot and Ankle Pumps:** Pump ankles up and down. Exercise both ankles every hour while in bed.



2. **Isometric Quadriceps:** Tighten thigh muscles and press back of knee down into the bed. **Hold for 5 seconds** and release slowly.



3. **Knee Extension:** Place a rolled towel under your knee. Raise your foot up off the bed to fully straighten your knee, use strap if needed. **Hold 5 seconds and lower slowly.**



4. **Straight Leg Raise:** Keeping your operative leg completely straight, slowly raise your leg up off of the bed, **hold 5 seconds and lower slowly.** You may find it more comfortable to bend your non-operative leg for support.



5. **Range of Motion:** (In Bed) Lying on your back, slide the heel of your operated leg up towards your buttocks, use a strap if needed.



(In sitting) Place your foot flat on the floor. Bend your knee to slide your foot back toward the chair. You may assist with your other leg, by placing it in front of your operative leg, to help push your foot back. **Hold 10 seconds.** Relax and repeat.



(In sitting) Place your foot flat on the floor. Straighten your operative knee as straight as possible in front of you. **Hold 5 seconds.** Lower slowly. Relax and repeat.



## KNEE PRECAUTIONS

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To maximize the outcome of your knee surgery, it is recommended that you avoid excessive twisting of the knee, jumping or any high impact activities and squatting. It is recommended that you wait a year before kneeling on the operative knee, however, some people have difficulty tolerating kneeling after a total knee replacement.



## OUTCOME MEASURES

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**These are to be completed by a Physiotherapist or Occupational Therapist.**

### **Timed Up and Go (TUG) Test**

1. Equipment: arm chair, tape measure, tape, stop watch.
2. Begin the test with the subject sitting correctly in a chair with arms, the subject's back should resting on the back of the chair. The chair should be stable and positioned such that it will not move when the subject moves from sitting to standing.
3. Place a piece of tape or other marker on the floor 3 meters away from the chair so that it is easily seen by the subject.
4. Instructions: "On the word *GO* you will stand up, walk to the line on the floor, turn around and walk back to the chair and sit down. Walk at your regular pace.
5. Start timing on the word "*GO*" and stop timing when the subject is seated again correctly in the chair with their back resting on the back of the chair.
6. The subject wears their regular footwear, may use any gait aid that they normally use during ambulation, but may not be assisted by another person. There is no time limit. They may stop and rest (but not sit down) if they need to.
7. Normal healthy elderly usually complete the task in ten seconds or less. Very frail or weak elderly with poor mobility may take 2 minutes or more.
8. The subject should be given a practice trial that is not timed before testing.
9. Results correlate with gait speed, balance, functional level, the ability to go out, and can follow change over time.
10. **Interpretation:** < 10 seconds = normal, < 20 seconds = good mobility, can go out alone, mobile without a gait aid. < 30 seconds = problems, cannot go outside alone, requires a gait aid. A score of more than or equal to fourteen seconds has been shown to indicate high risk of falls.

**Surgery Date:** \_\_\_\_\_

**Pre-op Score:** \_\_\_\_\_ secs

**Date:** \_\_\_\_\_

**Post-op (inpatient-IP) Score:** \_\_\_\_\_ secs

**Date:** \_\_\_\_\_

**Post-op (outpatient-OP) Score:** \_\_\_\_\_ secs

**Date:** \_\_\_\_\_

### References

Podsiadlo D, Richardson S. *The Time "Up & Go": A Test of Basic Functional Mobility for Frail Elderly Persons*. Journal of the American Geriatrics Society 1991; 39(2): 142148

Shumway Cook A, Brauer S, Woollacott M. *Predicting the Probability for Falls in Community Dwelling Older Adults Using the Timed Up & Go Test*. Physical Therapy 2000 Vol 80(9): 896903.



## DAILY ACTIVITIES

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### IN and OUT of bed

Use a firm bed. The bed height should be knee height or higher. You may use your other leg to help the operated leg get out of bed.

### Standing/Sitting

A firm chair with armrests is best. If the chair is too low, sit on a firm cushion. Avoid recliner chairs.

*To stand up:*

- Slide to the edge of the chair
- Move the foot of the operated leg forward
- Push with both hands from chair, stand up and then grasp the walker. DO NOT pull up on the walker to stand up

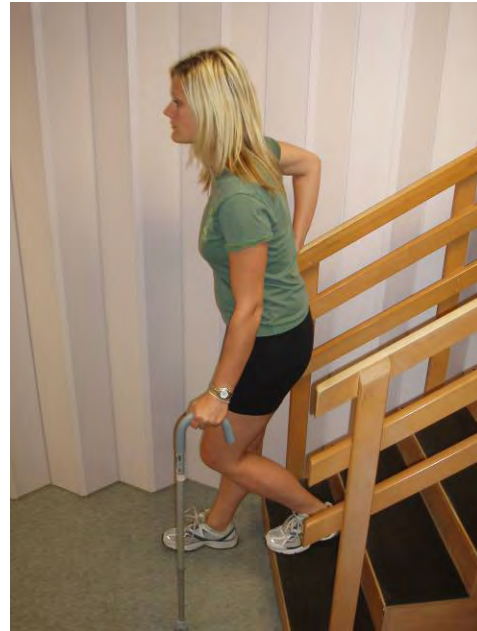


*To sit down:*

- Back up to the chair until you feel the back of your non-operated leg touching it
- Move your operated leg forward, then reach back for the armrests with both hands, and lower yourself slowly to the edge of the chair.
- Once seated, you may scoot to the back of the chair

## Stairs

- Remember to step UP with the **non-operated leg** FIRST when going UP stairs
- Step DOWN with the **operated leg** FIRST when going DOWN stairs
- Always use the railing when available, and if possible, have someone with you when climbing the stairs



## Toileting

Most people can use a raised seat with arms or a commode placed over the toilet. At night you may be able to use the commode in your bedroom.

- Back up to the toilet until your legs touch the seat
- Slide your operated leg out in front
- Reach back for the arms and slowly lower yourself to the toilet



The toilet seat should be at least as high as the crease of the back of your knee. If it is not, get a raised toilet seat. The toilet seat should have armrests on it or you should have a vanity close on one side and/or a grab bar on the other side. Transferring to the toilet is the same as transferring to a chair.

## Dressing

### Pants:

A reacher is recommended to place the operated leg's foot into your underwear and pants. Once the pants or underwear are at knee level they can be pulled up using your hands. Dress the operative leg first and undress it last. When standing up pull the pants and underwear up, have your walker in front of you (or one crutch under your arm if using crutches). It is best to wear pants with an elastic waist; they tend to stay around your thighs better when standing.

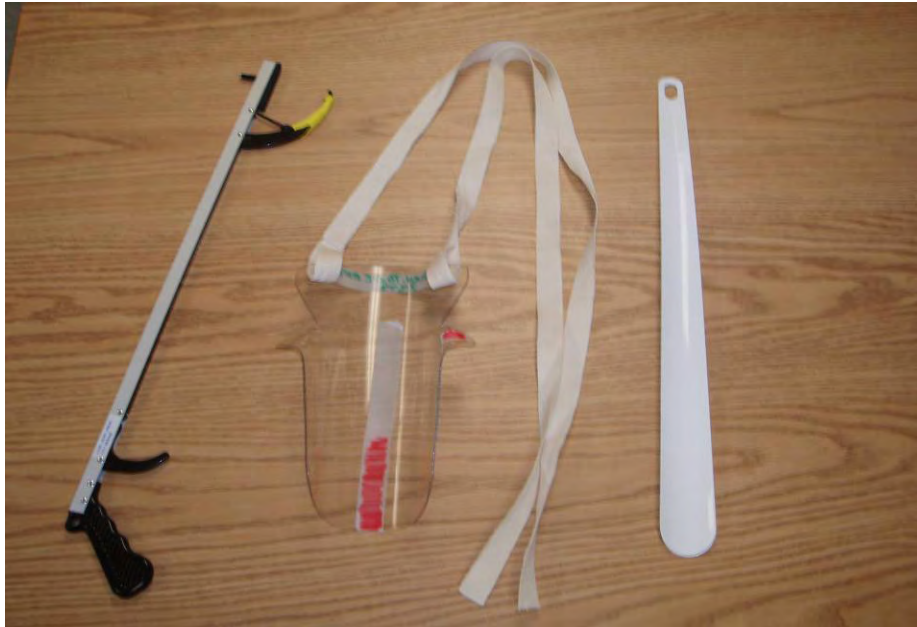


### Socks:

A sock aid is recommended to allow you to put your sock on your operated leg independently if you cannot reach. Instructions are included with sock aids. Use thin loose socks. To take socks off use a long handled shoehorn or reacher to push the socks down and off your heel again if you cannot reach the foot independently.

### Shoes:

Wear Velcro closure shoes, slip-on shoes or use elastic laces. Use a long shoehorn so you will not have to bend over. Your shoes should be supportive with a wide flat heel and non-slip sole.



Assistive Devices

### Sleeping

DO NOT place a pillow under the operated knee or foot when sleeping on your back since it may cause blood pooling and will not allow you to fully straighten your knee. You may sleep on your side as long as there is a pillow between your knees.



## Bathing

After your knee surgery, your incision is closed with staples. You should avoid showering until your staples are removed.

If your shower is in the bathtub, transfer into the tub using a tub transfer bench. Lift your operative leg into the tub when sitting on the bench. Sitting on a tub transfer bench while showering is recommended since your balance may be decreased after surgery.

If your shower is a walk-in shower, step into the stall non-operative leg first. Step out with your operative leg first. A grab bar is also recommended to hold while stepping in and out.

Use a long handled sponge or brush, and hand held shower to wash.





## **Around the house**

For the next three months, do not do chores that involve; heavy lifting, bending, or twisting such as vacuuming, taking out heavy garbage cans, cleaning floors, changing beds, or carrying heavy laundry basket). You may do light housework and/or cooking. Use a reacher to pick up objects from the floor, low shelves and cupboards or from the dryer.

Reorganize your kitchen cupboards, fridge, and dresser drawers so things you may need are within easy reach. Have a basket or bag on your walker to carry things (two hands on the walker when walking). To move items around the kitchen, slide them along the counter.



## **Activity**

Balance your rest and activity. Walk every 2-3 hours during the day. Slowly increase your walking distance to find your limits.

## **Sports**

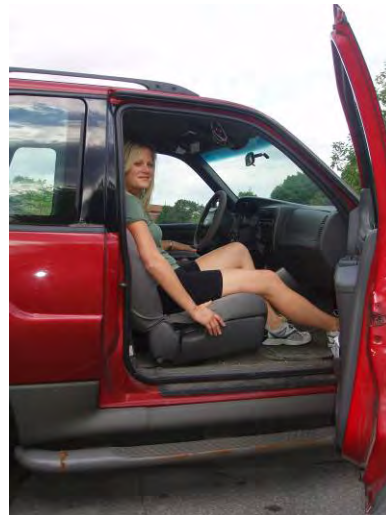
At 6 weeks you may resume walking longer distances, swimming, and cycling.

## The Car

You are not allowed to drive for a minimum of 6 weeks after surgery. This will be reassessed by your surgeon at your 6-week follow-up appointment. It is recommended to transfer into the passenger side since you are able to slide the seat back. Slide it back as far as you can. Park the car away from the curb. Walk to the car and turn so your back is to the open door. Back up until your leg is touching the car. Lower yourself down slowly to the seat placing your hands on the back of the seat and the dash. Keep your operated leg straight.



Slide as far back as you can using your non-operative leg. Swing both legs into the car together keeping them slightly apart.



To get out, do the same steps in reverse remembering to slide forward to make it easier to stand.

To increase the ease of sliding your buttocks on the seat, place a plastic bag on the seat.

# **A GUIDE TO ASSISTED DEVICES, EQUIPMENT & SUPPLIES**

You are **REQUIRED** to bring in the following items to hospital on the day of your surgery (have someone bring to your room after surgery):

- Standard walker (no wheels)
- Cane/crutch
- Full change of loose fitting clothes
- Walking shoes

The following is a list of devices and equipment that may be helpful to you when completing everyday activities at home. They are recommended to allow you to be independent and safe when you return home.

## **BATHROOM EQUIPMENT**

### **Raised Toilet Seat**

- Available in 3" to 6" heights, and may or may not have arms attached
- Clamp-on or molded plastic styles for regular or oval toilet bowls are available

### **Versa Frame**

- Arm rails which attach to the toilet with a bracket
- Make standing up from toilet easier

### **Grab Bars**

- Many styles from which to choose
- Can be mounted on bathroom walls or clamped to side of tub

### **Tub Seat/Shower Chair**

- For safety when getting in or out of the tub or walk-in shower
- Available in varying heights and styles

### **Hand Held Shower**

- For use with tub seat
- Look for on/off controls on the showerhead

### **Commode Chair**

- For bedside use or can be placed over the toilet and used as a raised toilet seat
- Available with or without wheels



## **GAIT AIDS**

### **Standard Walker (no wheels)**

- Can be rented from medical suppliers

### **Crutches**

- Can be purchased from the hospital or from medical suppliers

### **Cane**

- To help with stair climbing

### **Hand Rails**

- A safety measure along stairs

## **ASSISTIVE DRESSING DEVICES**

### **Sock Aid**

- To help put on socks or hosiery without bending at the waist

### **Elastic Laces**

- Make any lace-up shoes into slip-on shoes

### **Long-Handled Reacher**

- To avoid bending to the floor, reaching overhead or for assist when dressing

### **Long-Handled Shoe Horn**

- Useful to reach heels to slip into shoes, or to take off socks

### **Long-Handled Sponge**

- To help reach feet and back when bathing

### **Equipment Providers**

- A list of businesses that sell or rent equipment is available in the yellow pages under “Home Health Care”

## Calcium-Rich Diet

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### What is a Calcium-Rich Diet?

This diet is designed to provide you with foods that are high in calcium. The best source of calcium in your diet comes from milk and milk products. Calcium is also found in foods such as dark green vegetables, nuts, grains, and beans.

### Why do you need this diet?

Eating calcium-rich foods will help you maintain strong bones and teeth. A good calcium intake throughout your life can help reduce the risk of developing osteoporosis.

### How much Calcium do you need everyday?

Calcium absorption requires Vitamin D. It is important to have a good intake of both in order to have healthy bones.

Age	Calcium mg/day	Vitamin D I.U.
19-50 years	1,000	400
51-70 +	1,200	800

### What to do?

- ✓ Select milk as a beverage with meals or when eating out
- ✓ Use yogurt as a dip, garnish, spread, or dressing
- ✓ Look for calcium-fortified beverages like orange juice or soy milk
- ✓ Make soups with milk instead of water
- ✓ Add beans or nuts to salads, soups, and casseroles
- ✓ Melt cheese onto meats, vegetables, eggs, and tortilla chips
- ✓ Add canned salmon to sandwiches, salads, and casseroles

### Food Sources of Calcium

Cheese, yogurt, milk, sardines, canned salmon, almonds, broccoli

### Calcium supplements

It is best to obtain your calcium from food sources. Read labels carefully when taking supplements to understand exactly how much elemental calcium you are getting.

*\*Adapted from Dietitians of Canada*      [www.dietitians.ca](http://www.dietitians.ca)

Information also available at [www.osteoporosis.ca](http://www.osteoporosis.ca)

# Iron-Rich Diet

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## **What is an Iron-Rich Diet?**

This diet is designed to provide you with foods that are high in iron and foods that help your body use iron. Iron is a mineral that you need to help carry oxygen through the body. Without enough iron you can become very tired, pale-looking and irritable.

## **Why do you need this Diet?**

Blood loss during surgery is very common. An iron-rich diet will help restore your body's iron stores necessary for hemoglobin. Hemoglobin is part of your blood and helps carry oxygen throughout your body.

## **Heme and Non-Heme Iron**

Food contains iron in two forms: heme and non-heme. Heme iron is better used by your body than non-heme iron. Heme iron is found in meat, fish, and poultry. Non-heme is found in beans, grains, nuts, and some fruits and vegetables. Eating or drinking foods rich in Vitamin C will help your body use the iron.

## **What to do?**

- ✓ Include at least one iron-rich food and one food rich in vitamin C at each meal
- ✓ Try adding cooked beans or lentils to soups, stews or casseroles
- ✓ Choose breakfast cereals fortified with iron
- ✓ Choose dark green and orange vegetables and fruits more often. For example, choose spinach instead of lettuce for your salad
- ✓ Have spaghetti with tomato meat sauce rather than cream sauce
- ✓ Choose dried fruit as a snack more often
- ✓ Try adding raisins or other dried fruit to cereal or in your favourite cookie/muffin recipes
- ✓ Try having a glass of orange juice with your cereal at breakfast

**Avoid having coffee or tea with meals as it may decrease iron absorption.**

## **Food sources of iron**

Canned clams and oysters, liver, white beans, kidney beans, pumpkin and sesame seeds, chickpeas, beef, dark turkey meat, lima beans, enriched egg noodles, fortified breakfast cereal.

*\*Adapted from Dietitians of Canada*      [www.dietitians.ca](http://www.dietitians.ca)

## **Joint Arthroplasty Surgery Patient checklist**

For your own safety, it is important to discuss with your family and friends your decision to have surgery. Please discuss with them how they may be of assistance to you before, during, and after surgery.

Things to consider and arrange are:

- ☐ I am aware discharge is three (3) days after surgery.
- ☐ I will make arrangements for transportation in an appropriate vehicle to take me home and to my appointments following surgery.
- ☐ I will arrange for someone to assist me with stairs
- ☐ I will arrange for help at home following discharge i.e. Assistance with grocery shopping, meal preparation, house cleaning, laundry, and general errands after surgery
- ☐ If I am unable to manage at home, I have made arrangements for an alternate discharge destination i.e. Convalescent or respite bed, relative's or friend's home
- ☐ I will arrange to have my walker, cane or crutch and shoes brought to my hospital room after my surgery on the day of my surgery
- ☐ I will arrange the following:

**Mandatory:**

- ☐ Standard Walker (with no wheels)
- ☐ Cane or crutch
- ☐ A chair higher than knee height with arm rests and a firm and level seat
- ☐ A bed higher than knee height
- ☐ Walking/running shoes
- ☐ Raised toilet seat with arms or raised toilet seat with a versa frame

**Optional:**

- ☐ Commode chair
- ☐ Tub transfer bench or shower chair
- ☐ Long-handled sponge
- ☐ Long-handled reacher
- ☐ Long-handled shoe horn
- ☐ Sock-aid