



Health Sciences North
Horizon Santé-Nord



YOUR GUIDE TO:

LOW BACK
SURGERY

May 2022

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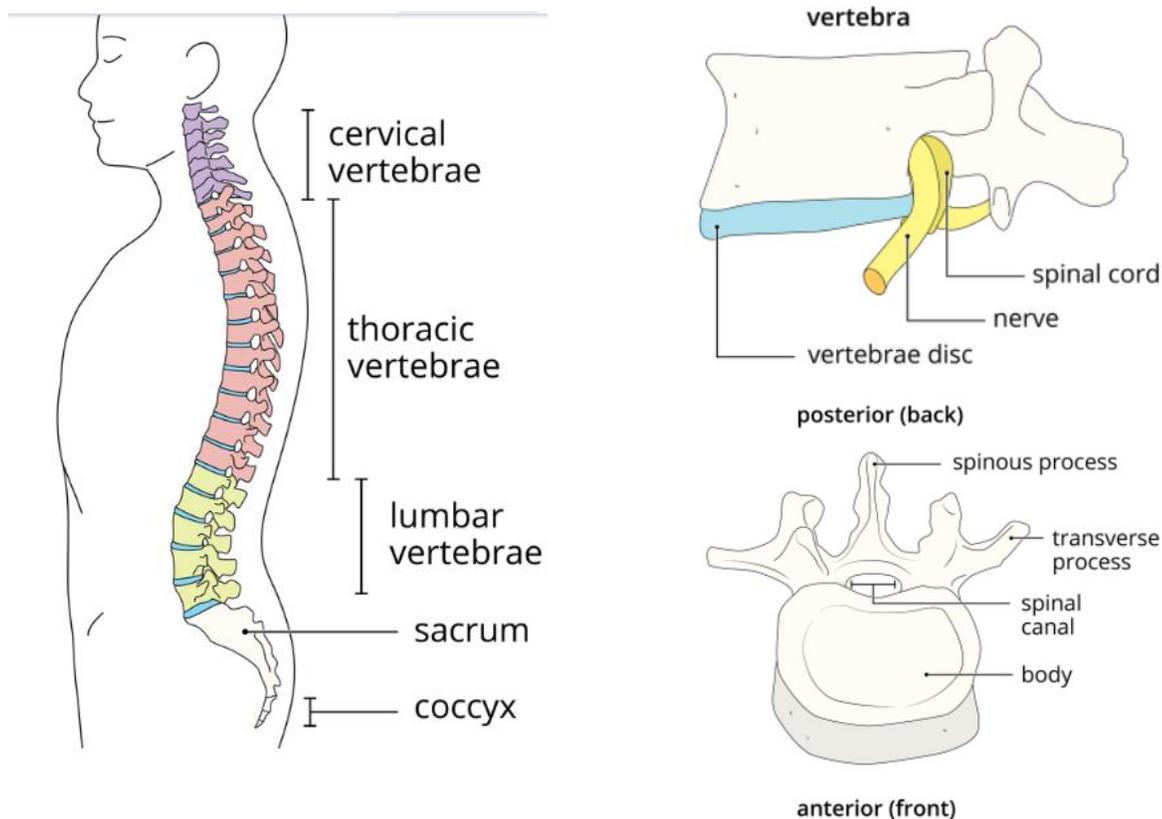
Low Back Anatomy / Parts of your spine

The spine is a column of bones called vertebrae, which supports your body, allows movement, and protects the spinal cord. In between each bone is a cushion called disc. Each disc is made up of a tough outer ring and a gel-like centre. The disc provides stability and distributes stress in the low back more evenly. It also provides flexibility and works with the spine joints, muscles and ligaments for movement. Each vertebra is linked with the one above and below by facet joints.

The lower back or lumbar region is made up of five large vertebrae and normally has an inward curve called a lordosis.

A series of ligaments run from bone to bone, while others run along the entire length of the spine. The back muscles that help move the spine also run from one bone to the next, or travel over many vertebrae so you can move many segments at one time. The abdominal muscles affect movement of the low back, and they provide support in the front of the spine, almost like a girdle.

The spinal cord is a series of nerves that branch out to your body, carrying messages to and from your brain. The spinal nerves branch out from the spinal cord and exit at each level of your lumbar spine and travel down your legs.



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Why does your low back hurt?

Back pain is very common. Many factors can be the reason, including:

- Poor posture or staying in the same position for too long
- Excess body weight
- Lack of physical activity leading to muscle weakness
- Emotional stress /tension
- Reaching/lifting beyond safe base of support
- Poor repetitive lower back movement habits
- Trauma (fall or car accident)
- Arthritis and age-related degenerative changes (often a combination of age, genetics, altered mechanics or posture, smoking, trauma and wear and tear from heavy repetitive or sedentary work)

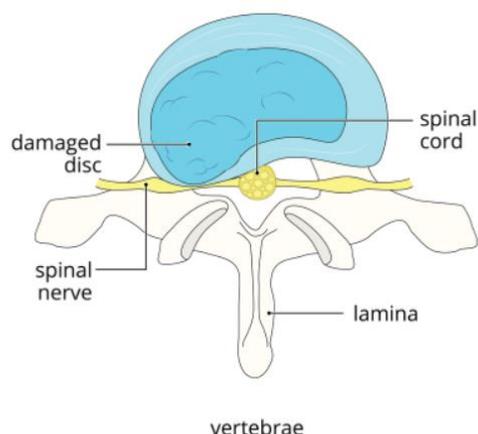
Pain can occur anywhere along your spine, with the most common site in the lower back – the area between your mid/ low back to the bottom of your buttocks. It can sometimes spread around the hips. Many will feel pain in the legs – anywhere from the buttocks through the thigh, knee, calf, ankle and foot and toes. This can be the result of the direct irritation of a nerve in the spine, and the pain will travel along the course of the nerve down the leg. Along with pain, some may notice tingling or other funny feelings in the leg, groin, genital area, or foot /toes. The leg may also feel weak.

Pain may be due to many structures in your back (see anatomy). Most of the time, even with x-rays and MRIs, it is impossible to be certain what structure is causing the pain.

The 3 Common Problems that can lead to Back Surgery:

1) Disc Herniation:

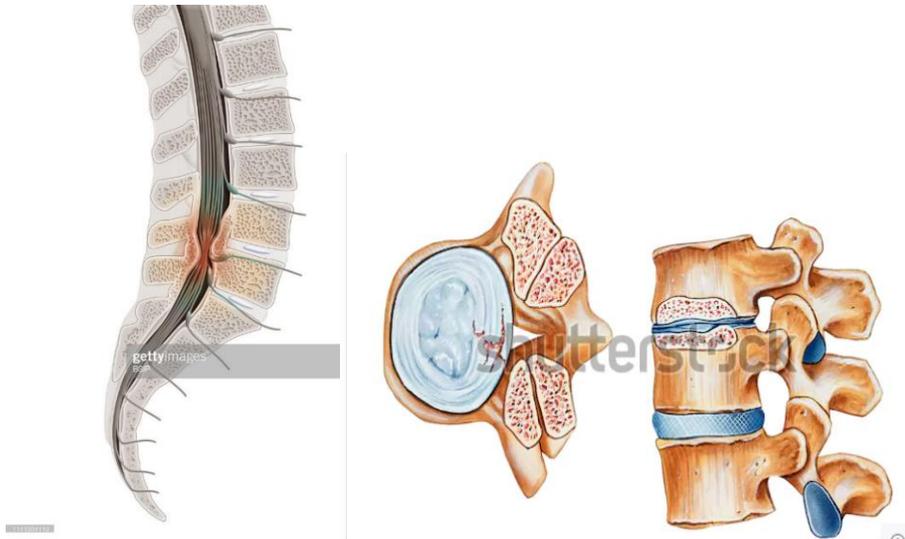
Discs can become injured. This may cause some of the gel-like centre to herniate or bulge - also known as a slipped disc, or disc protrusion. The disc sits close to the nerves exiting the low back. These nerves supply your legs, and sometimes the injured disc can pinch or inflame the nerve. You may feel pain, burning, and other skin sensation changes in the leg. You may also have weakness in your leg muscles



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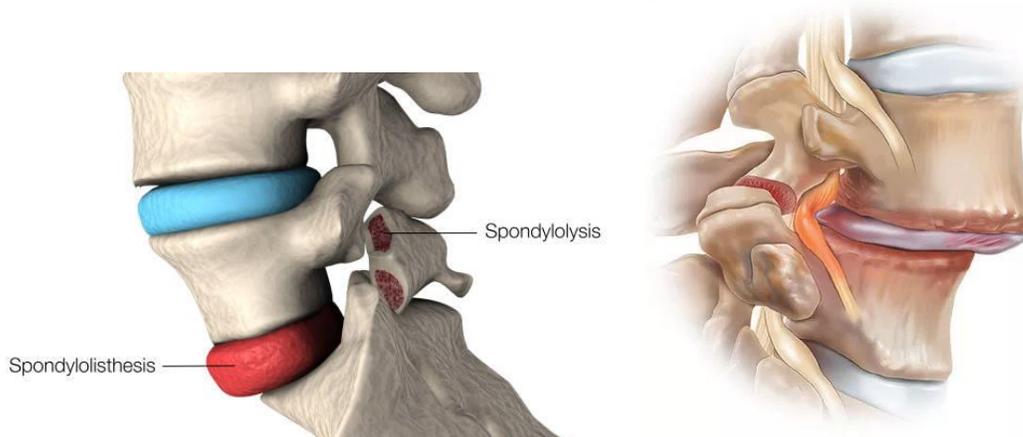
2) Spinal Stenosis:

This condition and the term “stenosis” mean narrowing of the spine tunnel (canal) where the nerves run, and in the space in the bone (foramen) where the nerves exit. Some people are born with a smaller tunnel, but more often, it develops in older people (60+) when the bone and other tissues (discs, facet joints, and ligaments) grow inside the tunnel, reducing the space available for the nerves. This can squeeze or choke the nerves’ blood supply, causing leg pain. Leg pain felt with walking is called “neurogenic claudication”. It is usually made worse when the muscles are used (as in walking) and better when the person sits, or bends forward, called the “shopping cart” sign.



3) Spondylolisthesis:

This condition occurs when one vertebra in the spine shifts forward on top of the other. This can happen for different reasons: born that way; an unhealed fracture in younger people; in older people, particularly women, degeneration of the facet joints causes excess micro-motion and the forward slip to occur. The bones don't usually slide too far, but enough to cause back pain in some people. If the slip traps a nerve, the person may feel leg pain, which becomes the person's biggest concern.



Treatment Options:

Many people with low back pain have gained significant relief from one or more of the following:

Non-Surgical Treatments:

- Physiotherapy and/ or exercise-based therapy
- Improved or changing the way you do work (avoid repetitive tasks) / home/ leisure activities
- Psychological support: discuss with someone who can assist in addressing emotional stress;
- Medication, such as pain killers; anti-inflammatories; neuropathic drugs
- Avoidance of repetitive activities, or prolonged static positions
- Heat, cold, topical ointments
- Acupuncture
- Control of weight
- Injections into the spine
- Lumbar supports and back belts
- Massage therapy
- Manual therapy



Surgical Treatments:

When does surgery help?

If you have one or more of the following, and symptoms that match your MRI findings:

- severe leg pain causing difficulty with normal daily activities
- significant leg muscle weakness
- trouble controlling your bladder or bowels
- you have tried non-surgical treatments, including exercise-based therapy and medications x12 weeks without benefit and your pain or other symptoms are still so bad that you can't do your normal activities

Key facts about Surgery

Undergoing back surgery is a big decision! If you've tried one or more of the non-surgical treatments without relief, you may be a good candidate. The decision about whether or not to have surgery should be based on how long you had the pain and if the pain has changed your quality of life.

Surgery is usually done to relieve leg pain (and occasionally back pain) has two goals: first to remove pressure on a nerve, and second, to stabilize the spine so it stops moving in abnormal ways that can produce the pain.

Surgery may relieve pain in the buttock and leg more than it relieves pain in the back.

Back surgery itself rarely eliminates all symptoms. To gain the most benefit, you must pursue physical rehabilitation and make every effort to return to normal activity after your operation.

While some kinds of back surgery are clearly indicated (i.e. red flags), surgery for mechanical problems is almost always "elective" – meaning that it's up to you as well as the surgeon to decide whether this is right thing to do.

The three most Common Types of Low Back Surgery:

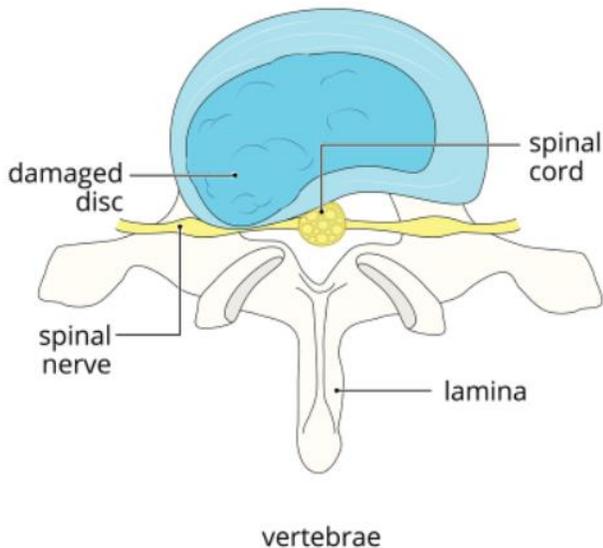
1) Lumbar Discectomy:

Surgery for disc herniation is called **discectomy**. The surgery involves removing the small piece of disc that is pinching the nerve. The rest of the disc remains intact. By taking pressure off the nerve in this way, it can improve the pain, weakness and numbness felt in the leg. Sometimes, this surgery is combined with a procedure called **foraminotomy**, where a small amount of bone in the area of the foramen is also removed to reduce the likelihood of future leg pain.

Discectomy can be done in different ways depending on your surgeon. You will be put to sleep for the operation. In most cases people go home the same day or the next morning. After the surgery you will have a small scar (approximately 2.5–4 cm) in the low back. You will be able to walk on the day of surgery, and you should return to normal activities in 4–6 weeks. Your surgeon will give you further information regarding exercises, sports, and return to work.

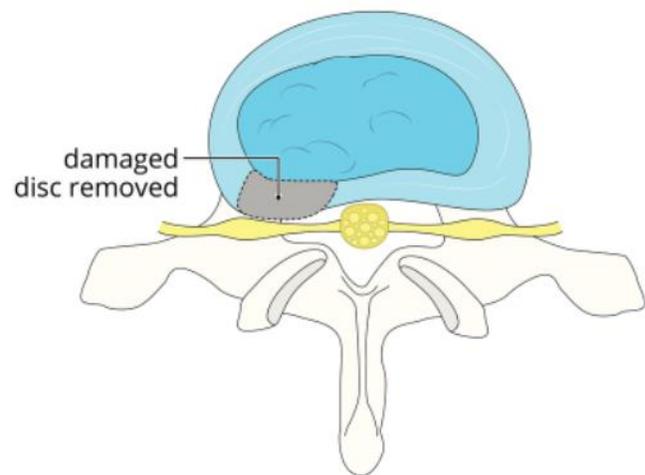
What are the benefits of a discectomy?

- The goal of surgery is to relieve leg pain, not low back pain
- The majority of patients will report reduction in leg pain (80-90%)
- Improvements in skin sensation and weakness may take longer, and sometimes can be permanent



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Before surgery



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After surgery

What are the risks of a discectomy?

- Infection – deep or superficial
- Back pain – persistent or new mechanical low back pain is common
- Tears in the dura (**5–10%**) (the sac that contains your spinal fluid where your nerves bathe)
- New or worsening leg weakness or / and numbness (mostly temporary) : $\leq 1\%$ nerve root injury
- New or worsening leg pain (neuropathic pain)
- Medical complication: cardiac, respiratory, blood clot, urinary tract infection, delirium
- Recurrent low back and leg pain (can be a new disc, different level) – risk of reoperation - This happens to 15% of people who undergo a discectomy.
- Offers no protection against further aging of the spine

2) Decompression Surgery – Lumbar Laminectomy:

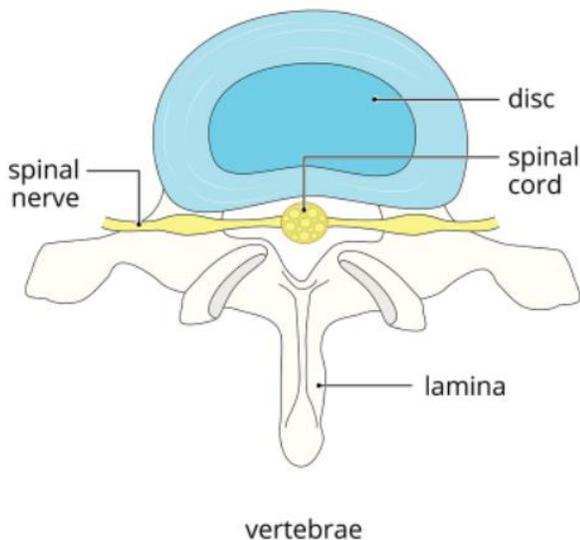
Decompression surgery is done to remove the bone spurs and other structures in the spine, including a bony part (lamina), to “unpinch” the nerves and to help your leg symptoms. The goal is to relieve pressure on the nerves caused by spinal stenosis. The area is reached through an incision in the lower back. Removal of the lamina will not affect the supportive or protective functions of your spine.

What are the benefits of a laminectomy?

- The goal of surgery is to relieve leg pain, not low back pain
- The majority of patients will report reduction in leg pain (80–90%)
- Improvements in skin sensation and weakness may take longer, and sometimes can be permanent
- Most enjoy same improvements in quality of life to those having undergone total knee replacement
- Meant to relieve current symptoms. It is NOT a cure for low back pain and offers no protection against further aging of the spine.

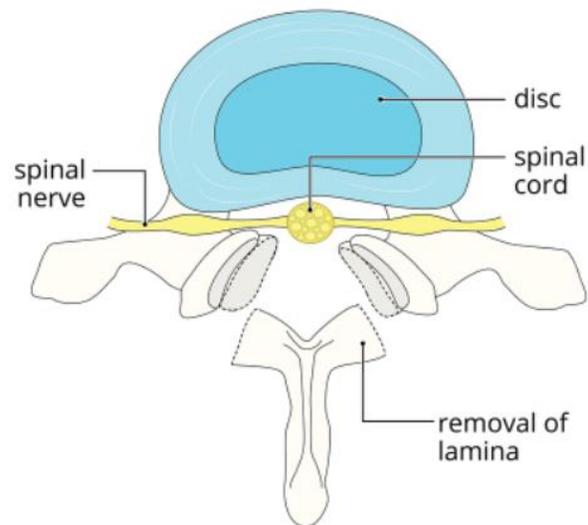
What are the risks of a laminectomy?

- Recurrence in stenosis - won't prevent future wear and tear changes – between 20–30% over **the next 5–10 years**.
- Other risks: same as discectomy



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Before surgery

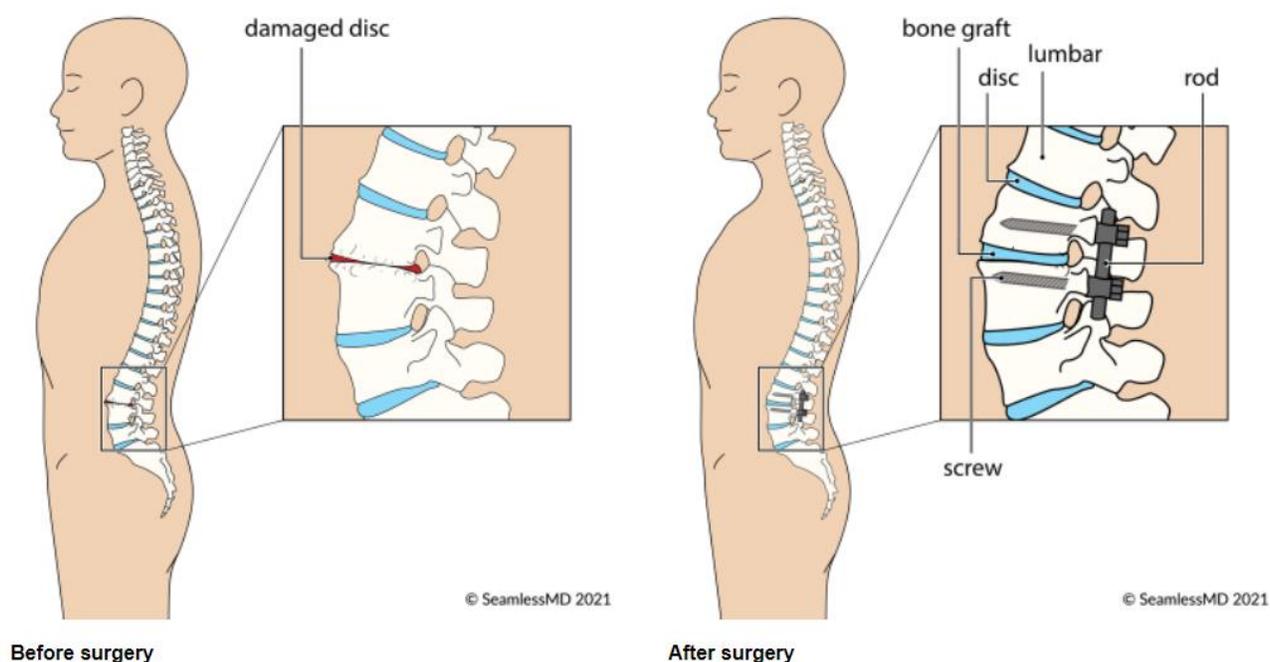


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After surgery

3) Stabilization Surgery – Lumbar Fusion:

Fusion means stiffening or bridging the vertebrae together to prevent unwanted, abnormal and painful movement. The goal of this surgery is to stabilize the spine and / or to correct some of the deformity (spondylolisthesis). Bone grafts and / or metal rods and screws may be used to help the fusion. You may need to have two or more vertebrae (levels) fused. The area is reached through an incision in your lower back. Often you will need decompression (laminectomy) along with the fusion.



What are the benefits of a fusion?

- Goal is to help leg pain. Improvements in low back or neck pain and numbness / weakness are less predictable.
- Fusion is not as predictable as it is for discectomy or decompression, and depends on many factors outside the surgeon's control. For that reason, success is difficult to predict.

What are the risks of a fusion?

- Fusion is a longer operation and may increase the rates of the risks listed for the other surgeries (discectomy, decompression), such as:
 - Infection – deep or superficial
 - Back pain – persistent or new mechanical low back pain is common
 - Tears in the dura (the sac that contains your spinal fluid where your nerves bathe)
 - New or worsening leg weakness or / and numbness (mostly temporary) : nerve root injury
 - New or worsening leg pain (neuropathic pain)
 - Medical complication: cardiac, respiratory, blood clot, urinary tract infection, delirium

- Recurrent low back and leg pain (can be a new disc, different level) – risk of reoperation
- Additional risks:
 - Malposition of the screws and rods, requiring re-do surgery
 - Failure of the hardware (usually due to osteoporosis)
 - Bones not fusing or bone graft shifting out of place after a spinal fusion
 - Acceleration of the degeneration of your spine at the surgical or another level leading to pain (called Adjacent segment disease) due to increase stress areas above or below the level of fusion
 - Hardware related soft-tissue pain

What to Expect from Surgery

Low Back Surgery Patient Checklist

Things to do to prepare **before** your low back surgery:

- ✓ Choose a support person (family member or friend) who supports you throughout every stage of back surgery: before and during your hospital stay, and at home during your recovery. Involving a support person at every stage will make things easier and can lead to a faster, more complete recovery. For example, your support person should plan to drive you to and from the hospital and appointments, and help you at home (e.g. grocery shopping, meal preparation, cleaning, laundry and general errands) for the first few weeks after surgery
- ✓ Be informed and prepared prior to your surgery. This helps decrease anxiety and makes you more hopeful. For example, reading this booklet and having your support person read it as well. Have them accompany you to the pre-operative visit. Bring along a list of questions and take notes.
- ✓ Get thinking and feeling your best. Practise formal relaxation techniques such as deep breathing, visualization/visual imagery and progressive muscle relaxation to help you deal with your pain and anxiety you may have about surgery
- ✓ Remain as active as possible. Continue your usual daily activities. Use your pain-controlling exercises and prescribed medications for pain. Exercise can help decrease pain, increase flexibility, and keep your heart healthy before surgery. Exercising for longer periods of time (walking, swimming or stationary bicycling) can benefit your heart, lungs, circulation, and muscles.
- ✓ Prepare and freeze meals in advance
- ✓ Manage your weight. Eat a well-balanced diet as recommended by Canada's Food Guide.

- ✓ Quit smoking. Smoking delays healing and slows your recovery from surgery. If you cannot quit, ask your physician for help or contact Smokers Helpline 1-877-513-5333. The benefits of quitting smoking begin the day you quit.
- ✓ Set up your home and work environments prior to surgery, so that you are ready for discharge after surgery into a safe environment. For example, remove scatter rugs, re-arrange furniture; make sure your bed isn't too high or too low. Make sure important items are within easy reach so you don't have to reach or bend down for them.

Hospital Length of Stay

Same day surgery no overnight	Surgery 1 overnight	Surgery 1-2 overnights
<ul style="list-style-type: none"> ✓ Lumbar Microdiscectomy, Discectomy ✓ Lumbar Decompression – Laminectomy 	<ul style="list-style-type: none"> ✓ Lumbar Microdiscectomy, Discectomy ✓ Lumbar Decompression – Laminectomy 	<ul style="list-style-type: none"> ✓ Lumbar Stabilization Surgery (Fusion)

Preparing for Surgery

Pre-Admission Visit

Your Pre-Admission Clinic appointment is scheduled 1 to 2 weeks before surgery. The hospital will call you to inform you of the details of your appointment, which may be in-person or a virtual call through OTN (Ontario Telemedicine Network). This visit is a pre-operative screening to ensure that your low back surgery will go smoothly. A hand-out instruction sheet will be given during this visit, outlining specifics, such as date and time, food /drink instructions, etc. This is where you may also be enrolled with Seamless MD, an interactive online program to help guide you through your surgical journey.

Day of Your Surgery – Check in for surgery

- **Come to the Hospital's Main Registration area** as instructed
- You will be prepared for your procedure by a nurse and escorted to the operating room

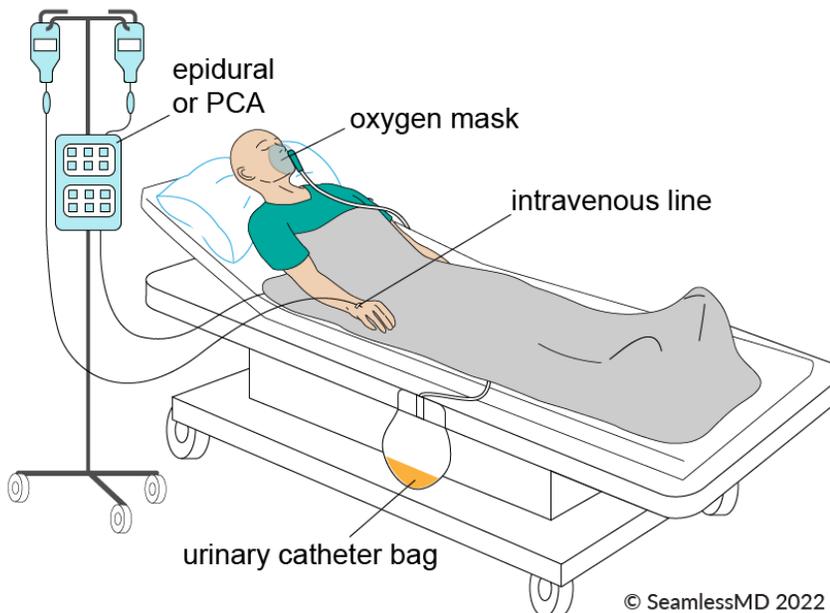
Types of Anesthesia – General Anesthetic

- The medication will put you to sleep during the surgery. A breathing tube is placed in your mouth and throat to assist with your breathing. The tube is removed once the surgery is done. After surgery, you will be taken to the post anesthetic care unit where you will wake up.
- Possible side effects: nausea, drowsiness, and mild sore throat.

After Surgery

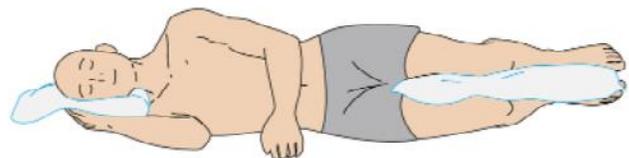
Recovery / Inpatient

- You will wake up in the Recovery Room. You will have tubes (IV, catheter, pneumatic stockings, and oxygen mask) and a dressing placed over your low back. Recovery after the surgery takes 1 to 1.5 hrs. This will tell you the amount of time your family can expect to wait.
- Pain medication will be given as prescribed by your surgeon
- The nurses will be checking you frequently: your vitals, temperature, colour, feeling and movement in your legs and feet.
- You will notice that your face may feel and/ or look puffy after surgery. This is normal. You were positioned on your stomach with your face down during the operation. This will pass.



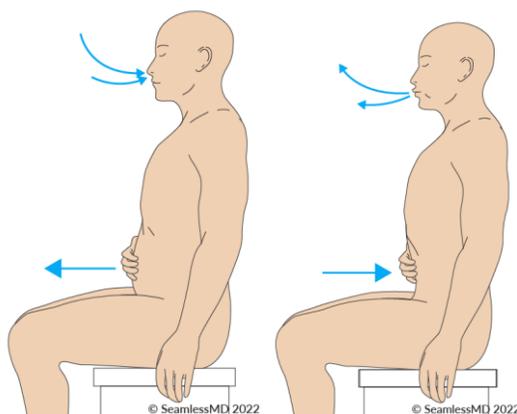
Positioning

- Changing your body position often will promote circulation, reduce skin irritation on pressure points like your tailbone, heels, and elbows, and improve your breathing.
- Move from your back to one side and then the other unless you are instructed otherwise, using the log rolling technique (bend knee opposite to the side you wish to turn to)
- When sleeping on your side, use a pillow between your knees to avoid twisting your low back.
- If you sleep on your back, use a pillow under your head and your knees.



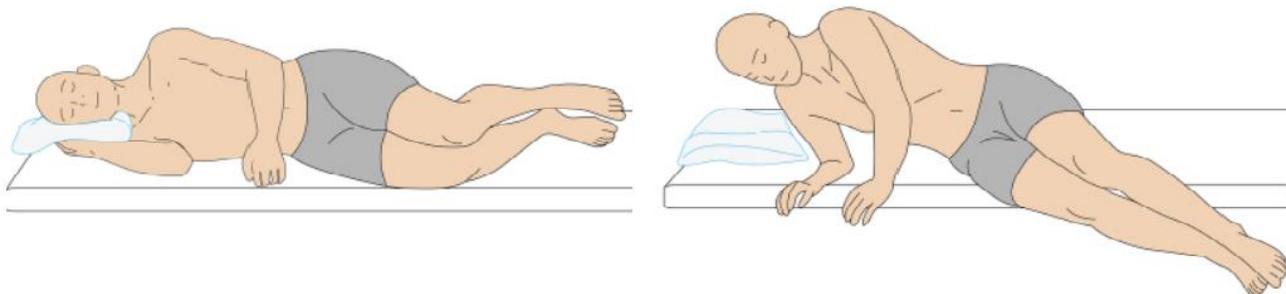
Deep Breathing and Coughing

- Until you are up and moving well, it is important for you to take 10 deep breaths and cough every hour you are awake.



Getting in and out of bed

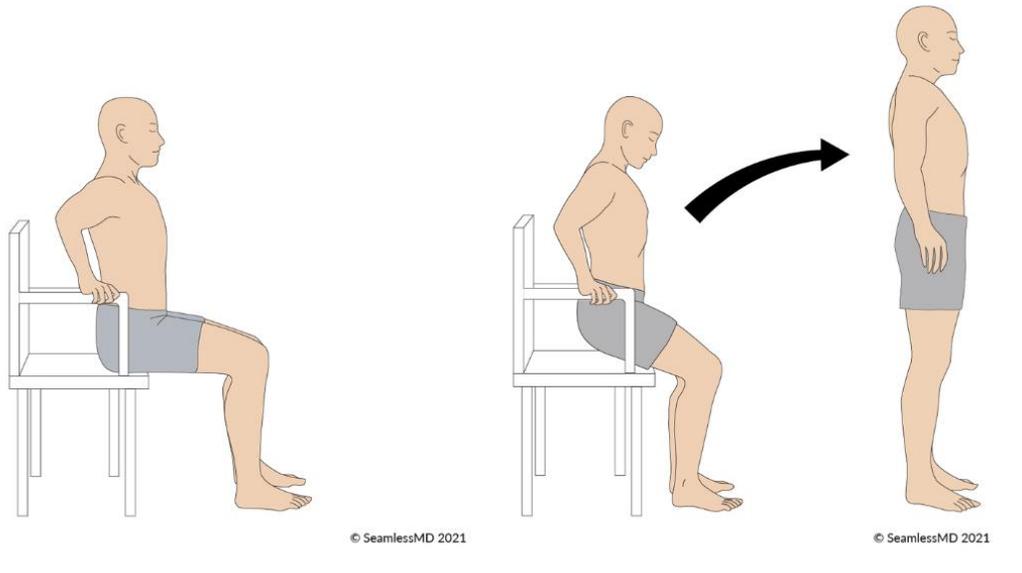
- Until you are comfortable repositioning yourself, ask your nurse and / or physiotherapist to assist you.
- Roll onto your side near the edge of the bed. Gently swing both legs off the bed. Use your arms to raise your body. Reverse the process to get back in bed.



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Sitting to Standing

- Sitting on a fairly high chair or at the edge of the bed, practise standing up with only slight use of hands
- Maintain a slight arch in your back and lean forward as you rise up
- Fully straighten the knees upon standing
- As you get stronger, try progressively lower chairs and not using the hands



General Activity and Walking

- You will begin walking with assistance with the nurse or physiotherapist, then as tolerated in the hospital, with or without a walker / cane
- You will sit up in your chair at all meals.



Discharge / getting ready to go home

- You will be given a prescription for pain medication. Make sure you have a plan to have it filled and picked up on the way home
- You will be given a discharge instruction handout before you leave the hospital which will be specific to you: it will include advice on your incision/ bandage, bathing, activity recommendations and your follow-up appointment, as well as things to watch for.
- You can expect to have some continued discomfort in your incision / low back area

Taking Care of your Incision

- You will go home with staples or dissolvable stitches on your incision. Check **your discharge instructions** for when you can remove or change your bandage, and when / how to bathe / shower with your incision.
- No bath / or submerging in water for 4 weeks. Showers are allowed.

Preventing Complications

- Deep breathing and coughing are essential to prevent pneumonia and congestion in your lungs.
- Ankle pumping exercises and walking will prevent clots from forming in your legs
- Your surgeon may order you a blood thinner on discharge to help prevent the formation of blood clots in your legs during the recovery period.
- You will be started on laxatives right after surgery to prevent constipation.
- Avoid lying in bed for too long to prevent skin problems.

IMPORTANT

Contact your surgeon if you develop any of the following:

- Chills, sweats, or fever over 38.5 °C (100.5 °F)
- Signs of infection such as increase warmth, redness, pain, or drainage from the incision. **Small amount of discharge from your incision is normal.**
- Changes in sensation such as tingling, numbness in your fingers / arm (if you received a nerve block, this may be present immediately after the operation)
- Chest pain or difficulty breathing
- Sudden pain or swelling in your leg

***** If unable to reach your surgeon,
go to the closest Emergency Department *******

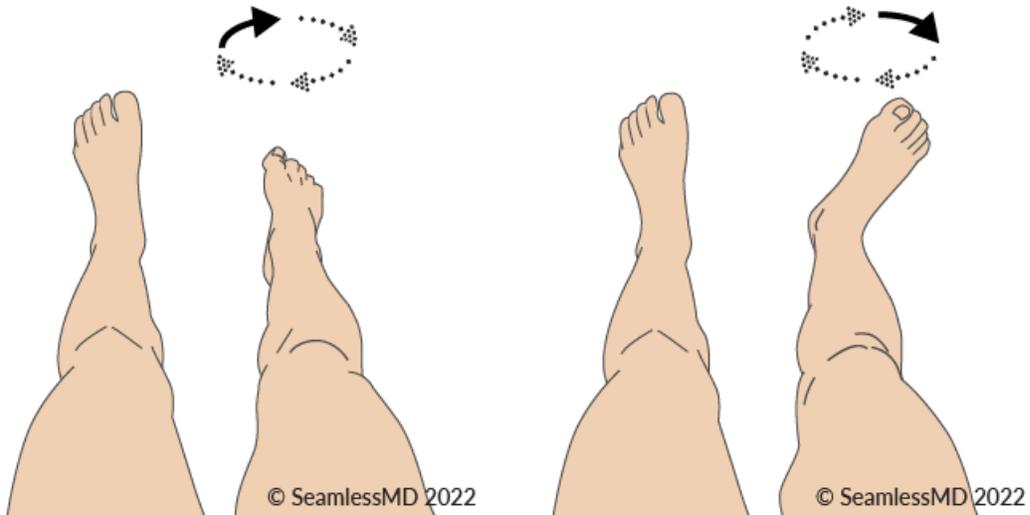
Exercises and Physical Activity

Immediately after surgery

The following exercises will help you regain strength and endurance:

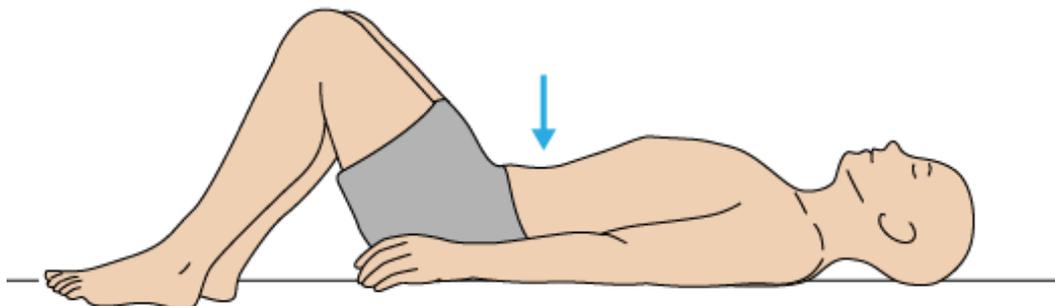
Foot and ankle pumps

- Point your feet up and down. Make ankle circles.
- Repeat 10 times every hour.



Abdominal Activation

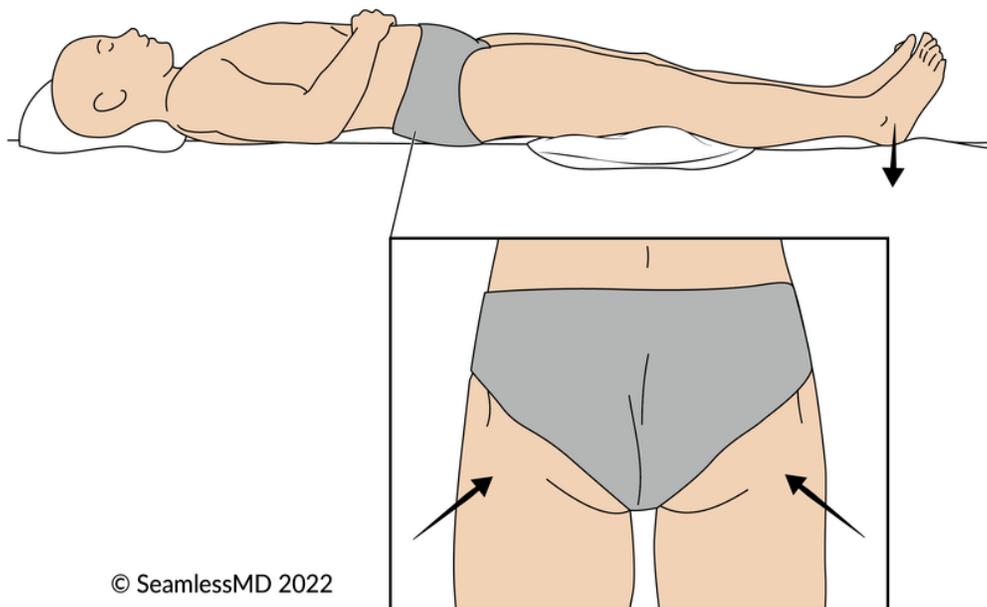
- While lying in bed on your back, lift your head slightly and tighten your stomach muscles so that your belly button moves down toward your spine.
- Hold 5 to 10 seconds then relax. Do not hold your breath. Repeat 10x, 2–3x/day.



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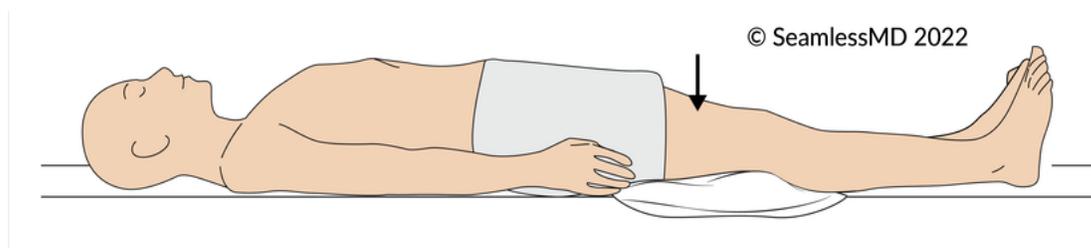
Static gluteal/hamstring strengthening

- Tighten your buttock muscles while pressing your heels into the bed.
- Hold for a count of 5 seconds. Repeat 10x, 2–3x/day.



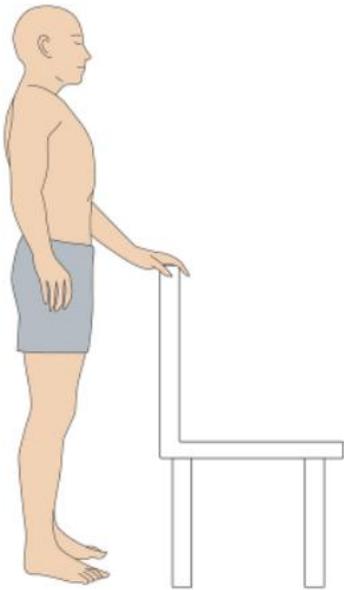
Isometric Quadriceps

- Tighten the muscle on the front of both thighs by pressing your legs into the bed.
- Hold 5 seconds. Repeat 10x, 2–3x/day.

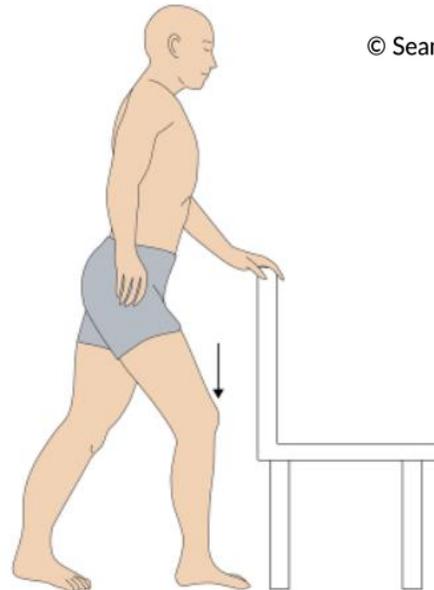


Calf Stretch

- Hold onto a chair or wall.
- Put the right leg in front of the left leg and lean forward to stretch the calf.
- Hold for 5 to 10 seconds. Repeat with the left leg in front of the right leg.
- Repeat 3 times with each leg. Do this 2–3x/day.



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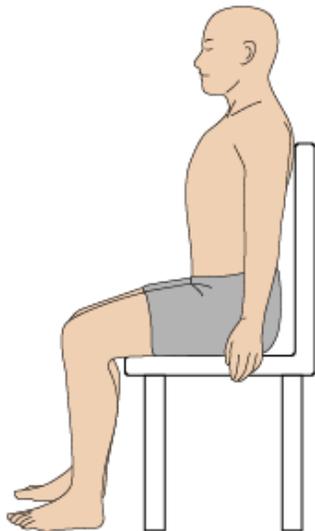


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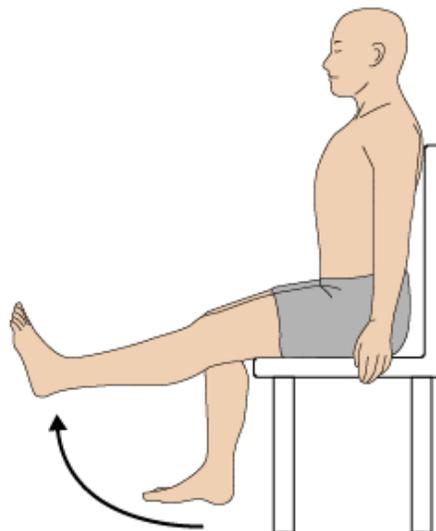
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Knee straightening in sitting

- Completely straighten operated knee.
- Hold 5–10 seconds. Repeat 3x with each leg, 2–3x/ day.



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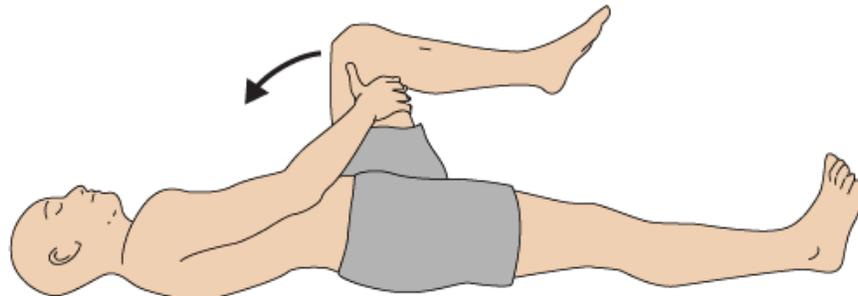
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2 weeks after surgery

The following are more advanced exercises that you can consider starting 2 weeks after surgery.

Knee to Chest

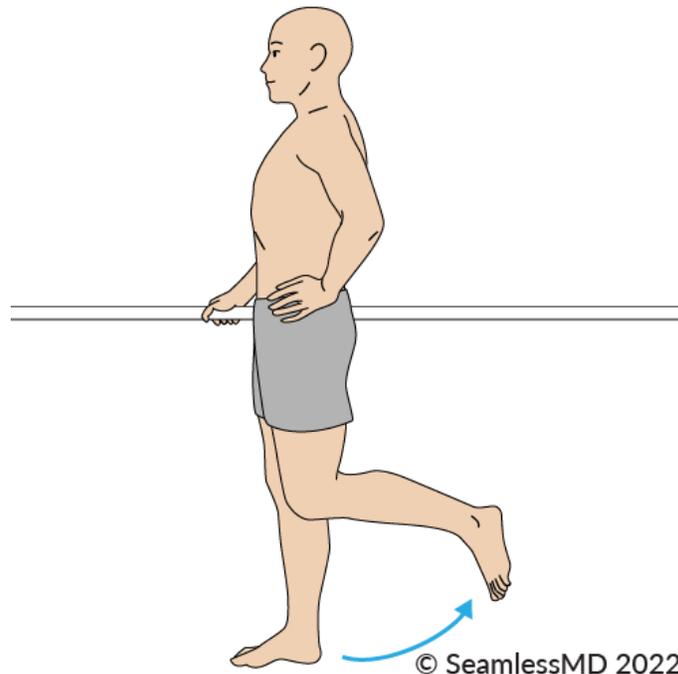
- Bring one leg towards your chest. Hold for 5 seconds.
- Go back to starting position and do the same with other leg.
- Repeat 3x each leg, 2–3x/day.



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Standing on one leg

- Practise standing straight on the operated leg with only slight support from a chair or counter.
- Hold 5–10 seconds. Alternate legs and repeat 3x for each, 2–3x/day.
- Further challenge can be added by doing the above with no support or eyes closed.



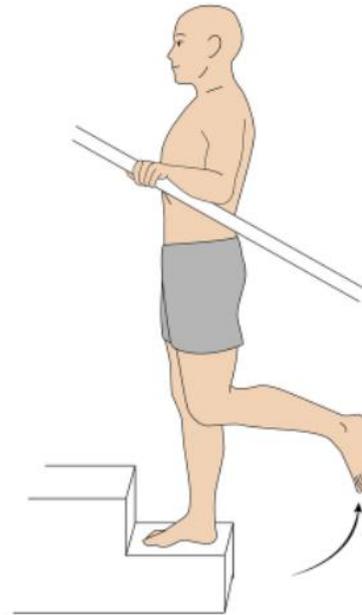
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Step ups

- Stand holding onto support on both sides.
- Using the bottom step of your stairs, a block or a stack of books about 2–3 inches thick, practise stepping up with each leg.
- Hold 3–5 seconds. Repeat 3x for each leg, 2–3x/day.



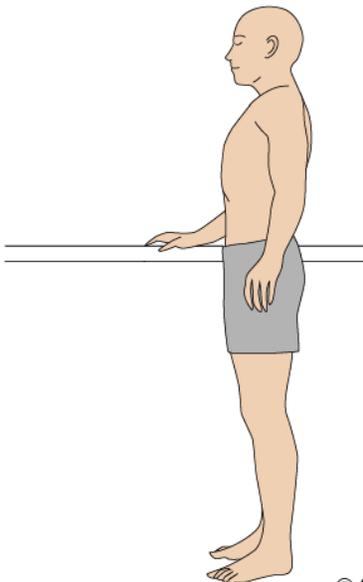
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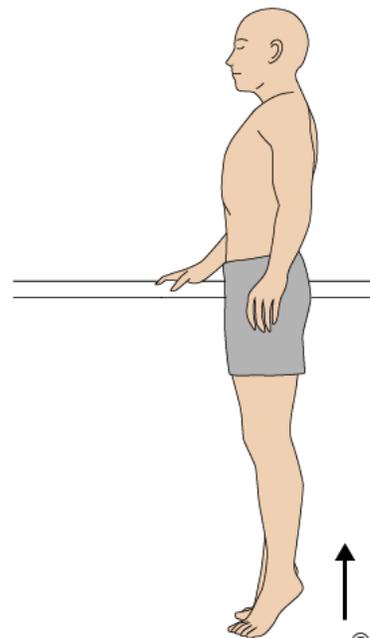
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Heel raises

- Standing, holding onto support, keeping equal weight on legs, lift both heels off the ground.
- Perform 10–30 heel lifts, holding 3 sec and releasing, 2–3x/day.



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Walking Program

Walking is an excellent activity and you are strongly encouraged to **gradually** increase your walking distance after you leave the hospital. Walk outdoors as long as sidewalks are dry. Consider going to a mall to walk when the sidewalks are wet and slippery. Start with shorter walks around 5 minutes. Do this 3–4 times/ day. After a few days, increase your walks to 10 minutes, 3–4 times/ day. Gradually add more minutes each day until you reach 30 minutes. You may be able to do this by week 4–6 after surgery.

Physiotherapy

Most people do not need physiotherapy when they first go home. Instead, try to slowly progress walking and perform the prescribed exercises in this booklet daily. You will feel better and stronger. When you come back to see the surgeon at your 4–8 week follow-up appointment, ask for a referral to Physiotherapy. You can go to a physiotherapy clinic near your home if you have medical insurance (other than OHIP), or ask your physician where you can receive OHIP-covered physiotherapy.

Sometimes you may need in-home physiotherapy (provided by CCAC) after surgery for a short period of time to make sure you're doing well and to make sure your home is set up as safely as possible.

Guidelines for Resuming an Active Lifestyle

- You will only be able to lift up to a maximum of 10 lbs until about 4–6 weeks after surgery.
- Sexual activity can be performed within limits of comfort.
- Non-manual labour (office) is allowed with doctor's permission after 6 weeks.
- At about 3 months after surgery, you may do moderate lifting (10–15 lbs using proper technique) and resume the following activities if your surgeon approves:
 - Swimming or Aquatic exercise
 - Golf
 - Cycling on a regular bike
 - Gentle dancing
 - Hiking
 - Gardening (with long handles tools to avoid excessive bending)
 - Return to moderate work with doctor's permission
 - Light strenuous sports with doctor's permission

