

Guide to Lung Surgery



MOUNT CARMEL

Welcome

Thank you for choosing a Mount Carmel hospital for your lung surgery. Our team of specialized healthcare professionals are dedicated to providing the finest surgical care available. We are committed to helping you have a positive experience. Please take some time to review this book so you will better understand:

- The reasons for and types of lung surgery
- How to prepare for your surgery
- What to expect during your stay with us
- How you can plan for your recovery

For your continued health education, this booklet and others are available on mountcarmelhealth.com.



Table of Contents

- Your Lung Surgery** 4
- Your Lungs..... 4
- Reasons for Lung Surgery 4
- Types of Lung Surgery..... 5
- Surgical Approaches 6

- Preparing for Surgery** 8
- Medications..... 8
- Quitting Smoking..... 8
- Reporting Illness..... 9
- Packing for Your Hospital Stay..... 9

- Your Hospital Stay** 10
- The Day of Surgery..... 10
- After Surgery..... 10
- Pain Management 11

- Your Recovery at Home** 14
- Call Your Surgeon if You Have 14
- Fatigue..... 14
- Constipation 14
- Resuming Activities and Exercise 15
- As Your Recovery Continues 17
- Staying Positive..... 17

*“The best preparation for tomorrow
is doing your best today.”*

— H. Jackson Brown, Jr.

Your Lung Surgery

Your Lungs

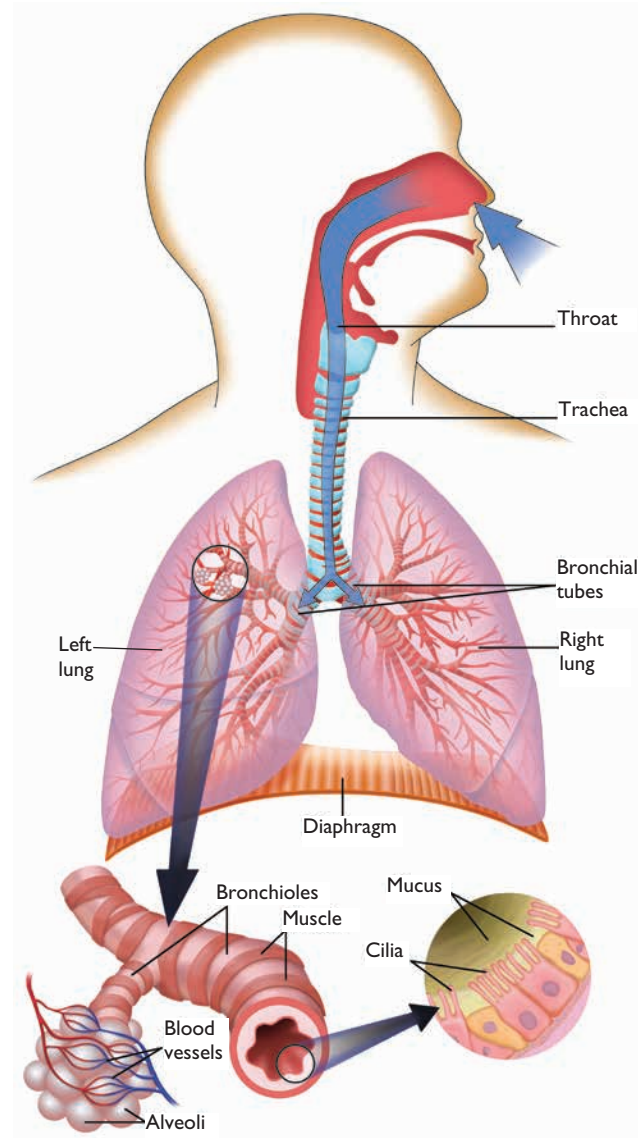
When you take a breath, air goes into your mouth and nose, through your windpipe (trachea), and into your lungs. Your lungs carry oxygen through small tubes called bronchioles and into the alveoli. Alveoli are where oxygen enters the bloodstream.

The lungs are divided into lobes. The left side has 2 lobes, and the right side has 3 lobes. There are also many lymph nodes in the lungs. Lymph nodes filter harmful substances from the body.

Reasons for Lung Surgery

Lung surgery is used to diagnose and sometimes treat many different lung problems. Some reasons for lung surgery include:

- ▶ **Lung Abscess:** This is an area of pus that has formed in the lung. If the abscess does not go away with antibiotics, surgery may be needed to remove the infected part of the lung.
- ▶ **Sarcoidosis (Granulomatous Disease):** Sarcoidosis is a disease caused by small areas of inflammation. It can affect any part of the body but is most common in the lungs. This is called pulmonary sarcoidosis. Small patches of inflamed cells can appear on the lungs' small air sacs (alveoli), breathing tubes (bronchioles), or lymph nodes. The lungs can become stiff and may not be able to hold as much air as healthy lungs. In serious cases, sarcoidosis can cause scar tissue in the lungs. This can affect the lungs' ability to move oxygen into the bloodstream.



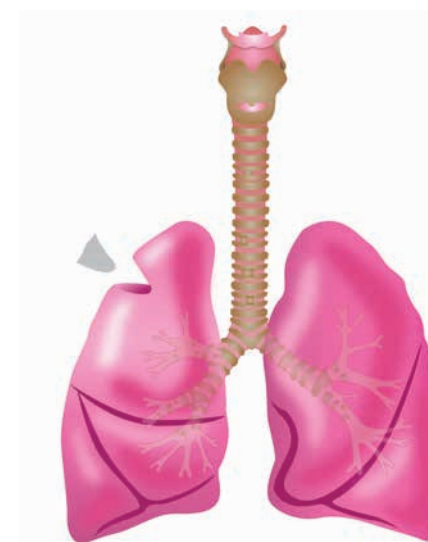
- ▶ **Fungal Infections:** Fungi are a group of organisms that, although rare, may cause infections in parts of the body, including the lungs. The most common fungal lung infection in Ohio is histoplasmosis.
- ▶ **Lung Mass:** A lung mass can be either benign (non-cancerous) or malignant (cancerous). Cancerous lung masses can be evaluated for location, size, and whether the cancer has spread to other parts of the lung.

- ▶ **Collapsed Lung:** If a portion of the lung wall is thin or ruptured, air may leak into the pleural space. When air collects in the pleural space, the lung may collapse. This is also known as a pneumothorax.
- ▶ **Pleural Effusion:** This occurs when fluid collects in the area around the lungs. This fluid prevents the lungs from completely expanding.

Types of Lung Surgery

There are many factors that your surgeon will look at when discussing your surgical options with you. The size, location, and type of lung problem, and any other lung problems, will all be part of that discussion.

- ▶ **Wedge Resection:** A triangle-shaped piece of the diseased lung tissue is removed. A small amount of healthy tissue around the diseased portion is also removed. This surgery can be done through minimally invasive surgery or thoracotomy.



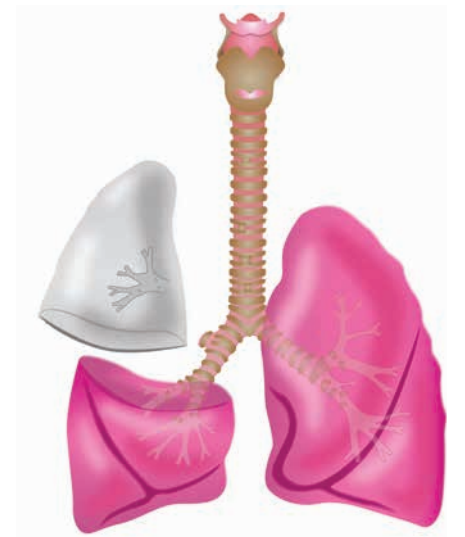
Wedge Resection

- ▶ **Segmentectomy:** A larger portion of the lung is removed than in a wedge resection. A whole lobe is not removed.



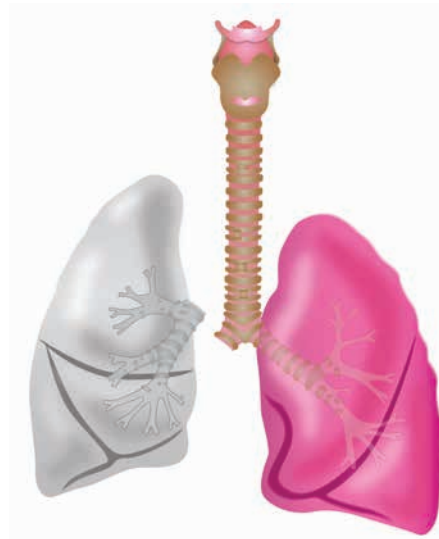
Segmentectomy

- ▶ **Lobectomy:** A lobe of a lung is removed. The left lung has 2 lobes and the right lung has 3 lobes. Removing 2 lobes of the lung is called a bilobectomy. The surgeon will also remove local lymph nodes during a lobectomy.



Lobectomy

- Pneumonectomy:** An entire lung is removed. A pneumonectomy is most often used to treat lung cancer that cannot be treated with a less radical surgery. It may also be the best treatment option for a tumor located next to the heart that involves the main blood vessels to the lung.

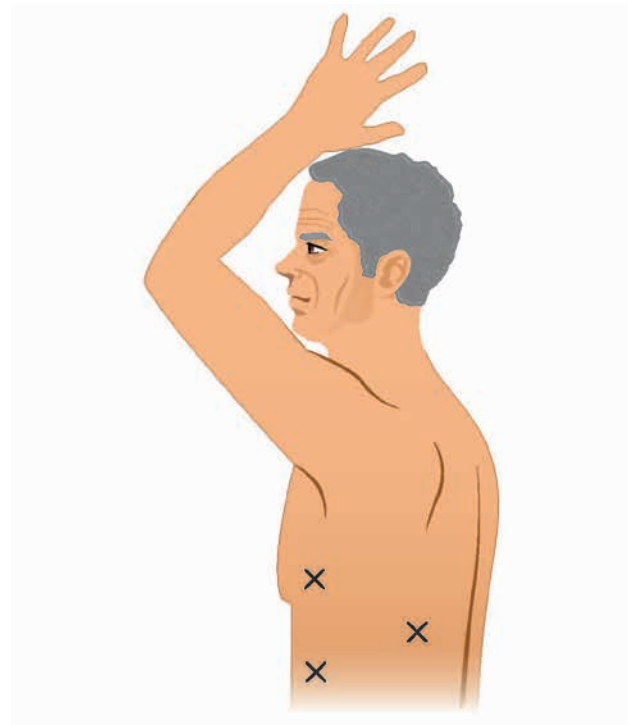


Pneumonectomy

- Pleurectomy/Decortication (P/D):** The lining (called the pleura) of the chest wall on one side is removed. The pleura that covers or coats the lungs, the mediastinum (space between the lungs), and the diaphragm (large, dome-shaped muscle beneath the lungs) is also removed on that side. This surgery can be used to try to cure some cancers, but it is also used to relieve symptoms in cases where the entire tumor cannot be removed. It can help control the buildup of fluid, improve breathing, and decrease pain caused by the cancer.

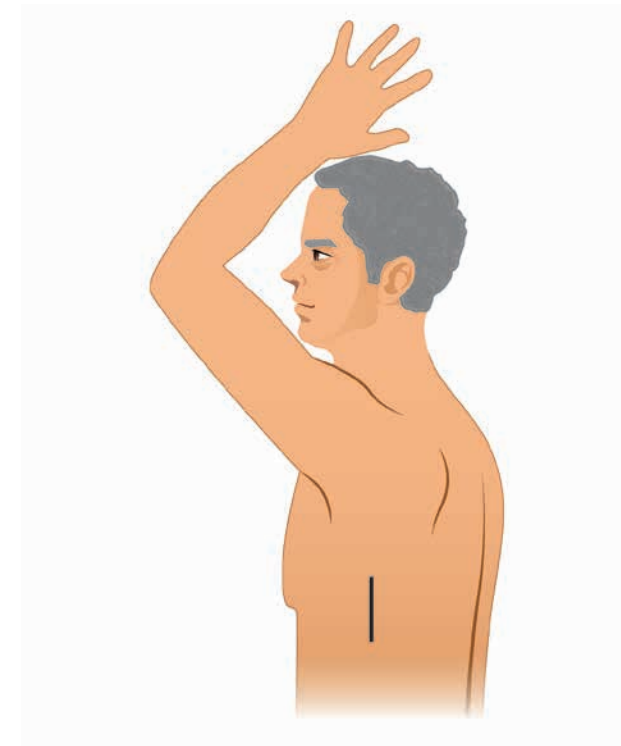
Surgical Approaches

- VATS (Video-Assisted Thoracic Surgery):** This is a minimally invasive surgical technique using several small (2 to 4 cm) incisions. A videoscope (a long, thin tube with a camera on the end) and other instruments are inserted through the small incisions. These allow the surgeon to see the abnormal lung tissue and remove it. This approach does not require rib spreading or cutting through muscle.



Possible Incision Sites for Thoracoscopy

- Robotic VATS:** This VATS procedure utilizes a computer-controlled device that moves, positions, and manipulates the surgical tools based on the surgeon's movements. The computer console also allows the surgeon to see the patient's chest with greater magnification than is possible with normal vision.
- Open Thoracotomy:** An incision is made on one side of the chest and the ribs are spread to allow the surgeon to access the part of the lung being removed. An open thoracotomy may or may not also include cutting through muscle.



Possible Incision Site for Thoracotomy

Preparing For Surgery

To help you prepare for surgery, your doctor may have you:

- ▶ **Get a Medical Checkup.** Have a thorough exam before surgery by your primary care doctor. Your surgeon may require “medical clearance” from your medical doctor before you have surgery.
- ▶ **Have Pre-operative Testing.** Your surgeon may want you to have lab work, an EKG, pulmonary function tests, or other testing done before your surgery. You may need to see a cardiologist to okay you for surgery. It is important for you to get this done promptly to give your surgeon time to review the results before your surgery.

Medications

Tell your surgeon about all the medications you take, and ask whether you should stop taking them. This includes prescription medications, aspirin, over-the-counter drugs, vitamins, and herbal supplements.

- ▶ If you are taking Coumadin®, Plavix®, or any other type of medication that may thin your blood, check with your surgeon about how long to stop taking it before surgery. If these medications are not stopped for the length of time needed, surgery will need to be rescheduled.
- ▶ One week before your surgery, stop taking aspirin or aspirin-containing products such as buffered aspirin, Bufferin®, regular Anacin®, Fiorinal®, codeine with aspirin, and all Alka-Seltzer® products.

- ▶ Also stop taking all nonsteroidal anti-inflammatory medications such as Advil®, Motrin®, Indocin®, Naprosyn®, Clinoril®, and Feldene®. All of these medications can thin your blood, which can cause more bleeding during surgery.

If you need pain medication during this time, you may take Tylenol®, Panadol®, Vicodin®, or Tylenol® with codeine.

Be sure to talk to your surgeon before you start or stop taking any medication.

Quitting Smoking

Quitting smoking is the single most important thing you can do to improve your overall health.

If you smoke, do your best to quit now. Smoking increases your risks during surgery and slows healing.

Talk to your doctor about “quit smoking aids” such as the nicotine patch or other medications to help reduce cigarette cravings and help ease the withdrawal symptoms.

Other helpful resources include:

- ▶ **Smokefree.gov**
This site offers a Step-by-Step Quit Guide, Tools to Help You Quit, and professionals to help you (Talk to the Expert).
- ▶ **Ohio Tobacco Quit Line**
1-800-QUIT-NOW (1-800-784-8669)
- ▶ **American Cancer Society Quit Line**
www.cancer.org
1-800-ACS-2345 (1-800-227-2345)

Reporting Illness

Tell your surgeon right away if you become ill within 10 days before your surgery. This includes a cold, flu, fever, herpes outbreak, skin rash, infection, or a “flare-up” of a health problem. Sometimes even minor health problems can be quite serious when combined with the stress of surgery.

Packing for Your Hospital Stay

Please bring:

- ▶ A list of all your medications
- ▶ Your health plan/insurance card
- ▶ A copy of your Advance Healthcare Directive, if you have one

For your comfort, you may bring:

- ▶ Slippers and bathrobe
- ▶ Toiletries, toothbrush, toothpaste, comb, brush
- ▶ Glasses, hearing aids, and their containers (be sure to label containers)
- ▶ Your dentures or partials (remember to bring your container)
- ▶ Loose, comfortable clothing to wear home

Leave at home:

- ▶ Valuables such as money, jewelry, watches, and credit cards
- ▶ Leave your medications at home unless you have been instructed to bring them to the hospital



Your Hospital Stay

The Day of Surgery

When you arrive at the hospital, you will need to register. After this, you will be taken to a waiting area until the nurse comes to get you before surgery.

Pre-Operative Care

A nurse will take you to the Pre-Op area. You will change into a hospital gown. An IV (intravenous) line will be inserted into your arm. This will be used to provide fluids and medications.

You'll meet your anesthesiologist or nurse anesthetist to discuss the medication that will help you sleep during surgery. Ask any questions you may have at this time.

Before surgery begins, you'll be given general anesthesia to put you into a controlled sleep while the surgery is being done. You will not feel any pain or remember the surgery. An antibiotic is typically given before surgery and you may also receive antibiotics after surgery.

During Surgery

You will be closely monitored throughout your surgery. You will have electrodes placed on your chest to monitor your heart rate, blood pressure, oxygen, temperature, and breathing. You will have a urinary (Foley) catheter to drain the urine from your bladder. Sequential compression devices (SCDs) will be on your legs to help prevent blood clots.

Your family should wait in the surgery waiting room so they can receive updates throughout your surgery and recovery.

After Surgery

You will spend the first night in the ICU. When your surgeon determines it is safe, you will move to a regular telemetry unit.

- Fluids and antibiotics will be given through the IV line.
- You will have one or two chest tubes on the surgical side. Chest tubes drain fluid and air from your surgical area. This drainage is measured and recorded several times a day.
- You will be on oxygen and will have a pulse oximeter (a probe that monitors your oxygen level).
- You will be taught to do deep breathing exercises and cough. These should be done at least every 2 hours while you are awake to help remove mucus and prevent pneumonia. You will be using a breathing device (incentive spirometer) to help you take deep breaths.
- The Foley catheter will be in place to drain urine from your bladder.
- SCDs will remain on your legs to decrease the risk of blood clots. These will inflate and deflate to help prevent blood clots from forming.
- You will have a telemetry monitor that tracks your heart rhythm, heart rate, and respiratory rate.

Diet

Once you have had something to drink and you feel ready to eat, you may be able to start a regular diet.

Activity

- Early activity has been shown to reduce recovery time and helps protect you from developing blood clots and breathing problems.
- Several hours after surgery, you will be helped to the side of the bed and will sit in a chair. You might also be instructed to march in place.
- The day after surgery, you will walk in the halls with assistance at least 4 times per day.

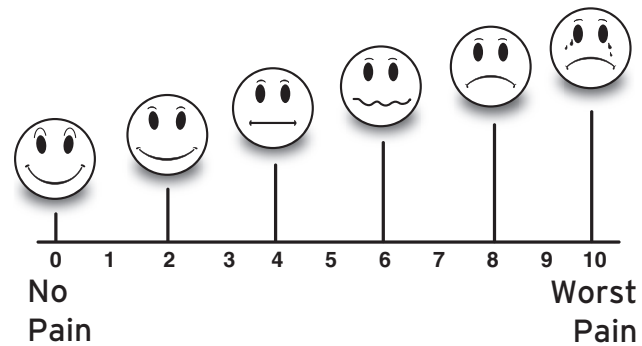
Pain Management

Most people have some pain after surgery. It is important to have good pain control and to be comfortable so you can sleep, deep breathe, walk, and visit with others. Keeping pain managed helps patients recover, avoid problems like pneumonia, and heal more quickly.

Although we may not be able to keep you pain-free, we will make every effort to provide comfort and manage your pain. It is most helpful to take pain medication before the pain gets severe. Waiting too long can make it harder to get relief. As you recover, your need for pain medication should decrease. Comfort measures such as music, distraction, and relaxation techniques can also lessen your pain.



You will be asked to rate your pain on a scale of 0 to 10. This will help us know how well your medication and other comfort measures are helping. You can use a number or choose a face on this scale that best rates your pain.



We encourage you to take an active role in managing your pain. Talk with your doctor if you have any questions or concerns about your pain management during your recovery.

Ways to Treat Your Pain

- Patient-Controlled Analgesia (PCA):** The patient uses a button that is attached to a pump, which delivers pain medicine into the vein through the IV tubing. The button may be pushed whenever the patient feels pain, but the pump gives only the amount of medicine ordered by the doctor.
- Oral Medication (Pain Pills):** After you are able to eat and drink, oral pain medication is usually used. For people who cannot swallow pills, there are liquid and other forms available.

- Intravenous (IV):** IVs may be ordered on an as-needed basis. This means your nurse may give you a dose of morphine or Dilaudid[®] through your IV if you are still having pain after you have taken the pain pills. It is best to use this only if the pain pills are not working.
- NSAIDs (Non-Steroidal Anti-Inflammatory Drugs):** These may be given in addition to the narcotics to help with pain control.

Common Side Effects of Pain Medication

Tell your nurse if you have any of these side effects or other symptoms of concern:

- Nausea or Vomiting:** Sometimes patients are nauseated after surgery or when taking pain medication. If this happens to you, be sure to let your nurse know. Your surgeon will order medication for nausea if you need it.
- Sedation:** Some pain medication may make you feel very drowsy or sedated. The nursing staff will check on you often to make sure you are safe.
- Dizziness:** Sometimes after being in bed, having surgery, and taking pain medications, you may feel dizzy when you attempt to get out of bed. A staff member will need to be with you when you get up. It is best to sit on the side of the bed for a few minutes before standing. Always call for help if you are feeling dizzy. You may fall if you try to get up by yourself.
- Constipation:** Pain medication affects your bowels by slowing them down. Getting up and walking as soon as you are able is most helpful.

Comfort Measures and Pain Management

The following comfort measures may help you manage your pain. They are often used along with medication. Although it might not take the pain away, these techniques can be helpful tools. Try different techniques to see what works best for you and explore other methods not listed here.

- Activity:** Start moving as soon as you are able after surgery, as long as your surgeon says it's okay. Moving helps your breathing and digestion and helps you heal faster. It may hurt to move, but moving and being active helps lessen pain over time. Something as simple as changing your position in bed can be very helpful.
- Deep Breathing:** Taking slow, deep breaths can help you relax and lessen your pain. Close your eyes and focus on your breathing, gently breathing in and out with a slow, regular rhythm.
- Distraction:** This method teaches you to focus your attention on something other than pain. Playing cards or games, talking, and visiting with family may relax you and keep you from thinking about the pain. Watching TV or reading may also be helpful.
- Music:** Whether you listen to music, sing, hum, or play an instrument, music helps increase blood flow to the brain and helps you breathe more deeply and slowly. It increases energy and helps change your mood. Music may also cause your brain to make endorphins, which further lessen pain. Find relaxing and soothing music to listen to after your surgery.
- Relaxation Techniques:** Stress and anxiety can make pain worse and may slow healing. Since it is hard to avoid stress, learning how to control it is important. Relaxation techniques may be more effective after regular practice, so planning ahead may be helpful. The following are some ways to help you relax:
 - Use extra pillows and blankets to stay in a position of comfort for you.
 - Make sure the room is the right temperature for you.
 - Ask someone to massage your back, hands, or feet to help lessen your pain.
 - Placing a cool cloth on your hands or face may make you feel better.
 - Keep the lights and noise in your room as low as possible.
 - Have the curtain around your bed pulled or the door to your room closed. This will lessen interruptions so that you can relax.
 - Practice a technique called guided imagery. This is when you focus on creating calm, peaceful images in your mind. Close your eyes and imagine yourself in a place you find relaxing. Think about sounds or sights that you enjoy.
 - Practice muscle relaxation exercises to reduce stress and anxiety. One common method involves slowly tensing and relaxing different muscle groups, starting at the head and moving down the body to the feet. For example, tense and relax your face muscles, then your jaw, your neck, your shoulders, followed by each arm, your hands, and so on, down the body to your toes. Try to tense your muscles for 5 seconds while slowly inhaling, and relax your muscles when slowly exhaling through pursed lips. A calm, quiet room is important while learning this technique.

Your Recovery at Home

Call Your Surgeon if You Have:

- Pain that gets worse or is unrelieved by pain medication
- Fever greater than 101°F (38.3°C)
- Difficulty breathing
- Dizziness or fainting
- Palpitations or fast, irregular heartbeat
- Extreme fatigue
- Increased redness, tenderness, or drainage of any surgical incision
- Unrelieved nausea or vomiting
- Persistent cough

Fatigue

Fatigue is probably the number one patient complaint after surgery. Your body is tired from a change in your sleep patterns while in the hospital, and from the energy it uses to heal its wounds and to fight off pain.

To combat fatigue and feel more rested:

- Listen to what your body is telling you.
- Space your activities to allow for times of rest.
- Take plenty of naps.
- Walk regularly.
- Eat well.
- Take your pain medication as needed.

It is very important to get a good night's sleep,

but you may find it hard to get comfortable and sleep well.

To help you sleep at night:

- Take your pain medication 30 minutes before bedtime.
- Arrange your pillows so that you are in a comfortable position.
- You may want to try sleeping in a recliner at first. Some patients find that more comfortable than sleeping in their bed.

Constipation

Taking narcotics and being less active can lead to constipation.

To avoid getting constipated, you may want to try to:

- Drink more fluids, especially water.
- Increase exercise, even if it means just a little extra walking.
- Eat more fiber (add slowly):
 - Bran or whole grain cereals
 - Whole wheat bread or crackers
 - Raw fruits and vegetables

Resuming Activities and Exercise

As you recover, you'll want to slowly increase your activities. To get the most out of your day, plan to do the things that are most important early in the day. Don't try to do everything at once, and make sure you get plenty of rest in between activities. Consider leaving unfinished activities for another day. You will find your energy increasing throughout your recovery, but it does take time.

Showering/Bathing

Do not remove your dressings until 3 days after discharge. You may shower, but you will need to cover the dressing with plastic wrap and tape before showering. Also avoid water hitting directly on the area.

After 3 days you may shower as usual, washing the area gently with soap and water. Ensure that the incision is dry before putting your clothes back on to prevent moisture from staying around the incision.

If the incision is no longer draining after you remove the dressing, you may leave it open to air. If the incision is still draining, you may apply a Band-Aid or simple gauze dressing. Change the dressing at least every day or more often if needed.

Lifting and Reaching

It is good to move or exercise the arm on the side on which surgery was performed. This will help prevent your muscles from becoming stiffer.

For 1 to 2 weeks, do not lift things heavier than 10 pounds. A gallon of milk weighs about 8 pounds. Don't lift things like grocery bags and laundry baskets.

For 1 month after surgery, do not lift more than 20 pounds. This may include small children and your pets, depending on how much they weigh.

Physical Activities

You may do light, quick activities where your arms are above your shoulders, such as brushing your hair. You can also do light housework such as cooking or washing dishes.

Do not do any activities that:

- Cause pain or pulling across your chest.
- Require keeping your arms above shoulder level for a long time, such as washing a window or dusting a high shelf.
- Are strenuous, such as vacuuming or yard work.

Climbing Stairs and Steps

Unless restricted by your doctor, it is okay for you to climb stairs and steps. Be certain to hold the handrail when walking up and down stairs, because you may be off balance after surgery. If you need to, stop and rest before you finish walking up or down a full flight of stairs. Try not to use stairs right after surgery, and plan your activities so you limit the number of times you need to use the stairs.

Driving and Riding in a Car

Do not drive while you are taking narcotic pain pills — your reaction time and judgment may be dulled. You may ride in a car at any time, but make sure to wear your seatbelt.



As Your Recovery Continues

Mood Swings, Anxiety, and Depression

A serious procedure like surgery can create many personal and family stresses. It is not uncommon for patients to experience mood swings, anxiety, and perhaps depression following surgery. Please talk to your doctor if these symptoms persist.

Returning to Work

When you return to work depends upon the type of work you do and your energy level. Most people report that at 6 weeks they are about 80% back to their normal energy level. The decision to return to work should be made jointly between you and your surgeon. You may want to try working half days at first.

Traveling

Delay vacations or extended trips away from home for about 3 to 4 weeks, or until after the first post-operative visit with your surgeon. Avoid air travel for 1 month from the date of your discharge from the hospital.

Staying Positive

Sometimes when improvements are gradual during recovery, it's difficult to see that you're making progress. If you have questions about what you are able to do or concerns about your progress, contact your surgeon's office. It is often helpful to pay attention to the changes in your body and how you are able to be more active as time goes along. You may even want to write down how you are doing every few days so you can look back and see how you've progressed. Knowing that you are improving will help you to remain positive during your recovery.



**Thank you for choosing
Mount Carmel for your surgery.**

Before leaving the hospital, make sure you understand how to care for yourself and who to contact with questions. Follow any instructions from your healthcare providers and keep all of your follow-up appointments as recommended.

We wish you well in your recovery.



MOUNT CARMEL

January 2020