

About Your Laser Interstitial Thermal Therapy (LITT) for Brain Tumors at MSK Kids

This guide will help you get ready for your laser interstitial (IN-ter-STIH-shul) thermal therapy (LITT) for brain tumors at MSK Kids. It will also help you know what to expect as you recover.

Use this guide as a source of information in the days leading up to your surgery. Bring it with you on the day of your surgery. You and your care team will use it as you learn more about your recovery.

In this resource, the words “you” and “your” refer to you or your child.

Your care team

Doctor: _____

Nurse: _____

Phone number: _____

Fax number: _____



Visit www.msk.org/pe/litt_surgery to view this guide online.



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About your LITT surgery

About your brain

Your brain is an organ that controls many things your body does, such as your:

- Thoughts
- Emotions
- Memory
- Hunger
- Speech
- Movement
- Vision

If you have a tumor in your brain, it can change the way your body normally works. It can cause headaches, dizziness, vomiting (throwing up), vision problems, poor balance, unsteady walking, or weakness.

About LITT surgery

LITT is a surgery to treat certain types of brain tumors and other conditions. LITT uses laser heat to destroy the tumor (see Figure 1). This is also called MRI-guided laser ablation or thermal ablation.

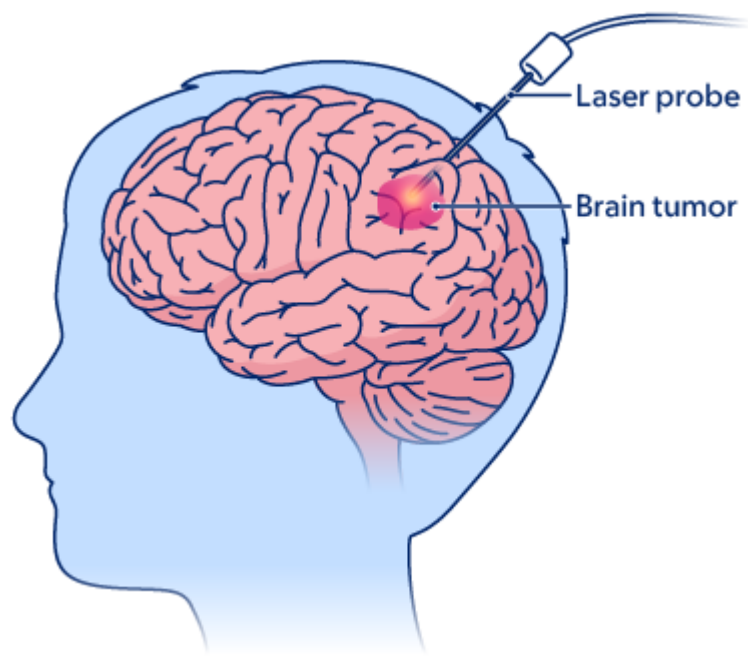


Figure 1. Using laser heat to destroy a tumor

LITT is a minimally invasive surgery. Minimally invasive surgeries are done with only a small incision (surgical cut). This makes the recovery time faster than other types of brain surgeries.

LITT surgery is done in the intraoperative MRI suite. This is a special operating room that has a magnetic resonance imaging (MRI) scanner. The surgeon will get real time MRI images during the surgery. This will let them see inside your brain to find and destroy the tumor.

During your surgery, your surgeon will use special surgical tools to reach your brain tumor (see Figure 2). They will make a small hole in your skull called a burr hole. They will place a thin flexible tube with a laser at the end into the hole. This is called a laser probe. The surgeon will then use real time MRI images to help guide the laser probe to the tumor.

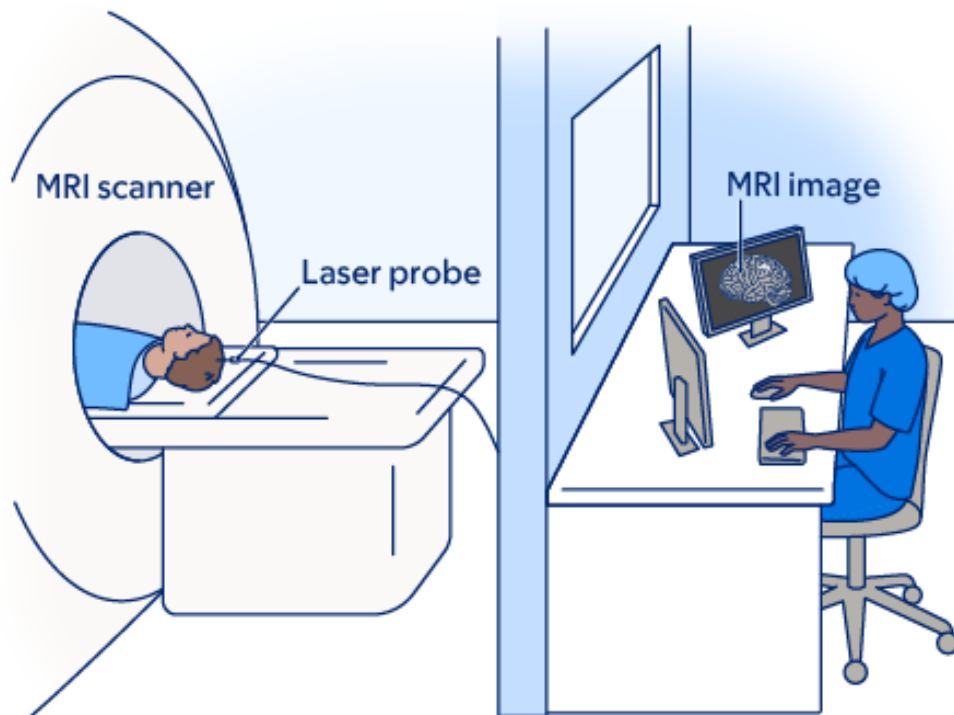


Figure 2. During your LITT surgery

Once they find the tumor, your surgeon will heat up the laser. The temperature is carefully monitored and adjusted. They will use just enough heat to destroy the tumor without harming healthy tissue around the tumor.

You may also have a biopsy during your LITT surgery. Your surgeon will remove a small piece of tumor tissue from the area. They'll send the tumor tissue to the Pathology Department to find out what type of tumor you have. Your treatment options will depend on the type of tumor you have and if any tumor cells remain after LITT surgery.

To learn more about LITT surgery, watch this video:

www.msk.org/videos/closer-look-laser-interstitial-thermal-therapy

Conditions treated with LITT surgery

Your surgeon may recommend LITT surgery to treat:

- **A brain tumor** that is small, came back after treatment, or is deep in your brain.
- **Radiation necrosis.** Radiation necrosis is a possible side effect of radiation therapy. This is when healthy brain tissue surrounding the area treated with radiation dies. It can cause problems related to brain function like headaches, trouble speaking or understanding, or weakness in certain body parts.
- **Epilepsy.** Epilepsy is a condition that causes seizures. LITT may be able to treat epilepsy by destroying the brain tissue that is causing seizures. Your healthcare provider may recommend LITT to treat epilepsy if other treatments have not helped. it's caused by a problem in your brain that LITT may help with.

Getting ready for LITT surgery

This section will help you get ready for your surgery. Read it when your surgery is scheduled. Refer to it as your surgery gets closer. It has important information about what to do to get ready.



As you read this section, write down questions to ask your healthcare provider. You can use the space below.

Notes _____

Getting ready for surgery

You and your care team will work together to get ready for your surgery.

Help us keep you safe by telling us if:

- You take prescription medicine(s), including patches and creams. A prescription medicine is one you can only get with a prescription from your healthcare provider.
- You take over-the-counter medicine(s), including patches and creams. An over-the-counter medicine is one you can buy without a prescription.
- You take dietary supplements, such as herbs, vitamins, minerals, or natural or home remedies.
- You have any allergies.
- You or a family member had a problem with anesthesia (A-nes-THEE-zhuh) in the past. Anesthesia is medicine to make you sleep during a surgery or procedure.
- You have a vagal nerve stimulator (VNS).
- You have a programmable ventriculoperitoneal (VP) shunt.

Write down your programmable VP shunt type and setting here:

You may need to stop taking some of your medicines and supplements before your surgery. Some medicines increase your risk for complications (problems) during surgery. Follow your care team's instructions.

Using MyMSK

MyMSK (my.mskcc.org) is your MSK patient portal. You can use it to send and read messages from your care team, view your test results, see your appointment dates and times, and more. You can also invite your caregiver to make their own account so they can see information about your care.

If you do not have a MyMSK account, you can sign up at my.mskcc.org. You can get an enrollment ID by calling 646-227-2593 or your doctor's office.

For help, watch *How to Enroll in MyMSK: Memorial Sloan Kettering's Patient Portal* at www.msk.org/pe/enroll_mymsk. You can also contact the MyMSK Help Desk by emailing mymsk@mskcc.org or calling 800-248-0593.

Help your body get ready for surgery

You can recover faster and easier if you help your body be in its best shape for your surgery. This section has examples of things you can do to get your body ready for surgery. Your care team will help you decide which activities are best for you.

Practice breathing and coughing

Practice taking deep breaths and coughing before your surgery. You can do this by:

- Walking around or playing.
- Blowing bubbles or blowing a tissue in the air.
- Using your incentive spirometer, if your care team gave you one.

Move around and be active

Try to do physical activity every day. Examples include walking, swimming, or biking. MSK also offers free virtual classes for all ages that can help you be active. Ask your healthcare provider for more information.

Practice meditation and mindfulness

Mindful breathing, meditation, yoga, movement practice, massage, and acupuncture techniques can support you as you get ready for surgery.

Our Integrative Medicine service's videos can help you find the right activities to add into your daily routines before your surgery. Visit www.msk.org/integrativemedicine to find the videos. You can also visit www.msk.org/meditation to see guided meditation videos created by our expert mind-body specialists.

Follow a healthy diet

Talk with an MSK Kids clinical dietitian nutritionist to talk about how to get ready for surgery. You can learn how to make sure your nutrition is the best it can be.

If you're getting other cancer treatments before your surgery, they can cause taste changes, appetite loss, and trouble digesting food. This can make it hard to eat enough food, which can lead to weight loss. Your outpatient MSK Kids clinical dietitian nutritionist can work with you on a plan that helps with eating challenges.

It's also helpful to follow these general eating and drinking guidelines.

- Have small, frequent meals. For example, have a half-sized meal every 2 to 3 hours. Aim for 6 to 8 small meals a day instead of 3 large meals.
- Make and follow a meal schedule. Do not wait to eat until you're hungry. Put the schedule in a place for everyone to see.
- Keep your favorite go-to foods in your home where you can get to them easily.
- Buy single-serving food items that you can eat easily, such as drinkable yogurt smoothies or cheese sticks.

- Cook in batches so you have leftovers.
 - Keep 1 extra serving in your refrigerator for the next day, but not longer.
 - Freeze the other extra servings. When you're ready to use a serving, thaw it in the refrigerator or microwave, not on the kitchen counter. Then reheat it until it's steaming hot.
- Include many different food groups and food types in your diet, unless your doctor or clinical dietitian nutritionist tells you not to.
- Sometimes drinking is easier than eating. Try getting more calories from liquids than solid foods. For example, have milkshakes or nutritional supplements such as PediaSure® or Carnation Breakfast Essentials®.
- Keep your dining experience enjoyable, with no stress. Try having family mealtimes or group snack times with family.
- Think of your nutrition as being just as important as your medicines.

Remember to choose foods that are high in calories and protein. Talk with your MSK Kids clinical dietitian nutritionist about foods that work best based on what you like or your meal patterns.

Fill out a Health Care Proxy form, if needed

If you're age 18 or older and haven't already filled out a Health Care Proxy form, we recommend you do now. If you already filled one out or have any other advance directives, bring them to your next appointment.

A health care proxy is a legal document. It says who will speak for you if you cannot communicate for yourself. This person is called your health care agent.

- To learn more about health care proxies and other advance directives, read *Advance Care Planning*. You can ask for a printed copy or find it at www.msk.org/pe/advance_care_planning.
- To learn more about being a health care agent, read *How to Be a Health Care Agent*. You can ask for a printed copy or find it at www.msk.org/pe/health_care_agent.

If you have more questions about filling out a Health Care Proxy form, talk with your healthcare provider.

Within 30 days of your LITT surgery

Presurgical testing (PST)

You'll have a PST appointment before your surgery. You'll get a reminder from your surgeon's office with the appointment date, time, and location.

You can eat and take your usual medicine(s) the day of your PST appointment.

It's helpful to bring these things to your appointment:

- A list of all the medicines you're taking, including prescription and over-the-counter medicines, patches, and creams.
- Results of any medical tests done outside of MSK in the past year, if you have them. Examples include results from a cardiac stress test, echocardiogram, or carotid doppler study.
- The names and telephone numbers of your healthcare providers.

You'll meet with an advance practice provider (APP) during your PST appointment. They work closely with MSK's anesthesiology (A-nes-THEE-zee-AH-loh-jee) staff. These are healthcare providers with special training in using anesthesia during a surgery or procedure.

Your APP will review your medical and surgical history with you. You may have tests to plan your care, such as:

- An electrocardiogram (EKG) to check your heart rhythm.
- A chest X-ray.
- Blood tests.

Your APP may recommend you see other healthcare providers. They'll also talk with you about which medicine(s) to take the morning of your surgery.

Meet with other healthcare professionals, if needed

MSK has many different healthcare professionals who can help you before, during, and after your cancer treatment.

- **Social workers** can help you cope with the emotional, social, and physical effects of a cancer diagnosis. Our social workers provide counseling and practical assistance. They help families cope with their child's disease, improve communication with family and friends, share information on community resources, and help adjust to medical treatment.
- **Child life specialists** are trained professionals who are experts in human growth and development. If you're worried or stressed about your procedure, they can help you plan ways to be more comfortable and relaxed. MSK's child life specialists have a variety of backgrounds and interests, including education, psychology, fine arts, and art therapy. Together, our skills and certifications offer a full range of child life services that educate and empower patients and their families during an illness.
- **Counselors and therapists** can meet with you and your family members and provide counseling for emotional problems related to coping with cancer. MSK's counseling center also has support groups that meet regularly.

Your healthcare provider may offer you a referral to these services. You can also ask for a referral if you're interested.

Arrange for housing, if needed

The Ronald McDonald House provides temporary housing for out-of-town pediatric cancer patients and their families. MSK also has arrangements with several local hotels and housing facilities that may give you a special lower rate. Your social worker can talk with you about your options and help you make reservations. You can also call 212-639-8315 to talk with the Pediatric Patient Services Coordinator.

Tell us if you're sick

If you get sick before your surgery, call the healthcare provider who scheduled your surgery. This includes a fever, cold, sore throat, or the flu.

7 days before your LITT surgery

Follow your healthcare provider's instructions for taking aspirin

Aspirin can cause bleeding. If you take aspirin or a medicine that contains aspirin, you may need to change your dose or stop taking it 7 days before your surgery. Follow your healthcare provider's instructions. **Do not stop taking aspirin unless they tell you to.**

To learn more, read *How To Check if a Medicine or Supplement Has Aspirin, Other NSAIDs, Vitamin E, or Fish Oil*. You can find it in the "Educational resources" section of this guide.

Stop taking vitamin E, multivitamins, herbal remedies, and other dietary supplements

Vitamin E, multivitamins, herbal remedies, and other dietary supplements can cause bleeding. Stop taking them 7 days before your surgery. If your healthcare provider gives you other instructions, follow those instead.

To learn more, read *Herbal Remedies and Cancer Treatment*. You can find it in the “Educational resources” section of this guide.

Have imaging scans, if needed

You will need to have imaging scans to help your healthcare providers plan your surgery. If you have them done somewhere other than MSK, your healthcare provider may ask you to bring the disc with copies of the imaging scans to one of your appointments.

2 days before your LITT surgery

Stop taking nonsteroidal anti-inflammatory drugs (NSAIDs)

NSAIDs, such as ibuprofen (Advil® and Motrin®) and naproxen (Aleve®), can cause bleeding. Stop taking them 2 days before your surgery. If your healthcare provider gives you other instructions, follow those instead.

To learn more, read *How To Check if a Medicine or Supplement Has Aspirin, Other NSAIDs, Vitamin E, or Fish Oil*. You can find it in the “Educational resources” section of this guide.

1 day before your LITT surgery

Note the time of your surgery

A pediatric surgical coordinator will call you after 2 p.m. the day before your surgery. If your surgery is scheduled for a Monday, they'll call you the Friday before. If you do not get a call by 4 p.m., call 212-639-7056.

The surgical coordinator will tell you what time to get to the hospital for your surgery. They'll also remind you where to go.

This will be one of these locations.

- The Presurgical Center (PSC) at Memorial Hospital
1275 York Ave. (between East 67th and East 68th streets)
New York, NY 10065
Take the B elevator to the 6th floor.
- The Pediatric Ambulatory Care Center (PACC) at Memorial Hospital
1275 York Ave. (between East 67th and East 68th streets)
New York, NY 10065
Take the B elevator to the 9th floor.

Visit www.msk.org/parking for parking information and directions to all MSK locations.

Shower

Unless your care team gives you other instructions, you can shower and wash your hair the night before your surgery. **Do not put on any hair products, such as hair spray or hair gel.**

Instructions for eating and drinking before surgery



Do not eat or drink anything after a certain time on the night before your surgery. This exact time is based on your age and any other medical problems you have.

Your healthcare provider will talk with you about what you can and cannot eat before surgery.

If you do not follow the instructions your care team gives you, your surgery may be cancelled.

Write your instructions for eating and drinking here.

The morning of your LITT surgery

Do not eat or drink anything the morning of your surgery. This includes water, hard candy, and gum. **If you do not follow the instructions your care team gives you, your surgery may be cancelled.**

Take your medicines as instructed

A member of your care team will tell you which medicines to take the morning of your surgery. Take only those medicines with a sip of water. Depending on what medicines you take, this may be all, some, or none of your usual morning medicines.

Starting 2 hours before your surgery, do not take any medicines.

Things to remember

- Wear something comfortable and loose-fitting.
- If you wear contact lenses, wear your glasses instead. Wearing contact lenses during surgery can damage your eyes.
- Do not wear any metal objects. Remove all jewelry, including body piercings. The tools used during your surgery can cause burns if they touch metal.
- Do not wear any lotion, cream, deodorant, makeup, powder, perfume, or cologne.
- Do not wear any hair products, such as hair spray or hair gel.
- Leave valuable items at home.

What to bring

- Pajamas with a loose-fitting or button-down shirt that will go over your head easily.
- 1 comfort item, such as a blanket or teddy bear.
- 1 or 2 portable electronic devices, such as a smartphone or tablet, and their chargers.
- All the medicines you're taking, including prescription and over-the-counter medicines, supplements, patches, and creams.
- Your Health Care Proxy form and other advance directives, if you filled them out.
- A case for your personal items, if you have any. Examples of personal items include eyeglasses, hearing aids, dentures, prosthetic devices, wigs, and religious articles.
- This guide. You'll use it when you learn how to care for yourself after surgery.

Once you're in the hospital

When you get to the hospital, take the B elevator to the 6th floor (the PSC) or the 9th floor (the PACC). Check in at the desk in the waiting room.

Many staff members will ask you to say and spell your name and birth date. This is for your safety. People with the same or a similar name may be having surgery on the same day.

When it's time to change for surgery, you'll get a hospital gown, robe, and nonskid socks to wear.



For caregivers, family, and friends

Read *Information for Family and Friends for the Day of Surgery* to help you know what to expect on the day of your loved one's surgery. You can ask for a printed copy or find it at www.msk.org/pe/info_family_friends.

Meet with a nurse

You'll meet with a nurse before surgery. Tell them the dose of any medicines you took after midnight (12 a.m.) and the time you took them. Make sure to include prescription and over-the-counter medicines, patches, and creams.

If you have an implanted port or central venous catheter (CVC), your nurse will access it. If you don't, your nurse may place an intravenous (IV) line in one of your veins, usually in your arm or hand. If your nurse does not place the IV, your anesthesiologist will do it in the operating room.

Meet with an anesthesiologist

You'll also meet with an anesthesiologist before surgery. They will:

- Review your medical history with you.
- Ask if you've had any problems with anesthesia in the past, including nausea or pain.
- Talk with you about your comfort and safety during your surgery.
- Talk with you about the kind of anesthesia you'll get.
- Answer your questions about your anesthesia.

Get ready for surgery

When it's time for your surgery, you'll need to take off your eyeglasses, hearing aids, dentures, prosthetic devices, wig, and religious articles.

You'll either walk into the operating room or a staff member will bring you there on a stretcher. Babies and young children may be carried into the operating room. A member of the operating room team will help you onto the operating bed.

Once you're comfortable, your anesthesiologist will give you anesthesia and you'll fall asleep. You'll also get fluids through your implanted port, CVC, or IV line during and after your surgery.

During your surgery

After you're fully asleep, your care team will place a breathing tube through your mouth into your airway. It will help you breathe. They'll also place a urinary (Foley) catheter in your bladder. It will drain your urine (pee) during your surgery.

Your care team will shave a small amount of hair on your head, if needed.

Once they finish your surgery, your surgeon will close your incision with staples or stitches. They'll cover your incision with a bandage or head wrap.

Your breathing tube is usually taken out while you're still in the operating room.

Recovering after your LITT surgery

This section will help you know what to expect after your surgery. You'll learn how to safely recover from your surgery both in the hospital and at home.



As you read this section, write down questions to ask your healthcare provider. You can use the space below.

Notes _____

In the Pediatric Intensive Care Unit (PICU) or Post-Anesthesia Care Unit (PACU)

When you wake up after your surgery, you'll be in the PICU or PACU. If you're in the PACU, a staff member will bring you to the PICU as soon as a bed is ready.

A nurse will be keeping track of your temperature, pulse, blood pressure, and oxygen levels. You may still have a breathing tube. If you don't, you may get oxygen through a thin tube that rests below your nose or a mask that covers your nose and mouth.

Pain medicine

Right after your surgery, you will get IV pain medicine through your implanted port, CVC, or IV line. Tell one of your healthcare providers if your pain isn't managed.

Physical therapy and occupational therapy

If you need help moving, crawling, walking, playing, or doing self-care tasks after your surgery, a physical therapist (PT), occupational therapist (OT), or both may visit you.

- Your PT can help you move and function better after surgery. They'll help you get back the strength, balance, and coordination you need to do things like crawling, walking, climbing stairs, playing, or doing sports.
- Your OT can help you improve the skills you need to do important everyday activities. They'll help you if you have trouble with self-care tasks (such as getting dressed and brushing your teeth), play activities, or skills you need for school or work.

Your PT and OT will talk with you about how often you will have physical therapy, occupational therapy, or both. To learn more, read *Staying Active Before and After Surgery for Pediatric Patients*. You can find it at www.msk.org/pe/staying_active_peds or ask for a printed copy.

Tubes and drains

You may have the following tubes and drains. Your healthcare provider will talk with you about what to expect.

- **A urinary (Foley) catheter:** This is a tube that drains urine from your bladder. Your care team will keep track of how much urine you're making while you're in the hospital.
- **An IV:** You will get fluids and medicine through your IV after surgery.

Moving to your hospital room

Once you're fully awake, a staff member will bring you to your hospital room. Your room will be in one of these places:

- The Pediatric Intensive Care Unit (PICU)
- The Neurology Advanced Care Unit (NACU)
- The Adult Intensive Care Unit (ICU)

The place your room is depends on your age and condition.

In your hospital room

The length of time you're in the hospital after your surgery depends on your recovery. Most people stay in the hospital for 1 to 2 nights.

In your hospital room, you will meet one of the nurses who will care for you during your stay.

Your healthcare providers will teach you how to care for yourself while you're healing from your surgery.

You will be asked to move your arms, fingers, toes, and legs often. Your nurse will check your pupils with a flashlight and ask questions such as "What is your name?"

Depending on your treatment plan, you may start to work with a physical therapist. Over the next couple of days, you will increase your activity until you're ready to go home.

Imaging scans after surgery

You may need an MRI or CT scan before you're discharged. This will show your healthcare provider if you have any tumor left after your surgery. It will also show how much swelling you have in the area.

Your healthcare provider will give you more information.

Managing your pain

You may have some pain after your surgery. At first, you'll get your pain medicine through your IV line. Once you're able to eat, you'll get oral pain medicine (medicine you swallow).

Your healthcare providers will ask you about your pain often and give you medicine as needed. If your pain is not relieved, tell one of your healthcare providers. It's important to control your pain so you can use your incentive spirometer and move around. Controlling your pain can help you recover faster.

You'll get a prescription for pain medicine before you leave the hospital. Talk with your healthcare provider about possible side effects. Ask them when to start switching to over-the-counter pain medicine.

You may feel dizzy, nauseous, or have a headache after your surgery. You will get medicine to help with these symptoms.

You may have a sore throat after your surgery. This is because of the breathing tube you had during surgery. Lozenges and cool liquids can make you more comfortable.

Managing pain through integrative medicine

Our Integrative Medicine specialists can support you if you're having pain after surgery. We can help you practice mindfulness and meditation through breathing exercises, mindful movement, and use of guided imagery.

Massage techniques and music therapy may provide comfort. Playfulness through dancing can shift your mood and take your focus off your pain. If you're interested in managing pain through integrative medicine, ask a member of your care team for an Integrative Medicine consult.

Moving around and walking

Moving around and walking will help lower your risk for blood clots and pneumonia (lung infection). It will also help you start passing gas and having bowel movements (pooping) again. Your nurse, physical therapist, or occupational therapist will help you move around, if needed.

Read *Frequently Asked Questions About Walking After Your Surgery* to learn more about how walking after surgery can help you recover. You can find it at www.msk.org/pe/walking_after_surgery or ask for a printed copy.

Read *Call! Don't Fall! for Pediatric Patients* to learn what you can do to stay safe and keep from falling while you're in the hospital. You can find it at www.msk.org/pe/call_dont_fall_peds or ask for a printed copy.

Eating and drinking

You will most likely be able to drink liquids a few hours after your surgery. After that, you will slowly go back to your normal diet.

If you have questions about your diet, ask to see an MSK Kids clinical dietitian nutritionist.

Leaving the hospital

Before you leave, look at your incision with one of your healthcare providers. Knowing what it looks like will help you notice any changes later.

Your healthcare provider will write your discharge order and prescriptions. You'll also get written discharge instructions. One of your healthcare providers will review them with you before you leave.

At home

Read *What You Can Do to Avoid Falling* to learn what you can do to keep from falling at home and during your appointments at MSK. You can find it at www.msk.org/pe/avoid_falling or ask for a printed copy.

Managing your pain

People have pain or discomfort for different lengths of time. You may still have some pain when you go home and will probably be taking pain medicine. Some people have soreness, tightness, or muscle aches around their incision for 6 months or longer. This does not mean something is wrong.

Follow these guidelines to help manage your pain at home.

- Take your medicine(s) as directed and as needed.
- Call your healthcare provider if the medicine prescribed for you does not help your pain.
- Do not drive or drink alcohol while you're taking prescription pain medicine. Some prescription pain medicines can make you drowsy (very sleepy). Alcohol can make the drowsiness worse.
- As your incision heals, you'll have less pain and need less pain medicine. An over-the-counter pain reliever will help with aches and discomfort. Acetaminophen (Tylenol®) and ibuprofen (Advil® or Motrin®) are examples of over-the-counter pain relievers. **Call your healthcare provider before taking ibuprofen (Advil® or Motrin®).**
 - Follow your healthcare provider's instructions for stopping your prescription pain medicine.
 - Do not take too much of any medicine. Follow the instructions on the label or from your healthcare provider.
 - Read the labels on all the medicines you're taking. This is very important if you're taking acetaminophen. Acetaminophen is an ingredient in many over-the-counter and prescription medicines. Taking too much can harm your liver. Do not take more than one medicine that has acetaminophen without talking with a member of your care team.
- Pain medicine should help you get back to your normal activities. Take enough medicine to do your activities and exercises comfortably. It's normal for your pain to increase a little as you start to be more active.
- Keep track of when you take your pain medicine. It works best 30 to 45 minutes after you take it. Taking it when you first have pain is better than waiting for the pain to get worse.

Some prescription pain medicines, such as opioids, may cause constipation. Constipation is when you poop less often than usual, have a harder time pooping, or both.

Medicines after surgery

Your healthcare provider may give you any of these medicines after your surgery:

- Pain medicine for headaches and pain relief.
- Steroids to lower the swelling in your brain.
- An antacid to protect your stomach while you're taking steroids.
- A stool softener to help prevent constipation.
- Antibiotics to prevent infection.
- Antiseizure medicine to help prevent seizures. If you were taking antiseizure medicine before your surgery, keep taking it unless your care team gives you other instructions.

You can take your usual medicines right away after your surgery, but don't take aspirin, products containing aspirin, or NSAIDs (such as ibuprofen).

Your surgeon will tell you when it's OK to take these medicines.

To learn more, read *How To Check if a Medicine or Supplement Has Aspirin, Other NSAIDs, Vitamin E, or Fish Oil*. You can find it in the "Educational resources" section of this guide.

Caring for your incision

Take a shower every day

Take a shower every day to clean your incision. Follow the instructions in the "Showering" section.

Remove your bandage or head wrap, if you have one

If you have a bandage or head wrap over your incision, your surgeon will take it off 1 to 2 days after your surgery. After that, you can leave the incision uncovered. Once your incision is healed, it does not need to be covered.

Protect your incision from the sun

Protect your incision from the sun by wearing a hat or scarf. You should also wear sunscreen, but make sure your incision is fully healed before you put sunscreen on it.

Do not put anything on your incision

As your incision heals, it may burn, itch, or feel numb. **Do not put on any creams, sunscreens, ointments, hair products, or use a hairdryer on your incision until it is completely healed.** This may take about 6 weeks.

It's common for the skin below your incision to feel numb. This happens because some of your nerves were cut during your surgery. The numbness will go away over time.

Remove your stitches or staples

If you go home with stitches or staples in your incision, your healthcare provider will take them out during your first appointment after surgery. It's OK to get them wet.

Call your healthcare provider's office if:

- The skin around your incision is very red or getting more red.
- The skin around your incision is warmer than usual.
- The area around your incision is swollen or getting more swollen.
- You see drainage that looks like pus (thick and milky).
- Your incision smells bad.

Showering

You may shower or bathe 24 hours (1 day) after surgery.

Do not get your incision(s) wet for the first 5 days after surgery. Wear a shower cap to keep your incision from getting wet when you shower. It's best to shower with someone in the bathroom to help you.

Starting 5 days after your surgery, take a shower and wash your hair every day to clean your incision. This helps loosen up any crusting on your incision. It will also help your healthcare provider remove your staples or sutures. If you have staples or stitches in your incision, it's OK to get them wet.

When you wash your hair, use a gentle shampoo, such as baby shampoo. You can gently massage the area near your incision to wash off any dried blood or drainage. You can let the shower water run over your incision.

After you shower, pat the area dry with a clean towel.

Do not let your incision soak in water. If you're taking a bath, do not put your head under water.

Eating and drinking

You can eat all the foods you did before your surgery unless your healthcare provider gives you other instructions. Eating a balanced diet with lots of calories and protein will help you heal after surgery. Try to eat a good protein source (such as meat, cheese, tofu, fish, or eggs) at each meal. You should also try to eat fruits, vegetables, and whole grains.

For tips on adding more calories and protein in your diet, read *Helping Your Child Eat During Treatment*. You can ask for a printed copy or find it at www.msk.org/pe/helping_child_eat.

If you have questions about your diet, ask to see an MSK Kids clinical dietitian nutritionist.

Physical activity and exercise

When you leave the hospital, your incision may look like it's healed on the outside. It will not be healed on the inside. For the first 6 weeks after your surgery:

- Do not lift anything heavier than 10 pounds (4.5 kilograms). This includes a large purse or bag, or backpack. It may be helpful to use a wheeled backpack for heavy textbooks.
- Do not do any high-energy activities, such as jogging and tennis.

Do not play any contact sports, such as football, boxing, or wrestling, until your neurosurgeon says it's OK. Wear a helmet to protect your head. Talk with your healthcare provider for more information.

Exercise, such as walking and stair climbing, will help you gain strength and feel better. Try to walk each day. Have someone next to you to make sure you are safe. Start by walking a little more than you did the day before. Slowly increase the amount you walk.

It's common to have less energy than usual after surgery. Recovery time is different for everyone. Try to do a little more each day, if you can. Always balance activity periods with rest periods. Rest is an important part of your recovery.

Going back to the gym

Ask your healthcare provider when you can go back to the gym.

Going back to school or work

You can go back to school when you feel ready. If you carry heavy textbooks, use a wheeled backpack.

You cannot participate in gym class for at least 6 weeks after your surgery. It will take at least 6 weeks for your skull to heal.

Talk with your healthcare provider about your job. They'll tell you when it may be safe for you to start working again based on what you do. If you move around a lot or lift heavy objects, you may need to stay out a little longer. If you sit at a desk, you may be able to go back sooner.

Driving

Ask your healthcare provider when you can drive. Most people can start driving again 2 weeks after surgery. Do not drive while you're taking pain medicine that may make you drowsy.

If you're taking antiseizure medicines, do not drive until your neurologist tells you it's OK.

You can ride in a car as a passenger at any time after you leave the hospital.

Swimming

Do not swim in a pool or hot tub for at least 2 weeks after your surgery. If your incisions need more time to heal, you may need to wait longer. Your healthcare provider will tell you when it's OK to swim at your first follow-up appointment after your surgery.

Starting other treatments

If you will be starting or continuing other treatments after surgery, such as chemotherapy or radiation, talk with your healthcare provider. They will tell you how soon after surgery you can start. This depends on how you're healing and is different for everyone.

Follow-up appointment

You will have your first follow-up appointment with your healthcare provider 7 to 14 days after your surgery.

Depending on how you're healing, your healthcare provider will take out your stitches or staples during this appointment. Call your neurosurgeon's office to schedule this appointment before you leave the hospital.

Your surgeon may also have you get an MRI about 2 weeks after your surgery.

Managing your feelings

You may have new and upsetting feelings after surgery for a serious illness. Many people say they felt weepy, sad, worried, nervous, irritable, and angry at one time or another. You may find that you cannot control some of these feelings. If this happens, it's a good idea to seek emotional support. Your healthcare provider can refer you to MSK's Counseling Center. You can also reach them by calling 646-888-0200.

The first step in coping is to talk about how you feel. Family and friends can help. Your healthcare providers can reassure, support, and guide you. It's always a good idea to let us know how you, your family, and your friends are feeling emotionally. Many resources are available to you and your family. We're here to help you and your family and friends handle the emotional aspects of your illness. We can help no matter if you're in the hospital or at home.

When to call your healthcare provider



Call your healthcare provider if:

- You have a fever of 100.4 °F (38 °C) or higher.
- You have any drainage from your incision. Your incision should be dry.
- Your incision smells bad.
- You have chills.
- You have seizures (uncontrollable shaking).
- You have trouble staying awake or waking up.
- You feel more tired and are sleeping more than usual.
- You have no feeling or numbness in your arms, legs, or face.
- You have trouble seeing, hearing, or talking.
- You have changes in your mental state such as severe confusion, or changes in your mood or behavior.
- You have severe headaches or neck pain.
- You have nausea (feeling like you're going to throw up).
- You are vomiting (throwing up).
- You have trouble urinating (peeing).
- You don't have control of your bowels or bladder.
- The skin around your incision is very red or getting more red.
- The skin around your incision is warmer than usual.
- The area around your incision is starting to swell or getting more swollen.

Contact information

Monday through Friday from 9 a.m. to 5 p.m., call your healthcare provider's office. After 5 p.m., during the weekend, and on holidays, call 212-639-2000. Ask to speak to the person on call for your healthcare provider.

Support services

This section has a list of support services. They may help you as you get ready for your surgery and recover after your surgery.



As you read this section, write down questions to ask your healthcare provider. You can use the space below.

Notes _____

MSK support services

Admitting Office

212-639-7606

Call if you have questions about your hospital admission, such as asking for a private room.

Anesthesia

212-639-6840

Call if you have questions about anesthesia.

Blood Donor Room

212-639-7643

Call for information if you're interested in donating blood or platelets.

Bobst International Center

888-675-7722

We welcome patients from around the world and offer many services to help. If you're an international patient, call for help arranging your care.

Counseling Center

646-888-0200

Many people find that counseling helps them. Our counseling center offers counseling for individuals, couples, families, and groups. We can also prescribe medicines to help if you feel anxious or depressed. To make an appointment, ask your healthcare provider for a referral or call the number above.

Food Pantry Program

646-888-8055

We give food to people in need during their cancer treatment. For more information, talk with your healthcare provider or call the number above.

Integrative Medicine Service

www.msk.org/integrativemedicine

Our Integrative Medicine Service offers many services to complement (go along with) traditional medical care, including music therapy, mind/body therapies, dance and movement therapy, yoga, and touch therapy. To schedule an appointment for these services, call 646-449-1010.

You can also schedule a consultation with a healthcare provider in the Integrative Medicine Service. They will work with you to come up with a plan for creating a healthy lifestyle and managing side effects. To make an appointment, call 646-608-8550.

MSK Library

library.mskcc.org

212-639-7439

You can visit our library website or call to talk with the library reference staff. They can help you find more information about a type of cancer. You can also visit LibGuides on MSK's library website at libguides.mskcc.org

Nutrition Services

www.msk.org/nutrition

212-639-7312

Our Nutrition Service offers nutritional counseling with one of our clinical dietitian nutritionists. Your clinical dietitian nutritionist will talk with you about your eating habits. They can also give advice on what to eat during and after treatment. To make an appointment, ask a member of your care team for a referral or call the number above.

Patient and Community Education

www.msk.org/pe

Visit our patient and community education website to search for educational resources, videos, and online programs.

Patient and Caregiver Peer Support Program

212-639-5007

It can be comforting to talk with someone who has been through a treatment like yours. You can talk with a former MSK patient or caregiver through our Patient and Caregiver Peer Support Program. Your conversations are private. They can be in person or over the phone.

Patient Billing

646-227-3378

Call if you have questions about preauthorization with your insurance company. This is also called preapproval.

Patient Representative Office

212-639-7202

Call if you have questions about the Health Care Proxy form or concerns about your care.

Perioperative Nurse Liaison

212-639-5935

Call if you have questions about MSK releasing any information while you're having surgery.

Private Duty Nurses and Companions

917-862-6373

You can request private nurses or companions to care for you in the hospital and at home. Call for more information.

Rehabilitation Services

Cancers and cancer treatments can make your body feel weak, stiff, or tight. Some can cause lymphedema (swelling). Our physiatrists (rehabilitation medicine doctors), occupational therapists (OTs), and physical therapists (PTs) can help you get back to your usual activities.

- **Rehabilitation medicine doctors** diagnose and treat problems that affect how you move and do activities. They can design and help coordinate your rehabilitation therapy program, either at MSK or somewhere closer to home. To learn more, call Rehabilitation Medicine (Physiatry) at 646-888-1929.
- An **OT** can help if you're having trouble doing usual daily activities. For example, they can recommend tools to help make daily tasks easier. A **PT** can teach you exercises to help build strength and flexibility. To learn more, call Rehabilitation Therapy at 646-888-1900.

Resources for Life After Cancer (RLAC) Program

646-888-8106

At MSK, care does not end after your treatment. The RLAC Program is for patients and their families who have finished treatment.

This program has many services. We offer seminars, workshops, support groups, and counseling on life after treatment. We can also help with insurance and employment issues.

Social Work

www.msk.org/socialwork

212-639-7020

Social workers help patients, families, and friends deal with common issues for people who have cancer. They provide individual counseling and support groups throughout your treatment. They can help you communicate with children and other family members.

Our social workers can also help refer you to community agencies and programs. They also have information about financial resources, if you're having trouble paying your bills. Call the number above for more information.

Spiritual Care

212-639-5982

Our chaplains (spiritual counselors) are available to listen, help support family members, and pray. They can contact community clergy or faith groups, or simply be a comforting companion and a spiritual presence. Anyone can ask for spiritual support. You do not have to have a religious affiliation (connection to a religion).

MSK's interfaith chapel is located near Memorial Hospital's main lobby. It's open 24 hours a day. If you have an emergency, call 212-639-2000. Ask for the chaplain on call.

Virtual Programs

www.msk.org/vp

We offer online education and support for patients and caregivers. These are live sessions where you can talk or just listen. You can learn about your diagnosis, what to expect during treatment, and how to prepare for your cancer care.

Sessions are private, free, and led by experts. Visit our website for more information about Virtual Programs or to register.

External support services

There are many other support services available to help you before, during, and after your cancer treatment. Some offer support groups and information. Others can help with transportation, lodging, and treatment costs.

Visit www.msk.org/pe/external_support_services for a list of these support services. You can also talk with an MSK social worker by calling 212-639-7020.

Educational resources

This section has the educational resources mentioned in this guide. They will help you get ready for your surgery and recover after your surgery.



As you read these resources, write down questions to ask your healthcare provider. You can use the space below.

Notes _____

These are the educational resources that were mentioned in this guide. You can find them online or ask a member of your care team for a printed copy.

- ***A Guide for Caregivers*** (www.msk.org/pe/guide_caregivers)
- ***Advance Care Planning*** (www.msk.org/pe/advance_care_planning)
- ***Call! Don't Fall! for Pediatric Patients***
(www.msk.org/pe/call_dont_fall_peds)
- ***Frequently Asked Questions About Walking After Your Surgery***
(www.msk.org/pe/walking_after_surgery)
- ***Helping Your Child Eat During Treatment***
(www.msk.org/pe/helping_child_eat)
- ***Herbal Remedies and Cancer Treatment***
(www.msk.org/pe/herbal_remedies)
- ***How to Be a Health Care Agent***
(www.msk.org/pe/health_care_agent)
- ***How To Check if a Medicine or Supplement Has Aspirin, Other NSAIDs, Vitamin E, or Fish Oil*** (www.msk.org/pe/check-med-supplement)
- ***How to Enroll in MyMSK: Memorial Sloan Kettering's Patient Portal***
(www.msk.org/pe/enroll_mymsk)
- ***How To Use Your Incentive Spirometer***
(www.msk.org/pe/incentive_spirometer)
- ***Information for Family and Friends for the Day of Surgery***
(www.msk.org/pe/info_family_friends)
- ***Staying Active Before and After Surgery for Pediatric Patients***
(www.msk.org/pe/staying_active_peds)
- ***What You Can Do to Avoid Falling*** (www.msk.org/pe/avoid_falling)



PATIENT & CAREGIVER EDUCATION

Herbal Remedies and Cancer Treatment

This information explains herbal remedies and how they can affect your treatment.

About Herbal Remedies

Herbal remedies are any herbs, botanical (plant-based) supplements, or dietary supplements you take for their health benefits. These may come as tablets, capsules, powders, teas, liquid extracts, and fresh or dried plants.

Some herbal remedies can help prevent or manage side effects of cancer or your treatment. The herbal remedies that can help you depend on what symptoms you have and what treatment you're getting.

Even though herbal remedies can feel safe, they may not all be safe. Herbal remedies do not go through the same testing as prescription medications to make sure they work and are safe.

Some herbal remedies may be harmful. This is because they can:

- Affect how your other medications work.
- Raise or lower your blood pressure.
- Thin your blood and increase your risk of bleeding.
- Keep radiation therapy from working as well as it should.
- Change how your body reacts to sedation (medication to make you calmer) or general anesthesia (medication to make you sleepy).

Talk with your healthcare provider about any herbal remedies or other

supplements you are taking. They can provide an open and safe space to talk about these products.

For more information about herbs and supplements, visit www.aboutherbs.com or call MSK's Integrative Medicine Service at 646-608-8550.

Stop taking herbal remedies before your treatment

Stop taking herbal remedies and other dietary supplements 7 days (1 week) before you:

- Have surgery.
- Start chemotherapy.
- Start radiation therapy.
- Have certain procedures. Your healthcare provider will let you know if you need to stop taking herbal remedies before your procedure.

Herbal remedies and other dietary supplements can cause bleeding and affect your treatment. Follow your healthcare provider's instructions for when to restart taking herbal remedies.

You can still use some herbs in your food and drinks, such as using spices in cooking and drinking tea. Herbal remedies are stronger than the herbs you cook with.

Common Herbal Remedies and Their Effects

These are some commonly used herbs and their side effects on cancer treatments.

Echinacea (EH-kih-NAY-shuh)

- Can cause rare but serious allergic reactions, such as a rash or trouble breathing.
- Can keep medications that weaken your immune system from working as well as they should.

Garlic

- Can lower your blood pressure and cholesterol levels.
- Can increase your risk of bleeding.

Gingko (also known as Gingko biloba)

- Can increase your risk of bleeding.

Ginseng (JIN-seng)

- Can keep sedation or general anesthesia from working as well as they should.
- Can increase your blood pressure.
- Can increase your risk of bleeding.
- Can lower your blood glucose (sugar) level.

Turmeric (TER-mayr-ik)

- Can keep chemotherapy from working as well as it should.

St. John's Wort

- Can keep some medications from working as well as they should.
- Can make your skin more sensitive to radiation or laser treatment.

Valerian (vuh-LEER-ee-un)

- Can make sedation or general anesthesia affect you more than they should.

Herbal formulas

- Herbal formulas contain many different herbs and dosages.
- Stop taking these products 7 days (1 week) before treatment. Do not start taking herbal formulas again until your healthcare provider tells you it is safe.

This information does not cover all herbal remedies or possible side effects. Talk with your healthcare provider if you have any questions or concerns.

Contact Information

- To schedule a consultation with a healthcare provider in Integrative Medicine, call 646-608-8550.
- To make an appointment for Integrative Medicine Service's therapies, classes, and workshops, call 646-449-1010.

For more information, visit www.mskcc.org/IntegrativeMedicine or read *Integrative Medicine Therapies and Your Cancer Treatment* (www.mskcc.org/pe/integrative_therapies).

For more resources, visit www.mskcc.org/pe to search our virtual library.

Herbal Remedies and Cancer Treatment - Last updated on May 5, 2022

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PATIENT & CAREGIVER EDUCATION

How To Check if a Medicine or Supplement Has Aspirin, Other NSAIDs, Vitamin E, or Fish Oil

This information will help you check if your medicines or dietary supplements have aspirin, other NSAIDs, vitamin E, or fish oil as an active ingredient. NSAID stands for nonsteroidal anti-inflammatory drug.

It's important to stop taking these medicines and supplements before many cancer treatments. They affect your platelets (blood cells that clot to prevent bleeding) and can raise your risk of bleeding.

Other dietary supplements, such as vitamins and herbal remedies, can also affect your cancer treatment. Read *Herbal Remedies and Cancer Treatment* (www.mskcc.org/pe/herbal_remedies) to learn more.

Make sure your healthcare provider always knows all the prescription and over-the-counter medicines and supplements you're taking. This includes patches and creams.

A prescription medicine is one you can only get with a prescription from your healthcare provider. An over-the-counter medicine is one you can buy without a prescription.

What is an active ingredient?

An active ingredient is the part of a medicine or supplement that makes it work. Some medicines and supplements have just one active ingredient. Others have more. For example:

- Ibuprofen is the active ingredient in Advil® and Motrin®. Ibuprofen is an NSAID.
- Naproxen is the active ingredient in Aleve®. Naproxen is an NSAID.
- Acetaminophen is the active ingredient in Tylenol®.
- Aspirin, acetaminophen, and caffeine are the active ingredients in Excedrin®.

Generic medicines sometimes use their active ingredient as their name. But people often call medicines and supplements by a brand name, even if they're generic. This can make it hard to know their active ingredients.

How to find a medicine or supplement's active ingredients

You can always find the active ingredients by reading the label.

Over-the-counter medicines

Over-the-counter medicines list their active ingredients in the "Drug Facts" label (see Figure 1). Active ingredients are always the first thing on the Drug Facts label.



Figure 1. Active ingredients on an over-the-counter medicine label

Prescription medicines

Prescription medicines list their active ingredients on the label. Their active ingredients and their generic name are the same thing.

Labels often look different depending on which pharmacy you use. Here’s an example of where to find a medicine’s active ingredients (generic name) on a label from MSK’s pharmacy (see Figure 2).

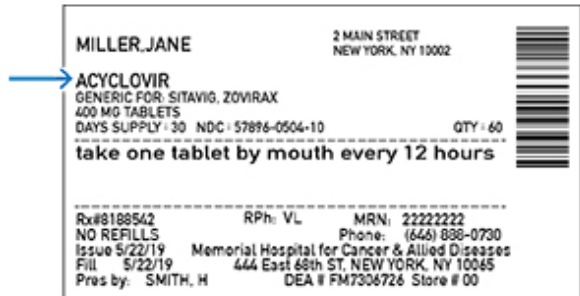


Figure 2. Active ingredients on a prescription medicine label

Dietary supplements

Dietary supplements list their active ingredients in the “Supplement Facts” label (see Figure 3). The active ingredients always have an amount per serving and % daily value included.

	Amount Per Serving	% Daily Value
Vitamin A (as retinyl acetate and 50% as beta-carotene)	5000 IU	100%
Vitamin C (as ascorbic acid)	60 mg	100%
Vitamin D (as cholecalciferol)	400 IU	100%
Vitamin E (as di-alpha tocopheryl acetate)	90 IU	100%
Thiamin (as thiamin mononitrate)	1.5 mg	100%
Riboflavin	1.7 mg	100%
Niacin (as niacinamide)	20 mg	100%
Vitamin B ₆ (as pyridoxine hydrochloride)	2.0 mg	100%
Folate (as folic acid)	400 mcg	100%
Vitamin B ₁₂ (as cyanocobalamin)	6 mcg	100%
Biotin	30 mcg	10%
Pantothenic Acid (as calcium pantothenate)	10 mg	100%

Other ingredients: Gelatin, lactose, magnesium stearate, microcrystalline cellulose, FD&C Yellow No. 6, propylene glycol, propylparaben, and sodium benzoate.

Figure 3. Active ingredients on a supplement label

Active ingredients to look for

If your medicine or supplement has any of these active ingredients, you may need to stop taking it before, during, or after your cancer treatment or surgery. Follow your care team's instructions.

Active ingredients to look for		
<ul style="list-style-type: none">• Acetylsalicylic acid• Alpha-linolenic acid (ALA)• Aspirin• Acetaminophen*• Celecoxib• Diclofenac• Diflunisal• Docosahexaenoic acid (DHA)• Eicosapentaenoic acid (EPA)	<ul style="list-style-type: none">• Etodolac• Fish oil• Fenoprofen Flurbiprofen• Ibuprofen• Indomethacin• Ketoprofen• Ketorolac• Meclofenamate• Mefenamic acid• Meloxicam	<ul style="list-style-type: none">• Nabumetone• Naproxen• Omega-3 fatty acids• Omega-6 fatty acids• Oxaprozin• Piroxicam• Sulindac• Tolmetin• Vitamin E

* The full name acetaminophen isn't always written out. Look for the common abbreviations listed below, especially on prescription pain relievers.

Common abbreviations for acetaminophen		
<ul style="list-style-type: none">• APAP• Acetamin	<ul style="list-style-type: none">• AC• Acetam	<ul style="list-style-type: none">• Acetaminop• Acetaminoph

About acetaminophen (Tylenol)

In general, acetaminophen is safe to take during cancer treatment. It doesn't affect platelets. That means it will not raise your chance of bleeding. If you're getting chemotherapy, talk with your healthcare provider before taking acetaminophen.

There is a limit to how much acetaminophen you can take in a day. Always follow the instructions from your care team or on the medicine's label.

Acetaminophen is in many different prescription and over-the-counter medicines. It's possible to take too much without knowing. **Always read the label on the medicines you take.** Do not take more than 1 medicine that has acetaminophen at a time without talking with a member of your care team.

Instructions before your cancer treatment

Tell your healthcare provider if you take aspirin, other NSAIDs, vitamin E, or fish oil. They'll tell you if you need to stop taking it. You'll also find instructions in the information about your treatment.

Before your surgery

Follow these instructions if you're having surgery or a surgical procedure. **If your healthcare provider gives you other instructions, follow those instead.**

- If you take aspirin or a medicine that has aspirin, you may need to change your dose or stop taking it 7 days before your surgery. Follow your healthcare provider's instructions. **Do not stop taking aspirin unless your healthcare provider tells you to.**
- If you take vitamin E, fish oil, or a supplement that has vitamin E or fish oil, stop taking it 7 days before your surgery or as directed by your healthcare provider.
- If you take an NSAID or a medicine that has an NSAID, stop taking it 48 hours (2 days) before your surgery or as directed by your healthcare provider.

Before your radiology procedure

Follow these instructions if you're having a radiology procedure (including Interventional Radiology, Interventional Mammography, Breast Imaging, and General Radiology). **If your healthcare provider gives you other instructions, follow those instead.**

- If you take aspirin or a medicine that has aspirin, you may need to stop taking it 5 days before your procedure. Follow your healthcare provider's instructions. **Do not stop taking aspirin unless your healthcare provider tells you to.**
- If you take an NSAID or a medicine that has an NSAID, you may need to stop taking it 24 hours (1 day) before your procedure. Follow your healthcare provider's instructions.

Before and during your chemotherapy

Chemotherapy can lower your platelet count, which can increase your risk of bleeding. No matter if you're just starting chemotherapy or have been getting it, talk with your healthcare provider before taking aspirin, other NSAIDs, vitamin E, or fish oil.

If you have any questions, contact a member of your care team directly. If you're a patient at MSK and you need to reach a provider after 5 p.m., during the weekend, or on a holiday, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

How To Check if a Medicine or Supplement Has Aspirin, Other NSAIDs, Vitamin E, or Fish Oil - Last updated on November 29, 2023

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PATIENT & CAREGIVER EDUCATION

How To Use Your Incentive Spirometer

This information will help you learn how to use your incentive spirometer (in-SEN-tiv spy-rah-MEE-ter). It also answers some common questions about it.

About your incentive spirometer

After your surgery you may feel weak and sore, and it may be uncomfortable to take deep breaths. Your healthcare provider may recommend using a device called an incentive spirometer (see Figure 1). It helps you practice taking deep breaths.

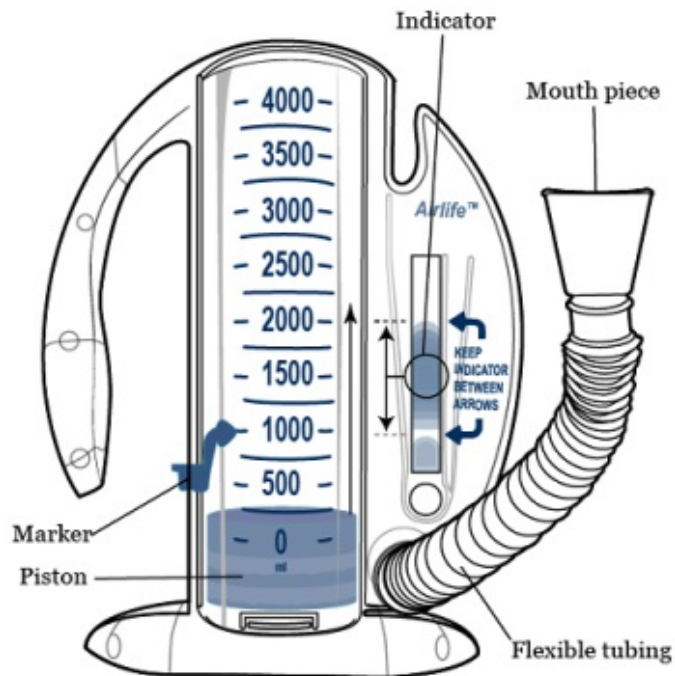


Figure 1. Parts of an incentive spirometer

It's important to use your incentive spirometer after your surgery. Using an incentive spirometer:

- Helps your lungs expand so you can take deep, full breaths.
- Exercises your lungs and makes them stronger as you heal from surgery.

If you have a respiratory infection, do not use your incentive spirometer around other people. A respiratory infection is an infection in your nose, throat, or lungs, such as pneumonia (noo-MOH-nyuh) or COVID-19. This kind of infection can spread from person to person through the air.

How to use your incentive spirometer

Here is a video that shows how to use your incentive spirometer:



Please visit www.mskcc.org/pe/incentive_spirometer_video to watch this video.

Setting up your incentive spirometer

Before you use your incentive spirometer for the first time, you will need to set it up. First, take the flexible (bendable) tubing out of the bag and stretch it out. Then, connect the tubing to the outlet on the right side of the base (see Figure 1). The mouthpiece is attached to the other end of the tubing.

Knowing what number to aim for on your incentive spirometer

Your healthcare provider will teach you how to use your incentive spirometer before you leave the hospital. They will help you set a goal and tell you what number to aim for when using your spirometer. If a goal was not set for you, talk with your healthcare provider. Ask them what number you should aim for.

You can also check the package your incentive spirometer came in. It may have a chart to help you figure out what number to aim for. To learn more, read "What number I should aim for?" in the "Common questions about your

incentive spirometer” section.

Using your incentive spirometer

When using your incentive spirometer, make sure to breathe through your mouth. If you breathe through your nose, your spirometer will not work right.

Follow these steps to use your incentive spirometer. Repeat these steps every hour you’re awake. Follow the instructions from your healthcare provider if they’re different from the ones here.

1. Sit upright in a chair or in bed. Hold your incentive spirometer at eye level.
2. Put the mouthpiece in your mouth and close your lips tightly around it. Make sure you do not block the mouthpiece with your tongue.
3. With the mouthpiece in your mouth, breathe out (exhale) slowly and fully.
 - Some people may have trouble exhaling with the mouthpiece in their mouth. If you do, take the mouthpiece out of your mouth, and then exhale slowly and fully. After you exhale, put the mouthpiece back in your mouth and go on to step 4.
4. Breathe in (inhale) slowly through your mouth, as deeply as you can. You will see the piston slowly rise inside the spirometer. The deeper you breathe in, the higher the piston will rise.
5. As the piston rises, the coaching indicator on the right side of the spirometer should also rise. It should float between the 2 arrows (see Figure 1).
 - The coaching indicator measures the speed of your breath. If it does not stay between the 2 arrows, you’re breathing in either too fast or too slow.
 - If the indicator rises above the higher arrow, you’re breathing in too fast. Try to breathe in slower.
 - If the indicator stays below the lower arrow, you’re breathing in too slow. Try to breathe in faster.

6. When you cannot breathe in any further, hold your breath for at least 3 to 5 seconds. Hold it for longer if you can. You will see the piston slowly fall to the bottom of the spirometer.
7. Once the piston reaches the bottom of the spirometer, breathe out slowly and fully through your mouth. If you want, you can take the mouthpiece out of your mouth first and then breathe out.
8. Rest for a few seconds. If you took the mouthpiece out of your mouth, put it back in when you're ready to start again.
9. Repeat steps 1 to 8 at least 10 times. Try to get the piston to the same level with each breath. After you have done the exercise 10 times, go on to step 10.
10. Use the marker on the left side of the spirometer to mark how high the piston rises (see Figure 1). **Look at the very top of the piston, not the bottom. The number you see at the top is the highest number the piston reached. Put the marker there.** This is how high you should try to get the piston the next time you use your spirometer.
 - Write down the highest number the piston reached. This can help you change your goals and track your progress over time.

Take 10 breaths with your incentive spirometer every hour you're awake.

Cover the mouthpiece of your incentive spirometer when you're not using it.

Tips for using your incentive spirometer

Follow these tips when using your incentive spirometer:

- If you had surgery on your chest or abdomen (belly), it may help to splint your incision (surgical cut). To do this, hold a pillow firmly against your incision. This will keep your muscles from moving as much while you're using your incentive spirometer. It will also help ease pain at your incision.
- If you need to clear your lungs, you can try to cough a few times. As

you're coughing, hold a pillow against your incision, as needed.

- If you feel dizzy or lightheaded, take the mouthpiece out of your mouth. Then, take a few normal breaths. Stop and rest for a while, if needed. When you feel better, you can go back to using your incentive spirometer.
- You may find it hard to use your incentive spirometer at first. If you cannot make the piston rise to the number your healthcare provider set for you, it's OK. Reaching your goal takes time and practice. It's important to keep using your spirometer as you heal from surgery. The more you practice, the stronger your lungs will get.

Common questions about your incentive spirometer

How often should I use my incentive spirometer?

How often you will need to use your incentive spirometer is not the same for everyone. It depends on the type of surgery you had and your recovery process.

Most people can take 10 breaths with their spirometer every hour they're awake.

Your healthcare provider will tell you how often to use your spirometer. Follow their instructions.

How long after my surgery will I need to use my incentive spirometer?

The length of time you will need to use your incentive spirometer is not the same for everyone. It depends on the type of surgery you had and your recovery process.

Your healthcare provider will tell you how long you need to use your spirometer. Follow their instructions.

How do I clean my incentive spirometer?

An incentive spirometer is a disposable device and only meant to be used for a short time. Because of this, you may not find cleaning instructions in the package your spirometer came in. If you have questions about cleaning your spirometer, talk with your healthcare provider.

What do the numbers on my incentive spirometer measure?

The large column of your incentive spirometer has numbers on it (see Figure 1). These numbers measure the volume of your breath in milliliters (mL) or cubic centimeters (cc). The volume of your breath is how much air you can breathe into your lungs (inhale).

For example, if the piston rises to 1500, it means you can inhale 1500 mL or cc of air. The higher the number, the more air you're able to inhale, and the better your lungs are working.

What number I should aim for?

The number you should aim for depends on your age, height, and sex. It also depends on the type of surgery you had and your recovery process. Your healthcare provider will look at these things when setting a goal for you. They will tell you what number to aim for.

Most people start with a goal of 500 mL or cc. Your healthcare provider may change your goal and have you aim for higher numbers as you heal from surgery.

The package your incentive spirometer came in may have a chart. You can use the chart to set your goal based on your age, height, and sex. If you cannot find this information, ask your healthcare provider what your goal should be.

What does the coaching indicator on my incentive spirometer measure?

The coaching indicator on your incentive spirometer measures the speed of your breath. As the speed of your breath changes, the indicator moves up and down.

Use the indicator to guide your breathing. If the indicator rises above the higher arrow, it means you're breathing in too fast. If the indicator stays below the lower arrow, it means you're breathing in too slow.

Aim to keep the indicator between the 2 arrows (see Figure 1). This means your breath is steady and controlled.

When to call your healthcare provider

Call your healthcare provider if you have any of these when using your incentive spirometer:

- Feel dizzy or lightheaded.
- Pain in your lungs or chest.
- Severe (very bad) pain when you take deep breaths.
- Trouble breathing.
- Coughing up blood.
- Fluid or blood coming from your incision site when you cough.
- Trouble using your spirometer for any reason.

If you have any questions, contact a member of your care team directly. If you're a patient at MSK and you need to reach a provider after 5 p.m., during the weekend, or on a holiday, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

How To Use Your Incentive Spirometer - Last updated on November 24, 2023

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What You Can Do to Avoid Falling

This information describes what you can do to keep from falling when you come for your appointments at Memorial Sloan Kettering (MSK). It also describes how you can keep from falling while you're at home.

About Falls

Falls can be very harmful, but there are many ways you can prevent them. Falls can delay your treatment and can make your hospital stay longer. They can also cause you to need more tests, such as magnetic resonance imaging (MRI). Ongoing cancer treatment may also increase your chances of falling and getting hurt.

Things That Can Make You Fall

Anyone can fall, but some things make you more likely to fall. You're at higher risk for falling if you:

- Are 60 years old or older
- Have fallen before
- Are afraid of falling
- Feel weak, tired, or forgetful
- Have numbness or tingling in your legs or feet
- Have trouble walking or are unsteady
- Can't see well
- Can't hear well
- Feel dizzy, lightheaded, or confused

- Use a walker or cane
- Have depression (strong feelings of sadness) or anxiety (strong feelings of worry or fear)
- Have had a recent surgery with anesthesia (medication that makes you sleep)
- Take certain medications, such as:
 - Laxatives (pills to cause a bowel movement)
 - Diuretics (water pills)
 - Sleeping pills
 - Medications to prevent seizures
 - Some medications for depression and anxiety
 - Pain medications, such as opioid medications
 - Intravenous (IV) fluids (fluids into your vein)
 - Any medication that makes you feel sleepy or dizzy

How to Avoid Falling During Your MSK Appointments

The following are tips to help you stay safe and avoid falling while you're at MSK:

- Come to your appointment with someone who can help you get around.
- If you use an assistive device such as a wheelchair or cane, bring it to your appointment.
- Wear safe, supportive shoes. Examples include shoes that have a low heel height, a thin, firm midsole, a slip-resistant sole, and laces or Velcro® to close the shoe. Don't wear shoes with an open back. For more information on choosing safe shoes, read the resource *How to Choose Safe Shoes to Prevent Falling* (www.mskcc.org/pe/safe_shoes).
- Ask a member of our staff, such as a security guard or person at the front desk, for help while you're at MSK. They can also bring you a wheelchair to use

during your appointment.

- Have someone help you while you're in the dressing room or bathroom. If you don't have anyone with you, tell the person at the reception desk. They will find a nurse to help you.
- Use the grab bars while you're in the bathroom.
- When getting up after lying down, sit at the side of the bed or exam table before you stand up
- When getting up after sitting, don't rush and take your time to stand up, so you don't lose your balance.
- If you feel dizzy or weak, tell someone. If you're in a bathroom, look for a call bell that you can use to call for help.

How to Avoid Falling at Home

The following are tips to help you stay safe and avoid falling at home:

- Set up your furniture so that you can walk around without anything blocking your way.
- Use a nightlight or keep a flashlight close to you at night.
- Remove rugs and other loose items from your floor. If you have a rug covering a slippery floor, make sure the rug doesn't have any loose or fringed edges.
- If your bathroom isn't close to your bedroom (or wherever you spend most of your time during the day), get a commode. A commode is a type of portable toilet that you can put anywhere in your home. Place it nearby so you don't have to walk to the bathroom.
- Put grab bars and handrails next to your toilet and inside your shower. Never use towel racks to pull yourself up. They aren't strong enough to hold your weight.
- Put anti-slip stickers on the floor of your tub or shower.
- Buy a shower chair and a hand-held shower head so you can sit while taking a shower.

- When getting up after you're lying down, sit for a few minutes before you stand up.
- Place items in your kitchen and bathroom cabinets at shoulder height so you don't have to reach too high or bend too low.
- When you're at an appointment with your provider at MSK, tell them about all the medications you take. Some medications can increase your risk of falling. This includes prescription and over-the-counter medications.
- Stay physically active. Doing simple daily activities, such as walking, can help you stay strong and move around better.

If you're concerned about your risk for falling, talk with your healthcare provider.

Additional Resources

For more information about how to keep from falling at home, read the Centers for Disease Control and Prevention (CDC) booklet *Check for Safety: A Home Fall Prevention Checklist for Older Adults*. It's available in English and Spanish on www.cdc.gov/steady/patient.html or by calling 800-CDC-INFO (800-232-4636).

If you have any questions, contact a member of your healthcare team directly. If you're a patient at MSK and you need to reach a provider after 5:00 PM, during the weekend, or on a holiday, call 212-639-2000.

For more resources, visit www.mskcc.org/pe to search our virtual library.

What You Can Do to Avoid Falling - Last updated on December 20, 2019
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