Memorial Sloan Kettering Cancer Center

PATIENT & CAREGIVER EDUCATION

About Your FDG PET-MRI

This information will help you get ready for your magnetic resonance imaging (MRI) with positron emission tomography (PET) scan.

Metal and electronic devices can disrupt the MRI scanner's magnetic field. Tell the person doing your MRI if you have metal or electronic devices or objects in your body. It may not be safe for you to have an MRI. Your doctor will order a different test if an MRI isn't safe for you.

Call 646-227-2323 if you have any of these devices:

- Pacemaker
- Automatic implantable cardioverter-defibrillator (AICD)
- Breast tissue expander
- Aneurysm clip

Call your doctor's office if you have any other questions about your MRI.

About PET-MRI scans

A PET-MRI scan is an imaging procedure used to:

- Find cancer cells.
- Plan your treatment.
- See how your treatment is working.

You will have MRI images taken at the same time as your PET scan. MRI is an imaging procedure that uses strong magnetic fields to take pictures of the inside of your body. The MRI pictures are combined with your PET scan to create pictures of your soft tissues and bones.

Most PET scans are done to study your body's use of glucose (a type of sugar). This is because cancerous cells take in glucose faster than normal tissue. Glucose comes from many foods and drinks, so it's important to follow certain eating and drinking guidelines. These are listed in "What to do the day of your PET-MRI" section of this resource.

The PET-MRI table is on a track that slides into the machine. The machine is like a long tunnel that is open at both ends. Most PET-MRI scans take about 30 to 45 minutes.

You'll need to lay still inside the PET-MRI machine during your scan. The machine will make loud noises during your scan. Talk with your healthcare provider if this may make you uncomfortable, anxious, cause pain, or if you have claustrophobia. They can help plan ways to help you feel more comfortable during your PET-MRI.

You can also use breathing exercises before or during your scan to help you feel more comfortable. Read the "Exercises to Help You Relax for Your PET-MRI" section of this resource for more information.

Things you may get the day of your PET-MRI

Tracer

You'll get a radioactive medicine called a tracer before your PET-MRI. The tracer is attached to a substance your cells and tissues use. Cancer cells do not use the substance the same way as healthy cells. The radioactive part of the tracer lets your healthcare provider see how your cells use the substance. This helps them find cancer cells.

The tracer doesn't stay in your body long. It leaves your body mainly through your urine.

You will get the tracer through an intravenous (IV) line we place in your arm or hand. If you have a central venous catheter (CVC), we will only use it for the tracer if we cannot place an IV for any reason. This is because the PET-MRI images are clearer if you get the tracer through an IV.

Your PET-MRI will use FDG as the tracer.

Contrast

You may need to get contrast the day of your MRI. Contrast is a special dye that helps make the images from your scan clearer. For MRI scans, contrast goes into your bloodstream.

If you're getting contrast, you'll get it through a catheter in your vein. Your nurse will place the IV line in one of your veins, usually in your arm or hand. Talk to your nurse if you have a CVC.

Tell your healthcare provider if you have had a reaction to MRI contrast before. You may get medicine to lower your risk of having another allergic reaction. If you do, you'll get a resource called *Preventing An Allergic Reaction to Contrast Dye* (www.mskcc.org/pe/allergic-reaction-contrast).

Contrast will leave your body through your urine (pee) within 1 to 2 days.

Anesthesia

If you are having an PET-MRI with anesthesia (medicine to make you sleepy), read the "For people getting anesthesia" section of this resource. This has information about how to get ready for your MRI with anesthesia.

Getting ready for your PET-MRI

Take devices off your skin

If you wear any of these devices on your skin, you may need to take it off before your PET-MRI:

- Most medicine patches
- Continuous glucose monitor (CGM)

- Insulin pump

If you change your device, talk with your healthcare provider about scheduling your appointment closer to the date you need to change it. Make sure you have an extra device or medicine patch with you to put on after your PET-MRI.

If you have a medical implant or device, ask the healthcare provider who put it in for the exact name and manufacturer. If you don't have this information, you may need to reschedule your PET-MRI.

Diabetes care

If you have diabetes, talk to your doctor who ordered your test. They will tell you how to manage your medicine before your PET-MRI.

Breastfeeding and pregnancy

Your healthcare provider will ask you if you're pregnant or think you may be pregnant. If you are pregnant, your doctor may choose not to give you contrast. If you think you may be pregnant, we will do a urine pregnancy test before your PET-MRI with contrast.

Stop breastfeeding for 4 hours after your scan. You can still express (pump) milk during that time.

You can then either:

- Throw away the pumped milk.
- Store the pumped milk for 4 hours. After that, it's safe to give to the baby.

During this time, you can feed the baby with formula or milk that was expressed before the scan.

If you have questions, talk to your doctor about your options. You can also talk to the radiologist on the day of your PET-MRI.

What to do the day before your PET-MRI

If you are having anesthesia during your MRI, your healthcare provider will go over specific instructions. Read the “For people getting anesthesia” section of this resource for more information.

Avoid high-energy and repetitive activities

Avoid high-energy activity and repetitive motions for 24 hours before your scan. This includes running, jogging, or cycling. These activities can lower the quality of the images that we get from your PET-MRI.

Stay warm

It’s important that you stay warm the day before and the day of your scan. If you get cold, a special type of fat becomes active. This can make it hard for your radiologist (doctor who specializes in reading scans) to read your PET-CT. Staying warm will keep the fat from becoming active and make the pictures from your scan clearer.

Follow these instructions:

- Avoid areas where you may become too cold.
- Keep your hands and feet warm at all times.
- In the winter, dress extra warmly. Wear hats, scarves, gloves, and extra layers.
- In the summer, avoid turning on your air conditioner to very high.
- Bring a sweater with you to your appointment.

What to do the day of your PET-MRI

Continue to avoid high-energy and repetitive activities until after your scan.

If you are not getting anesthesia, follow the instructions below. You may not be able to have your PET-CT if you do not follow these instructions before your procedure.

For 6 hours before you arrive for your scan:

- Do not eat anything.
- Do not chew gum or suck on hard candy, mints, or cough drops.
- You may drink only water.
- If you take medicines, take them with water only.

If you are getting anesthesia, read the “For people getting anesthesia” section at the end of this resource.

Things to remember

- Take only the medicine your doctor told you to take the morning of your procedure. Take them with water only.
- Know the time and location of your MRI. You can check the patient portal or call your doctor’s office to confirm. Please note the arrival time for your appointment on the patient portal.
- If you wear a medicine patch on your skin, bring an extra one with you.
- Leave any valuables at home if they are not needed. This includes credit cards and jewelry. Jewelry can make the images from your scan harder to read. Certain metals can also heat up and cause burns during your scan. Tell a member of your care team if you cannot remove your jewelry before the day of your scan.
- You may be taking medicine for anxiety or to help you relax during your MRI. If you are, take the medicine 30 to 60 minutes before your MRI.
- If you’re wearing nail polish with metal in it, tell a radiology staff member when you check in. This is because the metal in the nail polish may make the images from your scan hard to read. You’ll need to put your hands in a different position during your scan.

What to expect when you arrive

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 similar names may be having a procedure on the same day. Once you're in the department, you'll fill out a brief questionnaire.

Your care team will prick your finger or draw blood from your arm to measure your blood glucose (sugar). Your blood sugar level needs to be between 70 milligrams per deciliter (mg/dL) and 199 mg/dL.

If your blood sugar level is 200 mg/dL or above, you may need to get insulin. Your scan may need to be rescheduled if your blood sugar level is above 200 mg/dL or below 70 mg/dL.

Your care team will inject the tracer into your vein. You'll wait about 60 minutes for your body to absorb the tracer. How long this takes will depend on the area of your body being scanned. You will also get contrast to drink at this time.

Try to relax and limit your movement during this time. You can sleep, read, listen to music, or watch videos while you're waiting. Ask for a blanket if you feel cold.

Your care team will ask you to urinate (pee) just before your scan.

Going into the MRI scan room

When it's time for your PET-MRI, you'll remove your hearing aids, glasses, and dentures, if you have them. You'll place your clothing and all of your items (phone, jewelry, coins, glasses, bags) into a secure locker. Even a small amount of metal can fly into the magnet. Leave any valuables at home if they are not needed.

You'll either walk into the procedure room or a staff member will bring you there on a stretcher.

Inside the MRI scan room

A member of your care team will help you onto the MRI table. The technologist will place a frame or padded covering over the part of your body that is being scanned. It has coils that capture images of your body during your scan. Your healthcare provider will use these images to plan your care.

The machine makes loud noises during the scan. Your technologist will give you earplugs or headphones to listen to music to protect your ears. You can ask for both if you are very sensitive to noise. If you wear a device on your skin, you'll need to remove it if you haven't already been removed.

Once you're comfortable on the MRI table, your technologist will slide it into the magnetic part of the machine. They will begin the scan. Most of your body will be inside the tunnel during the scan. You'll be able to speak with your technologist during the entire scan.

It is important that you lay still and breathe normally during your scan. You can use the conscious breathing exercises to help you relax. **Remember, do not use deep breathing during the scan.** It can cause your body to move too much.

Most MRI scans will take 30 to 45 minutes.

What to do after your PET-MRI

When your PET-MRI is finished, you'll be helped off the table. You can leave after you get your belongings. There are no restrictions after your PET-MRI. No special care is needed.

You may leave as soon as your scan is done, unless you have other tests or procedures scheduled. You'll get a card stating that you had a test done with a radioactive tracer and your test date. Keep this card with you because some security equipment can find radioactivity until it leaves your body. This should take less than a day.

It is safe to be around people who are older than 18 and people who are not pregnant. You can spend time near others, kiss, hug, hold, and touch them.

For 1 hour after your scan:

- Do not hold (have skin-to-skin contact with) a pregnant person or anyone younger than 18 years old.
- Do not sleep in the same bed with a pregnant person or anyone younger than 18 years old.

Remember to stay hydrated after your scan. Drink water and other fluids throughout the rest of the day to help remove the tracer from your body. You can go back to your normal diet right away, unless you're given other instructions.

If you had contrast, it will leave your body through your urine within 24 hours.

When to call your care team

Watch the insertion site (where the IV went into your body) for 48 hours (2 days) after your scan. Call your care team if you notice any changes in the area, such as:

- Pain or a burning feeling
- Redness or other skin color changes
- Swelling
- Broken skin
- Blisters or liquid draining
- Numbness, tingling, or other changes in sensation (feeling)
- Warm or hot skin

You do not need to do this if you got the tracer through your CVC.

Getting your PET-MRI results

A radiologist will read your scan and send your results to your doctor. If your PET-MRI was done to find cancer cells, your doctor should have your results in 2 business days. Ask your doctor how they will share your results with you. If your

PET-MRI was done to plan your treatment, your doctor will use the images to plan your care.

For people getting anesthesia

Follow these instructions if you are getting anesthesia during your PET-MRI.

What to do the day before your PET-MRI

Arrange for someone to take you home

You must have a responsible care partner take you home after your procedure. A responsible care partner is someone who can help you get home safely. They should be able to contact your care team if they have any concerns. Make sure to plan this before the day of your procedure.

If you don't have a responsible care partner to take you home, call one of the agencies below. They'll send someone to go home with you. There's a charge for this service, and you'll need to provide transportation. It's OK to use a taxi or car service, but you still need a responsible care partner with you.

Agencies in New York	Agencies in New Jersey
VNS Health: 888-735-8913	Caring People: 877-227-4649
Caring People: 877-227-4649	

Instructions for eating

Important: If you take a GLP-1 medicine, do not follow these instructions. Follow the instructions in *Eating and Drinking Before Your Surgery or Procedure When Taking GLP-1 Medicines* (www.mskcc.org/pe/eat-drink-glp1) instead.

Stop eating at midnight (12 a.m.) the night before your surgery or procedure. This includes hard candy and gum.

Your healthcare provider may have given you different instructions for when to stop eating. If so, follow their instructions. Some people need to fast (not eat) for longer before their surgery or procedure.

What to do the day of your PET-MRI

Instructions for drinking

Important: If you take a GLP-1 medicine, do not follow these instructions. Follow the instructions in *Eating and Drinking Before Your Surgery or Procedure When Taking GLP-1 Medicines* (www.mskcc.org/pe/eat-drink-glp1) instead.

Between midnight (12 a.m.) and 2 hours before your arrival time, only drink the liquids on the list below. Do not eat or drink anything else. Stop drinking 2 hours before your arrival time.

- Water.
- Clear apple juice, clear grape juice, or clear cranberry juice.
- Gatorade or Powerade.
- Black coffee or plain tea. It's OK to add sugar. Do not add anything else.
  - Do not add any amount of any type of milk or creamer. This includes plant-based milks and creamers.
  - Do not add flavored syrup.

If you have diabetes, pay attention to the amount of sugar in your drinks. It's easier to control your blood sugar levels if you include sugar-free, low-sugar, or no added sugar versions of these drinks.

It's helpful to stay hydrated before surgeries and procedures, so drink if you're thirsty. Do not drink more than you need. You'll get intravenous (IV) fluids during your surgery or procedure.

Stop drinking 2 hours before your arrival time. This includes water.

Your healthcare provider may have given you different instructions for when to stop drinking. If so, follow their instructions.

Contact information

If you have any questions or concerns, call the Molecular Imaging and Therapy Service (MITS, or the Nuclear Medicine service) at 212-639-6652. You can reach a staff member Monday through Friday from 9 a.m. to 5 p.m. After 5 p.m., during the weekend, and on holidays, call 212-639-2000.

Exercises to help you relax for your MRI

You can use breathing exercises before or during your scan to help you feel more comfortable. Exercises that use little to no movement, such as conscious breathing, are safe to use during your scan. Other exercises, such as deep breathing, cause more movement and should not be done during your scan.

Deep breathing exercises to use before your PET-MRI only

Do not use deep breathing during your MRI. It can cause your body to move too much while you're in the PET-MRI machine.

You can practice deep breathing by following these steps:

1. Place 1 hand on your stomach, just above your belly button. If you're right-handed, use your right hand. If you're left-handed, use your left hand.
2. Breathe out completely through your mouth.
3. If you can, close your eyes and breathe in slowly and deeply through your nose. Feel your stomach push up on your hand. Imagine that air is filling your whole body from the bottom up.
4. Pause for a couple of seconds. Then, breathe out slowly through your mouth or nose. Try to breathe out completely and imagine the air leaving your lungs, mouth, or nose.
5. As you breathe out, allow your body to relax and go limp—like a rag doll.

Repeat this exercise 5 to 10 times.

Relaxation exercises to use before or during your PET-MRI

Here are some things you can do before your PET-MRI to help with claustrophobia, anxiety, or both.

- *Acupressure for Stress and Anxiety* (www.mskcc.org/pe/acupressure-anxiety)
- *Body Scan Meditation* (www.msk.org/body-scan)
- *Breathing Exercises to Prepare for Procedures* (www.msk.org/breathing-for-procedures)
- *Managing Anxiety about Medical Scans and Procedures* (www.msk.org/managing-anxiety-procedures)
- *Guided Imagery Meadow Meditation* (www.msk.org/guided-imagery-meadow)
- *Guided Imagery Meditation to Promote Comfort and Wellness* (www.msk.org/guided-imagery-comfort)
- *Managing Anxiety* (www.mskcc.org/pe/anxiety)
- *Managing Scanxiety During Your Cancer Treatment* (www.mskcc.org/pe/managing-scanxiety)
- *Mindful Breathing Meditation* (www.msk.org/mindful-breathing)
- *Mindful Movement Meditation* (www.msk.org/mindful-movement)
- *Relaxation Exercises to Practice Before and During Your MRI* (www.mskcc.org/pe/relaxation-mri)

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

About Your FDG PET-MRI - Last updated on January 29, 2026
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