



PATIENT & CAREGIVER EDUCATION

Methacholine Challenge Test

This information will help you get ready for your methacholine challenge test at Memorial Sloan Kettering (MSK).

A methacholine (meth-a-KOLE-leen) challenge test (also known as a bronchial or Provocholine® challenge test) is a breathing test to see how your lungs are working. It's used to check for asthma (a condition that makes it hard to breathe) in patients who have a cough, trouble breathing, or other breathing problems.

Methacholine is a medication that makes your airways (tubes that bring air to your lungs) narrow if you have asthma. Asthma is a lung condition that can make it hard to breathe.

During the test, you will breathe in small amounts of methacholine, and the pulmonary technologist will measure your lung function. Your normal lung function will be measured first (also known as your baseline breathing). Then you will start the test, and the methacholine will be added. If your lung function drops by 20% or more from your baseline, you may have asthma.

The test takes about 90 minutes.

Before Your Test

When you schedule your test, tell your doctor or nurse if you:

- Have a history of hives (skin rash usually caused by an allergy), swelling of your upper airway (throat), or both.
- Are breastfeeding, pregnant, or if you might be pregnant.
- Have a heart condition. If you do, you need to talk with your heart

specialist before having this test.

- Take any pulmonary (lung or breathing) medications. If you do, you may need to stop taking certain ones before the test (see the “Stopping your medications” section below).

Stopping your medications

You’ll need to stop taking medications for breathing problems or for your lungs before your test. The table below lists when you should stop taking them. Call your doctor if you have any problems after stopping a medication.

- If you take any other medications for your lungs or for breathing problems that aren’t listed below, tell your doctor, nurse, or the pulmonary laboratories.
- Keep taking all your other medications that are not for breathing problems or your lungs. If you’re not sure which medications you should keep taking, talk with your doctor or the pulmonary laboratories.

Talk with your doctor before stopping any medications.

When to stop taking the medication	Medication name
4 Weeks Before	<ul style="list-style-type: none">• Flunisolide• Aerospan®• Ciclesonide• Alvesco HFA®• Fluticasone furoate• Arnuity Ellipta®• Mometasone furoate• Asmanex® HFA• Asmanex® Twisthaler• Fluticasone propionate• Flovent Diskus®/ HFA• Budesonide• Pulmicort Flexhaler®• Beclamethasone• QVAR HFA®• Fluticasone/salmeterol

	<ul style="list-style-type: none"> • Advair Diskus[®]/HFA • Mometasone/formoterol • Dulera HFA[®] • Budesonide/formoterol • Symbicort HFA[®]
1 Week Before	<ul style="list-style-type: none"> • Anti-cholinergics • Umeclidinium/Vilanterol • Anoro Ellipta[®] • Glycopyrrolate/formoterol • Bevespi Aerosphere[®] • Tiotropium bromide • Spiriva Respimat[®] • Stiolto Respimat[®] • Spiriva HandiHaler[®] • Glycopyrrolate/indacaterol • Utibron Neohaler[®] • Glycopyrrolate • Seebri Neohaler[®] • Umeclidinium • Incruse Ellipta[®] • Aclidinium bromide • Tudorza Pressair[®]
48 Hours (2 Days) Before	<ul style="list-style-type: none"> • Fluticasone/Vilanterol • Breo Ellipta[®] • Indacaterol • Arcapta Neohaler[®] • Olodaterol • Striverdi • Respimat[®] • Vilanterol
36 Hours Before	<ul style="list-style-type: none"> • Salmeterol • Serevent • Diskus[®] • Formoterol • Perforomist[®]
24 Hours (1 Day) Before	<ul style="list-style-type: none"> • Theophylline
12 Hours Before	<ul style="list-style-type: none"> • Ipratropium

	<ul style="list-style-type: none"> • Atrovent® • Combivent® • Respimat • DuoNeb®
6 Hours Before	<ul style="list-style-type: none"> • Albuterol • Proair HFA® • Proventil HFA® • Ventolin HFA® • Metaproterenol • Levalbuterol (Xopenex HFA®) • Pirbuterol (Maxair®)

When to call your doctor or nurse

Call your doctor or nurse if you:

- Get a lung infection such as pneumonia, a cold, the flu, or have a vaccine (shot) 2 weeks before your test. If you have any of these, it could affect your test results, and you will need to reschedule your test.
- Don't feel well enough to do the test.
- Need to change your appointment.
- Will be late for your appointment.
- Have any questions or concerns.

If you have any questions, you can reach the pulmonary laboratories Monday through Friday from 9:00 a.m. to 5:00 p.m. by calling 212-639-8492. After hours, on weekends and holidays, you may call and leave a message.

The Day of Your Test

Things to remember

- Don't eat anything 2 hours before your test. You can have a light meal, such as a sandwich, soup, or salad, at least 2 hours before your test.
- Don't have any drinks with caffeine, such as coffee, tea, cola, or chocolate at least 4 hours before your test.

- Don't do any strenuous activity or exercise the day of your test.
- Don't wear tight clothes to your appointment.
- Don't put on lipstick, perfume, or cologne.

Where to go

Your test will take place in the pulmonary laboratories. The address is:

425 East 67th Street (between First and York Avenues)

New York, NY 10065

Take the A elevators to the 3rd floor

This is a side entrance of the main hospital at MSK. Get there 15 minutes before your scheduled appointment time.

What to expect

The test has 3 parts. The pulmonary technologist will guide you through each one.

1. First, the pulmonary technologist will measure how fast you breathe normally using a machine called a spirometer. The spirometer is attached to a computer. You will breathe in and out of a tube attached to the machine, and the spirometer will measure your lung function. They'll also check how much air you can breathe in and out before and after you inhale a saline mist through your mouth.
2. Then, you will inhale different amounts of methacholine mist through your mouth from a machine called a nebulizer. Up to 4 amounts will be used. Your breathing will be measured after you inhale a different concentration. Your breathing may get better, worse, or stay the same after inhaling the methacholine. Tell the pulmonary technologist if you have any problems breathing or if you're uncomfortable.
3. At the end of the test, you will get medication to breathe in that will take away any effects of the methacholine. Your breathing will be measured again to make sure it's normal before you leave the doctor's office.

Although the test is safe, there is a small risk that you might have some

trouble breathing or cough a lot while inhaling the methacholine, or after inhaling it. You may also feel a little uncomfortable during some of the breathing measurements. The pulmonary technologist will watch you closely during the test. If you have any concerns or start to feel uncomfortable during the test, let the pulmonary technologist know.

After Your Test

- You can start taking your medications again unless your doctor gives you other instructions.
- You can go back to your normal diet and activities.
- Your test results will be ready in 2 days. When they're ready, your doctor will discuss them with you and answer any questions you have.

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.

Methacholine Challenge Test - Last updated on September 13, 2019

All rights owned and reserved by Memorial Sloan Kettering Cancer Center