

Pulmonary Medicine, Allergy and Immunology

EXERCISE-INDUCED ASTHMA TESTING

AT CHILDREN'S HOSPITAL OF PITTSBURGH OF UPMC, we believe parents and guardians can contribute to the success of this test and invite you to participate. Please read the following information to learn about the test and how you can help.

Fast Facts About Exercise-Induced Asthma Testing

- Exercise-induced asthma (EIA) testing is a combination of several breathing, exercise and cardiology tests which will show how the heart and lungs work together during exercise.
- These tests can help determine if your child has exercise-induced asthma or some other kind of breathing problem during exercise.
- The air flow in your child's lungs will be measured with a spirometry test before the exercise test.
- Your child's heart rate, heart rhythm and oxygen level will be measured during the exercise test.
- Your child's doctor might order a direct flexible laryngoscopy after the test to see if your child's vocal cords are causing breathing trouble during exercise.
- Specially trained doctors, exercise physiologists and/or support staff will be present at all times during your child's test.
- The actual exercise part of the test takes only about 10 to 20 minutes, but the whole test may take up to 1½ hours.
- EIA testing does not cause any pain.

What Is Exercise-Induced Asthma Testing?

Exercise-induced asthma (EIA) testing, also called asthma challenge testing, actually consists of four separate tests combined into one to give doctors important information about how your child's lungs and heart are working together before, during and after exercise. These tests might be ordered if your child has had shortness of breath, chest pains or dizziness after exercise, or to see if your child develops bronchospasm (*BRONK-oh-spaz-um*) during exercise after he or she has already been diagnosed with asthma. The information from EIA testing can help the doctor understand your child's symptoms and decide how to treat them.

Your child will be connected to several machines to take heart and lung measurements before, during and after exercise.



Home Preparation

- Your child should wear comfortable "workout" clothes, such as a T-shirt and shorts or sweatpants, and sneakers.
- Your child should eat a meal before the test, but all meals should be eaten at least 2 hours before the test. A suggested meal would be cereal with low-fat milk or a plain bagel with jelly or cream cheese.
- Please do not let your child eat or drink anything with caffeine before the test.

Before the Testing

Your child should stop any asthma medications—especially short-acting bronchodilators (*Bronk-oh-DIE-late-erz*), such as albuterol (Ventolin/Proventil), levalbuterol (Xopenex), or ipratropium (Atrovent)—for 24 hours before the test.

If you have any concerns or questions about any medications your child is taking, please check with the exercise lab staff when you schedule your child's test.

The Testing

The first test your child will have is a spirometry (*spy-ROM-a-tree*) test to check his or her lung or "pulmonary" function. This test is done by having your child take a large breath and then breathe out very hard and fast through a tube connected to a computer.

- Your child might have to repeat this breathing test several times to get an accurate measurement.
- This test will be your child's resting breathing function, or a "baseline" measurement.

EXERCISE-INDUCED ASTHMA *cont'd*

Next, your child will be connected to several machines to take measurements before, during and after exercise. None of the machines used in this test will hurt your child in any way, and there are no needles used.

- A pulse oximeter—a small clip with a light on it—will be placed on your child's fingertip to measure his or her blood oxygen level. The pulse ox will stay on during the test.
- Some small stickers called "electrodes" will be placed on your child's chest and connected to an electrocardiogram (EKG) machine to measure your child's heart rate and rhythm. The electrodes will stay in place during the test.
- A small mouthpiece, similar to a snorkel used in swimming, will be placed in your child's mouth and connected to a machine. This machine will measure your child's inhaled oxygen and exhaled carbon dioxide levels.
- A small padded nose clip will be placed on your child's nose so he or she breathes only through the mouth.

When the machines are all connected, your child will be asked to walk briskly or jog on a treadmill.

- While your child walks, his or her heart rate, heart rhythm and blood oxygen level will be measured.
- An exercise physiologist—a technician with special training in exercise—will be in the room with your child during the entire test. A doctor also is available for any concerns during the test.
- Your child will be asked to walk or jog on the treadmill for about 6 to 8 minutes. The speed and grade of the treadmill will be controlled by the exercise physiologist.
- When the exercise part is finished, your child's EKG will continue to be measured for 15 minutes.
- Your child also will repeat the spirometry breathing tests at 1 minute, 5 minutes, 10 minutes and 15 minutes after the exercise part of the test.
- Your child then will be given a bronchodilator inhaler to use, and a spirometry breathing test will be done again to see if the medication improves airflow.



- Your child's blood pressure might be checked after the exercise testing.
- Your child then will be disconnected from the machines and the testing will be over.
- If your child's doctor ordered a direct flexible laryngoscopy (*lare-en-GOSS-ko-pee*), it will be done after all of the exercise testing has been done. (See separate sheet for explanation of direct flexible laryngoscopy.)

After the Testing

Your child may return to all of his or her normal activities and medications when the EIA testing is over.

Special Needs

If your child has any special needs or health issues you feel the doctor or nurse performing the test needs to know about, please call the Division of Pulmonary Medicine, Allergy and Immunology at Children's Hospital of Pittsburgh **before the test** and ask to speak with a nurse. It is important to notify us in advance about any special needs.

Division of Pulmonary Medicine, Allergy and Immunology
Children's Hospital of Pittsburgh of UPMC
One Children's Hospital Drive
4401 Penn Ave.
Pittsburgh, PA 15224
(412) 692-5630
(412) 692-5873 Exercise Lab

To see the list of all available patient procedures descriptions, please visit www.chp.edu/procedures.