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by Ruth Papazian

On the Teen Scene: Being a Sport with Exercise-Induced Asthma

This article is part of a series with important health information for teenagers.

You wouldn't call Nicholas, 16, a jock. He harbors no dreams of Olympic glory, has no intention of trying out for a school sports team, and has faked more injuries to get out of gym class than even he can count. His hobbies run more to the creative and intellectual--playing bass guitar in a garage band and fooling around on his computer.

But Nicholas (who asked that his last name not be used) didn't always avoid sports. At one time, he was an avid basketball player. But all that changed about four years ago.

"We were supposed to run a mile in gym, and about halfway through, I started coughing, wheezing and felt nauseous. I told the teacher I couldn't go on, but he said that he didn't like quitters. I tried to finish, but I couldn't," he recalls. Nicholas went to the doctor and found out he had exercise-induced asthma.

"My friends stopped inviting me to play B-ball or soccer after school because they were afraid that I would have an attack in the middle of a game. Some of the kids called me 'wheeze boy'," Nicholas says. "After a while, I decided they were right, so even though I loved sports, I gave up on all physical activities."

Asthma is a lung disease that is either inherited or may develop as a severe allergic reaction to pollen, viruses, dust, cigarette smoke, and other "triggers" (but not everyone with allergies develops asthma and not every asthmatic has allergies). Exercise-induced asthma (EIA) is a common form of asthma. It occurs only when a person exercises. People who have chronic asthma, on the other hand, can develop symptoms whenever they are exposed to a trigger.

About 80 to 90 percent of people who have chronic asthma also have EIA. But you can have EIA even if you don't have chronic asthma. Nicholas is among the 35 to 40 percent of people with seasonal allergies who have EIA, and his symptoms are always worse during the spring and fall when gym classes are held outdoors.

How an EIA Attack Happens

During an asthma attack, the bronchial airways (the large and small tubes that bring air into the lungs) become partly blocked. A trigger, such as pollen, causes immune system cells in the lungs to release histamine and other chemicals. These chemicals cause the lining of the airways to swell, making them narrower. At the same time, tiny rubberband-like muscles wrapped around the outside of the bronchi (the two large tubes that branch out from the windpipe into the lungs) tighten in what is known as "bronchospasm." Completing the process, mucus cells in the airways produce secretions that plug up the works even more.

In about half of chronic asthmatics, the initial attack (known as "early response") is followed by a delayed reaction ("late response"). This delayed reaction happens because lung inflammation makes the airways and lungs extremely sensitive to irritation. Some asthma specialists believe that EIA differs from chronic asthma because exercise-induced bronchospasm (another name for EIA) does not cause lung inflammation, so there is no late response.

With asthma, the problem isn't getting air into the lungs, but exhaling air out through the obstructed airways. (People who don't have asthma can get an idea of what an asthma attack feels like by taking a breath and holding it for a second, then trying to take another breath without exhaling first.)

Cold, dry air is believed to trigger EIA. So, exercising outdoors in the winter or breathing through your mouth during heavy exertion is likely to set off an attack. (Breathing through your nose warms and moistens the air before it reaches the lungs.) EIA symptoms typically occur after three to eight minutes of strenuous activity, and can last 20 to 30 minutes. They can range from mild to severe, and include coughing, wheezing, tightness or pain in the chest, shortness of breath, and reduced stamina.

EIA Need Not Bench You

"Many people who have EIA don't know it because they blame their symptoms on being out of shape," notes John Weiler, M.D., a professor in the department of internal medicine at the University of Iowa Hospitals and Clinics in Iowa City. Others may experience symptoms only when they push themselves to the "max" or exercise outdoors when air quality is poor.

But if you're susceptible to it, EIA can affect you, regardless of your fitness level or athletic ability. In fact, according to various studies, 10 to 12 percent of athletes have EIA. At the 1984 summer Olympics in Los Angeles, 67 of the 597 members of the American team had EIA; among them, they won 41 medals.

Obviously, EIA need not limit participation or success in vigorous activities. Today it can be medically managed and its effects minimized.

"In the past, doctors discouraged people with asthma from exerting themselves to avoid triggering an attack. But the current thinking is that it is important for asthmatics to engage in regular exercise to condition and strengthen their lungs," says Stanley Szeffler, M.D., director of clinical pharmacology at the National Jewish Center for Immunology and Respiratory Medicine in Denver.

Swimming in an indoor pool may be the ideal exercise for asthmatics because the warm, humid air keeps the airways from drying and cooling. However, "with proper management, virtually no sport is off-limits," says Szefler.

Proper management of EIA, Szefler says, includes monitoring air flow with a peak-flow meter, avoiding allergic triggers, and using medication before exercise.

Asthma symptoms can change a lot. They are often worse at night than during the day. They may be worse in the winter or during "allergy seasons" when pollen counts are high. The new National Heart, Lung, and Blood Institute guidelines recommend that people 5 years or older who have moderate to severe asthma use a peak-flow meter twice a day (morning and evening).

A peak-flow meter measures how fast you blow air out of your lungs. When a person blows into the device--which looks something like a kazoo--a slide indicates the force of the exhaled air. The farther the slide is pushed, the greater the peak flow.

"Peak-flow meters can help asthmatics monitor their symptoms so attacks can be better anticipated," explains Michael Gluck, D.Sc., chief of FDA's anesthesiology and respiratory devices branch.

Once a doctor determines normal peak flow, a treatment approach can be tailored just for you. For instance, your doctor may instruct you to take more medicine than usual if your peak flow drops a certain amount, say 70 percent of normal, or to get medical help right away if it falls to 30 percent of normal.

"In the past, a vague sense of not feeling well was the only indication a person had that an asthma attack was imminent. By that time, it was often too late to head off the attack," says Gluck. "Peak-flow meters give you . . . a much earlier indication of an oncoming attack."

"Drugs that relax the muscle spasm in the walls of the bronchial tubes to open them are often the first line of treatment in preventing EIA," says Tunde Otulana, M.D., a medical reviewer in FDA's oncology and pulmonary drugs division. Such drugs are called bronchodilators. They are typically prescribed in aerosol (inhalant) form. They are sprayed into the mouth and breathed directly into the lungs. Doctors recommend using the medication from five minutes to an hour before exercise. If breathing problems develop during exercise, you may need to take another dose. The most common side effect of bronchodilators is feeling jittery, says Otulana.

Cromolyn sodium is often prescribed to treat athletes who have EIA. This drug, which is also an inhalant, prevents the lining of the airways from swelling in response to cold air or allergic triggers, explains Otulana, and must be taken on a regular basis for the treatment of asthma. Cromolyn sodium can be used up to 15 minutes before engaging in physical activity.

Cromolyn has few side effects, according to Otulana. "The most common complaint is that it leaves an unpleasant taste in the mouth for a few seconds. Some people may experience coughing due to dryness and throat irritation and, in rare instances, patients have become nauseated."

In addition to bronchodilators and cromolyn, which are used primarily to head off an attack of EIA, the National Heart, Lung, and Blood Institute treatment guidelines recommend the use of inhaled corticosteroids for patients with moderate to severe chronic asthma. "Instead of using a 'rescue' approach to treat episodes of breathlessness, doctors are now focusing on the big picture and using a preventive approach to treat airway inflammation, which is the underlying cause of asthma," says Szeffler.

"Corticosteroids work by reducing swelling in the bronchial tubes and by enhancing the action of bronchodilators. They are meant to be used as preventive medication, usually on an ongoing basis," says Otulana.

Corticosteroid inhalants can occasionally cause throat irritation and thrush (a fungal infection in the mouth), says Otulana. (He advises gargling with warm water after using the inhaler to help avoid both side effects.) Prolonged use of very high doses may increase the risk of the same type of health problems associated with the drug in pill form: high blood pressure, diabetes, and softening of the bones.

"It is very difficult to recognize EIA, especially when exercise is the only trigger for asthma," says Weiler. "If you can't keep up with the other kids, can't seem to be able to 'get into shape' no matter how much you exercise, or experience problems after exercise that your classmates don't, EIA may be to blame."

Today, Nicholas carries a bronchodilator with him and uses cromolyn 20 minutes before gym class. Although he still dislikes exercise, he doesn't cut gym now that he can keep up with the other kids. "If I premedicate, I have no problems," he says. "Asthma can be a setback, but it doesn't have to be--if you learn how to deal with it."

Ruth Papazian is a health and medical writer in the Bronx, N.Y.

Tips on Coping with EIA

- Start with a 15-minute warm-up to allow the lungs to adjust to the increased demand for oxygen.
- In cold weather, cover your mouth and nose with a scarf to help warm the air before it gets to the lungs.
- Avoid triggers that may cause or worsen EIA (for example, don't exercise outdoors when pollen counts are high).
- End with a 15-minute cool-down rather than stopping abruptly.
- Follow your doctor's instructions about using medication before or after exercise. If you're on a team, let your coach know about your doctor's instructions.

- If you have symptoms, use a bronchodilator right away. Remember, cromolyn and corticosteroids are not recommended during an asthma attack because they do not immediately open the airways.

--*R.P.*

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