# A Breath of Fresh Air

Every year, Brian looks forward to the return of warmer weather and outdoor activities like biking and jogging. But as spring turns to summer, he finds that exercising in hot, humid weather aggravates his asthma.

**ASTHMA IS A CHRONIC LUNG DISEASE** that occurs when the airways that carry air to and from the lungs are inflamed. Because of this inflammation, people with asthma often have narrower airways—the channel in the throat through which air passes to the lungs—that are more sensitive to irritants. When they inhale secondhand smoke or dust, for example, their airways may become further irritated, which can result in an asthma attack.

## ASTHMA ATTACKS 101

Asthma symptoms include coughing that often is worse at night, wheezing, shortness of breath and chest tightness. An asthma attack occurs when symptoms become increasingly severe or persist after using medication.

During an asthma attack, the muscles surrounding the lungs and airways begin to contract and tighten, which is known as bronchoconstriction. At the same time, the lungs may swell and fill with mucus, making it difficult for air to pass through the airways.

In many cases, asthma attacks are caused by exposure to asthma triggers, which can vary from person to person. Some people, like Brian, develop asthma symptoms when the weather changes. For others, exercise and exposure to allergens and air pollutants may trigger an asthma attack.

## SPOTLIGHT ON SEASONAL TRIGGERS

Many people associate asthma attacks with winter's cold, dry air. But the spring and summer months can pose unique challenges.

"Up to 50 percent of the 25 million people living with asthma in the United States have asthma that is triggered by allergies, including seasonal allergies," says **Cascya Charlot, M.D.**, chief of pediatric allergies at New York Methodist Hospital. "During the spring months, many people experience asthma symptoms related to tree pollen. In the summertime, grass pollen; mold; and hot, humid air can worsen symptoms."

When people who are allergic to pollens or mold inhale these spores, their immune system targets the substance by releasing an antibody known as immunoglobulin E. This starts a cascade of events in the body, including the release of histamine. Because it can prompt the lungs to produce mucus and trigger airway constriction, histamine raises the risk of an asthma attack.

Extremely hot or cold temperatures are also common asthma triggers. During the summer, the combination of hot, humid air, sunlight, nitrogen oxide and volatile organic compounds—gases that are

released into the air from gasoline, diesel exhaust, paint and other chemicals—can create ground-level ozone. A common, powerful pollutant, ground-level ozone may cause throat and lung irritation, contribute to coughing, and even reduce lung function, which is especially dangerous for people who experience breathing difficulties.

### WHEN EXERCISE IS THE CULPRIT

As many as 90 percent of people with asthma experience symptoms during exercise. But people who haven't been diagnosed with conventional asthma can also develop symptoms like shortness of breath and wheezing during physical activity. This is known as exercise-induced asthma.

"Many people get winded during exercise," says **Anthony Saleh, M.D.**, pulmonologist at NYM. "To distinguish between people who are simply out of shape and those who have exercise-induced asthma, we consider the severity of each patient's symptoms and look for cause-and-effect relationships."

Exercise-induced asthma is often related to the air that people take in during physical activity. According to Dr. Charlot, when people rest, they inhale approximately one gallon of air per minute, which allows air to become moisturized and warmed as it moves through the nasal passages and into the lungs' airways. During exercise, however, people may inhale two to three gallons of air per minute and are more likely to breathe through their mouths. As a result, the air may be cooler and dryer when it enters the lungs, which can cause symptoms in those with both environmental and exercise-induced asthma.

### BREATHING EASIER

The first step to controlling asthma is identifying the responsible triggers through allergy testing, keeping a symptoms journal noting when allergies occur and using a peak flow meter to measure how well air moves through the lungs. A peak flow meter also helps identify whether medication adjustments are needed.

Avoiding triggers—for example, by staying indoors on hot, humid days or when pollen levels are at their peak—can help control asthma. Two classes of asthma medications are also available. Quick-relief or rescue inhalers, which often contain the medications albuterol or ipratropium bromide, are designed to provide fast relief during asthma attacks. People with exercise-induced asthma may also use quick-relief inhalers prior to their workouts to lesson symptoms. Long-term control medications may come in inhaler, nebulizer and tablet form and include corticosteroids, leukotriene modifiers and long-acting beta-agonists, which may be used in conjunction with corticosteroids. By reducing lung inflammation, long-term control medications help prevent symptoms over time.

"People who have asthma and experience symptoms at the same time every year shouldn't wait until an asthma attack occurs to seek treatment," Dr. Saleh says. "Visiting their doctor before the season begins can help them navigate the season without severe asthma attacks."

## ASTHMA-FRIENDLY WORKOUTS

Exercise is a key component of overall health and can help strengthen the heart and lungs. While all types of activity can fit into an asthma management plan, Dr. Charlot recommends people with exercise-induced asthma stick to workouts that involve short, intermittent periods of movement, including baseball, volleyball, hiking, walking, cycling and swimming.

Fitness enthusiasts should also take time to warm up, which helps prepare the lungs for exercise, and opt for indoor activities on very cold or hot days.