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Out of Shape or Out of Breath? - James Goff, DO

Exercise-Induced Asthma (EIA) could be an underlying condition as to why many active people feel like they are “out of shape” or just can’t exercise like they used to in the past. EIA affects 15% of the general population and near 90% of active individuals with chronic asthma conditions. Exercise-Induced Bronchoconstriction (EIB) is also a form of airway hyper-reactivity that can occur without underlying asthma and can affect anyone at anytime minutes after exercise.

EIA occurs when bronchial tubes undergo constriction and inflammation. With exercise, it is hypothesized that the increase intake of drier, cooler air causes the bronchioles to dry out resulting in airway edema, inflammation and bronchospasm. This theory supports the fact that most EIA occurs in cooler-weathered sports such as ice hockey, figure skaters and skiers. In EIB there is no significant inflammation but mainly bronchospasm.

An athlete suffering from EIA will feel shortness of breath, chest tightness, cough and wheeze minutes into their aerobic exercise. The athlete often underperforms and fatigues easy during the event. Factors that can worsen an EIA event are cool temperatures, poor air quality, high pollen counts, environmental chemicals and respiratory infection.

The diagnosis of EIA is often made by a detailed history, not only from the patient, but from coaches, parents and workout partners. The athlete usually will have a normal physical examination, with no wheezing on lung field auscultation. One should exclude other diagnoses such as cardiovascular disease, anxiety, deconditioning syndrome and vocal cord dysfunction.

The use of diagnostic and imaging studies is usually reserved to rule out other possible conditions when the athlete is not improving with treatment. For a formal diagnosis of EIA, an exercise challenge test with pre-exercise and post-exercise pulmonary function testing (PFT) can be ordered by the physician. Pre-exercise PFTs are obtained, then the athlete bikes or runs to achieve 85% maximum heart rate for 10 minutes. Post-exercise PFTs are then taken several times over a 30 minute span. A drop of 10% or more from baseline indicates EIA.

Preventive treatment of EIA can be achieved by non-pharmacologic measures such as covering mouth and nose in cold air exercise, avoid pollens and pollutants, proper warm-up 15 minutes before event and cool down exercises before completing ones event.

Albuterol, a short-acting beta 2-agonist, is first line treatment for EIA. One to two puffs 20 minutes before exercise usually prevents bronchospasm by relaxing the bronchial smooth muscle. Salmeterol, a long-acting beta 2-agonist, can be inhaled 45 minutes pre-exercise. This medicine should not be used as a rescue treatment in acute bronchospasm. Salmeterol can cause tachyarrhythmia and hypersensitivity reactions.

Other medicines that can improve symptoms when added to albuterol are mast cell stabilizers (cromolyn sodium) and leukotriene receptor antagonists (montelukast). Inhaled steroids are useful for underlying inflammation seen in chronic asthma. Inhaled steroids can be used if inflammation is suspected. Some cases of EIB may not improve with inhaled steroids.

Treatment for acute EIA attack should start with removal of athlete from competition, assess basic life support actions, administer two doses of albuterol and observe for worsening symptoms. If no improvement in breathing then emergency transport to local ER is needed to avoid the athlete from progressing to status asthmaticus. If the athlete improves with sideline treatment, the use of a peak flow meter evaluation should be compared to the athlete’s baseline peak flow measurement. If baseline is achieved and all symptoms have improved, the athlete could cautiously return to sport.

Dr. James Goff is a sports medicine physician for Summa Center for Sports Health and Summa Orthopaedics and Sports Medicine. Dr. Goff is also the team physician for Green High School. He offers same day / next day appointments at one of his offices in Barberton or at St. Thomas Hospital. To schedule an appointment, call 330-745-8942.