

inflammation that is associated with asthma. It is used in patients with moderate to severe persistent asthma who have confirmed perennial aeroallergen sensitivity, have total serum IgE levels between 30 and 700 international units/mL and have had poor control of symptoms on inhaled steroids. Many patients with asthma are atopic and possess specific IgE antibodies to allergens responsible for airway inflammation. Xolair has been approved for use in children 12 years old and older in the United States. The drug is administered once or twice a month by subcutaneous injection. Efficacy of omalizumab is not immediate and can take up to 16 weeks ([Humbert, Busse, and Hanania, 2014](#)). In early 2007, the US Food and Drug Administration added a “black box warning” to the drug, which highlights the risk of anaphylaxis. Since that time, the US Food and Drug Administration reported an increase in cardiovascular and cerebrovascular adverse events related to its use ([US Food and Drug Administration, 2011](#)).

Some children with severe asthma and a history of severe life-threatening episodes may need a primary care practitioner prescription for an EpiPen (subcutaneous injectable epinephrine).

## Exercise

**Exercise-induced bronchospasm (EIB)** is an acute, reversible, usually self-terminating airway obstruction that develops during or after vigorous activity, reaches its peak 5 to 10 minutes after stopping the activity, and usually stops in another 20 to 30 minutes. Patients with EIB have cough, shortness of breath, chest pain or tightness, wheezing, and endurance problems during exercise, but an exercise challenge test in a laboratory is necessary to make the diagnosis.

The problem is rare in activities that require short bursts of energy (e.g., baseball, sprints, gymnastics, skiing) and more common in those that involve endurance exercise (e.g., soccer, basketball, distance running). Swimming is well tolerated by children with EIB because they are breathing air fully saturated with moisture and because of the type of breathing required in swimming.

Children with asthma are often excluded from exercise by parents, teachers, and practitioners, as well as by the children themselves because they are reluctant to provoke an attack.