

ASTHMA & EXERCISE AT SCHOOL

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The Asthma Epidemic: The number of asthma cases in the United States has tripled in the last 20 years. Asthma disproportionately affects children and young adults. Six million American children now have asthma. In California prevalence is highest among children 12-17. Nearly one in 13 school-aged children has asthma.

Over 10 million school days are missed each year by school children experiencing asthma related problems. Children and teens whose night-time sleep is disrupted by asthma symptoms can have difficulty with school work. Missed sleep due to night-time asthma can cause children to have poor recall memory, lack of concentration and mood swings.

The rate of asthma in children is increasing five percent each year despite progress in our understanding of asthma and the development of safer and more effective medications and educational programs. At a time when most other chronic diseases are decreasing in frequency and severity, asthma remains epidemic--one of the world's biggest medical mysteries.

While asthma can't be cured, it can be controlled, and you can help!

What is Asthma? Asthma is a chronic lung disease characterized by episodes of breathing problems such as coughing, wheezing, chest tightness, and shortness of breath. During an asthma episode or asthma attack, the muscles around the airways tighten, the airways swell, and too much mucus is produced. This makes it difficult for air to move in and out of the lungs, resulting in breathing problems.

Research shows that an important feature of asthma is inflammation or swelling of the airways that makes them overly responsive to "triggers" such as:

- furred or feathered pets
- exercise
- pollens or mold
- cold air
- household dust mites
- upper respiratory infections
- cockroach droppings

- laughing or crying hard
- tobacco smoke
- strong smells
- household sprays

For years it was thought that children with asthma could not and should not take part in team sports and vigorous activities. We now know that this is not correct. Exercise keeps the heart and breathing muscles strong and efficient. Most children with well controlled asthma can participate in regular physical activities and exercise programs with minimal difficulties.

Each child will have different levels of tolerance to exercise; therefore individual teaching and education should be done to help children learn to pace themselves, recognize early symptoms and respond appropriately.

Even with optimal conditions, however, highly strenuous exercise can provoke exercised induced asthma in some individuals.

Exercised Induced Asthma: EIA is very common in children with asthma. 80% to 90% have difficulty breathing with vigorous exercise. When we exercise vigorously, we tend to breathe in and out of our mouth, and our breathing becomes deeper and quicker. This drying and cooling simulates the hypersensitive airways of those with asthma in the following way:

vigorous exercise

increased oxygen demand

increased breathing rate

airway cooling and drying

With some children the signs of EIA are very obvious:

- ✓ wheezing
- ✓ shortness of breath on exertion
- ✓ chest tightness

There is another group of children who exhibit more subtle signs:

- cough during or after the activity
- chest congestion
- chest discomfort or pain
- shortness of breath
- susceptibility to cold air
- feels out of shape or winded
- tires easily
- displays lack of energy
- unable to keep up with friends
- unable to run 5 minutes without stopping
- dizziness
- stomach-ache
- frequent colds
- frequent throat clearing sounds

Exercise induced asthma may begin during exercise but most typically it begins after the exercise has ended. EIA generally occurs following 6-8 minutes of vigorous exercise, peaks at 5-10 minutes after the exercise and last 30-60 minutes. Symptoms may occur again beginning 12-16 hours after the exercise.

Factors that Influence Exercise Induced Asthma: Students who are regularly having difficulty keeping up in gym class or in team sports may not have their asthma under good control. Exercise tolerance is in fact an excellent measure of whether or not the asthma is under good control. A change in medications may be indicated.

Environmental factors that may contribute to EIA are:

- cold air
- low humidity, i.e. cold dry air
- airborne particles and pollutants
- inhaled allergens i.e. seasonal pollens
- dust
- fatigue
- emotional stress
- irritants such as strong fumes from art supplies, cosmetics or smoke
- automobile exhaust and commercial pollutants, esp. sulfur dioxide, nitrogen dioxide, ozone
- respiratory infections—resent colds or asthma episodes

EIA is more often brought on by *aerobic* sports. Running, cross-country, cycling and soccer require continuous, or near continuous activity. Intermittent high *anaerobic* activity is preferred such as circuit training.

Ways to Reduce EIA: Avoid exercise if symptoms are present prior to exercise. If a child has obvious wheeze or breathing difficulty prior to exercise, it will be hazardous.

Allow students to take medications before activities if ordered by their doctor. This is usually an inhaled bronchodilator (albuterol). Allow students to self carry medication if school policies permit. This does not conflict with zero tolerance policies at school.

Allow for adequate warm-ups before exertion is encouraged. This warm-up period for the student with asthma may need to be longer than usual.

Modify exercise. There is no such thing as the perfect exercise for people with asthma. Swimming very rarely causes EIA because it is performed in a humid and often warm environment. Other sports and activities relatively well tolerated include:

- football
- baseball
- tennis
- volleyball
- wrestling
- gymnastics
- weight training
- golfing

- softball
- short distance
- track and field events
- downhill skiing
- yoga
- walking

Allow adequate cool-down. Avoid stopping exercise abruptly. To avoid sudden changes in the airway temperature, a warm-down period of 10 minutes is suggested. Sometimes wearing a scarf or cold air mask warms and humidifies the air before it reaches the airways.

What if a student has an asthma attack during PE class? You can help the child by remaining calm and speaking reassuringly.

Never leave a child alone when he or she is having asthma symptoms!

First Aid for Asthma

- STOP any activity; rest in an upright position
- Follow the Asthma Action Plan or parent instructions
- Use quick reliever medication as ordered by the child's physician
- Notify the school nurse
- Never allow a child who is experiencing breathing problems to leave the gym or field alone

Call 911

- **No improvement**
- **Struggling to breathe**
- **Chest/neck pulled in**
- **Nostrils open wide**
- **Trouble walking or talking**
- **Lips are blue**
- **Hunched over**
- **Signs of distress**