



Athletic Directors/ Coaches/Physical Education Staff/Athletic Trainers

Each day, you come in contact with students who have asthma. It may surprise you, but nearly one in 13 school-aged children has asthma. That means at least one athlete on your team has this chronic, but manageable, disease.

Lifelong physical fitness is an important goal for all students. But because physical exercise is one of the most common triggers of asthma symptoms, many students with asthma frequently restrict their physical activities. Much of this restriction is unnecessary – children with asthma can and should be physically active.

Coaches can help children with asthma be physically active by following some simple procedures. By following these procedures, coaches can help students with asthma reach their peak athletic performance. A win – win for the student and the coach!

“Students who have asthma can, and should, participate in school sports and physical activities.”



Why Learning about Asthma is Important to Athletic Directors/Coaches/Physical Education Staff/Athletic Trainers

ASTHMA CAN BE DEADLY.

An asthma episode can escalate and may result in death without prompt medical attention. Physical exercise is one of the most common triggers of asthma episodes.

ASTHMA IS THE SINGLE MOST COMMON CHRONIC DISEASE CAUSING ABSENCE FROM SCHOOL.

Over 10 million school days are missed due to asthma each year.

ASTHMA CAN AFFECT A CHILD'S PERFORMANCE.

It can disrupt sleep, the ability to concentrate, memorize, and can prevent a student from participating in physical activities. Well controlled asthma enhances a child's athletic performance.





What You Need to Know

What is Asthma?

Asthma is a chronic disease that causes broncho-constriction (tightening of the muscles around the airways) and swelling of the airways. During normal breathing, air flows freely in and out of the lungs. But, during an “asthma episode,” linings of the airways (bronchioles) swell, muscles around the airways tighten and mucus clogs the tiny airways, making breathing difficult. The airways become overly responsive (twitchy) to environmental changes, sometimes resulting in wheezing, coughing, breathlessness, or tightness in the chest. During an asthma episode a child may feel he/she can’t inhale enough air, but actually, his/her lungs are having trouble exhaling.

Asthma symptoms can vary greatly from hour-to-hour and day-to-day. Symptoms are often worse at night and in the early morning hours. The severity of asthma varies from child to child and the severity may worsen or improve depending on the child’s symptom control and amount of exposure to triggers or allergens. Some children have occasional symptoms (e.g. after strenuous exercise), while others have symptoms that interfere with their daily life, including concentration and participating in school.

Exercise-Induced Asthma (EIA)

Exercise is a very common trigger for asthma. However, since exercise and participating in sports are a part of healthy living, this is one trigger that should be managed and not avoided. For teenagers, exercise is often the most common cause of asthma symptoms. Fortunately, with better medications, monitoring and proper management, children can participate in physical activity and sports and achieve their highest performance levels!

SYMPTOMS OF EIA

Symptoms may include coughing, wheezing, chest tightness and shortness of breath. Coughing is the most common symptom of EIA and may be the only symptom a child has at that time. The symptoms of EIA may begin during exercise and can be worse 5 to 10 minutes after stopping exercise or during the normal “cooling down” period rather than during the actual exercise. Symptoms can range from mild to severe and often resolve in 20 to 30 minutes. Occasionally, some individuals will experience “late phase” symptoms four to twelve hours after stopping exercise. These late phase symptoms are frequently less severe and can take up to 24 hours to go away. This is an important fact to remember when children are participating in school competitions that are repeated throughout the day.

CAUSES OF EIA

When a child exercises, he/she breathes faster due to increased oxygen demands. Usually, during exercise a child inhales through the mouth, causing the air to be dryer and cooler than when breathing normally and through the nasal passages. Decreases in warmth and humidity are both causes of bronchospasm or “airway constriction.” Exercise that exposes a child to cold air like skiing, skating or hockey is therefore more likely to cause symptoms than exercise involving warm and humid air such as swimming (although recent studies have shown the chemicals in a pool can be detrimental to children with asthma too). Pollution levels, high pollen counts and exposure to other irritants such as smoke and strong fumes can also make EIA symptoms worse. A recent cold or asthma episode can cause a child to have more difficulty exercising too.

Asthma Medications

Treatment for asthma is based on how severe a child’s symptoms are at any given time. Typically, there are two types of medications used to treat asthma:

- Quick relief (reliever) or rescue, and
- Controller or preventive.

The most common asthma medications most school staff will come in contact with are the **quick relief (reliever) or rescue** medications which are taken by inhalation. These medications are taken when asthma symptoms flare up or a child is experiencing an “asthma episode.” They work fast to relieve symptoms as they happen, or to help prevent exercise-related symptoms. This is the medication you most frequently see a student use in an inhaler form when symptoms are flaring up or in the case of exercise-induced asthma (EIA) 15-30 minutes prior to strenuous physical activity. They relax the muscles surrounding the airways usually within 10-15 minutes after using the inhaler.

Typical brand names of these medications are: *Albuteral, Maxair, Proventil, Ventolin, Combivent, and Alupent.*

Some children require medications that are taken daily to prevent symptoms or episodes from developing. These are the **controller or preventive** medications. School staff may not see a child actually taking these medications, because children may only take them at home. It is important to understand that there is a difference between short acting reliever medications and long acting controller medications. These controller medications either reduce or prevent inflammation from occurring or in some cases, prevent symptoms by relaxing the muscles surrounding the bronchioles (airways) over a long period of time.

Typical controller medications are: *Advair, AeroBid, Azmacort, Beclovent, Flovent, PulmicortTurbuhaler, Pulmicort Respules, Vanceril, Rotadisc, Accolate, Singulair, Zyflo, Filmta, Serevent, Foradil, Intal and Tilade.*

Oral (pills) corticosteroids are taken when an episode becomes severe, or when a child’s asthma requires very intensive treatment.

*A note about inhaled corticosteroids:
When you hear the word “steroid” you might think of the steroids used by athletes. But inhaled corticosteroids are not the same steroids used by athletes to build muscles and do not have the same side effects. They are the most consistently effective controller medication available.*

It is important to remember that all medications carry the potential for side effects. Some common complaints with rescue medications include **nervousness, jitteriness, nausea** and, in some cases, **drowsiness**. If side effects are excessive or the child is complaining of not feeling well, promptly contact the school nurse for evaluation and follow-up and do not leave the child unattended.



For a complete listing of asthma medications, see the Resource Section.

What You Can Do

Actions for the Physical Education Instructor and Coach



HELP CHILDREN WITH ASTHMA AND THEIR FAMILIES MANAGE ASTHMA

Support children with asthma by treating them like all other children while watching for the appearance of symptoms and avoiding triggers. They may feel anxious about accessing their medications or embarrassed that they have asthma.

Encourage exercise and participation in sports for students with asthma. When asthma is under good control, most students with asthma are able to play most sports. But also recognize and respect their limits. Plan to adjust the type, pace, or intensity of activities during extreme weather, the pollen season, poor air quality, or when a student has allergy symptoms. Permit less strenuous activities if a recent illness precludes full participation.

Know how to access a student's asthma action plan and follow it. Consult with the school nurse to learn more about asthma action plans and which students have them.

Keep students' quick relief medications (typically, an inhaler) readily available. Even with precautions, breathing problems may occur. Learn the signs of severe distress and allergic reactions.

If a child is unable to fully participate, help him/her find ways to participate in a less strenuous manner such as being the scorekeeper, equipment handler, etc. until ready to participate fully.

Never encourage a child or athlete with asthma to "tough it out" and don't allow other children to tease or encourage a child who is wheezing to continue the activity.

Respect the child's right to confidentiality and privacy. Discussion and questions about how he/she feels (in detail) should be asked quietly and with discretion.

Do not leave a child having an asthma episode alone. His/her ability to breathe needs to be watched for resolution or worsening.

Have an emergency plan for helping students during an episode.

Don't delay getting medical help for a student with severe or persistent breathing difficulty.

Tips to avoid Exercise Induced Asthma

CHILDREN WITH ASTHMA ARE OFTEN CONGESTED AND MAY WHEEZE WHEN THEY BREATHE. THINGS A COACH CAN DO TO HELP A CHILD AVOID EIA, INCLUDE:

-  ✓ Know which children in your class or team have asthma by reviewing the Parent's Permit and Health Questionnaire. The State High School League requires that parents fill this form out each year.
-  ✓ Follow the Green Zone Asthma Update and Yellow Zone Asthma Alert forms from the school nurse. The Green Zone is the go ahead to participate in recess and gym. The Yellow Zone is an alert for restricted activity for gym or recess.
- ✓ If EIA is an issue, have the child use his/her reliever medications 15 –30 minutes prior to strenuous activity. If she/he does not carry an inhaler, have the child go to the school nurse for medication administration.
- ✓ Be sure that the student's medications are available for exercise activities that take place away from school or after regular school hours. This preventive medicine enables most students with exercise induced asthma (EIA) to participate in any sport they choose.
- ✓ Make sure students with asthma do warm up and cool down activities. Give them time enough to slowly get their respiratory system warmed up.
- ✓ Check with the school nurse if you have questions about a child's ability to fully participate in physical activity.
- ✓ Check ozone/ air quality levels (<http://aqi.pca.state.mn.us/hourly>) for outdoor activity prior to exercise outside. High pollen or high ozone levels can cause EIA in most children with asthma.

LOOK FOR CHILDREN WITH UNCONTROLLED ASTHMA

When you suspect poorly controlled asthma in a student, notify the school nurse who, in turn, can discuss the situation with the student's parent(s) or guardian(s) and suggest referral to their physician for a proper diagnosis or a treatment update. Signs of poorly controlled asthma include: coughing, wheezing, chest tightness, or shortness of breath.



PROMOTE SELF ESTEEM

A coach may deal with athletes whose self worth is determined by peer approval or dis approval. Using a medication inhaler at a sporting event (or even before one) can give the perception that an athlete has a “weakness” or may not be able to compete at the same level as athletes without asthma. A coach can help break that perception by working with the athlete and discussing asthma management. Pointing out that there are a number of Olympic and professional level athletes that have asthma may be advantageous. Some examples include:



Tom Malchow – Minnesotan – Olympic swimmer and gold medalist

Greg Louganis – Olympic diver-USA

Jim “Catfish” Hunter – baseball Hall of Famer

Jerome Bettis – NFL football player

Peter Maher – Olympic marathoner

Hakeem Olajuwon – NBA basketball player

Curt Harnett – Olympic cyclist and silver medalist

Charmain Crooks – Olympic runner and silver medalist

Joan Benoit – Women’s marathon champion

Jackie Joyner-Kersey – Olympic double gold medalist in track and field – heptathlete- 6 gold medals!

Bill Koch – First American to win World Cup in cross-country skiing

Mark Spitz – 1972 Gold medalist in swimming - 9 gold medals

Paula Radcliffe – World champion marathoner

Paul Scholes – Professional soccer player- England and Manchester

Amy Van Dyken – 996 Gold medalist in swimming – 4 golds

Donnell Bennett – Pro football player (NFL), Washington Redskins fullback

Gary Roberts – Pro hockey player (NHL), Toronto Maple Leafs

Dominique Wilkins – Pro basketball player (NBA) currently working for the Hawks

Isiah Thomas – Pro basketball player (NBA) and currently coach of the Pacers

MONITOR OUTDOOR AIR QUALITY/OZONE/POLLUTION

People with asthma are more sensitive to air quality and poor air quality may be a trigger for an asthma episode. The Air Quality Index (AQI) is tool that can help you understand whether the air quality is good or bad on any particular day.

The AQI ranges from 0 to 500 and in Minnesota is based on measured or estimated levels of five air pollutants: ground-level ozone (smog), fine particulate matter, carbon monoxide, nitrogen dioxide and sulfur dioxide. The Minnesota Pollution Control Agency (MPCA) reports information about air quality on a daily basis on the AQI web site and AQI Information Line (651-297-1630). When the AQI exceeds or is forecast to exceed a value of 100 (unhealthy for sensitive groups, including people with asthma), the MPCA issues air pollution health alerts.

Coaches should be aware that athletes with asthma may experience problems when the AQI exceeds 100. You may sign up to receive e-mail notification when air quality alerts are issued by the MPCA and check the air quality index daily for Minnesota by going to: <http://aqi.pca.state.mn.us/hourly/>

Emergency Measures for Handling an Asthma Episode or Emergency

**PROVIDE PROMPT CARE FOR STUDENTS WHO ARE HAVING
BREATHING DIFFICULTY.**

Symptoms of breathing trouble:

- Unusually slow or fast breathing
- Breathes unusually deep or shallow
- Gasping for breath
- Wheezing, gurgling, high-pitched noises
- Skin unusually moist
- Skin flushed, pale, ashen/ bluish looking
- Person feels short of breath
- Person feels dizzy or light-headed
- Chest pain or tingling in hands or feet
- Person feels apprehensive or fearful
- Coughing
- Speaking in clipped or short bursts of speech
- Possibly restlessness or upset stomach

CALL 911 IF:

- Lips are blue or nail beds are blue -or-
- Child is having difficulty talking, walking or drinking -or-
- Quick relief or reliever medication (inhaled reliever such as albuterol) is ineffective, unavailable, or used too recently to repeat. -or-
- You see neck, throat, or chest retractions (Sucking in of the skin between ribs or at base of the neck) -or-
- There is nasal (nares) flaring when inhaling - or -
- Child is in obvious distress -or-
- There is an altered level of consciousness/confusion -or
- Child's condition is rapidly deteriorating.

**A child may have only one or a combination of the above,
but each of these symptoms is evidence of a real asthma
crisis developing!**

What to do:

1. Notify the school nurse (if in the building) that a child may be starting symptoms consistent with an asthma episode and request assistance.
2. If the child begins to wheeze, coughs, is short of breath or even appears more restless or anxious than usual, ask the child to sit quietly in an upright position. Reassure the child in a calm voice and do not leave the child alone.
3. Consult the child's asthma action plan or emergency care plan (if available).
4. If the child carries an inhaler, instruct him/her to use their rescue medication. (Even if you are not sure the symptoms are progressing or prevalent enough, it is safest to give the child a puff of their rescue medication rather than waiting. Many times, the child can tell you immediately if medication is required.)
5. Have the child sit up and breathe evenly, breathing in through nose, and breathing out with pursed lips.
6. If an asthma episode is suspected, give a glass of room temperature water to sip.
7. Elevate arms to shoulder level and provide support for the arms (desk or back of chair).
8. If asthma symptoms do not improve or are progressing rapidly (and/or the nurse is not available to assess the child) call 911.
9. Above all, don't panic! Remaining calm and reassuring the child that he/she will be okay helps alleviate the child's anxiety and may prevent symptoms from becoming worse.

Do not delay administering rescue medications or calling 911 while you attempt to contact the parents/guardian. Time is critical when a severe episode is taking place. The nurse can assess and document the episode and contact the family per district guidelines once the child's symptoms have subsided.