

◆ **Recommended Component:** **Manage Physical Activity for Students with Asthma**

Individuals with exercise-induced asthma do not necessarily have other asthma triggers. For others with asthma, exercise may be one of several triggers. In these specific cases, as well as when asthma is not well-controlled (i.e., when the student has an upper respiratory infection), activity may need to be modified.

There is no perfect physical activity for students with exercise-induced asthma, but all sports are tolerated well when a student's asthma is under control. Further, a student's severity of asthma does not necessarily correlate with aerobic fitness. Specifically, a 2000-2001 study of children with asthma found greater limitation of physical activity among overweight or obese children than among appropriate-weight children with asthma.⁵

While some educators or parents may be apprehensive about the physical activity of a child with asthma, focus them on the lung health benefits of exercise. That is, the lung is healthier the more it is exercised. For people with asthma, strengthening their lungs will mean that they will be better able to deal with their asthma, physically.

Education for physical education teachers and coaches should incorporate a few key points about managing physical activity for students with asthma:

- Students with asthma can and should participate in physical education and sports.
- Students with asthma can fully participate in physical activity when they are symptom-free.
- Activity may need to be modified when a student's asthma is not well-controlled (i.e., when the child has an upper respiratory infection).
- Asthma episodes can kill, so preventing asthma episodes and responding effectively to them are paramount.
- Pre-medication, if prescribed, and physical warm-ups are essential and can help prevent asthma episodes.
- Asthma Action Plans should include modified exercise recommendations from personal physician.
- Appropriate school staff must have access to individual Asthma Action Plans and individual asthma emergency protocol.

UNDERSTANDING MANAGEMENT ASTHMA TOOLS

Teachers, coaches, and athletic trainers should understand peak flow readings and have a reference sheet (see American Lung Association Tip Sheet: Peak Flow Meter Readings & Physical Activity Notes included with this hand-out) so that they can respond appropriately and help manage individual activity. Students should be learning to read peak flow charts and understand how to modify activity based on their own peak flow reading and symptoms.

For students with exercise-induced asthma, physical education teachers, coaches, and athletic trainers should have copies of students' Asthma Action Plans and work with students to be sure that pre-medication and/or any directives for activity modification are followed. (See Modified Physical Activity Plan and Breathing Difficulties Related to Physical Activity for Students with Asthma: Exercise-Induced Asthma included with this hand-out.)

⁵ Pianosi, Paul and Davis, Heather. Determinants of physical fitness in children with asthma. *Pediatrics*, Vol. 113, No. 3. March 2004.

As a general rule, any child not fully participating in the physical education program needs to be reported to his parents. If it is a recurring problem, the student needs to be referred to a doctor (via the school nurse) for care.

Any student in the yellow or red zone without an apparent cause (i.e., student has a cold or is in contact with a known trigger) should be referred to the school nurse, and eventually to his or her healthcare provider for a review of the student's "level of severity" diagnosis and for a potential change in his/her asthma management plan. This is particularly important if the situation occurs more than once.

Physical education teachers and coaches should be prepared to respond to asthma emergencies. See the Sample emergency Response Poster and Asthma Emergency Protocol for Students without Asthma Action Plans, included with this hand-out.

REFERENCE MATERIALS

- ❖ American Lung Association Tip Sheet: Peak Flow Meter Readings & Physical Activity Notes
- ❖ Modified Physical Activity Plan
- ❖ Breathing Difficulties Related to Physical Activity for Students with Asthma: Exercise-Induced Asthma
- ❖ Sample Emergency Response Poster
- ❖ Asthma Emergency Protocol for Students Without Asthma Action Plans



**American Lung Association Tip Sheet:
Peak Flow Meter Readings & Physical Activity Notes**

Color	Peak Flow Reading	Physical Activity Notes
Green	80-100%	Full participation
Yellow	50-80%	<ul style="list-style-type: none">• student should take rescue inhaler as prescribed• modified participation• inquire about pre-medication• increase warm-up and cool-down periods, etc., per student's Asthma Action Plan
Red	less than 50%	<p>Medical Alert:</p> <ul style="list-style-type: none">• student should take rescue inhaler as prescribed• may require emergency protocol• check student's Asthma Action Plan• no physical activity• if student improves after taking medication as prescribed, include student in activities such as time- or scorekeeper

Asthma and Exercise
General Guidelines when there is no Asthma Action Plan

Peak Flow Meter Zone	Modification
All Students with Asthma	<ol style="list-style-type: none"> 1. Pre-medicate as prescribed by physician 2. Ensure that rescue medication is readily available 3. Ensure long warm-up and cool-down 4. Monitor the environment for potential triggers (change environments if necessary) 5. Permit student to monitor breathing status using a Peak Flow Meter
Green (80 – 100%)	<ol style="list-style-type: none"> 1. No Modifications required 2. Full participation in all activities
Yellow (50 – 79%)	<ol style="list-style-type: none"> 1. Have students take medication as directed by their Asthma Action Plans 2. Consider activities that involve stopping and starting or a warm moist environment 3. Provide appropriate activity modifications, including rest periods and/or lower intensity of activity
Red (0 – 49%)	<ol style="list-style-type: none"> 1. Stop activity 2. Follow emergency asthma plan 3. Help athlete use inhaled medication 4. Call 911 if athlete does not improve

**Breathing Difficulties Related to Physical Activity for Students with Asthma:
Exercise-Induced Asthma**

**Breathing Difficulties Related to Physical Activity for Students With
Asthma: Exercise-Induced Asthma**

Information for Physical Educators, Coaches and Trainers

First Aid for Exercise-Induced Asthma

If, during physical activity, you notice that a student is having difficulty breathing, coughing frequently, or wheezing (noisy when breathing out), it may be asthma:

- **STOP the student's** activity and encourage the student to sit and rest.
- **Call 911** immediately if student requests or is in severe distress—struggling to breathe, lips blue, unable to walk or talk.
- Follow the designated **asthma management plan** (individual student plan, if available, or school protocol).
- Follow the school protocol to **notify the school nurse** (or other designated staff) if medication is not available or if symptoms are not resolved within 5 to 10 minutes after using the inhaler.
- **Never** let a child with breathing problems leave the gym or field **alone**.
- If symptoms resolve, permit students to **resume activity** when they are ready, according to their asthma management plan.
- Follow the school protocol to **inform parents** of the event and document actions taken.



This guidance sheet was developed as a partnership activity facilitated by the NAEPP, coordinated by the NHLBI of the NIH/DHHS

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Breathing Difficulties Related to Physical Activity for Students with Asthma: Exercise-Induced Asthma (cont.)

Ways To Help Students with Asthma Participate in Physical Activity

Identify Students with Asthma in Your Class or on Your Team

- Ask your school nurse or use student health information to identify those students who have a diagnosis of asthma or a history of asthma symptoms with physical activity.
- Ask the school nurse for a copy of each student's asthma management plan. Keep the copies easily available for all on-site and off-site activities.
- Discuss with students (and parents, if appropriate), the individual student's triggers, signs and symptoms that relate to physical activity.
- Take appropriate steps to inform a student's parents/guardians if the student frequently experiences asthma symptoms with physical activity. The student's asthma management plan may need to be re-evaluated by the student's physician because most students with asthma should be able to participate fully in physical activities, most of the time.
- Help students and the school nurse make sure that the students' prescribed asthma medicines are available for use, according to their asthma management plans, before physical activity and as needed for acute symptoms,

Encourage Students to Prepare for Physical Exercise

- Students who have been prescribed pre-exercise treatment (usually an inhaled quick-relief bronchodilator) should take their medicine 5 to 10 minutes prior to exercise
- Encourage a period of warm-up activity before exertion (e.g., walking, flexibility exercises, or other low-intensity activities).
- Check the student's asthma management plan for information about his or her triggers, and help the student avoid them when possible. Each student with asthma is sensitive to different factors in the environment, called triggers. Common triggers include dust, pollen, mold, air pollution, and smoke. Cold, dry air can also trigger asthma; wearing a scarf or cold air mask will help because it warms and humidifies the air before it reaches the airways.

Consider Modified Exercise as Needed

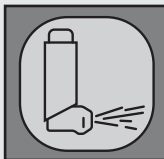
- If a student has obvious wheeze, breathing difficulty, or measures a low peak flow rate prior to exercise, have the student treat his/her symptoms according to the asthma management plan. The treatment is usually with prescribed inhaled quick-relief bronchodilator. Physical activity may then be either resumed, modified or halted, depending on the student's response to treatment.
- When a student is having mild symptoms or when triggers are present, consider modifying the intensity, location, or duration of physical activity. Very intense, continuous activity is more likely to cause asthma symptoms than intermittent or very light or non-aerobic exercise (e.g., walking, some field events, or weight training). There is no perfect physical activity for people with exercise-induced asthma. All sports are tolerated well when a student's asthma is under control.
- When environmental conditions are bad (e.g., ozone alerts, high pollen counts, freshly cut or sprayed fields) students with asthma may need to avoid being physically active outdoors.

5 Steps to Follow for an Asthma Episode in the School Setting

If student has excessive coughing, wheezing, shortness of breath, or chest tightness:



Help to an upright position; speak calmly and reassuringly



Follow individualized action/emergency plan for use of quick-relief inhaler



If quick-relief inhaler or action/emergency plan not available, send to health office accompanied by peer or with staff member



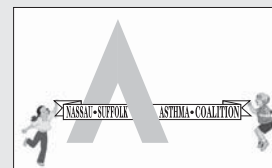
Get emergency help from school nurse or designated emergency staff if student has any of these:

- Inhaler not helping
- Breathing hard & fast
- Nostrils open wide
- Can't walk or talk well

**Call
911**

If not breathing, unconscious, lips are blue, struggling to breathe (hunched over or ribs show), or other signs of distress

Notify parent or guardian.



Contact (631) 231-5864 X12



Asthma Emergency Protocol for Children with Asthma Who Do Not Have Their Own Emergency Plan

ASTHMA (or Respiratory Distress) Standard Protocol for Students without a Personal Asthma Action Plan

POSSIBLE OBSERVATIONS/SYMPTOMS

(May include one or more of the following.)

- Coughing, wheezing, noisy breathing, or whistling in the chest
- Difficult breathing, tightness in chest, shortness of breath, or chest pain
- Self reporting/complaints of discomfort when breathing
- Breathing hard and fast
- Nasal flaring (front part of nose opens wide to get in more air)
- Can only speak in short sentences or not able to speak
- Blueness around the lips or fingernails

ACTIONS

1. **Quickly evaluate the child. Call 911 and immediately administer quick-relief medication if in severe distress! (For example: unable to speak, lips blue or peak flow < 50% of predicted best).** Administer oxygen, if available, and patient is in respiratory distress.
2. Restrict physical activity and allow student to rest. Encourage student to breathe slowly and relax.
3. Place the student in an area where he/she can be closely observed. Never send a student to the health room alone.
4. Check and record:
 - a. Peak flow meter reading. (If personal best is unknown, use prediction chart.)
CALL 911 if peak flow is less than 50% of personal or predicted best.
 - b. Respirations and pulse (Normal rates listed on back. Report to MD or EMS)
5. **Administer quick-relief medication. Medication must be ordered by a personal physician order or a standing order signed by a school physician or public health physician.**
Administer albuterol from school supply, if available and student does not have a personal albuterol inhaler. Use a spacer and disposable mouthpiece.
6. Contact parents (even if situation does not appear severe).
7. Reassess student after 10-15 minutes. Check for ease of breathing, peak flow, pulse, and respirations.
8. If student is improving, keep the student in the health room under supervision until breathing returns to normal.
9. **If student is not improving contact student's physician or call 911.**
10. With parental permission, provide report of health room encounter to student's physician.
11. Obtain a personal asthma action plan for this student from the student's family or physician.

Normal Breathing and Pulse Rates by Age (from EPR-2)

Age	Breathing Rate	Pulse Rate
< 2 months	<60/minute	<160/minute
2-12 months	<50/minute	<120/minute
1-5 years	<40/minute	<110/minute
6-8 years	<30/minute	<110/minute
9-15 years	<30/minute	<100/minute
16-18 years	<20/minute	<90/minute

