**Metered-Dose Inhalers for Young Athletes With Exercise-Induced Asthma**

Committee on Sports Medicine and Fitness

Bronchoconstriction can occur in association with exercise in up to 15% of the general population, including nearly 100% of people with asthma, 35% to 40% of those with allergic rhinitis, and some who have no other evidence of allergy. This phenomenon, termed exercise-induced asthma (EIA), is manifested by coughing, choking, chest pain, easy fatigability, shortness of breath, wheezing, chest tightness, or any combination of these symptoms during, or especially after, exercise. In a child known to have asthma or nasal allergies, the diagnosis of EIA can usually be made on the basis of history alone. Repeated episodes of increased difficulty breathing or cough in association with physical exertion should be assumed to be EIA until proved otherwise.

Sophisticated pulmonary function testing is not necessary in the majority of cases. In the atypical case, pulmonary function testing, often in conjunction with an exercise challenge, can confirm the diagnosis.

Exercise-induced asthma is less likely to occur in a child whose asthma is well controlled, a goal accomplished best with attention to the role of airway inflammation as well as bronchoconstriction. Fortunately, EIA can be controlled in most athletes by the inhalation of a β2-agonist bronchodilator (e.g., albuterol), cromolyn sodium, or both 15 to 30 minutes before exercise. These safe medications come in several different forms, but the most convenient for patients older than 2 or 3 years is the pressurized metered-dose inhaler (MDI), which is especially easy to use with the addition of a spacing device.

Cromolyn has never been thought to be effective as an ergogenic (performance-enhancing) aid, and only two studies have suggested the possibility that albuterol is ergogenic. Other studies have failed to demonstrate an ergogenic effect. Because these agents have low toxicity and are effective in preventing EIA, and because there is no conclusive evidence that they have any performance-enhancing effect, both cromolyn and albuterol have been declared legal by the intercollegiate and international athletic communities for use by athletes with asthma.

Unfortunately, some athletes with asthma in school-sponsored sports have been prevented from using albuterol or cromolyn, either by the restrictive medication and drug policies of school districts, or by individual coaches and teachers. Although non-use is by far the larger problem, misuse occasionally occurs; some wrestlers have gained a rest period by calling for an unnecessary medical time-out to use their inhalers. This policy statement was developed in part to address this misuse of inhalers by wrestlers.

**RECOMMENDATIONS**

The American Academy of Pediatrics recommends the following.

1. School children and adolescents with EIA whose physicians have prescribed MDI β2-agonists, cromolyn, or both should be allowed (and encouraged) to use them before school-sponsored sports activities, including team practices and competition, and physical education classes. Use of MDIs during practice or competition should be allowed, but seldom is necessary if appropriately used before participation.

2. An athlete who is participating in a sport event with less than 5 minutes remaining should expect no benefit from a β2-agonist in such a short time. If asthma symptoms are severe enough to stop the event at that time, the athlete should be medically disqualified.

3. Athletes who use MDIs before sports events and more than once during participation need to be evaluated by their pediatrician. Such frequent MDI use may indicate poor baseline control of the asthma and the need for additional treatment of airway inflammation as well as bronchoconstriction.

*This statement has been approved by the Council on Child and Adolescent Health. The recommendations in this statement do not indicate an exclusive course of treatment or procedure to be followed. Variations, taking into account individual circumstances, may be appropriate.*

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REFERENCES
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