



Asthma and the competitive swimmer

Introduction:

One in seven children and one in 25 adults in Great Britain have asthma and the number is growing. Thus every swim squad or club will have a number of asthmatics and it is important for coaches and club officials to have at least a basic knowledge of the condition.

Asthma is a disorder of the small airways of the lungs, which become sensitive to certain triggers, leading to them narrowing down when they become inflamed. This results in the child or adult becoming wheezy, short of breath or having a cough. The underlying causes are partly genetic and partly environmental.

The triggers vary from patient to patient but often include colds and viral infections, pollens and moulds, pets, dust, tobacco smoke, emotion and stress, cold air and some medications, such as aspirin. Unfortunately for swimmers chlorine may also be a trigger in some asthmatics. Some people's airways narrow down during exercise. This is known as E.I.A. or exercise-induced asthma, which typically comes on after at least 5-10 minutes of a training session.

However, swimming is a sport at which asthmatics can and often do excel, as the warm moist air of the indoor pool doesn't trigger an attack. A number of the current British team has asthma and at least six Olympic Gold medallists in the aquatic events have been sufferers of the condition.

How is it diagnosed?

By asking a person to breathe as hard as they can into a meter, it is possible to measure how quickly they can expel air from their lungs.

This is known as a 'peak flow test' and by relating this information to the individual's age and height, we can determine whether or not the person is asthmatic.

Diagnosis is confirmed if, after exercise or treatment by inhaler there is a 15% variation from the person's optimum or 'predicted' peak flow.

People can also detect such variations themselves by carrying out regular peak flow tests and maintaining a diary chart.

Declaration

Once asthma has been diagnosed, it is **mandatory** that the swimmer or his or her parents or coach declare this to the A.S.A together with details of the medication that they are taking. This is essential to avoid falling foul of Doping Control.

The notification must be done annually. Any subsequent changes in medication should also be notified.

*Remember: it is **your** responsibility to keep the A.S.A. informed.*



How is the condition managed?

Modern management of asthma is a shared care process with the patient taking some responsibility for their condition in conjunction with the general practitioner. Nurse-led asthma clinics at most GP surgeries help to maintain good control, check inhaler technique and monitor progress.

The peak flow meter, which every asthmatic should have, is the cornerstone of management. This measures the performance of the lungs and if charted gives a clear idea of how well controlled the asthma is. The peak flow reading varies with the age, sex and height of the patient and can be calculated from charts. Each asthma sufferer should know what their optimum reading is and has a self-management plan.

Types of treatment

There are two types of medication to treat asthma – relievers and preventers. Both are inhalers and they are colour coded to help identification. There has been a move to CFC inhalers over the last two years.

1. *Relievers* – inhalers colour coded blue - e.g. salbutamol (ventolin) - work to open up the airways. They are also known as bronchodilators (or beta 2 agonists).

These are mostly used after symptoms appear but sometimes give brief protection against triggers such as exercise before they appear.

It is important NOT to exceed the maximum dose of 2 puffs four times daily.

2. *Preventers* – if taken regularly can prevent an asthma attack occurring. They protect the lining of the airways and make them less likely to narrow when triggered.

There are two main types: -

Steroid based inhalers – colour coded brown – e.g. beclomethasone (becotide)
Sodium cromoglycate – colour coded white – e.g. Intal

They should NOT be used for treating an acute attack, as they do not bring immediate relief. They can take about 14 days to be fully effective if taken regularly.

Other long acting inhalers and oral tablets form a second line treatment if the above do not adequately control the condition.

The Step Care approach to treatment

The current treatment of asthma follows guidelines laid down by the British Thoracic Association. They take the form of a step care plan now known as the British Guidelines for the Management of Asthma. This involves stepping up the level of treatment until satisfactory control is achieved. It is important not to overtreat and stepping down is just as important if the asthma is well controlled.

Step 1.

Use an inhaled short acting bronchodilator (such as salbutamol) for symptom relief up to once or twice daily. If you need more than this, move to step 2.

Step 2.

Use an inhaled short acting bronchodilator for symptom relief plus a regular low dose inhaled steroid twice daily (e.g. beclomethasone, or in some cases the regular preventer cromoglycate).



Step 3.

Use an inhaled short acting bronchodilator for symptom relief plus either a regular high dose inhaled steroid via a large volume spacer, or low dose steroids and a long acting bronchodilator.

For patients who present more of a management problem, two higher steps are available. It is also worthwhile for all asthma sufferers to have a flu vaccine.

Which drugs are legal and which illegal?

The rescue inhalers such as salbutamol (ventolin) and terbutaline (bricanyl) are permitted substances under ASA and FINA law as are the common steroid based inhalers such as beclomethasone (becotide), budesonide (pulmicort) and fluticasone (flixotide).

The preventative inhaler cromoglycate (intal) can be used legally as can the recently introduced oral leukotrine antagonists such as montelukast (singulair) and salmeterol (serevent) inhalers.

However for the competitive swimmer salbutamol tablets are NOT permitted and the older inhalers (although very rarely used) such as isoprenaline, ephedrine, orciprenaline are banned.

Sometimes a short course of oral corticosteroid drugs is necessary to bring the asthma under control. If this is the case the swimmer **must not** compete until at least two weeks after the course has finished.

The reason why declaration of asthma is essential is that the beta agonists and steroid drugs may enhance performance (by stimulatory and anabolic effects on the body) if used by an athlete without asthma.

The Medical Commission of the International Olympic Committee has recently toughened its stance against the misuse of asthma medication. In future Olympic athletes seeking authorization to use asthma medication during the Olympic Games will be required to produce clinical and laboratory proof of their ailment.

When tested at doping control you must declare the asthma medication you are taking.

Never let another swimmer use your inhaler for fun. Believe it or not, this does happen sometimes and the consequences can be extremely serious.

List of Asthma Drugs that are permitted in Sport

- Salbutamol - e.g. ventolin - by inhaler only
- Terbutaline - e.g. Bricanyl - by inhalation only
- Beclomethasone - e.g. becotide - by inhaler only
- Salmeterol - e.g. serevent
- Sodium cromoglycate - e.g. Intal
- Montelukast - e.g. Singulair
- Budesonide - e.g. Pulmicort- by inhaler only
- Fluticasone- e.g. Flixotide- by inhaler only
- Theophylline- e.g. Nuelin

There is a maximum permitted level of salbutamol so the recommended dosage of the salbutamol inhaler - 2 puffs four times daily must not be exceeded.



What delivery devices are available?

A number of delivery systems are available to meet individual requirements. The commonest are simple meter dose aerosol inhalers but there are also breath-activated inhalers and ones, which employ dry powders. The aerosols are currently being switched to C.F.C. with new propellants to avoid damaging the ozone layer and for younger patients or people who have trouble getting on with inhalers or higher dose steroid the dose can be given via a spacer device (large chamber - volumatic).

How do you know if the asthma is not well controlled?

Measuring the peak flow is one of the best ways of determining good control. Detection of a lower than optimum level or a declining levels should prompt an active review of treatment. The swimmer may complain of night-time coughing or wheezing or may have to get out of a training session due to wheeziness, coughing or shortness of breath.

When should the swimmer take their inhaler relative to training or an event?

The relief inhaler (e.g. salbutamol or ventolin) should be taken if necessary between 15 and 30 minutes before training or competing to allow maximum time to work properly. One to two puffs is particularly useful in those patients who suffer from exercise induced asthma.

The swimmer should NOT keep getting in and out of the water during a training session for a quick puff of their inhaler and coaches should actively discourage this habit. This usually means that the asthma is not well controlled and the treatment needs to be reviewed.

The swimmer's 'rescue' inhaler should however be readily at hand if needed and swimmers should never share inhalers.

What to do if a swimmer has an asthmatic attack in the water.

The swimmer concerned should be removed immediately from the water.

The swimmer should be reassured and calmed, advised not to hyperventilate and given one to two puffs of their usual rescue inhaler.

If there is no response after 10 minutes this can be repeated

If after this has been done the swimmer is still distressed, unduly short of breath, has a rapid pulse or respiratory rate or is blue (cyanosed), medical help should be sort urgently and if necessary an ambulance called. If available, oxygen can be given whilst awaiting help.



Useful addresses

National Asthma Campaign
Providence House
Providence Place
London N1 0NT

Publishes numerous booklets about asthma care e.g. peak flow measurement, asthma at school, taking control of asthma etc.

Asthma help-line 0345-010203 Monday to Friday 1-9.00pm for the price of a local call.

Peak flow charts and self-management plans are available through GP surgeries and peak flow meters on FP10 (prescriptions)

Doping Control at the UK Sport.

If you are worried whether what you are taking is a banned substance, telephone the drug information line 0207-380-841-9530 or e-mail ead@uksport.gov.uk. The web site www.uksport.gov.uk is another useful information source and the address is Ethics and Anti-doping, 40 Bernard Street, London WC1N 1ST

References

1. Thorax 1993: 48 supplements S1 -S24 British Thoracic Society Guidelines.