

## **Asthma - A disease that needn't cause discomfort**

Nowadays asthma is one of the few diseases that can be treated so successfully that an asthma patient can lead a life with little or no discomfort. To achieve this though the intensity of treatment must be tailored to the severity of the disease, and the patient must stick to a regular treatment schedule that is carried out correctly.



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The few patients who may still feel discomfort despite these measures are those with severe asthma or those whose long-term (chronic) asthmatic condition could cause late-stage complications.

Asthma is caused by inflammation of the mucous membranes in the airways of the lung (bronchial tubes). This inflammation is not triggered by bacteria, therefore antibiotics will not help.

In this inflammatory process (which can be likened to a fire), substances are formed that make the upper airways irritable (hypersensitivity) and cause the following changes in the airways:

- The mucous membrane which lines the bronchi swells.
- Mucus is formed in greater quantity and of a more sticky consistency (similar to that of soft wine gums).
- The muscles surrounding the bronchi tense up and contract.

These changes narrow the opening of the bronchi depending on the intensity of the inflammation – the more inflammation, the greater the narrowing. The patient notices increased cough, sputum and breathlessness in varying degrees. The greater the 'flames' of inflammation, the greater the discomfort and the sooner it starts. Cough is often the only indicator pointing to asthma, and breathlessness (dyspnoea) may be absent for a long time.

Typically, symptoms appear on contact with possible triggers, or soon after. About 40% of all people who repeatedly suffer from a predominantly dry cough are asthmatics. Asthma-like symptoms typically occur following contact with a trigger, and to begin with asthmatics do not feel discomfort between 'attacks'.

The longer these 'flames' of inflammation can blaze without proper intervention, the more likely it is that permanent damage can develop:

- The surface of the bronchi becomes permanently damaged. The cilia, little hair-like structures on the surface of the bronchi that 'catch' the inhaled dust and carry it outside, cannot play their role anymore, resulting in frequent infections.
- The base layer that the mucous membrane sits upon in the bronchi thickens.
- The muscles of the bronchi increase in mass, like in an athlete who exercises muscles regularly.

The unfortunate result of this lack of treatment is a permanent constriction of the airways which cannot be reversed by drugs. Only timely and regular treatment before this stage is reached can prevent these changes.

The most common cause of inflammation of the mucosa is allergies (pollen, house dust mites, fungal spores, animal protein). Approximately 40-60% of all patients with allergic rhinoconjunctivitis (such as hay fever) suffer from allergic asthma at the same time. All patients with allergic rhinoconjunctivitis should therefore consider whether they also have allergic asthma if they have cough and/or have mild shortness of breath in the early morning hours (4-6 am) and/or suffer on exertion (such as when exercising), whilst suffering from their allergy.

Typically the onset of allergic asthma occurs in early childhood at around 3 years of age, and is usually only noticed because of coughing and sputum that last longer than usual. It is however often misinterpreted as an infection, but the symptoms do not respond to the usual anti-infective drug treatment. A diagnosis can be confirmed if a course of anti-asthma treatment results in the symptoms disappearing quickly or reducing in severity, and re-occurring after discontinuation of the drugs.

Other asthma triggers include infections of the airways, drugs (e.g. aspirin, beta-blockers) and also non-specific stimuli such as low temperature, dry air, certain odours, perfumes, etc.

In a rare form of asthma which usually occurs after the age of forty (intrinsic asthma), no triggers can be found though. The patient's mental state is often blamed and can make existing asthma worse, although not trigger it.

If suspected, asthma can be confirmed quickly if the patient voluntarily reports typical symptoms such as cough and attacks of breathlessness, or confirms those symptoms upon questioning.

Suspected allergic asthma can be confirmed when the onset of symptoms can be related to a potential trigger. Symptoms in the spring might bring tree pollen allergy to mind, and those in early summer might point to a grass or weed pollen allergy. Symptoms that occur in September when the central heating is switched on again, but that also improve at other times of the year e.g. when staying in mountainous regions, can point to house dust mite allergy. An allergy test will confirm the identity of potential triggers.

The most important investigation in suspected asthma is a test of the lung function, which can demonstrate the narrowing of the airways (obstruction). The total elimination of symptoms or at least their marked improvement after inhalation of a drug intended to relieve the obstruction is almost conclusive.

If at the time of the investigation there is no evidence of obstruction despite asthma being suspected, as may happen in the symptom-free interval between attacks, other tests are needed to provide proof.

The patient measures their so-called 'peak flow' on a regular basis, in particular when suffering discomfort, by using a small device provided by the doctor. In this way, the obstruction and perhaps even the trigger can be made evident.

Somewhat more complex is a so-called bronchial provocation test. This test, where the patient inhales a substance that can cause obstruction, is performed in the presence of a pulmonologist (a doctor specialising in respiratory medicine). Because of the hypersensitivity of their airways, the bronchi of an asthmatic will react more quickly with a narrowing of the airways than a healthy individual does.

The most important of all measures in treating allergic asthma is to avoid exposure to the triggers, but this is difficult and can only be achieved in a few cases. Desensitization, where the patient is periodically injected with the trigger in the hope that at some point they might stop responding to it, can eliminate the symptoms or at least reduce their severity.

Drug treatment is through inhalation of the medication. The great advantage of this is that the drugs reach the areas where they should have an effect directly. As such direct access bypasses the digestive tract, the drug acts more quickly and at a lower dose. Less drug also means a lower risk of side effects.

The main goal of treatment is to reduce inflammation. The strongest and best-acting anti-inflammatory drug is inhaled corticosteroid. The anxiety felt by many patients over steroid use is unjustified in the case of an inhaled corticosteroid, as at the usual doses and when administered correctly, an inhaled corticosteroid causes virtually no side effects. The few, very rare side effects that do occur are harmless and can be dealt with easily. A second group of anti-inflammatory drugs are the leukotriene antagonists; however these lag behind corticosteroids significantly in their potency. Leukotriene antagonists should really only be used if corticosteroids cannot be used, or used in addition to them to enhance their effect.

Corticosteroids have become the gold standard in asthma treatment because of their effectiveness and good safety record. The size of the dose depends on the degree of inflammation - a large 'flame' requires a large dose, a small 'flame' a small one. In most cases a once-daily or at most twice-daily inhalation of a corticosteroid is sufficient to eliminate the patient's symptoms on a permanent basis. For acute symptoms, the dose may be temporarily increased. With regular inhalation the dose can even be reduced in the long term in many patients.

All other drugs in asthma therapy are used exclusively to enhance treatment with corticosteroids or to alleviate short-term symptoms and only a few patients need multiple medications.

**Unfortunately, asthma is often diagnosed late, and the disease is left untreated long enough for it to cause permanent damage. The two main reasons for this delay in diagnosis are:**

1. Patients put up with the symptoms for a long time before they seek medical advice.
2. Mild symptoms may not always be recognised as asthma, even by doctors.

#### **The Ten Rules of Corticosteroid Inhalation**

Inhaled corticosteroid is the most powerful drug for the treatment of airway inflammation, and when used correctly is almost free of side-effects.

The success of the treatment therefore depends on you, the patient. Consider the following recommendations for optimal treatment:

1. Inhale your corticosteroid regularly. Steroids for inhalation only work with regular use.
2. Continue treatment even when there appears to be no effect. It can take 1-3 weeks before the main effect is seen.
3. Inhaled corticosteroids prevent worsening of the disease. Stick to the recommended dosage and time intervals as closely as possible.
4. In an emergency, inhaled corticosteroid does not help. Make sure to mark your corticosteroid spray accordingly, so you know it is not suitable for emergency treatment.
5. Do not change the dosage or discontinue treatment without consulting your doctor. This is particularly important after symptoms start to improve.
6. Inhale the corticosteroid before meals and then rinse your mouth with plain water to remove any residue.
7. See your doctor if you find whitish deposits on the mucosa of the mouth (gums, inside cheeks), but make sure you continue treatment until then.
8. See your doctor if you become hoarse, as this is a rare and harmless side effect which quickly subsides by switching to a different medication or after cessation of treatment. Continue treatment until you see your doctor.
9. Ask your doctor to check your inhalation technique regularly, as errors in technique are the most common reasons for failure of inhalation therapy. Errors can creep in even with regular correct usage.
10. If you have questions and concerns do not hesitate to seek medical advice.

**In addition, treatment can be a cause for concern for the patient, but an asthmatic should really not feel any discomfort. It is difficult to understand therefore that there are still asthmatics suffering from their disease and or even dying from it. Here are some reasons for these shortcomings:**

1. Many patients believe asthma is a harmless disease.
2. Their unfounded anxiety over corticosteroid inhalation puts them off treatment.
3. The patients inhale their corticosteroid only when necessary, but a certain amount of time is needed for it to extinguish the 'fire' of inflammation; the effect only lasts with regular use.
4. When in discomfort patients only inhale short-acting drugs. These drugs may bring fast relief, but only for a limited time, and they do not affect the cause of the disease.
5. The treatment is not aggressive enough.
6. Many people make mistakes when inhaling. Even with an optimal inhalation technique only 10-60% of the substance released reaches the airways. Only when using the right inhalation device and an error-free inhaler technique will enough medication reach the bronchi.

The inhalation of drugs is the way forward in therapy, the advantage being that the drug reaches where it has a direct effect. An international group of experts has set themselves the task of raising awareness of the most important points in inhalation therapy and to improve them. Doctors, pharmacists and patients will find information about the airways, inhalation and respiratory diseases at [www.admit-online.info](http://www.admit-online.info). Those who are interested will also find pictures and information about the main inhalation devices here.



**The group recommends the following approach for successful inhalation therapy:**

- Every patient should get the most appropriate inhalation device for him/her. The ideal inhalation device: is easy to handle; has a dose counter to provide information on how much drug is left and ideally the number of inhalations performed; gives the patient feedback about whether a successful inhalation has been performed; is of a small format.
- The correct inhalation procedure should be explained to the patient in detail when first prescribed, and also demonstrated. Ideally, the patient should practise inhalation with a demonstration device that has a single-use mouthpiece. Should this not be possible, the inhalation procedure should be reviewed with the prescribed device after a few days.
- If possible, the patient should be given written information on the prescribed device.
- When multiple drugs are prescribed only one type of inhalation device should be used if possible, to avoid confusion and problems with inhalation. Unfortunately not all current drugs are available in all types of inhalation devices.
- Inhalation technique should be reviewed regularly, therefore patients should always take their device with them when they visit the doctor.

The 'Ten Rules of Corticosteroid Inhalation' should pave the way for successful asthma treatment and a life with asthma free of discomfort.

**How to keep your asthma diary**

Log the results of your peak flow measurements in an asthma diary provided by your doctor, unless you have a device that automatically stores the data.

It also makes sense to document your disease symptoms and drug consumption accurately. This will give your doctor important information for the optimal management of your asthma.

**Do you already have an asthma passport in credit card format?**

If so you and your doctor can log important information (such as allergies and incompatibilities), and note what should be done in an emergency. The pass is important to those who provide assistance, therefore always carry it with you in your wallet.

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