

# Asthma

## Respiratory Tract components:

The respiratory system consists of organs responsible for the exchange (input and output) of oxygen gas and carbon dioxide to and from the body, namely:

- **The Upper respiratory system**, including: Nose, nasal cavity, sinus, larynx, trachea.
- **The lower respiratory system**, including: Bronchioles that branch out to form bronchi, alveoli, lungs.

## Definition of asthma:

A chronic respiratory condition, in which the airways (airways that carry it to and from the lungs) are sensitive to certain irritants, and can affect people of all ages, but often begin from childhood.

## Definition of Allergies:

Allergies occur when the immune system reacts to a foreign substance (such as pollen, mites, fungi, or certain foods), that doesn't normally cause a reaction in most people.

## How does asthma attacks occur:

When a person is exposed to an asthma irritant, the body treats the irritant as follows:

- Tightness in the muscles surrounding the bronchi, causing pressure on the bronchi.
- The lining of the airways becomes inflamed, causing swelling.
- A mucous layer is formed which increases the airway tightness.
- This sequence of changes makes the airways narrow, making it difficult for the air to pass and breathe well, thus showing the symptoms of an asthma attack.

## Other Names:

Chest allergy - asthma- gasp - respiratory crisis - inhalation allergies - bronchitis.

### Types of asthma:

| Type                     | Signs and Symptoms:   |
|--------------------------|---|
| <b>intermittent mild</b> | <ul style="list-style-type: none"> <li>• mild symptoms</li> <li>• Symptoms appear for two days or less per week</li> <li>• Night symptoms appear less than twice per month</li> </ul> |
| <b>Continuous mild</b>   | <ul style="list-style-type: none"> <li>• Symptoms appear for more than two days per week but not more than once a day</li> </ul>  |
| <b>Continuous medium</b> | <ul style="list-style-type: none"> <li>• Symptoms appear once a day</li> <li>• Night symptoms appear more than once per week</li> </ul>   |
| <b>Continuous severe</b> | <ul style="list-style-type: none"> <li>• Symptoms keep appearing throughout the day for most days and nights</li> </ul>   |

### Causes:

The cause of asthma is not known, but there are risk factors that increase its chances

### Risk factors:

- Having other allergies or other conditions Such as eczema, hay fever or food allergies.
- Having a family history of asthma or other allergies.
- Pre-existing bronchitis.
- Exposure to negative smoke in childhood.
- Mother's smoking during pregnancy increases the risk of asthma.
- Premature birth (before 37 weeks) or low birth weight.
- Exposure to vapors, wood particles and others in the workplace.

### Triggers:

Asthma attacks often occur in response to an irritant, which may include:

- Infection, such as cold and flu)
- Allergens, (such as: Pollen, dust mite, fur or feathers).
- Smoking, incense and air pollutants (e.g. Vehicle exhaust).
- Some medicines (e.g. Ibuprofen and aspirin).
- Emotional changes (such as: Psychological stress and laughter)

- Weather fluctuations (e.g: Sudden change in temperature)
- Mold or moisture.
- Exercising
- GERD

Knowing and avoiding irritants may help control asthma attacks and symptoms.

### **Asthma attack symptoms:**

Symptoms vary in each attack, and may never appear if a person controls asthma well.

Symptoms vary from one person to the other, but the most common are:

- Shortness of breath.
- Whistling chest (wheezing).
- Chest tightness
- Persistent coughing

Symptoms often appear at night, early in the morning, or after physical activity. If asthma is controlled, the symptoms are temporary and spaced.

### **When to see a doctor:**

- If symptoms begin to worsen.
- When you feel tired and fatigued.
- If medications do not help relieve the symptoms of an attack
- When there is severe shortness of breath making it difficult for a person to talk, eat or sleep.

If the patient needs to use fast-acting drugs continuously, he or she should tell the doctor, he may need to make a modification to long-acting drugs.

### **Complications:**

Although asthma can be controlled, it is still a serious condition that can cause many problems. Therefore, it is very important to follow the treatment plan prescribed by your doctor. Do not ignore the symptoms if they start to get worse. Poor asthma control can cause the following problems:

- Feeling tired all day.
- Poor performance or absence from work or school.
- Stress, anxiety or depression.
- pneumonia
- Delayed growth or puberty
- Death.



**Diagnosis:**

Asthma is suspected when there are risk factors, also when:

- Asthma symptoms appear continuously, or at the same time each year.
- symptoms worsen at night or early in the morning.
- They appear clearly after physical activity, the presence of allergens or infection.
- The condition quickly improves when asthma medications are used.

**The following tests are done:**

- **Medical history:**

Asking the patient about his or her medical history, including family history of asthma, other allergies, smoking or exposure to negative smoke, and exposure to pollutants in the workplace.

- **Clinical examination.**

- **Spyrometer:**

A device used to measure the flow of air to and from the lungs.

- **Air Flow Meter:**

Used to measure how hard air exits (exhalation intensity).

- **Allergy tests:**

Asthma is highly associated with other allergies, so an allergy test may be done by blood or spot test.

There is no need for X-rays to diagnose asthma, but your doctor may do it if they want to rule out other lung problems (such as pneumonia).

Asthma is often difficult to diagnose in children because it is difficult for them to take a breath test, so your doctor will evaluate your symptoms and history, and may prescribe asthma medications to see how they work.

### Treatment:

There is currently no cure for asthma completely, but there are medications that help to control it, which helps the affected person to live normally, as it varies from person to person depending on age, symptoms and others, **including:**

- **Long-acting drugs (prophylactic):**

Generally those are taken daily to control asthma and reduce the likelihood of attacks. They have several types:

- Inhaled corticosteroids.
- leukotriene modifiers
- Long-acting beta boosters.
- Mixed inhalable drugs.
- Theophylline.

- **Rapid-acting drugs (Rescue):**

It is used during the occurrence of asthma attacks for quick effect, as well as using before exercise according to the doctor's instructions, it has several types:

- Short-acting beta boosters (such as Ventolin): It can be inhaled by inhalers or vaporizer.
- Ipratropium (Atropent): Relaxes the airways quickly, making it easier to breathe. It is often used in emphysema and chronic bronchitis, and may be used to treat asthma attacks.
- Oral or intravenous corticosteroids: Relieves bronchitis caused by severe seizures, but prolonged use may result in side effects.

### Allergy medications:

Allergy medications may help if asthma is triggered by another type of allergy, **including:**

- Immunotherapy.
- XOLAIR (omalizumab)

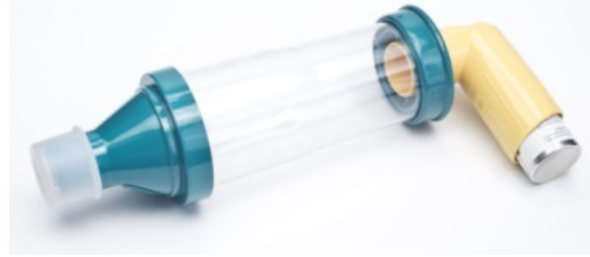
### If a person has difficulty using asthma inhalers:

There are several other ways to facilitate the use of asthma medications, including:

- Use a funnel (conductor)
- use the vaporizer

### **Funnel (Coupling, Connector, Tube):**

A piece attached to an asthma inhaler which helps inhaling (especially for children), and may be connected to a mask if the patient cannot close his mouth well around the mouth opening.



### **How to clean the funnel:**

- Remove the mask and set aside (if any)
- Wash mouth piece, lid and funnel with warm water and liquid soap, and rinse thoroughly after completion.
- Put all parts aside to dry, and avoid drying them with napkins or towels; as the funnel may have sediments where medication particles will be stored

### **Vaporizer (water sprayer):**

A device used to enable the patient to inhale the drug, where the drug is placed with distilled water solution in a vaporizer connected to a mask.

### **Prevention:**

The disease cannot be prevented, but it can be controlled by following health tips.

### **General Guidelines:**

Although there is no cure for asthma, it can be controlled in cooperation with your doctor by:

- Make sure to carry asthma medications all the time.
- Use medications regularly and properly.
- Ensure that the funnel or vaporizer is properly used.
- Stay away from irritants, and ensure not to visit the places they exist.
- Avoid foods and medicines that cause allergic reactions
- Take the flu vaccine every year to avoid getting it and triggering asthma.
- Stay away from people with influenza to avoid infection from them.
- Get rest and take fluids when you feel the onset of flu symptoms.
- Avoid all kinds of smoking
- Cover the mouth and nose with a scarf in cold weather

- Discuss with your doctor the appropriate sports that strengthen your lungs.
- Reduce stress.
- Wash bed linen to kill any mites.
- Record the readings when using the air flow meter and display them to the doctor, as well as the number of seizures.
- Your doctor may recommend using humidifiers if the person lives in a dry area.

**Steps to improve air quality in the workplace:**

1. Identify signs of contaminated air in the work environment.
2. Eliminate the sources of air pollution in the place.
3. Improve air quality in the workplace (such as using an air purifier).

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