



Allergy & Asthma Center

of Southern Oregon, PC

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ASTHMA AND REACTIVE AIRWAYS DISEASE

WHAT ARE THE AIRWAYS AND WHAT DO THEY DO?

1. Your airways (“or bronchioles”) are the small, straw-like tubes that bring air from the throat and voice box downward into your lungs. In addition to acting as air tubes, the airways also moisturize and filter, so that air that reaches the inner lungs is humidified, warmed and cleaned. The lining of the airways (mucosa) produces mucus and has a rich blood supply which humidifies and warms the air and provide numerous white blood cells to protect against bacteria, viruses and other airborne particles and dusts.
2. Your airways include the upper airways (nose & throat) and lower airways in your chest, (trachea, bronchi, bronchioles). They all work in similar ways to warm, humidify and clean the air we breathe.
3. Inhaled air can sometimes be irritating because it is too cold, too dry or contains irritating substances like smoke, car exhaust, perfume, sulfites, formaldehyde, chlorine fumes, the smell of onions, etc. When this happens your airways may go into their “defensive mode” and react in 3 different ways:
 - i. The airways can narrow as mucosa swells and in addition the muscles around the airways contract and further narrow the airway.
 - ii. More mucus is made so your nose becomes “runny” and your chest “more congested”.
 - iii. The airways try to expel irritating air so you sneeze and/or cough.

WHAT IS ASTHMA? (ALSO CALLED REACTIVE AIRWAY DISEASE OR BRONCHOSPASM)

1. The primary cause of hyper-reactive airways is **allergic inflammation** which causes the inner lining of airways to swell and exude fluids and white blood cells to move into airways much as in an infection. White blood cells (T-lymphocyte cells or T-cells) attack dust, mold, animal danders, or pollens landing on the airways, and recruit many other inflammatory cells into the airways making them congested and over-active. When airways become inflamed by allergies, this can be likened to breathing through straws with a layer of mayonnaise coating the inside. Such “allergic inflammation” of a airway can cause wheezing, increased mucousy cough, chest tightness, and trapping of air in the lungs—all parts of asthma.

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2. It is also normal for your airways to react to large amounts of non-allergic triggers, such as smoke, fumes, pollutions and other “irritants” and go into their “defensive mode” as described above. For most people the trigger point at which the airways go into their “defensive mode” is high. Only heavy smoke or chemical exposures are normally bothersome. But in people with asthma the trigger point may be lowered so even mild irritation may be enough to cause the airways to react.
3. People with asthma often overreact to small amounts of irritation such as cold dry air or cigarette smoke. Reactive airways also tend to over-react to the irritation of infections (“colds” and “flus”). Some people only have asthma symptoms when they exercise or have “colds” and “flus” and are misdiagnosed as having repeated “bronchitis,” but really have asthma precipitated by triggers or respiratory infections.
4. If you have allergic inflammation in your nose it is called RHINITIS (“hayfever” is a form of rhinitis). Allergic inflammation in your lungs is called ASTHMA (an old name was “episodic wheezy bronchitis”). Similarly Allergies can hit the eye tissues - CONJUNCTIVITIS, sinuses - SINUSITIS, skin - DERMATITIS, even stomach and intestines - GASTROENTERITIS. The underlying problem in all of these is allergic inflammation as well as hyper-reactivity so that the airways or other tissues go into their “defensive mode’ with irritation that would not affect normal tissues. **Treatment is directed primarily to reduce the immune inflammation attack on allergens. Hyper-reactivity improves when allergic inflammation improves.**

DO YOU HAVE TO BE ALLERGIC TO HAVE ASTHMA?

No, you do not have to be allergic in order to have asthma, but the great majority (80-90%) of symptomatic asthma patients do have allergies. If you have irritant sensitivity and also are allergic, then allergies are usually the primary causes of symptoms and allergy treatments are most important. That is why treatment of any existing allergies is so important if you have reactive airways.

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