

# Fighting asthma: Building a stronger immune system

Asthma is a disease characterized by hyper-reactivity of the airways, the trachea and bronchi to various stimuli. In plain English, this means that because of this hyper-reactivity or highly sensitized state, a simple irritant such as smoke or an allergen such as dust can provoke a bona fide asthma attack.

Though the pathogenesis of asthma is poorly understood, it is widely recognized that treatment of underlying and sometimes occult allergies can lessen both the severity and frequency of attacks. It is known that mast cells are at least partially responsible for the release of several substances that provoke an asthmatic response. These cells release mediators such as histamine, bradykinin, prostaglandins and leukotrienes that cause bronchoconstriction, increased vascular permeability, swelling and increased secretion of mucus.

In addition to the effects of mast cell sensitization, actual narrowing of the airways results from spasm of the smooth muscles and formation of mucus plugs. White blood cells such as neutrophils and lymphocytes as well as eosinophils also are partly responsible for these changes.

Patients typically complain of wheezing, shortness of breath, coughing and chest tightness. Commonly, symptoms worsen at night due to variations in bronchial muscle tone and increased bronchial reactivity because of circadian rhythm changes.

In addition to exposure to dust or smoke, common asthma triggers include cold air, emotional stress, common colds and exercise.

There are typical laboratory findings with an exacerbation of acute asthma, but they are of less importance than clinical findings. A high index of suspicion and a readiness to treat

aggressively are of great importance with asthma flare-ups. This is why prevention is of the utmost importance.

Essential fatty acids have a broad anti-inflammatory effect. Fish oil concentrate has been shown to increase FEV1 after nine months of supplementation. FEV, or forced expiratory volume, is a pulmonary function test used to diagnose asthma and other pulmonary diseases.

Pyridoxine (vitamin B6) has been studied and found to be effective in the prevention of asthma attacks.

Vitamin B12 shots can improve tolerance to flare-ups, possibly by preventing reactions to sulfite exposure. B12, also known as cyanocobalamin or hydroxocobalamin, works by binding the sulfites to cobalamin, thereby blocking their allergic potential.

Rye grass extract can help to dampen bronchial hyper-reactivity.

Nettles can help prevent underlying allergic reactions to various inhalants.

Vitamin C is thought to be the major antioxidant in the linings of the lungs and bronchi. Asthmatic patients have been shown to have low vitamin C blood levels. Some studies show lessening of respiratory symptoms and improvement in respiratory function with vitamin C supplementation. It's also postulated that vitamin C may help lower histamine levels. This effect, however, was only found to occur when supplementation continued over a six-week period.

Magnesium, both orally and intravenously, can help prevent flare-ups.

Antioxidants, such as quercetin, are thought to provide protection because free radicals can stimulate bronchial constriction.

DHEA can improve breathing capacity. It is typically low in patients who have used steroids repeatedly. DHEA should never be supplemented without a baseline blood level having been tested.

Accurate testing and treatment of both food and inhalant allergens is extremely important. We use RAST panels, a blood test, to screen these allergens. Subsequently, we skin-test patients according to levels of skin sensitivity and treat with sublingual drops (drops under the tongue once or twice daily).

Although treatment with conventional medicines is essential with acute asthma flare-ups, addressing food and inhalant allergies and building a healthier immune system can go a long way in terms of prevention.