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April 2000

ALLERGY REVIEW: NUTRITIONAL SUPPORT FOR SPRINGTIME ALLERGIES PLANTS TO AVOID – PLANTS TO TAKE

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Seasonal changes usher in the spring regalia, but along with the grass and flowers comes sneezing, wheezing, and sniffing. Ironically, although May is designated as Clean Air month, it is also the time when pollen counts and allergy symptoms are at their peak for 50 million Americans annually.

While the common allergy was relatively rare during the nineteenth century in Europe, it has increased dramatically over the last 50 years, more so in industrialized countries. Allergic rhinitis (hay fever) is now the most common seasonal allergy in the United States, and it is estimated that one person in three suffers from allergies.

The term “allergy” is relatively new and has only existed for approximately 100 years. C.H. Blackley, a homeopathic physician from Scotland, identified pollen as the cause of hay fever in 1871. The symptoms that we experience (sneezing, red eyes, stuffy nose and congestion) are the result of abnormal reactions to various

causative agents - for example, tree pollens in the the spring, grasses and weeds in summer and fall. The immune system generates histamine in response to these allergen invaders (in this case pollen). However, the body's immune system can have an overreaction to histamine, which is then manifested in the exaggerated responses of excessive sneezing, congestion, and headaches.

The Cause of an Allergic Reaction

Allergic reactions tend to be the result of repeated exposure to a foreign protein/antigen, such as pollen, triggering IgE, an immunoglobulin, production. Once IgE antibody production begins, it can persist for months, even years. These IgE antibodies remain active and on alert in the body waiting for the next allergen encounter. Allergic rhinitis (hay fever) and allergic bronchial asthma are triggered by antigen/IgE binding to sensitized mast cells and basophils which cause a decrease in cyclic Adenosine MonoPhosphate (cAMP). Eosinophilic chemotactic factor and histamine are released, which bind to H1-receptors and a complex cascade of events follows, causing a “hypersensitivity” reaction, ultimately resulting in nasal congestion with watery discharge, sneezing, and itching eyes.

The main focus of traditional allergy practice is to address the IgE-histamine response of patients with “atopies,” or hereditary allergies, typically seen in hay fever and asthma. The challenge for doctors is to desensitize the patient to the allergenic substances and block the body's over-reaction. Decongestants and antihistamines, are the conventional drug treatments of choice for these seasonal allergies. Mainstream allergists often use allergy shots, known as immunotherapy, in which increasing amounts of allergen extract are injected subcutaneously over time to lessen the clinical symptoms of allergen exposure. In Chinese medicine, as well as natural healing, allergies are viewed as “energy imbalances” that can be corrected with acupuncture and herbs. Since allergic reactions are inflammatory processes, treating the immune system is paramount. Herbalists and naturopathic physicians use normalizing herbs called “adaptogens,” which function via hormone regulation. The discipline known as Clinical





Ecology focuses on our interaction with the environment and its effect on human health and disease. Clinical Ecology typically seeks to isolate the patient from allergens and institute dietary changes often coupled with nutritional supplements. Indeed, nutritional and herbal regimens can provide relief and support the immune system without the toxic side effects of many prescription medications.

Flavonoids and Carotenes

Bioflavonoids are a complex family of naturally-occurring compounds found in many plants, especially fruits and vegetables. **Quercetin** – a flavonoid found in fruits, flowers, and herbs – may reduce IgE formation, inhibit the release of histamine, and reduce or eliminate allergy symptoms. Additionally, quercetin works to control asthma as an antioxidant and an anti-inflammatory compound. For optimal absorption, quercetin is usually combined with bromelain, the anti-inflammatory enzyme from pineapple. Bromelain can also be beneficial taken by itself. **Parsley** (*Apium petroselinum*) also has a bioflavonoid content and is considered by herbalists as an excellent antioxidant.

Carotenoids, found in fruits and vegetables, are powerful antioxidants and in part act to reduce leukotriene production and strengthen the respiratory tract lining. A diet high in carrots, yams, pumpkins, greens and other foods high in carotenoids and xanthophylls reduces allergic reactivity.

Additional Antioxidants

Antioxidants can reduce allergic reactions. Specifically, **vitamin C** is a powerful antihistamine with both preventive and therapeutic properties. It also suppresses

broncho-constriction, which is important for those suffering from allergic symptoms.

High levels of vitamin C, with supportive bioflavonoids, is an important part of any good daily dietary regimen. A common allergy recommendation for vitamin C is 1,000 - 2,000 mg three times a day.

Garlic has also been shown to suppress the overproduction of IgE. Garlic is also a potent antioxidant herb and immune system stimulator and contains relatively large levels of quercetin.

Vitamin A and **Zinc** may also alleviate allergy symptoms and prevent sinusitis infections. They help to heal the gastrointestinal mucosa, in turn improving or normalizing the antibody response to antigens, which is often misappropriated in people with allergies.

Herbal Intervention in Allergies

A number of studies show positive effects of herbs on bronchodilation, clearance of mucus, pulmonary function tests, and antagonism of asthma mediators such as histamine, platelet activating factor, and corticosteroid levels.

There is no known botanical whose mechanism of action exactly matches antihistamines, however, IgE antibody formation alone does not constitute an allergic reaction. Antihistamines do not address the underlying problem since blocking histamine only provides temporary relief. Consequently, herbs can help address these underlying problems, as well as other inflammatory mediators involved in the allergic process. For example, much of the allergic response in allergic bronchial asthma, and the inflammation which presents has been traced from a pathway which begins with arachidonic acid and follows with the formation of lipoxygenase. The unstable compounds that are then formed become leukotrienes which produce bronchoconstrictive actions. Recent studies in the treatment of allergy and asthma have suggested creating lipoxygenase antagonists in order to treat such conditions.

Ephedra sinica (Ma huang)

Ma huang, a rigid tufted plant, has been used since ancient times in China to treat asthma and hay fever. It is the original source of the decongestant pseudoephedrine and is still considered to be the most effective herbal decongestant. The alkaloids in ma huang have similar actions to the common asthma drugs known as beta agonists, which dilate the bronchial tubes and ease breathing. The alkaloid found in the leaves may increase blood pressure, but paradoxically the ephedra root contains a compound known to the Chinese as mao-kon, which acts to lower blood pressure. Therefore, use of the whole plant produces a balanced action. However, much of the marketed ephedra is made from the leaves only, and will stimulate the nervous system and can cause increased heart rate, insomnia,





and agitation. Consequently, it should not be given to children under 13 years of age, pregnant women, or anyone with high blood pressure.

***Urtica dioica* (Stinging Nettles)**

The fresh stinging hairs and leaves of **Stinging Nettles** contain histamine, serotonin (5-hydroxytryptamine)*, choline, acetylcholine, betaine, and formic acid. Serotonin, acetylcholine, and histamine modulate the immune system by

activating adenylate cyclase, which stimulates the conversion of adenosine triphosphate (ATP) to cAMP, thus preventing antigen-induced release of histamine and extracellular fluid by sensitized basophils and mast cells. A randomized, double-blind study of 98 individuals using freeze-dried *Urtica dioica* for subjective amelioration of hay fever symptoms (allergic rhinitis) found that patients rated it higher than the placebo. A 300 mg dosage was administered at the onset of symptoms, with a daily dosage ranging from 1 to 7 doses. Fifty-seven percent rated it effective in relieving their symptoms, and 48% found it to be equally or more effective than their previous medicine. Interestingly, the epicatechins of green tea also work along the same mechanism of cyclic AMP conversion and therefore drinking green tea can be beneficial for allergies.

***Euphrasia officinalis* (Eyebright) and *Scutellaria* (Chinese Skullcap)**

Euphrasia is used to treat the congestive conditions of the eye, specifically, the profuse lacrimation that often accompanies allergies. Euphrasia is effective for problems of the mucous membranes of the head and chest and helps to vasoconstrict the vessels of the nasal and conjunctival mucous membranes, which further contributes to its anti-catarrhal effects. Taken internally it also alleviates hay fever symptoms.

Another herb high in bioflavonoids is *Scutellaria baicalensis* (Chinese skullcap root), which inhibits histamine and leukotrienes and is a potent antioxidant. Skullcap has anti-inflammatory qualities comparable to NSAIDs (non-steroidal anti-inflammatory drugs) such as aspirin or ibuprofen, yet with no adverse effects.

***Cayenne frutescens* (Capsaicin)**

Cayenne is a stimulant that contains the pungent compound, capsaicin. Short-term treatment with capsaicin activates tracheo-bronchial afferent C neuron release of substance P and can cause bronchoconstriction, mucus secretion, and congestion. However, long term treatment depletes substance P from the afferent C fibers and causes desensitization of the airways to exogenous irritants. A single high dosage capsaicin pretreatment in neonate rats was also shown to induce long lasting desensitization of the airways to cigarette smoke, histamine, and bradykinin. It significantly reduced the vascular permeability and edema caused by these substances in the respiratory tract. Capsaicin pretreatment reduced vagally-induced bronchospasm in guinea pigs and pulmonary airflow obstruction induced by aerosol histamine. It also blocked the enhanced bronchoconstrictor response to histamine induced by leukotrienes and reduced histamine and SRS-A release during antigen challenge. Short term and long term pretreatments with capsaicin both activate antioxidant enzyme systems and stabilize lung membrane lipids, protecting against edema and lipid peroxidation caused by gaseous lung irritants.

Balancing Essential Fatty Acids:

As previously discussed, the leukotrienes of the arachidonic acid cascade are intimately involved in allergic inflammation. The effect of omega-3 fatty acids on bronchial responsiveness was studied in 7 atopic patients suffering from seasonal asthma due to airborne allergens. After 30 days of dietary supplementation, bronchial responsiveness was significantly improved (maximum fall in FEV₁ was -11% vs -28% before treatment and maximum increase in airway resistance was +37% vs +265% before treatment). The data strongly supports the hypothesis that dietary supplementation with 3 g/day omega-3 EFAs results in the production of unique 5-lipoxygenase and cyclooxygenase products which are biologically less active and may inhibit the production or actions of other eicosanoids. Concurrently avoiding excessive omega-6 oils in the diet, using olive-oil dressings instead of trans-fatty acid rich salad dressings is also advised.

Essential Oil Blends for Hayfever and Allergies:

An alternative to bronchodilators is the volatile oils in aromatherapy applications. The oils are extremely soothing for respiratory irritations and are antimicrobial. **German Chamomile** (*Matricaria recutita*) essential oil is well known for its anti-inflammatory effects and its flavonoids suppress histamine release, while its A-bisabolol promotes granulation and tissue regeneration. **Tea tree** (*melaleuca alternifolia*) oil contains terpenes, alcohols, and 1,8-cineol, all of which purify the respiratory system, strengthen breathing, relieve sinus infections, drain lymph, stimulate elimination through the throat

and lungs, increase and liquify mucus production, and act as an expectorant. Another important herb for the respiratory system is **Thyme** (*Thymus vulgaris*), an aromatic disinfectant for excessive mucous discharge. Thyme stabilizes mast cells and reduces histamine-mediated allergic reactions.

Since the body secretes hormones from the adrenal glands to control inflammation, adrenal builders are important. **Borage** (*Borago officinalis*), which contains essential fatty acids, is an adrenal restorative and anti-inflammatory herb. **Licorice root** (*Glycyrrhiza glabra*) is one of the best known plants for supporting the adrenals in the world. Licorice prolongs the effect of cortisol, allowing it to maintain longer anti-inflammatory action.

Summing Up Approaches to Allergic Treatment

Nutritional and herbal medicine may offer benefits for the allergic person by improving general well-being and reducing allergic symptoms. In addition to proper diet, herbs and supplementation can help support the immune system, strengthen the lungs, and help maintain a more controlled response to allergens. Detoxification programs are often beneficial. A body that is less congested is less allergic. Reduced intake of mucous producing foods, such as dairy, wheat, citrus or gluten may prevent the production of catarrh, a thick mucus secretion in the nose and lungs. Reduction of stress may also play an important role in the treatment of allergies. In general, seasonal allergies are fairly predictable. A proactive approach using a variety of proven antihistamines, combined with herbal and nutritional supplements, as well as minor lifestyle changes, may offset the worst symptoms.

*Note: Whenever possible, avoid foods and products containing tryptophan which is converted to serotonin, and is a bronchoconstrictor.

Written by Nita Bishop, Clinical Herbalist.

Nita Bishop practiced as an herbalist in Phoenix, Arizona before entering the Naturopathic program at Bastyr University where she is in her third year of medical school. Ms. Bishop holds undergraduate degrees from Pepperdine University in Biology and English. Ms. Bishop has an extensive background in natural medicine and working with traditional healers and is actively dedicated to enthusiastically elevating the awareness and validation of herbal medicine via the lecture circuit.

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