

Herbal and Nutritional Support for the Immune System

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ABSTRACT: *The best protection against cold and flu viruses is a healthy immune system. Chronic stress, a poor diet, and other factors can weaken the immune system, making one more susceptible to viral and bacterial attack. Herbs from around the world traditionally have been used for centuries to help strengthen*

the immune system and to help relieve some of the unpleasant symptoms associated with colds and flu viruses. Herbs, along with immune supporting nutrients such as vitamin C and zinc, may be helpful in reducing the severity and duration of illness.

A HEALTHY IMMUNE SYSTEM IS THE BEST DEFENSE

The common cold and the flu are caused by viral infections that result from a more or less suppressed immune system. Many factors can contribute to a less than optimally functioning immune system, such as stress, smoking, recurring or chronic illness, or an unhealthy diet. Also, environmental factors such as changes in weather and dry, overheated rooms appear to reduce one's resistance as well. The obvious effect of a weakened immune system is an increased susceptibility to illness. Adults can expect to develop on average two to four colds per year, while children typically develop six to eight colds.

In an effort to win the battle over common cold and flu viruses, research has examined a variety of natural substances that demonstrate immunomodulatory potential. Immunomodulation is described as the ability of a nutrient, herb, or other substance to promote healthy immune function.¹

Certain plant compounds have been shown in experimental studies to have immunostimulating properties; that is, they appear to help stimulate viral defense mechanisms by activating immune cells such as macrophages, lymphocytes (T and B-cell, and natural killer cell), and the cytokines (e.g., interleukin, interferon, and tumor necrosis factor).^{9,10,16,19,24} In addition, some herbs appear to have antimicrobial-like properties.

The practice of using immune supporting herbs along with nutrients, like vitamin C and zinc, certainly seems a worthwhile approach to help boost immune function, especially during times of increased susceptibility as during the cold and flu season.

HERBAL SUPPORT: A GLOBAL PERSPECTIVE

Herbs from around the world have traditionally been used for centuries to help strengthen the immune system, and to help relieve some of the unpleasant symptoms associated with colds and flu viruses. Indeed, a tremendous amount of research in the field of phytochemistry corroborates much of the purported properties of traditionally used herbs.

A cross-cultural approach to herbology, one that applies compatible herbs from different geographical areas, seems a natural evolution as research unfolds, although the practice of combining herbs is not new. Herbal mixtures, in the form of teas, or cooked decoctions, have long been used in many cultures because of the synergism that takes place among the herbs utilized. An effective formula is considered to be one that provides herbs that are carefully balanced to accentuate the strengths and reduce potential side effects.² Traditional herbal formulas typically contain one or more chief herbs combined with accessory herbs that aid or reinforce the effects of the principle herb(s).

Among the vast amount of information that is available on both the traditional and modern-day uses of herbs, several herbs stand out as providing valuable support during the cold and flu season. Herbs such as echinacea, goldenseal, andrographis, and the other herbs listed below are time-honored favorites, prized for their unique properties.

• Echinacea

Echinacea is one of the most highly regarded immune supporting herbs available. Indigenous to North America, echinacea was traditionally used by Native Americans for a variety of ailments such as colds, coughs, sore throats, infections, and snake and insect bite bites.³ Today, echinacea is commonly recommended to help prevent and treat cold and flu infection and conditions associated with it.^{4,5} A number of clinical studies have demonstrated positive results in patients given echinacea to help boost immune function.⁶⁻⁸

Several varieties of echinacea are available (e.g., *Echinacea angustifolia*, *E. purpurea*, *E. pallida*). Most seem to possess similar properties; however, some differences in chemistry have been noted.³ Recent research suggests that the high molecular weight polysaccharides present in echinacea have potent non-specific stimulatory actions on the immune system, specifically phagocytosis.^{9,10} Additionally, other components (e.g., echinacoside, chicoric acid) appear to have antibacterial and antiviral-like properties.¹¹ Echinacea is generally recommended as an acute phase remedy to be used at the very beginning and throughout the course of an illness. Whether or not echinacea should be used regularly as a preventative is debatable. Although there are no reports of toxicity, allergy may be a concern for some individuals.

• Goldenseal

Goldenseal (*Hydrastis canadensis*), also indigenous to North America, is commonly used in conjunction with echinacea for the treatment of colds and flu. Native Americans traditionally used goldenseal for a wide range of ailments, including the treatment of skin diseases, ulcers, gonorrhea, and other infectious conditions.¹² According to traditional herbalism, goldenseal is considered to be a tonic for mucous membranes.¹³ It is often recommended for infectious diarrhea, gastritis, infections and inflammation of the mucous membranes, and for digestive disorders.¹³

Goldenseal contains berberine, an alkaloid that demonstrates significant antimicrobial activity against a wide range of organisms, including *Vibrio cholerae*,

Staphylococcus aureas, and *Candida albicans*, in experimental tests.¹⁴ Hydrastine, another alkaloid present in goldenseal, also appears to have antimicrobial-like properties.⁴ In addition, berberine is believed to have immune stimulating properties.¹⁵ Preliminary research suggests that berberine may help to increase macrophage activity, and it is also reported to increase blood supply to the spleen, which may help to facilitate the immune supporting activities of this organ.^{5,16} Clinical investigations suggest that berberine may have antidiarrheal effects as well.^{17,18} Goldenseal is not recommended for use during pregnancy.

• Andrographis

Andrographis (*Andrographis paniculata*) is an herb commonly used in areas of Asia and Southeast Asia for its multiple health promoting properties. Some of the herb's traditional uses include treatment of acute diarrhea and for symptoms of upper respiratory tract infection, influenza, fever, and sore throat.¹⁹⁻²¹ Andrographis, or kalmegh as it is referred to in India, is classified in traditional Ayurveda as a stomachic (calms the stomach), tonic, antipyretic, and febrifuge.²⁰

Several active components have been identified, two of which are andrographolide and neoandrographolide. Both of these compounds are reported to have bactericidal activity.²¹ These and other related compounds present in andrographis also appear to have immunostimulatory properties and antiinflammatory properties via adrenal activity.^{19,22} Preliminary evidence suggests that the use of an extract of andrographis may help to reduce the intensity and duration of the common cold.²² In one study, patients taking andrographis showed significant improvement in symptoms compared to those taking placebos.²²

• Amla

Amla, or Indian gooseberry (*Embllica officinalis*), a popular fruit cultivated in India, has long been valued for its rejuvenating properties, according to traditional Ayurveda.²⁰ One piece of fruit about the size of a plum can contain between 700 and 1,000 mg of vitamin C. The vitamin C is considered to be highly stable due to the presence of tannins and polyphenols.²³

Amla is commonly used in Ayurveda as an antiscorbutic, a rejuvenating tonic, a carminative (helps to relieve bloating and gas), and stomachic.^{20,23} Additionally, preliminary evidence suggests that amla may help to boost immune response, presumably due to its vitamin C content.²⁴

• Lemon balm

Lemon balm (*Melissa officinalis*), an herb native to the eastern Mediterranean region and to western Asia, has been traditionally used as a diaphoretic and strengthening remedy with colds and flu, in functional disorders of the circulation, and for migraines.¹¹ Several components (e.g., rosmarinic acid and caffeic acid) are reported to possess antibacterial and virostatic properties.¹¹

• Cinnamon

Cinnamon (*Cinnamomum cassia*) is recognized in traditional Chinese and Ayurvedic herbology as a carminative, and is used for most gastrointestinal complaints associated with colds and flu, including diarrhea and stomach cramps, nausea, and vomiting.²⁰ Cinnamon is often present in traditional Chinese formulas to help facilitate the action of the other herbs present. In both Chinese and Ayurvedic herbology, cinnamon is frequently used as an adjunct to formulas containing bitter herbs (such as andrographis) because of its “balancing” effects. Cinnamon is a “warming” herb that, from a biomedical perspective, acts as a cardiostimulant, which helps to stimulate blood flow.² This activity may help to explain its apparent antipyretic effects.

ACCESSORY HERBS: HERBS THAT SOOTHE

Good examples of herbs that have been traditionally used for their soothing properties are slippery elm (*Ulmus rubra*) and the Chinese herb, fritillaria (*Fritillaria cirrhosa* or *F. thunbergii*).² Slippery elm is categorized as a demulcent, an agent that is recommended for sore throats and dry, irritating coughs.⁵ Fritillaria is traditionally used for inhibiting mucosal secretions and coughs. It is also used as an expectorant and as a bronchodilator.²

VITAMIN C AND THE COMMON COLD

One of the most studied nutrients with regard to immune function is vitamin C. While there still remains some doubt as to whether vitamin C may actually prevent colds, a recent review of 20 double-blind, placebo-controlled trials suggests that vitamin C does appear to help shorten the duration of a cold and reduce the severity of symptoms.²⁵

According to this analysis, vitamin C given in therapeutic doses (from 1,000 to 8,000 mg per day) at the onset of a cold may help reduce the duration of cold episodes by as much as 48%.

Vitamin C is believed to have an effect on the common cold primarily because of its role in the phagocytic function of leukocytes. Research suggests that supplemental vitamin C may help to enhance leukocyte activity and mobilization.²⁶⁻²⁸ Leukocytes contain very high concentrations of ascorbic acid that diminish with infection and return to normal after recovery. Only very high doses of vitamin C are able to restore levels to normal during an infection.²⁹ Vitamin C may also affect cold symptoms as a result of an antihistamine effect. Vitamin C is reported to reduce blood histamine levels, which may help to alleviate some of the respiratory symptoms associated with the common cold.²⁹

• Zinc

Zinc is known to play a significant role in the immune response. During an infection, zinc is mobilized from circulation to the intracellular compartments of lymphocytes as part of the acute-phase response mechanism.²⁹ A deficiency in zinc is known to impair immune response, markedly increasing susceptibility to infection.²⁹

Although further research is necessary, recent studies suggest that early treatment with zinc taken in the form of a lozenge may significantly reduce the duration of symptoms of the common cold.³⁰⁻³² In one study, patients consuming lozenges containing 13.3 mg of zinc from zinc gluconate every two waking hours reported fewer days of cold symptoms, such as coughing, headache, nasal congestion, and sore throat. The average length of illness for the placebo group was 7.6 days, while for the zinc group it was just 4.4 days.³¹ Similar results were reported in an earlier study.³² It has been suggested that extracellular zinc may exert an antiviral effect, possibly by stabilizing and protecting cell membranes and by inhibiting viral replication.³¹ It is important to note that chronic consumption of high levels of zinc can interfere with copper absorption causing secondary copper deficiency. Adequate copper intake should therefore not be overlooked when large quantities of zinc are being administered.

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