

Alternative Approaches to Preventing the Flu

By Dr. Gary Null and Melissa Karp

It is inaccurate to state that there is a “flu season”. In point of fact, depending upon the susceptibility of your immune system and the overall state of health, you are susceptible to contracting the flu or any one of over 200 microorganisms that can cause flu like symptoms at any time of the year. However, during the spring and summer, most people spend a great deal of time outdoors. They are getting lots of vitamin D from the sun, they tend to eat more fruits and vegetables and drink fruit juices, they are more physically active, and they tend to be more relaxed. All of which is important to maintaining a healthy immune system. In the fall, as the weather changes, similarly, our body’s hormone levels fluctuate and change. Our skin tends to get drier, we begin to layer clothes, we become more sedentary, and we tend to be stressed--hence more susceptibility. If it were true that the cold weather in and of itself was a predictor of the flu, then everyone living in colder climates Northern America, Canada, Alaska, most of Russia, much of China, all of Tibet, Nepal, most of Afghanistan, and Norway, Sweden, Denmark, Finland, would have the highest level of flu, phenomena, and colds. However, that is not the case. In fact, we find just the opposite. The cold imparts a healthy resistance and resilience and tolerance to infection. Now we are in the grips of a national and worldwide panic on the swine flu, and we are only being offered three options: wash your hands, sneeze in your elbow, and get the swine flu and flu vaccine. Of course that is your right to do so, but I would also like to share with you now what we also know actually builds immunity and strengthens your biochemistry against any of these pathogens. In addition to these nutrients we must pay attention to stopping sugar, alcohol, smoking, and drug intake, halting sleep deprivation, chronic overeating, and high levels of stress to which we almost always have inappropriate responses. That being said, these are things I would recommend:

How to Boost Your Immunity Naturally

With all of the confusion and panic surrounding the H1N1 epidemic this season, and the assertion that millions will become ill, protecting yourself against the virus is extremely important. Because both the efficacy and safety of the new flu vaccines are unknown, the best way to protect yourself is to boost your immune system through natural methods and let your body be its own best line of defense. Fortunately, there are many easy lifestyle and dietary changes to do this. Washing your hands frequently, drinking an adequate amount of water, getting plenty of exercise and sleep, and cleansing the sinuses using nasal irrigation are a great start to prevention and protection. Here is more information about how each of these things can help boost your immune system:

Water

Adequate hydration helps to ward off illness and bolster immunity by flushing toxins from the body, keeping the respiratory system moist, and insuring the optimal function of cells. The average person needs 8-10 glasses of water per day.

Exercise

Getting plenty of exercise strengthens the entire body, which leads to improved respiratory and cardiac function. Exercise also stimulates the cleansing blood flow and helps to reduce stress, another contributor to illness.¹

Sleep

Getting a decent night's sleep is essential for maintaining good health and preventing illness. A recent study found that people who sleep less than seven hours per night are about three times more likely to develop respiratory illness following exposure to a cold virus than those who sleep eight hours or more. Reduced sleep efficiency (spending less than 92% of time in bed actually sleeping) was also associated with a five-and-a-half times greater likelihood of becoming ill than good sleep efficiency (spending 98% or more time in bed actually asleep).²

Nasal Irrigation

Nasal saline irrigation flushes out mucous, debris, viruses, allergens and fungus from the sinus using lukewarm water and sea salt. It is mainly used to treat allergic rhinitis (runny nose) and sinusitis, however, multiple studies also support the use of nasal irrigation in treating common colds and flu.^{3, 4, 5}

Proper nutrition is also essential to a healthy and strong immune system, as the link between diet and immunity is well established by an endless amount of scientific studies. Nutritional deficiencies weaken the immune system, and can cause an increased number of infections, and allow those infections to become more virulent.⁶ There are many types of foods and supplements that help to strengthen and support the immune system, and even small dietary and improvements can have a big impact on your health:

Vitamin D

Originally called "the sunshine cure," vitamin D can have a profound impact on a variety of different health conditions, including respiratory illness. Vitamin D has been shown to both help prevent and

¹ Melanie Grimes, "How to Build Natural Immunity Against the Swine Flu." April 30, 2009. Available at <http://www.naturalnews.com/026168.html>

² "Immunity and Swine Flu: The Inside Story." Natural Health and Vegetarian Life. Spring 2009.

³ Wellness.com

⁴ David Rabago (June 1, 2008), "The Use of Saline Nasal Irrigation in Common Upper Respiratory Conditions", US Pharmacist

⁵ Kim HJ, Lee JG, Kang JW, Cho HJ, Kim HS, Byeon HK, Yoon JH. Effects of a low concentration hypochlorous Acid nasal irrigation solution on bacteria, fungi, and virus. *Laryngoscope*. 2008 Oct;118(10):1862-7.

⁶ Williams, JE. "Portal to the Interior: Viral Pathogenesis and Natural Compounds That Restore Mucosal Immunity and Modulate Inflammation." *Alternative Medicine Review*, 2003: 8(4)

reduce the severity and duration of colds and flu, as it protects the lining of the cells that line the respiratory tracts, acting as a barrier to infection. In fact, research found that people with lower vitamin D levels were 55% more likely to have had a recent upper respiratory tract infection (cold or flu) than those with higher levels of vitamin D.⁷ Children with vitamin D deficiency are also more likely to be predisposed to respiratory infections.⁸

Vitamin D is difficult to consume naturally, as very few foods in nature contain vitamin D, and most people are not exposed to the sun long enough to produce enough of the vitamin (it is estimated that between 5 and 30 minutes of exposure is necessary). Some mushrooms provide vitamin D, and enhanced mushrooms are also available.^{9,10} Cod liver oil, which contains vitamin D, and vitamin D supplements are also available. 2000 units daily are recommended.

Vitamin E

Multiple studies in both humans and animals have shown that vitamin E can improve cell immunity and optimize immune function and response to pathogens.^{11,12} It also protects other fat-soluble vitamins and the cell membrane. It enhances the absorption of vitamin A and regenerates vitamin C, which, as previously discussed, play an important role in boosting immunity. Vitamin E is found in common vegetable oils such as corn, soybean and canola, wheat germ, dark, leafy greens, cereals, nuts, and fruits.^{13, 14}

Vitamin A

Vitamin A has been shown to be an immune enhancer that increases the white blood cells that fight disease. It also helps the absorption of vitamins C, D and E, zinc and some B-vitamins.¹⁵ Deficiencies are

⁷ "Cell Defenses and the Sunshine Vitamin." Scientific American, November 2007. Available at: <http://www.scientificamerican.com/article.cfm?id=cell-defenses-and-the-sunshine-vitamin>

⁸ Cannell JJ, Vieth R, Umhau JC, Holick MF, Grant WB, Madronich S, Garland CF, Giovannucci E. Epidemic influenza and vitamin D. *Epidemiol Infect.* 2006;134:1129-40.

⁹ Williams, E. (2007). Nutritional Care for the Common Cold. *Massage Magazine*, (139), 104-105. <http://library.molloy.edu:2085>

¹⁰ "Mercury-Free Flu Shots Available: But Vitamin D and Homeopathy Better Prevent the Flu." Available at http://www.naturalnews.com/027362_Vitamin_D_homeopathy_the_flu.html

¹¹ Calder PC, Kew S. The immune system: a target for functional foods? *Br J Nutr.* 2002 Nov;88Suppl2:S165-77

¹² Gay, R., & Meydani, S. (2001). The Effects of Vitamin E, Vitamin B₆, and Vitamin B₁₂ on Immune Function. *Nutrition in Clinical Care*, 4(4), 188-198. <http://library.molloy.edu:2085>, doi:10.1046/j.1523-5408.2001.00142.x

¹³ Williams, E. (2007). Nutritional Care for the Common Cold. *Massage Magazine*, (139), 104-105. <http://library.molloy.edu:2085>

¹⁴ Gay, R., & Meydani, S. (2001). The Effects of Vitamin E, Vitamin B₆, and Vitamin B₁₂ on Immune Function. *Nutrition in Clinical Care*, 4(4), 188-198. <http://library.molloy.edu:2085>, doi:10.1046/j.1523-5408.2001.00142.x

¹⁵ "Vitamin A, Immunity, and Infection." Richard D. Semba. *Clinical Infectious Diseases*, Vol. 19, No. 3 (Sep., 1994), pp. 489-499

associated with reduced immunity and an increased risk of infection and disease.¹⁶ Vegetables that are yellow and orange, such as squash are high in vitamin A.¹⁷

Vitamin C

Vitamin C has historically been associated with boosting the immune system, and there are thousands of studies confirming vitamin C's ability to fight colds and flu either through prevention or reducing symptoms and duration.^{18, 19} One study evaluating the effect of vitamin C on colds found that doses of 1,000 to 6,000 mg a day taken at the onset of symptoms reduced a cold's duration by more than 20 percent (an average of one day).²⁰ This study translates to the flu as well because the cold and influenza viruses are so similar.²¹ Vitamin C is essential for resistance to infections and also enhances the absorption of calcium, magnesium and iron.²² A 1999 study published in the Journal of Manipulative and Physiological Therapeutics indicated that high doses of vitamin C can effectively relieve or even prevent flu symptoms. In fact, those who took the vitamin C supplements reported an 85 percent decrease in symptoms.²³ Vitamin C is found in parsley, broccoli, bell pepper, strawberries, oranges, cantaloupe, kiwifruit, lemon juice, papaya, cauliflower, kale, mustard greens, and Brussels sprouts.

Selenium

Selenium is needed to repair other antioxidants and, when deficient, increase the duration and strength of a viral attack.²⁴ Studies have shown that selenium-deficiency is associated with greater virulence of otherwise normal strains of influenza, which leads to more serious symptoms, such as inflammation of the lungs which can cause lung damage.²⁵ This may be because a lack of selenium promotes changes in the genetic material of the virus, allowing it to become more dangerous.^{26,27} Selenium can be found in

¹⁶ Starnbach, M. "What can you do? (The Truth About Your Immune System: What You Need to Know)." Health and Wellness Resource Center. 2007;29(8)0

¹⁷ Williams, E. (2007). Nutritional Care for the Common Cold. Massage Magazine, (139), 104-105.

<http://library.molloy.edu:2085>

¹⁸ Hickey S, Roberts H. Ascorbate: The Science of

Vitamin C Lulu Press. 2004. ISBN 1-4116-0724- http://www.doctoryourself.com/ascorbate.html

17. www.orthomolecular.org/resources/omns/vO2nO1.shtml; Ely JT. Ascorbic Acid. Role in Containment of the World Avian Flu Pandemic. Experimental Biology and Medicine

¹⁹ Woodruff, C. (2003). Avoiding the flu this winter. Alive: Canadian Journal of Health & Nutrition, (251), 34.

<http://library.molloy.edu:2085>

²⁰ "Curing the Common Cold." Psychology Today. Nov/Dec 2001; 34(6).

²¹ Hickey S, Roberts H. Ascorbate: The Science of

Vitamin C Lulu Press. 2004. ISBN 1-4116-0724- http://www.doctoryourself.com/ascorbate.html

17. www.orthomolecular.org/resources/omns/vO2nO1.shtml; Ely JT. Ascorbic Acid. Role in Containment of the World Avian Flu Pandemic. Experimental Biology and Medicine

²² Williams, E. (2007). Nutritional Care for the Common Cold. Massage Magazine, (139), 104-105.

<http://library.molloy.edu:2085>

²³ Schoenhals, K. (2004). Beat the bug. Better Nutrition, 66(11), 43-44. <http://library.molloy.edu:2085>

²⁴ Williams, E. (2007). Nutritional Care for the Common Cold. Massage Magazine, (139), 104-105.

<http://library.molloy.edu:2085>

²⁵ B.H. (2002). Lack of nutrient turns flu nasty. Science News, 161(11), 173. <http://library.molloy.edu:2085>

²⁶ Kiefer, Dale. "Getting Serious about Selenium." Life Extension Magazine. December 2004.

²⁷ Beck MA, Nelson HK, Shi Q, Van Dael P, Schiffrin EJ, Blum S, Barclay D, Levander OA. Selenium deficiency increases the pathology of an influenza virus infection. FASEB J. 2001 Jun;15(8):1481-3.

meats, seafood--although a more animal friendly source would come from consuming a standardized high quality supplement or increasing your intake of legumes and nuts.²⁸

Zinc

Like selenium, zinc also plays an important role in the development and maintenance of the immune system, and studies have shown that even a mild deficiency can lead to changes in immune status.^{29 30} Studies have shown a link between low zinc levels and the development of respiratory infections.³¹ While natural sources of zinc include meat, poultry, lamb, pork, seafood, and dairy products such as milk and cheese, yeast, and yogurt, the healthier vegetarian sources of zinc are peanuts, beans, and wholegrain cereals, brown rice, whole wheat bread, potatoes and yogurt.

Green Tea

Green tea contains EGCG, a compound which has been shown to boost immunity. One cup of green tea provides 10-40 mg of polyphenols and has antioxidant effects greater than a serving of broccoli, spinach, carrots, or strawberries. The high antioxidant activity protects the body from many different ailments, including colds and the flu.³² In one study at the University of Florida, Gainesville, researchers who gave volunteers a green tea supplement containing L-theanine and epigallocatechin gallate (EGCG) for 12 weeks found a 32% reduction in the incidence of colds and flu. In addition, those who did become sick reported milder and shorter bouts of illness. In order to maximize protection, drinking six to eight cups of green tea daily or taking green tea capsules is recommended.³³

Probiotics

These bacteria play an important role in defending the body against intruders by forming a barrier to infection and secreting chemicals that kill or inhibit the growth of pathogens.³⁴ The introduction of these friendly bacteria greatly boosts the production of immune cells in adults and successfully fights flu in young children.^{35,36} One study showed that a specific strain of probiotic, *Bacillus coagulans* (marketed under the name GanedenBC30), significantly increased T-cell production of key immune activity markers, in healthy adults that were exposed to influenza.³⁷ Probiotic organisms are found in

²⁸ Williams, E. (2007). Nutritional Care for the Common Cold. *Massage Magazine*, (139), 104-105.

<http://library.molloy.edu:2085>

²⁹ Mauro Provinciali, Alessio Montenovolo, Giuseppina Di Stefano, Mauro Colombo, & et al. (1998). Effect of zinc or zinc plus arginine supplementation on antibody titre and lymphocyte subsets after influenza vaccination in elderly subjects: A randomized controlled trial. *Age and Ageing*, 27(6), 715-722. Retrieved November 6, 2009, from Research Library. (Document ID: 37337470).

³⁰ Roxas M, Jurenka J. "Colds and influenza: a review of diagnosis and conventional, botanical, and nutritional considerations." *Altern Med Rev*. 2007 Mar;12(1):25-48.

³¹ Calder PC, Kew S. The immune system: a target for functional foods? *BrJ Nutr*. 2002 Nov;88Suppl2:S165-77

³² http://www.selfgrowth.com/articles/boost_your_immunity_against_swine_flu.html

³³ Howard, B. (2009). Sick of Being Slick?. *Good Housekeeping*, 249(5), 59-65. <http://library.molloy.edu:2085>

³⁴ "Immunity and Swine Flu: The Inside Story." *Natural Health and Vegetarian Life*. Spring 2009.

³⁵ Leyer GJ, Li S, Mubasher ME, Reifer C, Ouwehand AC. Probiotic effects on cold and influenza-like symptom incidence and duration in children. *Pediatrics*. 2009 Aug;124(2):

³⁶ Calder PC, Kew S. The immune system: a target for functional foods? *BrJ Nutr*. 2002 Nov;88Suppl2:S165-77

³⁷ A Patented Strain of *Bacillus coagulans* Increased Immune Response to Viral Challenge

yogurt and fermented foods, including traditionally cultured dairy products and newer kinds of fermented milks. Rather than turning to animal byproducts, however, an easier way to regulate and increase the quantity of probiotics in your system would include taking a reliable, high quality supplement like acidophilus.

Elderberry

Research has shown that elderberry extract, sambucol (SAM), is useful for treating the flu. Elderberry contains flavonoids-antioxidants which stimulate the immune system, as well as anti-inflammatory compounds. Elderberry acts to protect against both influenza A and B viruses and has also been shown to shorten the duration and severity of symptoms such as fever if taken while ill. It is important not to consume uncooked elderberry because it contains toxic compounds, but elderberry supplements are widely available. There are no known side effects or negative interactions.^{38,39,40}

Beta Glucan

Researchers have demonstrated that beta glucan, a unique type of carbohydrate, exhibits anti-viral properties against the flu virus by stimulating the immune system. This helps to reduce the risk of infection by increasing resistance against the virus. Additionally, studies have shown that subjects who took beta glucan before getting ill were found to have significantly higher concentrations of natural disease-fighting substances, helping to reduce the severity and duration of the virus as compared to those who did not take beta glucan.^{41, 42}

While beta glucan supplements are available, it can also be found in plants, yeast, barley, mushrooms, and oats.

Echinacea

Echinacea is probably the most well-known supplement for the prevention and treatment of colds and flu. Multiple studies have confirmed that the herb causes immunological changes that helps to

Mira Baron, MD. Postgraduate Medicine: Volume 121: No.2.

³⁸ "Natural Medicines in Clinical Management of Cold and Flu." Natural Medicines Comprehensive Database. Available at

[http://www.naturaldatabase.com/\(S\(xe2r2ourbave2u45ahxe0z55\)\)/ce/ceCourse.aspx?s=ND&cs=&pc=03-27&cec=1&pm=5](http://www.naturaldatabase.com/(S(xe2r2ourbave2u45ahxe0z55))/ce/ceCourse.aspx?s=ND&cs=&pc=03-27&cec=1&pm=5)

³⁹ Zakay-Rones Z, Varsano N, Zlotnik M, et al. Inhibition of several strains of influenza virus in vitro and reduction of symptoms by an elderberry extract (*Sambucus nigra* L.) during an outbreak of influenza B Panama. *J Altern Complement Med* 1995;1:361-9.

⁴⁰ Barak V, Halperin T, Kalickman I. The effect of Sambucol, a black elderberry-based, natural product, on the production of human cytokines: I. Inflammatory cytokines. *Eur Cytokine Netw* 2001;12:290-6.

⁴¹ Jung K, Ha Y, Ha SK, et al. Antiviral effect of *Saccharomyces cerevisiae* beta-glucan to swine influenza virus by increased production of interferon-gamma and nitric oxide. *J Vet Med B Infect Dis Vet Public Health*. 2004 Mar;51(2):72-6.

⁴² Benefits of oat β -glucan on respiratory infection following exercise stress: role of lung macrophages *Am J Physiol Regulatory Integrative Comp Physiol*, May 2008; 294: R1593 - R1599.

enhance immune response.^{43, 44} **In this way, it can help prevent the onset of illness and if taken at the first sign of a cold or the flu, it can also help stimulate the recovery process and shorten the duration and severity of illness.** One study of people with early symptoms of cold and flu (such as runny nose, scratchy throat, and fever), found that those who drank echinacea tea every day for 5 days felt better sooner than those who did not drink echinacea tea.⁴⁵ **The recommended dosage varies, but is typically between 300 and 600 mg three times a day.**⁴⁶

Goldenseal

Goldenseal is marketed as a tonic to aid digestion, sooth upset stomach, and as an antibacterial and antiviral agent that has been shown to enhance the immune system.⁴⁷ It is considered a natural antibiotic and is often combined with Echinacea in immune-strengthening supplements, as it complements echinacea by decreasing mucus production and congestion.⁴⁸ Many professional herbalists recommend goldenseal in herbal remedies for hay fever (also called allergic rhinitis), colds, and the flu.⁴⁹

Ginseng

Ginseng has long been recommended as an energy and immunity booster. It has been shown in controlled studies to reduce the incidence, duration and severity of colds and flu in individuals. In one randomized, double-blind procedure, patients taking ginseng reported having less colds, and were at less of a risk of developing colds.⁵⁰ Another study found that flu patients who took ginseng were less likely to progress to complicated illness. They also reported a 30% decrease in the duration of the disease.⁵¹ Elderly adults who, while taking ginseng, were given the flu vaccine were also less likely to report upper respiratory tract infections than those not taking the ginseng. It is believed that ginseng

⁴³ Rasmussen, P. "Phytotherapy in an influenza pandemic." Australian Journal of Medical Herbalism. 2009.

⁴⁴ Rehman J, Dillow JM, Carter SM, Chou J, Le B, Maisel AS. Increased production of antigen-specific immunoglobulins G and M following in vivo treatment with the medicinal plants Echinacea angustifolia and Hydrastis canadensis. Immunol Lett. 1999 Jun 1;68(2-3):391-5.

Rehman J, Dillow JM, Carter SM, Chou J, Le B, Maisel AS.

⁴⁵ University of Maryland Medical Center. Available at: <http://www.umm.edu/altmed/articles/echinacea-000239.htm>

⁴⁶ Brenda Adderly. (2000, October). Winning the "cold war": Cutting down on colds & flu. Better Nutrition, 62(10), 52-58. Retrieved November 10, 2009, from Research Library. (Document ID: 60421973).

⁴⁷ Rehman J, Dillow JM, Carter SM, Chou J, Le B, Maisel AS. Increased production of antigen-specific immunoglobulins G and M following in vivo treatment with the medicinal plants Echinacea angustifolia and Hydrastis canadensis. Immunol Lett. 1999 Jun 1;68(2-3):391-5.

Rehman J, Dillow JM, Carter SM, Chou J, Le B, Maisel AS.

⁴⁸ Brenda Adderly. (2000, October). Winning the "cold war": Cutting down on colds & flu. Better Nutrition, 62(10), 52-58. Retrieved November 12, 2009, from ProQuest Health and Medical Complete. (Document ID: 60421973).

⁴⁹ University of Maryland Medical Center. Available at: <http://www.umm.edu/altmed/articles/goldenseal-000252.htm>

⁵⁰ Roxas, M, and Jurenka, J. "Colds and Influenza: A Review of Diagnosis and Conventional, Botanical, and Nutritional Considerations." Alternative Medicine Review, Volume 12(1) 2007.

⁵¹ Khalsa, K. (2009). Build your immunity. Better Nutrition, 71(8), 20-21. Retrieved from CINAHL Plus with Full Text database.

has these beneficial effects on colds and flu by stimulating the production of immunoglobulin, a type of protein that neutralizes foreign invaders in the body such as viruses and bacteria.⁵²

Astragalus

This herb has been used either alone or with other herbs such as echinacea or reishi, to treat colds and flu. It contains polysaccharides, flavonoids, trace minerals, and amino acids, all of which contribute to its ability to strengthen the immune system and fight viruses. It is believed that astragalus stimulates the white blood cells which destroy invading cells while also enhancing the body's production of interferon (a compound produced in the body to fight viruses).⁵³ Astragalus supplements are available in a variety of forms including teas, liquids and capsules.

Oil of Oregano

Oil of Oregano has antiviral, antifungal, antibacterial, antiparasitic, antioxidant and anti-inflammatory effects. It boosts the immune system, eases sore throats, relieves congestion in the lungs and sinus, helps to loosen and remove mucus, suppresses coughs and reduces fever. It is also a digestive aid and is thought to help get rid of intestinal parasites.⁵⁴ In vitro studies have shown that oil of oregano is as effective as antibiotics against bacteria.⁵⁵

Andrographis

This herb is widely used in many parts of the world and is now beginning to gain a market in the United States. Andrographis has anti-inflammatory, antipyretic (anti-fever), antiviral, and immunostimulatory properties, and studies have found that taking andrographis supplements upon feeling symptomatic relieves symptoms, leads to quicker recovery, and prevents post-influenza complications.^{56, 57, 58} In one study, only 29% of people who took the herb came down with cold or flu symptoms, compared with 62% of those who took placebos. Another study found that when children took andrographis throughout the winter they had a 2.1 times lower risk of catching cold.⁵⁹

⁵² * Predy GN, Goel V, Lovlin R, Donner A, Stitt L, Basu TK. Efficacy of an extract of North American ginseng containing poly-furanosyl-pyranosyl-saccharides for preventing upper respiratory tract infections: a randomized controlled trial. *CMAJ*. 2005 Oct 25;173(9):1043-8.

⁵³ (2008). COLD & FLU BUSTERS. *Alive: Canadian Journal of Health & Nutrition*, (314), 126. Retrieved from Alt HealthWatch database.

⁵⁴ Mike Adams, "Oregano Oil Eliminates Parasites in Humans." October 27, 2009. Available at: http://www.naturalnews.com/027333_parasites_oregano_health.html

⁵⁵ (2008). COLD & FLU BUSTERS. *Alive: Canadian Journal of Health & Nutrition*, (314), 126. Retrieved from Alt HealthWatch database.

⁵⁶ Oliff, H., & Blumenthal, M. (2005). Andrographis-*Eleuthero* Combination for Upper Respiratory Tract Infections in Colds and Flu. *HerbalGram*, (66), 26-27. Retrieved from Alt HealthWatch database.

⁵⁷ Kulichenko LL, Kireyeva LV, Malyskhina EN, Wikman G. A randomized, controlled study of Kan Jang versus amantadine in the treatment of influenza in Volgograd. *J Herb Pharmacother*. 2003;3(1):77-93.

⁵⁸ Rasmussen, P. "Phytotherapy in an influenza pandemic." *Australian Journal of Medical Herbalism*. 2009.

⁵⁹ Ted Snider & Linda Woolven *The Natural Path*. (2003, November 13). *THE NATURAL PATH: Many natural remedies can battle common colds* :[Final Edition]. The Windsor Star, p. B4. Retrieved November 10, 2009, from Canadian Newsstand Complete. (Document ID: 454571151).

Andrographis can be found in a formula called Kan Jang, which also includes Eleutherococcus, or as an individual supplement.⁶⁰

Eleutherococcus

Eleutherococcus is an adaptogen that has been used for thousands of years to prevent respiratory tract infections and to provide energy and vitality.⁶¹ It has strong effects on the immune system, as it is able to help the body adapt to stress by combating harmful toxins, improving the use of oxygen by the body, and encouraging the normal functioning of the adrenal glands. Studies have found a 30%-50% decrease in the incidence of the flu in those that took supplements, and those that took Eleutherococcus or Kan Jang (a mixture of Andrographis and Eleutherococcus) that did become ill reported shorter and less severe illnesses with less complications.^{62,63} To boost immunity, 2 to 3 g per day of powdered root in capsules are recommended.

Garlic

Garlic has natural antiviral, antibacterial, and immune-boosting properties. A study evaluating a garlic supplement on cold incidence and duration found that fewer colds were reported by those taking the supplements, than those that did have cold symptoms reported a shorter duration.⁶⁴ *Raw garlic* has been found to be more therapeutic than cooked *garlic*.⁶⁵

N-acetylcysteine (NAC)

N-acetylcysteine has been used for over 30 years to treat multiple ailments including bronchitis and other lung conditions.⁶⁶ It is a potent antioxidant with a protective effect on DNA and immune-regulating properties, and has been found to be effective against the flu virus, especially for the elderly or those in a weakened condition and at high risk of developing the *flu*.⁶⁷ One study found that supplements of 600 mg NAC taken twice daily during the *flu* season dramatically reduced the frequency and severity of flu-like symptoms in elderly high-risk individuals.⁶⁸

Isatis

Both the leaf and the root of this Chinese plant have been used to treat various infections, including influenza and upper respiratory infections. Studies have shown the root extract to be antibacterial,

⁶⁰ Jaret, P. (2005). Boost Your Immunity. *Health*, 19(9), 118-190. Retrieved from Academic Search Premier database.

⁶¹ Khalsa, K.. (2009, August). build your immunity. *Better Nutrition*, 71(8), 20-21. Retrieved November 12, 2009, from ProQuest Health and Medical Complete. (Document ID: 1831648721).

⁶² Roxas, M, and Jurenka, J. "Colds and Influenza: A Review of Diagnosis and Conventional, Botanical, and Nutritional Considerations." *Alternative Medicine Review*, Volume 12(1) 2007.

⁶³ http://www.naturalnews.com/022363_blood_immune_system_health.html

⁶⁴ Roxas, M, and Jurenka, J. "Colds and Influenza: A Review of Diagnosis and Conventional, Botanical, and Nutritional Considerations." *Alternative Medicine Review*, Volume 12(1) 2007.

⁶⁵ Smith, M. (2009). flu fighters. *Better Nutrition*, 71(2), 46. Retrieved from Academic Search Premier database.

⁶⁶ Roxas, M, and Jurenka, J. "Colds and Influenza: A Review of Diagnosis and Conventional, Botanical, and Nutritional Considerations." *Alternative Medicine Review*, Volume 12(1) 2007.

⁶⁷ Millea PJ. N-acetylcysteine: multiple clinical applications. *Am Fam Physician*. 2009 Aug 1;80(3):265-9

⁶⁸ Smith, M. (2009). flu fighters. *Better Nutrition*, 71(2), 46. Retrieved from Academic Search Premier database.

antiviral and antiparasitic against many different types of viruses and bacteria. This is likely because Isatis increases white blood cell and lymphocyte counts in the blood.⁶⁹ It also has cooling effects which is used to reduce fevers. Isatis is commonly combined with astragalus in herbal formulas.⁷⁰

Olive Leaf

Olive leaf has anti-viral, anti-fungal and anti-inflammatory properties, 400% more antioxidants than Vitamin C and double the antioxidants of green tea. Studies have shown it to be effective against multiple viruses, including the flu, and bacteria.⁷¹ This is because the components of the olive leaf interact with the protein of virus particles, reducing the strength and inhibiting the replication of viruses known to cause colds and the flu.⁷² Olive leaf extract has also been shown to stimulate the immune system, enhancing response against infection. Olive leaf should be taken daily to achieve the maximum effect, and the normal daily recommended dose is 3 capsules, 3 times a day (each capsule holds 1/4 teaspoon). To combat the flu, take 21 capsules at the start of symptoms, all at once. The flu should clear up within 4 hours. Only one tablespoon per day is recommended for those with emphysema, diabetes or high blood pressure.⁷³

Spirulina

Spirulina is a type of blue-green algae that is rich in protein, vitamins, minerals, and antioxidants. It contains nutrients such as B complex vitamins, beta-carotene, vitamin E, manganese, zinc and selenium. Studies suggest that spirulina increases production of antibodies, cytokines (infection fighting proteins), and other cells that improve immunity and help ward off infection and chronic illnesses.⁷⁴ In test tubes, spirulina seems to be able to stop some flu viruses from reproducing.⁷⁵ It is available in pill or powder form, or as flakes.

Grape Seed

Grape seed extract is one of the most potent antioxidants found in nature and is used to fight a variety of health problems. It contains a special class of water-soluble bioflavonoids called proanthocyanidins, which studies have shown have a high rate of antioxidant activity that is 20 to 50 times greater than Beta-Carotene or Vitamins C and E at eliminating specific free radicals.⁷⁶ The antioxidant and immune-

⁶⁹ Roxas, M, and Jurenka, J. "Colds and Influenza: A Review of Diagnosis and Conventional, Botanical, and Nutritional Considerations." *Alternative Medicine Review*, Volume 12(1) 2007.

⁷⁰ Khalsa, K.. (2009, August). build your immunity. *Better Nutrition*, 71(8), 20-21. Retrieved November 10, 2009, from Research Library. (Document ID: 1831648721).

⁷¹ Markin, D., Duek, L., & Berdicevsky, I. (2003). In vitro antimicrobial activity of olive leaves. *Mycoses*, 46(3-4), 132-136. Retrieved from MEDLINE with Full Text database.

⁷² Roxas, M, and Jurenka, J. "Colds and Influenza: A Review of Diagnosis and Conventional, Botanical, and Nutritional Considerations." *Alternative Medicine Review*, Volume 12(1) 2007.

⁷³ Barbi Trejo, "Olive Leaf Offers Many Healing Benefits." September 1, 2009. http://www.naturalnews.com/026950_olive_leaf_disease_health.html

⁷⁴ Khan, Z., Bhadouria, P., & Bisen, P. (2005). Nutritional and therapeutic potential of Spirulina. *Current Pharmaceutical Biotechnology*, 6(5), 373-379. Retrieved from MEDLINE with Full Text database.

⁷⁵ University of Maryland. Available at: <http://www.umm.edu/altmed/articles/spirulina-000327.htm>

⁷⁶ University of Maryland. Available at: <http://www.umm.edu/altmed/articles/grape-seed-000254.htm>

boosting properties of these proanthocyanidins have been shown to deactivate viruses and increase the power of natural killer cells in the body.⁷⁷

Codonopsis

This is an herb used in Chinese medicine which increases the red and white blood cell counts and strengthens the immune system. It is an adaptogen—a plant that has the ability to resist chemical and biological stressors which passes that ability on to humans upon consumption, and is also used to treat weakness and fatigue after illness and speed up recovery.⁷⁸ It is recommended that codonopsis be used after the acute phase of an illness has passed and recovery is underway.⁷⁹

Quercetin

Quercetin is an antioxidant, antihistamine and anti-inflammatory. It protects against free radicals which can damage cell membranes, tamper with DNA, and cause cell death. One study showed that quercetin inhibited virus replication in the initial stage of virus infection by indirectly interacting with virus particles.⁸⁰ Another study showed that quercetin was able to inhibit infectivity and replication of a variety of different viruses in those which might otherwise be especially susceptible to infection due to stressful exercise.⁸¹ It has also been suggested that because quercetin restores antioxidants in the body, it may be useful as a drug in protecting the lung from the deleterious effects of oxygen derived free radicals released during influenza virus infection.⁸² Quercetin can be found in citrus fruits, apples, onions, parsley, tea, and red wine, as well as supplements.⁸³

Ashwagandha

Ashwagandha is a tonic herb, similar to ginseng, which is recommended to increase energy and endurance, strengthen immune function, and help the body overcome imbalance caused by mental or physical stress, poor diet, lack of sleep, or environmental toxins.⁸⁴ Researchers who studied Ashwagandha along with other Ayurvedic plants found that it stimulated the immune system and had

⁷⁷ Konowalchuk J, Speirs JI. Virus inactivation by grapes and wines. *Appl Environ Microbiol.* 1976 Dec;32(6):757-63.

⁷⁸ Melanie Grimes, “How to Build Natural Immunity Against the Swine Flu.” April 30, 2009. Available at <http://www.naturalnews.com/026168.html>

⁷⁹ Douglas Schar. (1999, December). 5 Cutting-edge superherbs. *Prevention*, 51(12), 110-117. Retrieved November 12, 2009, from Research Library. (Document ID: 46510681).

⁸⁰ Choi HJ, Song JH, Park KS, Kwon DH. Inhibitory effects of quercetin 3-rhamnoside on influenza A virus replication. *Eur J Pharm Sci.* 2009 Jun 28;37(3-4):329-33. Epub 2009 Mar 14.

⁸¹ Davis JM, Murphy EA, McClellan JL, Carmichael MD, Gangemi JD. Quercetin reduces susceptibility to influenza infection following stressful exercise. *Am J Physiol Regul Integr Comp Physiol.* 2008 Aug;295(2):R505-9. Epub 2008 Jun 25.

⁸² Kumar P, Khanna M, Srivastava V, Tyagi YK, Raj HG, Ravi K. Effect of quercetin supplementation on lung antioxidants after experimental influenza virus infection. *Exp Lung Res.* 2005 Jun;31(5):449-59.

⁸³ University of Maryland. Available at: <http://www.umm.edu/altmed/articles/quercetin-000322.htm>

⁸⁴ Vukovic, L.. (2008, January). AYURVEDA for cold and flu comfort. *Better Nutrition*, 70(1), 56-59. Retrieved November 12, 2009, from ProQuest Health and Medical Complete. (Document ID: 1427269301).

no toxic effects.⁸⁵ Ashwagandha is available in powdered form, capsules, and as a liquid extract. A traditional dose is 1-2 g of the dried, powdered root, taken one to three times daily, or a standardized extract dose is 100-200 mg twice per day.

Licorice Root

Licorice root is the most commonly used Chinese herb and is used to treat a variety of diseases.⁸⁶ Glycyrrhizin (GL), the major bioactive component of licorice root extract, has been shown to have anti-inflammatory, antioxidant, and immune-modulating activities.^{87,88} These properties allow it to be an important supplement for flu prevention. One study found that licorice root (through glycyrrhizin) protects cells from infection with Influenza A virus and, in already-infected cells, caused a drastic reduction in the number infected cells.⁸⁹ Licorice root has also been shown to help with sore throats.⁹⁰

Turmeric

This compound is highly used in Ayurvedic and Chinese medicine to address many health concerns. It helps to stabilize the body, and is a strong antioxidant with anti-inflammatory properties as well. It has also been found to guard against free radical damage, protects the liver from toxic compounds, prevents blood platelet aggregation, stimulates the gallbladder, detoxifies the body and boosts the immune system. Curcumin in Turmeric is responsible for these effects.⁹¹

Chlorella

Chlorella protects the body in a variety of different ways. It is antimutagenic, anti-inflammatory, a rich source of antioxidants and also works to stimulate the immune system, allowing it to defend itself against viruses, bacteria, chemicals, and foreign proteins. It is full of nutrients including chlorophyll, which neutralizes environmental toxins and pollutants and helps the blood carry oxygen to all cells and tissues. It is rich in vitamins A, C, E, K, D, vitamin B complex, Beta carotene, lutein, two carotenoids, protein, zinc, iron, calcium, magnesium, potassium, rare trace minerals, essential fatty acids including gamma linolenic acid (GLA), polysaccharides, and enzymes that aid digestion. Chlorella provides binds to toxins and helps remove them from the body, allowing for natural detoxification⁹²

⁸⁵ Brenda Adderly. (2000, October). Winning the "cold war": Cutting down on colds & flu. *Better Nutrition*, 62(10), 52-58. Retrieved November 12, 2009, from ProQuest Health and Medical Complete. (Document ID: 60421973).

⁸⁶ Kroes, B., Beukelman, C., van den Berg, A., Wolbink, G., van Dijk, H., & Labadie, R. (1997). Inhibition of human complement by β -glycyrrhetic acid. *Immunology*, 90(1), 115-120. Retrieved from Academic Search Premier database.

⁸⁷ Liver Disease; Reports summarize liver disease study results from Virginia Commonwealth University. (2008, July). *Hepatitis Weekly*, 52. Retrieved November 13, 2009, from ProQuest Health and Medical Complete. (Document ID: 1511120661).

⁸⁸ (2005). Chinese herbs. *Natural Health*, 35(8), 66-67. Retrieved from Alt HealthWatch database.

⁸⁹ Wolkerstorfer, A., Kurz, H., Bachhofner, N., & Szolar, O. (2009). Glycyrrhizin inhibits influenza A virus uptake into the cell. *Antiviral Research*, 83(2), 171-178. doi:10.1016/j.antiviral.2009.04.012.

⁹⁰ Kristin Kane, & Sharon Liao. (2007, January). pain free naturally. *Prevention*, 59(1), 126,128-133. Retrieved November 13, 2009, from ProQuest Health and Medical Complete. (Document ID: 1193326401).

⁹¹ http://www.naturalnews.com/022363_blood_immune_system_health.html

⁹² Barbara L. Minton. "Chlorella can Replace a Closet Full of Expensive Supplements." *Natural News*. Tuesday, April 28, 2009. Available at: http://www.naturalnews.com/026147_chlorella_cancer_blood.html

