

## H1N1 Herbs and Supplements List

This is not meant to be a specific guideline but a basic overview of information. We are learning new information regarding supplements all the time so this would need to be updated constantly to stay current.

None of these supplements are to be considered the “magic bullet”. However, there is a common thread that runs through all the information I have gathered. That is to stress the importance of maintaining a healthy diet rich in vitamins, minerals, and antioxidants. The recommended daily values listed with some of these supplements should be followed. It seems as though most of the beneficial effects of these supplements were seen when the patient was deficient to begin with. The deficiency seen in many of these people is what led them to be more susceptible to infection or other disease states.

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## Vitamin E (alpha-tocopherol)

### Potential uses – antioxidant

- Coronary Heart Disease – early observational studies found a correlation between higher Vitamin E intake and decrease cardiovascular risk. However randomized controlled trials like Heart Outcomes and Prevention Evaluation (HOPE and HOPE-TOO) found no decrease in cardiovascular events. Also, Women’s Angiographic Vitamin and Estrogen study (a study of postmenopausal women) found that Vitamin E and Vitamin C provided no benefit in cardiovascular health. In fact, both of these studies had an increased risk of heart failure or all-cause mortality in these studies. Other studies with no significant findings include: Women’s Health Study and Physician’s Healthy Study II.<sup>1</sup>
- Cancer – most studies are split as to the benefit of preventing cancer and taking Vitamin E supplements. Studies showing benefit include: Iowa Women's Health Study and Cancer Prevention Study II (CPS-II). Studies lacking benefit include: Selenium and Vitamin E Cancer Prevention Trial (SELECT), Nurses' Health Study, Health Professionals Follow-up Study, HOPE-TOO, and Women’s Health Study.<sup>1</sup>
- Other areas have been researched yielding mixed results as well. These include eye disorders (cataracts and age-related macular degeneration) and cognitive decline.<sup>1</sup>
  - Age-Related Eye Disease Study (AREDS) used the AERDS formulation of supplements with promising results. A follow-up study to confirm results is currently ongoing<sup>1</sup>

ADR – limited knowledge is available about they safety and frequency of side effects. Some evidence exists showing that vitamin E can antagonize vitamin K dependent clotting factors and inhibition of platelet aggregation. Allergic reactions can occur.<sup>2</sup>

### Drug Interactions<sup>2</sup>

- Warfarin
- Orlistat
- Colestipol

### Recommended Adult Daily Dosing<sup>1</sup>

15 mg/day (22.4 IU)

### Tolerable Upper Limits for Adults<sup>1</sup>

1000 mg/day (1500 IU)

Note – Since supporting evidence is lacking the current recommendations suggest a balanced diet rich in antioxidant foods<sup>3</sup>. Many diets are not rich enough to achieve the proper amounts of vitamins and minerals that are recommended. In that case supplementation can be considered until new information can prove otherwise<sup>4</sup>.

## **Vitamin C (Ascorbic Acid)**

### Potential Uses – antioxidant

- Scurvy
- Common Cold – A review of published literature and trials revealed that, “routine supplementation of vitamin C (in doses of 200 mg/day or more) will probably not prevent the common cold or decrease the severity of cold symptoms.” “However routine supplementation may decrease the duration of symptoms.” Even the last finding was determined to be insignificant<sup>5</sup>.
- Cancer – The Agency for Healthcare Research and Quality (AHRQ) took a look at 22 unique studies using Vitamins C, E, and CoQ10 alone or in combination to prevent or treat cancer. 16 of these studies showed no significant benefit<sup>6</sup>.
- Cardiovascular Disease – Another AHRQ paper analyzed Vitamins C, E, and CoQ10 in cardiovascular disease prevention and treatment. Only one study exhibited a beneficial intermediate outcome (Antioxidant Supplementation in Atherosclerosis Prevention) while a larger study with a follow-up (Heart Protection Study) concluded that there was no substantial benefit, at the studied doses (250 mg/day<sup>7</sup>), in cardiovascular disease<sup>8</sup>.

ADR – diarrhea, hyperoxaluria, allergic reaction. Caution in renal impairment.<sup>2</sup>

### Drug Interactions<sup>2</sup>

- Warfarin
- Aluminum containing antacids
- Iron salts (increases iron absorption)
- Deferoxamine and deferasirox<sup>9</sup>

### Recommended Adult Daily Dosing<sup>9</sup>

60 mg/day

### Tolerable Upper Limits for Adults<sup>10</sup>

2000 mg/day

## **Garlic (Allium)**

### Potential Uses – Antioxidant

- Hyperlipdemia – Limited evidence has shown a very modest decrease in LDL (6-11%<sup>11</sup>) but only in the short term as mentioned below.
- Hypertension – Limited number of studies which where inconclusive<sup>12</sup>.
- Cancer – No clinical trials could be found for or against this usage<sup>12</sup>.

ADR – allergic reactions, asthma (garlic dust), bleeding (bruising, epitaxis, bleeding gums), breath/body odor, contact dermatitis (topical), nausea, vomiting, and headache<sup>2</sup>.

- Caution in diabetes, garlic can potentiate hypoglycemic effects<sup>13</sup>.

### Drug Interactions

- Anticoagulants and antiplatelet agents (warfarin, clopidogrel, aspirin)<sup>2</sup>
- NSAIDs<sup>2</sup>
- HIV medications (saquinavir)<sup>2</sup>
- Caution – garlic is a CYP3A4 substrate<sup>13</sup>
- Caution – garlic can thin blood. Avoid dietary intake at least 1 week prior to surgery<sup>12</sup>.

Dosages widely vary by their usage and each individual product. Further studies are need for dosage determination and effectiveness<sup>14</sup>.

Currently garlic has been used as 300mg TID for hyperlipidemia<sup>11</sup> and shown minute effectiveness in the short term (1-3 months).

**Echinacea (*Echinacea purpurea*\*, *Echinacea angustifolia*, *Echinacea pallida*)**

\*Believed to be the most potent<sup>15</sup>

Potential Uses – Prevention/Treatment of allergic rhinitis, common cold, and influenza

- Studies have found Echinacea to be ineffective in children for the common cold.<sup>16</sup>
- Studies with adults looked at 900 mg/day (3 different preparations of *E. angustifolia*) and was ineffective for the common cold.<sup>17</sup>

Dosage – No therapeutic dosage has been recommended to be effective at this time. Studies are currently looking at higher doses along with echinacea's uses in more specific areas such as upper respiratory infection.<sup>16,17</sup>

ADR – Allergic reaction (ragweed allergy)<sup>15</sup>, headache, fever, nausea, vomiting, and dermatologic reactions (topical).<sup>2</sup>

- Caution in some chronic diseases (HIV/AIDS, MS, tuberculosis, and other autoimmune disorders).<sup>2</sup>

Drug Interactions – Immunosuppressants (corticosteroids, cyclosporine, azathioprine, etc) and caution in CYP3A4 drugs (especially hepatotoxicity agents such as amiodarone and methotrexate).<sup>13</sup>

## Zinc

### Potential Uses<sup>18</sup>

- Immune function and the common cold
  - The link between zinc deficiency and a weakened immune system has been shown because of zinc's effects in helping with lymphocyte proliferation
  - Many smaller studies have looked at using zinc supplementation to decrease the length and severity of the common cold. These studies have been inconclusive with positive and negative results being split down the middle
- Diarrhea
  - Usually do to zinc deficiency and malnourishment increasing the susceptibility to infections
- Age-related macular degeneration
  - Age-Related Eye Disease Study (AREDS) used the AERDS formulation of supplements with promising results. A follow-up study to confirm results is currently ongoing.

ADR – Allergic reactions, nausea, vomiting, and bad or metallic taste in mouth.<sup>2</sup>

### Drug/Food Interactions<sup>2</sup>

- Antibiotics susceptible to binding (tetracyclines, quinolones, and penicillamine)
- Caffeine
- Copper or Iron containing compounds
- Dairy products
- Whole-grain foods

### Recommended Adult Daily Dosing<sup>18</sup>

Male: 11 mg/day

Female: 8 mg/day

### Tolerable Upper Limits for Adults<sup>18</sup>

40 mg/day

## Selenium

### Potential Uses - antioxidant

- Cancer<sup>19</sup>
  - Supposedly there is a dual mechanism of action. 1. Antioxidant properties of selenium. 2. Selenium slows tumor growth.
  - Some studies have shown that areas with lower selenium soil content have an increase occurrence of some cancers.
  - 2 very large, long-term trials took a look at selenium and other supplements in preventing cancer or its reoccurrence. Both found selenium to be ineffective in cancer prevention
    - SU.VI.MAX Study
    - Selenium and Vitamin E Cancer Prevention Trial (SELECT)
- Heart disease – selenium may limit the oxidation of LDL (helping prevent heart disease), but there is currently a lack of evidence to support this claim.<sup>19</sup>
- Arthritis – early studies have shown a correlation of low blood selenium levels and arthritis. It is believed that the antioxidant properties reduce symptoms of arthritis. These studies need to be followed up on before it can be recommended.<sup>19</sup>
- HIV/AIDS – patients suffering HIV/AIDS are more likely to be selenium deficient due to malabsorption.<sup>19</sup>

ADR – Allergic reactions, finger and toe nail changes, garlic-smelling breath, nausea, vomiting, diarrhea, hair loss, altered taste, depression, and mild nerve damage.<sup>2</sup>

- Selenosis – selenium toxicity (deaths have been reported in selenium poisoning)<sup>19</sup>

### Drug Interactions

- Drugs used to treat thrombocytopenia (eltrombopag)<sup>2</sup>

### Recommended Adult Daily Dosing<sup>19</sup>

55 µg/day

### Tolerable Upper Limits for Adults<sup>19</sup>

400 µg/day

## Elderberry (*Sambucus nigra*)

### Potential Uses – antiviral, antioxidant, and immune modulator

- Common cold and influenza
  - Smaller studies have yielded some mixed results in this area, however more were positive than not. Elderberry seems to have the ability to inhibit influenza types A and B.<sup>20</sup>
- Constipation<sup>2</sup>
- Inflammation
  - According to a few small studies elderberry has the ability to promote cytokine production.<sup>20</sup>
- Diabetes
  - To my knowledge elderberry has only been studied for this indication with rats. The study showed that elderberry, “significantly increased glucose uptake, glucose oxidation, and glycogenesis in rat abdominal muscle.”<sup>20</sup>
- Increasing urine outflow<sup>2</sup>

### ADR – Allergic reactions, diarrhea, nausea, vomiting, and hypokalemia.<sup>20</sup>

- Ingesting certain parts of the plant or having unripened fruit can lead to poisoning.<sup>21</sup>

### Drug Interactions – Unknown<sup>21</sup>

### Dosage – Depends on what is being treated, but little evidence of a standard dosing exists<sup>2</sup>

- Elderberry fruit syrups 30-38% elderberry<sup>20</sup>
- Powdered form<sup>20</sup>
  - 500 mg/capsule
  - 500mg/15mL liquid

\*\*Elderberry has shown promise in many areas however most studies involving elderberry are small, not recent, and lack follow-up.<sup>22</sup> Elderberry, as of right now, seems to lack any serious adverse reactions or drug interactions. It is noteworthy that if it is not prepared correctly it can be poisonous. Also, I feel that since elderberry is vastly understudied that it would not be wise to assume it is safe and effective until more research is done (currently no research is taking place).<sup>23\*\*</sup>

### **Active 8 Kids A-Z Immune Booster**

1 Teaspoon Contains:

Vitamin A (as Beta Carotene) 2,500 IU

**Zinc** (as zinc gluconate) 3 mg

Blueberry powder (fruit) 150 mg

**Elderberry Extract** 100 mg (fruit, standardized to 3.2% anthocyanins)

Honeysuckle (flower) 30 mg

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Vitamin A – essential vitamin that is important for vision, bone growth, cell division, cell differentiation, reproduction, and immune system regulation.<sup>25</sup>

### **Recommended Adult Daily Dosing**<sup>24</sup>

Male 900 mcg/day

Female 700 mcg/day

### **Tolerable Upper Limits for Adults**<sup>24</sup>

3000 mcg/day

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Blueberry – a fruit with high antioxidant properties.<sup>25</sup>

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Honeysuckle – a flower with high antioxidant properties.<sup>26</sup>

**Bold supplements have been discussed previously.**

## **Airborne**

Ingredients:

**Vitamin A (Retinyl palmitate)**

**Vitamin C (Ascorbic acid)**

Magnesium

**Selenium**

Sodium

**Echinacea**

Vitamin B<sub>2</sub> (Riboflavin)

**Vitamin E (dl-tocopheryl acetate)**

**Zinc**

Manganese

Potassium

Ginger

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Vitamin B<sub>2</sub> (Riboflavin) – water soluble vitamin used for body growth, red blood cell production, and energy release.<sup>27</sup>

### Recommended Adult Daily Dosing<sup>27</sup>

Male 1.3 mg/day

Female 1.1 mg/day

### Tolerable Upper Limits for Adults<sup>27</sup>

Unknown

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Magnesium – a mineral necessary for normal body function. It plays a role in immune function, bone strength, muscle function, nerve function, and heart rhythm.

### Recommended Adult Daily Dosing<sup>28</sup>

Male (Age 19-30) 400 mg/day

Female (Age 19-30) 310 mg/day

Male (Age 31+) 420 mg/day

Female (Age 31+) 320 mg/day

### Tolerable Upper Limits for Adults<sup>28</sup>

350 mg/day

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Sodium – electrolyte necessary for normal body function. Sodium regulated blood pressure and volume.<sup>29</sup>

### Recommended Adult Daily Dosing<sup>29</sup>

Without hypertension: <2300 mg/day

With hypertension: <1500 mg/day

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Potassium – electrolyte needed for electrical and cellular body functions.

### Recommended Adult Daily Dosing<sup>30</sup>

4.7 g/day

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Ginger – herbal supplement that has potential use for nausea, cold, flu, and arthritis.<sup>31</sup>

**Bold supplements have been discussed previously.**

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1. National Institutes of Health. Office of Dietary Supplements. Vitamin E Fact Sheet. <http://ods.od.nih.gov/factsheets/VitaminE.asp>. Accessed September 8, 2009.
2. AltCareDex® System [Internet database]. Greenwood Village, Colo: Thomson Reuters (Healthcare) Inc. Updated periodically.
3. Krauss RM, Deckelbaum RJ, Ernst N, Fisher E, Howard BV, Knopp RH, Kotchen T, Lichtenstein AH, McGill HC, Pearson TA, Prewitt TE, Stone NJ, Horn LV, Weinberg R. Dietary guidelines for healthy American adults. A statement for health professionals from the Nutrition Committee, American Heart Association. *Circulation*. 94(7):1795-800, 1996 Oct 1. <http://circ.ahajournals.org.authenticate.library.duq.edu/cgi/content/full/94/7/1795>. Accessed September 8, 2009.
4. Tribble DL. AHA Science Advisory. Antioxidant consumption and risk of coronary heart disease: emphasis on vitamin C, vitamin E, and beta-carotene: A statement for healthcare professionals from the American Heart Association. *Circulation*. 99(4):591-5, 1999 Feb 2. <http://circ.ahajournals.org/cgi/content/full/99/4/591>. Accessed September 8, 2009.
5. Heimer KA, Hart AM, Martin LG, Rubio-Wallace S. Examining the evidence for the use of vitamin C in the prophylaxis and treatment of the common cold. *J Am Acad Nurse Pract*. 21(5):295-300, 2009 May. <http://www3.interscience.wiley.com.authenticate.library.duq.edu/cgi-bin/fulltext/122371604/PDFSTART>. Accessed September 8, 2009.
6. Coulter I, Hardy M, Shekelle P, Morton SC. Effect of the Supplemental Use of Antioxidants Vitamin C, Vitamin E, and Coenzyme Q10 for the Prevention and Treatment of Cancer. Agency for Healthcare Research and Quality, US Dept of Health and Human Services; 2003. <http://www.ahrq.gov/clinic/epcsums/aoxcansum.htm>. Accessed September 8, 2009.
7. MRC/BHF Heart Protection Study of cholesterol-lowering therapy and of antioxidant vitamin supplementation in a wide range of patients at increased risk of coronary heart disease death: early safety and efficacy experience. *Eur Heart J*. 20(10):725-41, 1999 May. <http://eurheartj.oxfordjournals.org.authenticate.library.duq.edu/cgi/reprint/20/10/725>. Accessed September 8, 2009.
8. Shekelle P, Morton S, Hardy M. Effect of Supplemental Antioxidants Vitamin C, Vitamin E, and Coenzyme Q10 for the Prevention and Treatment of

- Cardiovascular Disease. Agency for Healthcare Research and Quality, US Dept of Health and Human Services; 2003.  
<http://www.ahrq.gov/clinic/epcsums/antioxsum.htm>. Accessed September 8, 2009.
9. Vitamin C. Epocrates Rx. (Version 8.10). San Mateo, CA. Accessed September 8, 2009.
  10. "Vitamin C." The Merck Manuals Online Medical Library. April 2007.  
<http://www.merck.com/mmpe/sec01/ch004/ch004j.html>. Accessed September 8, 2009.
  11. Clinical Pharmacology. Tampa, FL: Gold Standard; 2008. <http://cp.gsm.com>. Updated September, 2009. Accessed September 9, 2008.
  12. National Institutes of Health. National Center for Complimentary and Alternative Medicine. Herbs at a glance: Garlic.  
<http://nccam.nih.gov/health/garlic/ataglance.htm>. Accessed September 8, 2009.
  13. *Peripheral Brain for the Pharmacist*. Washington, DC: American Pharmacists Association; 2007.
  14. Garlic. Epocrates Rx. (Version 8.10). San Mateo, CA. Accessed September 8, 2009.
  15. National Institutes of Health. National Center for Complimentary and Alternative Medicine. Herbs at a glance: Echinacea.  
<http://nccam.nih.gov/health/echinacea/ataglance.htm>. Accessed September 8, 2009.
  16. National Institutes of Health. National Center for Complimentary and Alternative Medicine. Echinacea Not Effective in Treating Children's Colds: Study Results. 2003. <http://nccam.nih.gov/news/alerts/echinacea/>. Accessed September 8, 2009.
  17. National Institutes of Health. National Center for Complimentary and Alternative Medicine. Echinacea for the Prevention and Treatment of Colds in Adults: Research Results and Implications for Future Studies. 2005.  
[http://nccam.nih.gov/research/results/echinacea\\_rr.htm](http://nccam.nih.gov/research/results/echinacea_rr.htm). Accessed September 8, 2009.
  18. National Institutes of Health. Office of Dietary Supplements. Dietary Supplement Fact Sheet: Zinc. <http://ods.od.nih.gov/FactSheets/Zinc.asp>. Accessed September 8, 2009.

19. National Institutes of Health. Office of Dietary Supplements. Dietary Supplement Fact Sheet: Selenium. <http://ods.od.nih.gov/factsheets/selenium.asp>. Accessed September 8, 2009.
20. Monograph. *Sambucus nigra* (elderberry). *Altern Med Rev.* 10(1):51-4, 2005 Mar. [http://www.thorne.com/media/mono\\_sambucus10-1.pdf](http://www.thorne.com/media/mono_sambucus10-1.pdf). Accessed September 8, 2009
21. Centers for Disease Control and Prevention. Poisoning from elderberry juice--California. *MMWR.* 1984;33(13):173-4.
22. Guo R, Pittler MH, Ernst E. Complementary medicine for treating or preventing influenza or influenza-like illness. *Am J Med.* 120(11):923-929.e3, 2007 Nov. [http://www.sciencedirect.com.authenticate.library.duq.edu/science?\\_ob=MImg&\\_imagekey=B6TDC-4R168D6-3-3&\\_cdi=5195&\\_user=557737&\\_orig=search&\\_coverDate=11%2F30%2F2007&\\_sk=998799988&view=c&wchp=dGLzVlz-zSkzV&md5=8747525d55036d94ba491fca5b2bc879&ie=/sdarticle.pdf](http://www.sciencedirect.com.authenticate.library.duq.edu/science?_ob=MImg&_imagekey=B6TDC-4R168D6-3-3&_cdi=5195&_user=557737&_orig=search&_coverDate=11%2F30%2F2007&_sk=998799988&view=c&wchp=dGLzVlz-zSkzV&md5=8747525d55036d94ba491fca5b2bc879&ie=/sdarticle.pdf). Accessed September 8, 2009.
23. Zakay-Rones Z, Thom E, Wollan T, Wadstein J. Randomized study of the efficacy and safety of oral elderberry extract in the treatment of influenza A and B virus infections. *J Int Med Res.* 32(2):132-40, 2004 Mar-Apr. <http://www.jimronline.net/content/full/2004/47/0445.pdf>. Accessed September 8, 2009.
24. National Institutes of Health. Office of Dietary Supplements. Dietary Supplement Fact Sheet: Vitamin A and Carotenoids. <http://ods.od.nih.gov/factsheets/vitamina.asp>. Accessed September 8, 2009.
25. Kay CD, Holub BJ. The effect of wild blueberry (*Vaccinium angustifolium*) consumption on postprandial serum antioxidant status in human subjects. *Br J Nutr.* 88(4):389-98, 2002 Oct. <http://ovidsp.tx.ovid.com.authenticate.library.duq.edu/spb/ovidweb.cgi?&S=KOFKFPHGDDDDGFFFNCFLCGMJHNLBAA00&Abstract=S.sh.78%7c1%7c1>. Accessed September 8, 2009.
26. Gabrielska J, Oszmianski J, Komorowska M, Langner M. Anthocyanin extracts with antioxidant and radical scavenging effect. *Zeitschrift fur Naturforschung. Section C. Journal of Biosciences.* 54(5-6):319-24, 1999 May-Jun. <http://ovidsp.tx.ovid.com.authenticate.library.duq.edu/spb/ovidweb.cgi?&S=KOFKFPHGDDDDGFFFNCFLCGMJHNLBAA00&Abstract=S.sh.74%7c43%7c1>. Accessed September 8, 2009.

27. "Riboflavin." MedlinePlus Medical Encyclopedia. March 2009.  
<http://www.nlm.nih.gov/medlineplus/ency/article/002411.htm>. Accessed September 8, 2009.
28. National Institutes of Health. Office of Dietary Supplements. Dietary Supplement Fact Sheet: Magnesium. <http://ods.od.nih.gov/factsheets/magnesium.asp>. Accessed September 8, 2009.
29. "Sodium." MedlinePlus Medical Encyclopedia. June 2008.  
<http://www.nlm.nih.gov/medlineplus/ency/article/002415.htm>. Accessed September 8, 2009.
30. "Potassium." MedlinePlus Medical Encyclopedia. May 2009.  
<http://www.nlm.nih.gov/medlineplus/ency/article/003484.htm>. Accessed September 8, 2009.
31. National Institutes of Health. National Center for Complimentary and Alternative Medicine. Herbs at a glance: Ginger.  
<http://nccam.nih.gov/health/ginger/index.htm>. Accessed September 8, 2009.