

Scientists Discover Influenza's Achilles Heel: Antioxidants

by [Dr. Mercola](#)

As the nation copes with a shortage of vaccines for H1N1 influenza, a team of Alabama researchers has raised hopes that they have found an Achilles' heel for all strains of the flu -- antioxidants.

In an article appearing in the November 2009 print issue of the *FASEB Journal*, they show that antioxidants -- the same substances found in plant-based foods -- might hold the key in preventing the flu virus from wreaking havoc on our lungs.

"The recent outbreak of H1N1 influenza and the rapid spread of this strain across the world highlights the need to better understand how this virus damages the lungs and to find new treatments," said Sadis Matalon, co-author of the study.

"Additionally, our research shows that antioxidants may prove beneficial in the treatment of flu."

Sources:

» [Science Daily October 30, 2009](#)

» [FASEB Journal October 30, 2009](#)

Dr. Mercola's Comments:

Here's yet another indication that conventional medicine simply does not have it all figured out, and that vaccines are not the sole solution to influenza epidemics.

I've already posted numerous articles about the benefits of vitamin D and C to combat the flu, and this latest research adds to my previous recommendations for proper diet and sunshine exposure, especially prior to- and during flu season.

Why You Need Antioxidants

It is generally recognized that **antioxidants** are powerful nutrients that protect your health by fighting against free radicals in your body, preventing damage from oxidation.

Free radicals are highly reactive molecules, typically some oxygen derivative in human systems, with unpaired electrons. These unpaired electrons cause them to be highly reactive and can damage your DNA and other important tissues of your body.

As this free-radical damage continues, cells can no longer perform properly, and hence, tissues begin to degrade and disease sets in.

In this study, the researchers found that the flu virus damages your lungs through a protein called M2, which attacks the cells that line the inner surface of your lungs (epithelial cells). They discovered that the M2 protein disrupts your epithelial cells' ability to remove liquid

from inside of your lungs, which can lead to pneumonia and other lung problems. However, antioxidants were able to prevent the M2 protein from damaging the epithelial cells.

Now, in this study they actually used antioxidant-like drugs to stop the destruction of epithelial cells, however, it offers an intriguing glimpse into *how* dietary antioxidants probably work naturally.

As I've mentioned several times before, the vast majority of flu deaths are actually caused by such secondary infections such as pneumonia, and your diet has a lot to do with how well your body can combat this disease process as well.

Highest Ranking Antioxidant Food Sources

Ideally, you'll want to get your antioxidants from your food. Your next best bet is from whole food supplements.

Excellent food sources of antioxidants include:

- **Fruits:** Cranberries, blueberries and blackberries
- **Vegetables:** Beans, artichokes
- **Nuts:** Pecans, walnuts and hazelnuts
- **Spices:** Ground cloves, ground cinnamon and oregano

Vitamin C – Potent Antioxidant Already Shown to Be Effective Against Flu

Vitamin C is a potent antioxidant, and as you may recall, I recently published a case study from Dr. Thomas Levy, where [intravenous vitamin C was used to save the life of a man with swine flu](#).

In one of his [articles](#), Dr. Levy describes the mechanics of vitamin C, and how it works to treat infectious diseases such as the flu.

In addition, [the Orthomolecular Medicine News Service](#) has published findings showing that vitamin C is effective against a broad range of viral infections, including bird flu:

“High dose vitamin C is a remarkably safe and effective treatment for viral infections. In high doses, vitamin C neutralizes free radicals, helps kill viruses, and strengthens your body's immune system.

Taking supplemental vitamin C routinely helps prevent viral infections.

The Avian Flu (or Bird Flu), so often mentioned by newspapers, magazines and other news sources, is a particularly severe form of influenza.

Interestingly, the symptoms of avian flu include hemorrhages under the skin, and bleeding from the nose and gums. These are also classical symptoms of clinical scurvy, which means a critical vitamin C deficiency is present. This means that vitamin C (ascorbate) is needed to treat it.

Severe cases may require 200,000 to 300,000 milligrams of vitamin C or more, given intravenously (IV) by a physician.

This very high dosing may be needed since the Avian Flu appears to consume vitamin C very rapidly, similar to an acute viral hemorrhagic fever, somewhat like an Ebola infection.”

They even stated that vitamin C, at saturation, can replace antiviral drugs.

Here are three other sources discussing the remarkable benefits of vitamin C for infectious diseases such as the flu:

1. [Journal of Manipulative and Physiological Therapeutics, 1999](#) found that vitamin C in megadoses administered before or after the appearance of cold and flu symptoms relieved and prevented the symptoms in the test population compared with the control group.
2. [The Clinical Experiences of Frederick R. Klenner](#), MD states that cases of influenza, encephalitis, and measles were easily cured with vitamin C injections and oral doses.
3. [Orthomed.com](#) – Dr. Robert Cathcart, MD, also offers personal case studies where intravenous administration of vitamin C turned out to be lifesaving in cases of acute flu complications.

“It is not really a matter of medicine; it is a matter of chemistry. Doses of ascorbate which are massive enough to force a reducing redox potential into tissues affected by the disease will always neutralize the free radicals,” he says.

A Word of Caution about Vitamin C Supplements

It's important to remember that every nutrient you ingest raises or lowers up to nine other nutrients in your body. For example, taking large doses of vitamin C (ascorbic acid) on a regular basis lowers your level of copper, so if you are already deficient in copper and take high doses of vitamin C, you can compromise your immune system.

So, whereas *temporarily* taking megadoses of vitamin C supplements to combat a case of the cold or flu is likely not going to cause a problem, for long-term, daily use, your best bet is to eat a diet that is full of high quality organic vegetables and fruits that are minimally processed. Not only will you get vitamin C, but you will get all the other accessory nutrients and micronutrients that are needed to optimize vitamin C and all of its beneficial functions.

Influenza May Be a Sign of Vitamin D Deficiency

There is [compelling evidence](#) showing that flu may in fact be a sign of vitamin D deficiency.

In addition to [scientific studies on vitamin D levels and the seasonality of the flu](#), an analysis of CDC data indicates that [vitamin D deficient children are also at higher risk of death from the flu](#).

The data shows that almost two-thirds of 36 children who died from H1N1 had epilepsy, cerebral palsy, or other neurodevelopmental conditions like mental retardation.

All of these neurological conditions are associated with childhood Vitamin D deficiency. Exacerbating the problem further, many of these kids take anticonvulsant drugs, which also lower vitamin D levels.

Vitamin D may very well be **one of the most beneficial vitamins there is for disease prevention**, including the flu. Unfortunately it's also one of the vitamins that a vast majority of people across the world are deficient in due to lack of regular exposure to sunshine.

Part of the explanation lies in the fact that vitamin D, which forms when your skin is exposed to sunlight, regulates the expression of more than 2,000 genes throughout your body, including ones that influence your immune system to attack and destroy bacteria and viruses.

Hence, being overwhelmed by the “flu bug” could signal that your vitamin D levels are too low, allowing the flu virus to overtake your immune system.

In addition, a number of studies show that the higher your vitamin D level, the lower your risk of contracting colds, flu, and other respiratory tract infections in general. For example:

1. A **2007 study** suggests higher vitamin D status enhances your immunity to microbial infections. They found that subjects with vitamin D deficiency had significantly more days of absence from work due to respiratory infection than did control subjects.
2. A **2009 study** on vitamin D deficiency in newborns with acute lower respiratory infection (ALRI) confirmed a strong, positive correlation between newborns and mothers' vitamin D levels. Newborns with vitamin D deficiency appear to have an increased risk of developing ALRI, and since the child's vitamin D level strongly correlates with its mother's, the researchers recommend that all mothers optimize their vitamin D levels during pregnancy, especially in the winter months, to safeguard their baby's health.
3. A similar **Indian study** published in 2004 also reported that vitamin D deficiency in infants significantly raised their odds ratio for having severe ALRI.
4. The **2009 analysis of the Third National Health and Nutrition Examination Survey**, which included 19,000 subjects over the age of 12, also found that higher vitamin D levels equated to lowered incidence of upper respiratory infections (URI). The correlation between lower vitamin D levels and increased risk of URI's was even stronger in individuals with asthma and chronic obstructive pulmonary disease.
5. Another **2009 report** in the journal *Pediatric Research* stated that infants and children appear more susceptible to viral rather than bacterial infections when deficient in vitamin D. And that, based on the available evidence showing a strong connection between vitamin D, infections, and immune function in children, vitamin D supplementation may be a valuable therapy in pediatric medicine.

Vitamin D Dose Recommendations

Based on the most recent research, the current recommendation is 35 IU's of vitamin D per pound of body weight.

So for a child weighing 40 pounds, the recommended average dose would be 1,400 IU's daily, and for a 170-pound adult, the dose would be nearly 6,000 IU's. The chart below will give you general approximations for what the recommended daily dose might be for children, young adults, and pregnant women.

Vitamin D Dose Recommendations

Vitamin D Dose Recommendations

Age	Dosage
Below 5	35 units per pound per day
Age 5 - 10	2500 units
Age 18 - 30	5000 units
Pregnant Women	5000 units

WARNING:

There is no way to know if the above recommendations are correct. The ONLY way to know is to test your blood. You might need 4-5 times the amount recommended above. Ideally your blood level of 25 OH D should be 60ng/ml.

However, it's important to realize that vitamin D requirements are *highly individual*, as your vitamin D status is dependent on numerous factors, such as the color of your skin, where you live, and how much sunshine you're exposed to on a regular basis.

So, although these recommendations may put you closer to the ballpark of what most people likely need, it is simply impossible to make a blanket recommendation that will cover everyone's needs.

The ONLY way to determine the correct dose is to [get your blood tested](#) since there are so many variables that influence your vitamin D status. I recommend using Lab Corp in the U.S. If you get it done by Quest, you'll need to divide your result by 1.3 to get the real number.

Ideally, you'll want your vitamin D level to be between 50-65 ng/ml, year-round. In Canada and Europe, your test results may come back in ml/L. To convert ml/L to ng/ml, simply divide your result by 2.5.

For more details on vitamin D dosing, optimal vitamin D levels, and testing, please see this [previous article](#).

Related Links:

- » [Latest H1N1 Swine Flu Alerts](#)
- » [What is the Real Cause of Influenza Epidemics?](#)
- » [Antioxidants and Free Radicals: What to Eat to Protect Your Health](#)
- » [Antioxidants: The Good, The Bad and the Evil](#)

Reference website: <http://articles.mercola.com/sites/articles/archive/2009/11/24/Scientists-Discover-Influenzas-Achilles-Heel-Antioxidants.aspx>