



## Feeding your immune system

*Eat these foods and nutrients to help fight off invaders*

Whenever I speak to a group about nutrition and health I always like to point out that there is a fundamental difference between health, fitness and body transformation.

To be healthy means to be disease-free and to have your various systems and organs functioning optimally.

Fitness usually refers to physical fitness. That has to do with your level of endurance, strength and flexibility.

Body transformation, on the other hand, deals with the manipulation of basic physiology to change the size and look of the body in some way. For most people this means losing fat/weight and gaining lean muscle mass.

What is the difference? Simply put, you can be healthy and not fit, you can be fit and not healthy and you can be healthy and fit and not have the body you want. Therefore, when I work with my clients I first work with them to get healthy then fit, before we attempt to change their bodies.

The focus of this article is to discuss the most fundamental aspects of health. Therefore, I will not discuss fitness or body transformation, maybe in a future article. However, please keep in mind that there is a fundamental difference between weight loss and body transformation. Weight loss is only temporary. Body transformation is lasting.

### THE IMMUNE SYSTEM

If one's immune system is compromised, it is virtually impossible for the body to remain in good health because it will not have the ability to fight off foreign invaders like viruses, bacteria, parasites, pollutants, even the very toxins that it produces on a daily basis as a natural byproduct of various metabolic functions.

The immune system is a complex mechanism made up of the skin, gastric acid, mucus/tears and an array of cells ... white blood cells, macrophages, natural killer cells, T-cells, and B-cells to name a few.

Adequately feeding your immune system will not only boost its fighting power, it will keep you healthy. Your immune system functions like an army. Therefore, eating immune boosting foods will increase the number of various cells in the army, help them to perform better and to devise a better battle plan for fighting off invaders. To boost your immune system, here are the top immune building nutrients and the top foods that contain them.

### Vitamin C

Vitamin C is a water-soluble vitamin that increases the production of infection-fighting white blood cells and antibodies and increases levels of interferon, the antibody that coats cell surfaces, preventing the entry of viruses.

Vitamin C reduces the risk of cardiovascular disease by raising levels of HDL (good) cholesterol while lowering blood pressure and interfering with the process by which fat is converted to plaque in the arteries. As an added perk, those whose diets are higher in vitamin C have lower rates of colon, prostate and breast cancer.

Before you stack up on the supplements keep in mind that the body does not absorb individual nutrients unless there are other co-nutrients present. For example, Vitamin C, E and D work together synergistically in the body. There are also thousands of bioflavonoids (chemicals) found in plants that are necessary for the absorption of these vitamins. So forget the individual supplements, try nutrient rich fruit and vegetables.

*Excellent food sources of vitamin C are citrus fruits or citrus juices, berries, green and red peppers, tomatoes, broccoli and spinach. You may also want to use a fruit and vegetable capsule daily to get more nutrients from food.*

### Vitamin E

Vitamin E is a fat-soluble vitamin that stimulates the production of natural killer cells, those that seek out and destroy germs

and cancer cells. Vitamin E enhances the production of B-cells, the immune cells that produce antibodies that destroy bacteria.

Vitamin E may also reverse some of the decline in immune response commonly seen in aging. Vitamin E has also been implicated in lowering the risk of cardiovascular disease. In the Harvard School of Public Health study of 87,000 nurses, Vitamin E, from food sources, was shown to cut the risk of heart attacks by fifty percent.

*Excellent food sources of vitamin E are nuts, seeds, eggs, whole grains, vegetable oils and dark green leafy vegetables.*

### Garlic

Don't be surprised that this flavorful member of the onion family is also a powerful immune booster that stimulates the multiplication of infection-fighting white blood cells, boosts natural killer cell activity, and increases the efficiency of antibody production.

The immune-boosting properties of garlic seem to be due to its sulfur-containing compounds, such as allicin and sulfides.

Garlic can also act as an antioxidant that reduces the build-up of free radicals in the bloodstream. Garlic is also a heart-friendly food since it keeps platelets from sticking together and clogging tiny blood vessels.

*As usual, forget the supplements; just add some raw garlic to your daily meals.*

### Omega-3 Fatty Acids

The omega-3 fatty acids in flax seed oil and fatty fish (such as salmon, tuna, and mackerel) act as immune boosters by increasing the activity of phagocytes, the white blood cells that eat up bacteria. Remember your grandmother's daily dose of unpalatable cod liver oil?

Essential fatty acids also protect the body against damage from over-reactions to infection. Try a tablespoon of flax seed oil or fish oils along with Vitamin E rich foods. The essential fatty acids and Vitamin E act together to boost the immune system.

## Carotenoids & Bioflavonoids

I'm sure you're familiar with beta-carotene. However, beta-carotene is only one member of the very large carotenoid family (there are more than 800 known carotenoids). Others include alpha carotene, lycopene and lutein.

All the carotenoids work together to increase the number of infection-fighting cells, natural killer cells, and helper T-cells, as well as being powerful antioxidants that mop up excess free radicals that accelerate aging.

*Excellent food sources are fruits, dark green leafy vegetables, carrots, pumpkin and winter squash.*

Bioflavonoids are a group of phytochemicals (plant chemicals) that aid the immune system by protecting the cells of the body against environmental pollutants. Bioflavonoids protect the cell membranes against the pollutants trying to attach to them.

Along the membrane of each cell there are microscopic parking spaces, called receptor sites. Pollutants, toxins, or germs can park here and gradually eat their way into the membrane of the cell, but when bioflavonoids fill up these parking spots there is no room for toxins to park.

Bioflavonoids also reduce the chole-

sterol's ability to form plaques in arteries and lessen the formation of microscopic clots inside arteries, which can lead to heart attack and stroke. Studies have shown that people who eat the most bioflavonoids have less cardiovascular disease.

*A diet that contains a wide variety of fruits and vegetables, at least six to nine servings per day, will help you get the bioflavonoids needed to help your immune system work in top form.*

## FOODS THAT SUPPRESS YOUR IMMUNE SYSTEM

### Sugar

Don't be surprised to find sugar at the very top of this list. Just 8 tablespoons of sugar, that's the amount in one can of regular cola, is enough to suppress your immune system by forty percent for up to six hours. Sugar impairs the ability of your white blood cells to kill germs.

### Alcohol

Having a drink (the equivalent of 12 ounces of beer, 5 ounces of wine, or 1 ounce of hard liquor) every now and then does not negatively affect your immune

system. However, three or more drinks can reduce the ability of white blood cells to kill germs.

Excessive alcohol in the blood also suppresses the ability of the white blood cells to multiply, inhibit the action of killer white cells on cancer cells, and lessen the ability of macrophages to produce tumor necrosis factors. Any amount of alcohol that is enough to cause intoxication is also enough to suppress immunity.

## THE BOTTOM LINE

Well, I hope you have a deeper appreciation for your body and will now pay more attention to eating more "health building foods." I have heard too many people in the gym saying that they don't eat fruits and certain vegetables because they contain too much sugar, not realizing that their body is in desperate need of the nutrients in all fruits and vegetables. Remember, health first, then fitness, and then body transformation. <<

— Del Millers is a fitness and nutrition consultant and author of three books. Visit his web site at [delmillers.com](http://delmillers.com) or send any of your nutrition questions to [del@delmillers.com](mailto:del@delmillers.com)

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