THE VITAMIN C CONNECTION

UNLOCK THE SECRETS OF VITAMIN C, NATURE'S POWERFUL ANTIOXIDANT, TO FIGHT FREE RADICALS, SLOW SIGNS OF AGING, & INCREASE ENERGY TO EXPERIENCE LIFE LIKE NEVER BEFORE

PCNL
PacificCoast NutriLabs
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Did you know that unlike other animals, humans can’t produce their own supply of vitamin C? This is the reason why we must obtain it from food and supplements. Most people recognize vitamin C as a common remedy to help ward off colds and flu. However, it’s actually doing an all-around job of maintaining health. It is one of the most highly publicized, yet least understood, of all the vitamins.

Nevertheless, vitamin C is a significant nutrient necessary to everyday living, whether you are trying to get in shape or maintain a healthy lifestyle. Also called ascorbic acid, it is a water-soluble molecule essential for growth, repair of tissues and more. It can also protect you against the sun and other environmental pollutants. What’s more, it enhances the absorption of iron into the blood, an important factor of hemoglobin.

Vitamin C may be naturally abundant, but it’s also relatively delicate. In fact, boiling, frying or grilling foods rich with ascorbic acid, or storing them for a long period of time, can reduce the nutritional content. The solution? Scientists have transformed the nutrient into an amazing dietary supplement.
This way, people can still meet the daily vitamin C requirement, as well as their health and wellness goals.
Understanding the history of vitamin C can help you fully appreciate the advances made in its research. The story began centuries ago, because of the disease called scurvy, which caused poor wound healing, muscle weakness, and bleeding from the gums. Its widespread occurrences were common among sailors in the 16th century. The first person to establish the connection between diet and scurvy was James Lind, a British doctor.

Dr. Lind administered lemon juice to those who had been diagnosed with the disease. After giving them multiple doses, the patients felt better. This breakthrough led to more extended voyages. Many sailors adopted a citrus-filled diet while at sea. The dietary addition of citrus fruits in treating scurvy, was believed to have paved the way for the discovery of vitamins. These days, vitamin C is used for a variety of conditions.
FUNCTIONS OF VITAMIN C IN THE BODY

When it comes to maintaining a healthy lifestyle, and preventing disease, vitamin C plays a huge role. As a water-soluble molecule, it can directly affect free radicals in the body, which are known to advance aging, and induce oxidative damage. Ascorbic acid also influences the production and repair of collagen, which is considered the very framework of the body. The blood vessels, tendons, ligaments, bones, teeth and skin – all rely on collagen.

Another important function of vitamin C is its impact in your immune system. It gives your white blood cells a boost and decreases your chance of contracting diseases. That’s why it’s the first thing people go for during flu or cold season. In addition, ascorbic acid is also essential for the heart, especially the arterial walls. Its antioxidant properties enable a healthy blood flow and can prevent arterial plaque accumulation.
VITAMIN C DEFICIENCY

Although the classic disease for vitamin C deficiency is scurvy, it’s rarely seen today, especially in most modern societies. This is because only 10mg of vitamin C is needed to prevent it. Nevertheless, a low intake of ascorbic acid can still compromise many bodily functions. It not only affects health and repair, but also breaks down various tissues. Iron deficiency occurs in people who are deficient in vitamin C too.

According to health experts, certain groups of people at risk of vitamin C deficiency include pregnant and nursing women, and people who don’t have a healthy, balanced diet. It usually affects those who are going on fad diets, those who are dependent on drugs and alcohol, as well as smokers. Patients suffering from medical conditions that affect the body's ability to digest and absorb food, are also at risk.

SIGN AND SYMPTOMS

Low Energy: If you have vitamin C deficiency, you have the tendency to get tired easily and experience reduced stamina. This nutrient helps boost mitochondrial function in order for...
it to fuel adenosine triphosphate into the muscles, producing the needed energy.

**Poor Oral Health:** A deficiency in ascorbic acid also means low levels of collagen in the body. This can lead to the deterioration of your gums and teeth. One can experience bleeding gums, loose teeth, gingivitis, and other periodontal problems, which can develop to a hazardous level.

**Mood Changes:** Early signs of scurvy may include short tempers, irritability, and rapid mood changes. This is because vitamin C greatly influences the adrenal glands, and the stress-response hormones. Not having enough of the nutrient, can increase your immediate anxiety response.

**Bruising:** When you have inadequate vitamin C levels, collagen production may be affected. This may cause slow healing of minor wounds. At this time, bruises can occur easily and often linger. If you ever notice excessive bruising, it’s a sign that your body doesn’t get enough ascorbic acid.

**Limb or Joint Pain:** Vitamin C is very important when it comes to building connective tissues, such as cartilage, ligaments and tendons. Inadequate levels of the nutrient can lead to breakdown of these tissues, which causes bones to rub together, thus leading to pain in the limbs and joints.
PREVENTION AND TREATMENT

To prevent vitamin C deficiency, it’s a must to maintain a healthy, balanced diet that contains plenty of fruit and vegetables – and take vitamin C supplements. Treating the shortage of vitamin C in the system can be as simple as replacing the nutrient lacking in your diet. Those with underlying metabolic conditions should talk to their doctors first.
WHY YOU SHOULD TAKE IT EVERYDAY

According to a survey, one in six Americans don't get nearly the recommended daily dose of vitamin C. Also, as humans, we have the metabolic flaw of not being able to produce our own ascorbic acid. A recent study appears to explain that our inability to produce the vitamin is due to the absence of L-gulonolactone oxidase. This substance is needed in order to synthesize vitamin C.

Additionally, we can’t store vitamin C in our body. That’s why taking supplements is a no-brainer. It ensures that you’re getting the sufficient amount of nutrients you need every day. The human body is made up of about 75% water. Lucky for us, vitamin C is a water-soluble vitamin. It’s one of the most essential nutrients you can consume, and integrating it into your diet can offer you a bevy of benefits.
AMAZING BENEFITS OF VITAMIN C

NATURE’S POWERFUL ANTIOXIDANT

It’s the most familiar of all the nutrients, as well as among supplements, but its importance is somehow taken for granted. As we go down to the specific things that vitamin C can help with, it becomes clearer that this nutrient is something you shouldn’t neglect. Even with experts singing all-praises for vitamin C, additional research is ongoing for newly discovered benefits.

Here’s why you need to consume ascorbic acid regularly.
FOR HEALTH:

#1 IMMUNITY BOOSTER

Vitamin C has a big reputation of fighting off colds. This is because it’s an immunity booster. A healthy dose can protect your body from bacteria, viruses and infection. When your immune function is in proper working condition, there’s no stopping you from being productive. On the other hand, when it is run down, your body is at risk of contracting various diseases.

A recent study in Switzerland shows that vitamin C contributes to the redox integrity of cells, protecting them from certain inflammatory responses. The nutrient also influences the immune system’s resistance to infectious agents, thus reducing a person’s risk to diseases. Take on the world, minus the colds and sickness, by taking vitamin C every day.
If you’re struggling with high blood pressure, vitamin C may be all you need to get it back to normal, and keep your heart happy. Ascorbic acid has shown to lower blood pressure and decrease the probability of hypertension. As you reduce your chance for heart attack, chest pains, high cholesterol and stroke, you’ll increase your quality of life.

A study in the American Journal of Clinical Nutrition found that vitamin C can reduce high blood pressure nearly as well as diuretics and ACE inhibitors, only without the side effects. Data from 29 randomized, controlled clinical trials were evaluated. At the end of the study, it was concluded that taking 500 mg of vitamin C every day can decrease your risk of stroke.
Your digestive system converts energy from the food you eat, absorbs essential nutrients to maintain good health, and eliminates waste products that may harm the body. Because the tissues in your digestive tract contain collagen, you need vitamin C to support digestion. Keeping your ascorbic acid levels up can also help prevent constipation.

Consider vitamin C as your natural laxative. The Linus Pauling Institute reports that an adequate intake of ascorbic acid promotes healthy digestion and metabolism, and aids your digestive system to function at an optimal level. Another study states that sustained daily supplementation of vitamin C can reduce symptoms of stomach irritation and inflammation.

#4
LOWERS CHOLESTEROL LEVELS

One of the best ways to prevent heart disease is to pay attention to your lipid profile, and the amount of fats in your blood. If your cholesterol levels aren’t as low as it should be, you may want to check if you’re getting enough vitamin C.
Data from just the past few years reveal that the right doses of ascorbic acid can help to lower your cholesterol.

Dr. Linus Pauling, the founder of modern chemistry, theorized that too little vitamin C elevates cholesterol levels. This causes the blood vessels to narrow, increasing a person’s risk to heart disease. British researchers also conducted a double-blind study about vitamin C, and found out that it can increase good cholesterol levels in women.

# 5

REDUCE ASTHMA SYMPTOMS

Asthma makes breathing difficult for millions of Americans, both young and old. There may be no cure, but once managed, the person affected can live a normal life. Who would’ve thought that managing the symptoms is as simple as taking the right dose of vitamin C? Ascorbic acid reduces inflammation in the airway, a well-recognized feature of asthma.

Scientists from the American Journal of Clinical Nutrition, have noticed that asthmatic patients have low levels of
vitamin C. It was also found that asthma is most often relieved by consuming regular, frequent, near-saturation-doses of ascorbic acid. Improve your lung function through high intakes of vitamin C, and get ready to breathe better.
Did you know that most skin care treatments you’re using contains vitamin C? It’s an indispensable ingredient used even in the cosmetic industry. Ascorbic acid has the ability to protect the skin against discoloration and increase production of collagen. This results to a firm, smooth, and younger-looking skin, with less age spots and freckles.

A research lab in Germany performed a placebo-controlled study on 25 volunteers. Those who treated their skin with a topical formulation of vitamin C reported a reduction in wrinkles and fine lines. A significant improvement was also found in their skin tone and tactile roughness. All these positive effects were noted just after a short period of 12 weeks.
Give your locks a vital dose of vitamin C to make them stronger and healthier. Scientists have found that a low supply of ascorbic acid in the body is associated with a number of hair-related problems. Dandruff, dry hair, and split ends are not favorable for hair growth. The antioxidant properties of vitamin C can help prevent these conditions.

Dr. Elisa Zied shares in her book, Younger Next Week, that vitamin C is an effective nutrient to help grow and strengthen hair. She explains that ascorbic acid helps build collagen, which is highly important for hair growth, but it doesn’t stop there. It also plays a necessary role in absorbing iron, which keeps your hair healthy and strong.

# 8
HEALTHY GUMS AND TEETH

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Over 75 percent of Americans over 35 have some form of gum disease. The earliest symptoms may include swelling and bleeding. At its worst, you can lose your teeth. While proper dental hygiene is significant for maintaining oral health, your intake of vitamin C also plays an important role in preventing gum disease and tooth decay.

Since vitamin C acts as an antioxidant in the body, it produces healthy connective tissue in the gums to keep your teeth locked into their sockets. Ascorbic acid also strengthens your immune system to control bacteria levels in your mouth. Research has found that those who consume 160mg, or more, of vitamin C per day have a significantly lower risk of gum disease.

If you want your skin to stay wrinkle-free and supple, make sure you’re taking enough ascorbic acid. Because of its ability to enhance collagen production, vitamin C is now being used as a beauty regimen to help slow premature aging. You can
rely on this nutrient to protect the body from free radicals, and help your skin retain its youthful look.

A study was done by the National Health and Nutrition Examination Survey involving 4,025 middle-aged women. Over a 24-hour period, researchers compared their signs of skin aging to the nutrients in their diet. Results revealed that participants who ate more vitamin C, showed fewer signs of skin aging, particularly better skin hydration and fewer wrinkles.
Most of us have more stress in our lives than we'd like, and it can easily push our minds and bodies to the breaking point. There's a simple method to manage stress in your life, and it just involves taking a daily supplement of ascorbic acid. Apparently, aside from preventing the common cold, it has been discovered that vitamin C can be your go-to stress buster.

In one study, German researchers gave 120 people a public speaking task, a sure-fire stressor. Half of the participants were given 1,000 mg of vitamin C. It was found that signs of stress were greater in those who did not take the nutrient. It was concluded that ascorbic acid can reduce both the physical and psychological effects of stress on people.
We all suffer from an occasional lack of energy. More often than not, it’s because of the pressures of work and family looming over us. It doesn’t have to be a constant fixture in your life. You can recharge your batteries with nature’s energy-booster, vitamin C. It aids in dopamine production and supports adrenal function for increased metabolic energy.

Researchers at the National Institutes of Health reported that the first sign of vitamin C depletion is fatigue. A study was performed on 44 workers, who were given 6 grams of ascorbic acid daily. After two weeks, it was found that their fatigue had decreased by almost one-third. Take vitamin C and you’ll surely feel an increase of energy.
If you’re having a hard time trying to get in shape, it may be because of your vitamin C levels. A review published in the Journal of the American College of Nutrition reveals that people who are deficient in ascorbic acid have a harder time losing fat mass. Vitamin C is needed to produce molecules for oxidation and metabolism of fatty tissue.

Without the sufficient amount of vitamin C, it will be difficult to use stored fat. Even if you engage in a strenuous physical activity, your body won’t be able to metabolize fatty tissue without ascorbic acid. You can improve your fat loss by up to 30 percent during moderate exercise by simply getting the adequate levels of vitamin C. So, make sure to add it to your diet.
Most people are afraid to maintain an exercise regimen because of muscle soreness. Without the right nutrients, you may suffer from intense pain following a routine of demanding physical activity next morning. Vitamin C is among the nutrients that can facilitate the formation of endogenous anti-inflammatory compounds.

A research team led by Dr. Scott Bryer and Dr. Allan Goldfarb of the University of North Carolina, tested the effects of vitamin C in muscle recovery. Participants were subjected to intense bouts of exercise, while taking supplements for over two weeks. They found that ascorbic acid reduced the symptoms of muscle soreness, without affecting muscle function.
The right amount of testosterone concentration in the body contributes to a healthy libido, building muscle mass, and maintaining energy levels. Every year, more men are being diagnosed with low levels of testosterone, with symptoms such as low sex drive, increase in body fat, hair loss and more. To avoid this, make sure you’re getting enough vitamin C.

Vitamin C works by protecting your testosterone from the harmful effects of cortisol, a known stress hormone in the body. The nutrient is also linked to your adrenal glands. Men suffering from adrenal fatigue won’t be able to produce high testosterone levels. Since vitamin C is needed by your adrenal glands to function, proper intake can increase your testosterone.
Scientists consider vitamin C as the ‘grandfather’ of any traditional antioxidants ever known. It is essential for proper functioning of your body, as well as prevention of a number of diseases. Its potential benefits clearly extend to every part of your well-being. Here are the most frequently asked questions about ascorbic acid. From the right dosage to the possible side-effects, get to know more about vitamin C and how it can improve your overall health.
WHO NEEDS VITAMIN C?

Ascorbic acid is vital to the human body. It’s also one of the safest vitamins you could take regularly. Whether you’re a bodybuilder or a hard-training athlete, everybody needs it. Smokers, in particular, require more vitamin C than non-smokers. It’s because cigarette smoke causes increased oxidative stress. Smokers are encouraged to consume nearly 39% more vitamin C, according to USDA’s Recommended Daily Allowance.

Adults aged 65 years and older also have higher requirements for vitamin C because of differences in the immune system, and decreased absorption from normal aging. Adult men aged 19 years above have 20% higher vitamin C RDA than adult women. On the other hand, pregnant and nursing women need ascorbic acid daily. Research shows that vitamin C deficiency during pregnancy may result in serious health complications for the fetus.
Iron has the life-sustaining role of carrying oxygen throughout the body. It also helps in producing energy and antioxidants. You can eat as many iron-rich foods and still be deficient because nonheme, one type of iron, is not well-absorbed during digestion. To enhance its absorption, you’ll need vitamin C. Ascorbic acid combines with iron to form a compound that’s easily absorbed into the bloodstream.

That said, you should consume vitamin C with the nonheme iron at the same time. Linus Pauling Institute explains that while the heme iron in meat proteins is readily absorbed, nonheme iron is influenced by other nutrients. Vitamin C promotes the release of a higher percentage of iron from nonheme sources. So, if the iron in your meal comes from plant-based foods, include at least 25 mg of vitamin C in the same meal.
WHAT IS THE RECOMMENDED DOSAGE?

The U.S. Food and Nutrition Board of the Institute of Medicine have recommended doses based upon scientific research, for general health. For men over 18 years old, daily intake should be 90 mg of vitamin C, while adult women need 75 mg. Pregnant women must consume a higher dose of 85 mg, and 120 mg for breastfeeding mothers. It’s also advised that there should be an additional of 35 mg daily intake for smokers.

The upper limit intake should not exceed 2,000 mg daily in men or women more than 18 years old. The recommended dosage may change when the individual is suffering from an underlying condition or disease, especially for vitamin C deficiency. Therefore, it is important to read labels and discuss it with your doctor. Furthermore, those with an active lifestyle also need more ascorbic acid than the non-active person would.

Most studies have reported that a person can benefit from taking anywhere from 500 mg a day or higher. For children below 18 years old, the US Food and Drug Administration
recommends daily doses of 40 mg for 0-6 months, 50 mg for 7-12 months, 15 mg for 4-8 years, 45 mg for 9-13 years, 65 mg for adolescent girls, and 75 mg for adolescent boys. How much vitamin C is too much, really depends upon the person taking it.

ARE THERE ANY SIDE-EFFECTS?

According to scientists, vitamin C is safe for most people when taken by mouth, as long as you stay within the recommended doses. It’s difficult to overdose on ascorbic acid, since it is water soluble. This means, extra amounts not utilized by the body, leaves your system through urine within 24 hours. However, you still need to be careful. Avoid taking it on an empty stomach, or taking large doses, more than 1000 mg, at one time.

Side-effects from vitamin C are less common, and often experienced when taking high doses of up to 2000 mg. Some people may report nausea, vomiting, stomach cramps, chest pain, heartburn, dizziness, and headache. Dosing adjustments by your doctor may be necessary if the symptoms don't go
away. People sensitive or allergic to any ingredients present in vitamin C products should also avoid taking it.

VITAMIN C DRUG INTERACTIONS

Moderate interactions have been identified with aluminum found in most antacids. Ascorbic acid can increase how much aluminum the body absorbs. You should take it two hours before or four hours after antacids. Meanwhile, taking vitamin C along with estrogens might increase the side effects of estrogens. It’s also not recommended to take it together with warfarin. Large amounts of vitamin C can decrease its effectiveness.

Minor interactions were determined with acetaminophen drugs, like Tylenol. Large doses of ascorbic acid can decrease how quickly the body breaks down acetaminophen. The same goes with aspirin – with vitamin C decreasing its breakdown, it may increase the side-effects of aspirin. Caution is also advised in people taking drugs that affect blood sugar, for vitamin C may affect blood sugar levels and blood pressure.
Other than that, be watchful when taking: Niacin, Choline Magnesium Trisalicylate, Nicardipine, Nifedipine (Adalat, Procardia), Salsalate (Disalcid), and barbiturates, among others.
TIPS TO INCREASE VITAMIN C INTAKE

In addition to taking supplements, lifestyle and diet changes are essential to ensure that you’re getting the right amount of nutrients your body needs. As vitamin C gets in sync with your general health, you should do your part in maximizing its potential benefits. Whether it’s getting more exercise or eating more greens, improving your intake of vitamin C can do wonders for your overall well-being. Here are some helpful tips.

#1 UNDERSTAND THE VALUE

The first step is understanding the value of increasing your intake. Keep in mind that this nutrient plays a major role in supporting our immune system, sustaining memory, preventing premature aging and more. Improve your vitamin C levels by embracing a nutritionally optimized diet, instead of one heavy on fast food. Know when you need more like during stressful periods. Ongoing stress can use up your supply of vitamin C rapidly.
# 2
BE AWARE THAT YOU NEED IT DAILY

Vitamin C needs to be constantly replenished because it does not stay within the body. If you eat a big meal of oranges in one sitting, it will only boost your vitamin C levels for that day. You’ll still need more the next day. That’s why taking your daily dose of supplements is important. It’s not all the time that you can prepare a vitamin C-rich meal, or buy fresh fruits. Nevertheless, you can include orange or grapefruit juices to your diet.

# 3
LOOK AFTER YOUR FOOD SOURCES

Unfortunately, vitamin C does not last in storage. It’s steadily lost the longer the food is stored. So, look after your food
sources. You should eat it as fresh as possible, rather than leaving it to linger in your refrigerator. Do not soak fruits and veggies in water, since vitamin C can dissolve out of the plant. Steaming your vegetables for a few minutes is preferred, compared to boiling. Doing the latter will just reduce the vitamin C content.
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CONCLUSION

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