

**HUMANS  
CANNOT  
SYNTHESIZE  
VITAMIN C**

**Compiled by  
Campbell M Gold**

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<http://campbellmgold.com>

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**IMPORTANT**

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**Introduction - Humans cannot synthesize their own vitamin C**

Unlike most mammals, humans cannot synthesize their own vitamin C - So why not?

The answer relates to L-gulonolactone (Gulo), which is a protein that synthesizes vitamin C. Some 40 million years ago, a mutation on the L-gulonolactone (Gulo) gene in humans occurred, and subsequently, humans have not been able to produce any vitamin C. It is interesting to note that L-gulonolactone (Gulo) is also inactive in other species such as Guinea pigs, a few species of bat, the tarsiers, and in simians - chimpanzees, apes, monkeys, and humans.

Thus, the lack of L-gulonolactone (Gulo), in the human liver, results in an inborn error of carbohydrate metabolism, which prevents humans from synthesising their own ascorbic acid (vitamin C) in their livers.

This synthesis is common, and normal to most mammals, and they daily produce large amounts of their own ascorbic acid (vitamin C). Moreover, this is a "stress-responsive process"; and when stressed, mammals produce even greater amounts of ascorbic acid (vitamin C).

The primary function of this large ascorbic acid production, during the evolution of mammals, was to maintain homeostasis during biochemical stress. However, because of this defective human gene, man, throughout his entire history, has been deprived of this important mammalian protective mechanism. Moreover, since all living entities require ascorbic acid (vitamin C) for survival, humans need an external, dietary, source of ascorbic acid (vitamin C). Unfortunately, the levels of vitamin C in

the diet may not be adequate, especially when the organism is stressed, and supplementation will be required.

### **Vitamin C Deficiency**

Low levels of this vitamin C will, at first, produce swollen gums, nose bleeding, weakness and lassitude. If it gets worse it can produce scurvy - a condition characterized by weakness, anaemia, gum disease, and skin lesions.

Research has shown that there are benefits from taking vitamin C and vitamin E in combination. They work synergistically, and reinforce and extend each other's antioxidant action. Consequently, these vitamins work together and have a greater effect than if they work separately - Vitamin C attracts free radicals in biologic fluids, while vitamin E scavenges for dangerous free radicals in cell membranes.

### **So what's Vitamin C good for?**

Vitamin C - good for what ails you...

- Age-related cognitive decline
- Alcohol withdrawal support
- Amenorrhoea
- Anaemia (for thalassaemia (group of haemolytic anaemias mostly found in the mediterranean) if deficient)
- Anaemia (if deficient)
- Asthma
- Atherosclerosis
- Athletic performance (for exercise recovery)
- Athletic performance (if deficient, or to reduce pain and speed up muscle strength recovery after intense exercise)
- Autism
- Bipolar disorder/manic depression
- Boils (recurrent furunculosis)
- Bronchitis
- Bruising (for deficiency)
- Burns (in combination with vitamin E for prevention of sunburn only)
- Capillary fragility
- Cataracts
- Childhood diseases
- Childhood intelligence (for deficiency)
- Chronic obstructive pulmonary disease (COPD)
- Cold sores
- Colon cancer (reduces risk)
- Common cold/sore throat
- Diabetes - Type 1
- Diabetes - Type 2
- Dysmenorrhoea (plus vitamin B3 [niacin] and rutin)
- Ear infections (recurrent)
- Eczema
- Endometriosis (in combination with vitamin E)
- Gallstones
- Gastritis
- Gingivitis (periodontal disease) (for deficiency only)
- Gingivitis (periodontal disease) (in combination with flavonoids)
- Glaucoma
- Gout
- Halitosis (if gum disease and deficient)
- Hay fever
- Heart attack (for deficiency)

- Heart attack (for those not deficient)
- Hepatitis
- High blood pressure
- High cholesterol (protection of LDL cholesterol)
- HIV support (oral and topical)
- Hives
- Hypoglycaemia
- Immune function
- Infection
- Infertility (female)
- Infertility (male) (for sperm agglutination)
- Influenza
- Iron-deficiency anaemia (as an adjunct to supplemental iron)
- Lead toxicity
- Leukoplakia (white thickened patches on the mucus membranes)
- Low back pain
- Macular degeneration
- Menopause
- Menorrhagia (heavy menstruation)
- Morning sickness
- Pancreatic insufficiency
- Parkinson's disease (in combination with Vitamin E)
- Peptic ulcer
- Pre- and post-surgery health (if deficient)
- Preeclampsia (occurs late in pregnancy, proteinuria excess of serum proteins in the urine), hypertension, and oedema) (in combination with vitamin E; for high risk only)
- Pregnancy support (if the diet is low in vitamin C)
- Progressive pigmented purpura (purple spots and patches) (in combination with rutin; also known as citrus bioflavonoid, rutoside or oxerutin)
- Prostatitis (acute bacterial prostatitis, chronic bacterial prostatitis)
- Reflex sympathetic dystrophy (prevention)
- Retinopathy (in combination with selenium, vitamin A and vitamin E)
- Schizophrenia
- Scurvy
- Sickle cell anaemia
- Sinusitis
- Skin ulcers
- Sprains and strains
- Stress
- Sunburn (oral, in combination with vitamin E)
- Sunburn (topical, in combination with vitamin E)
- Tardive dyskinesia (involuntary, repetitive movements)
- Urinary tract infection
- Vitiligo (condition where white patches develop on the skin. It is due to loss of pigment from areas of the skin)
- Wound healing

### **Esoteric**

From an esoteric perspective, the inability of humans to synthesize Vit C was a deliberate "design feature", which ensures that the human species cannot readily leave planet earth. Moreover, as some groups consider the human species to be "plague carrying vermin", it is good that they are "confined to their native planet". But that's another story...

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