

Scurvy

Summary

- Scurvy is a disease caused by severe and chronic vitamin C (ascorbic acid) deficiency.
- Good sources of dietary vitamin C include citrus fruits and green vegetables.
- Overdosing on vitamin C can cause problems, so never take more than the recommended dose of a vitamin C supplement without your doctor's knowledge and approval.

Scurvy is a disease caused by severe and chronic vitamin C (ascorbic acid) deficiency. Most people think of scurvy as a disease of the past, when sailors had to spend months at sea without access to fresh fruit and vegetables. While scurvy may be uncommon in modern society, it does still exist. Anyone whose diet is inadequate in vitamin C is at risk.

The onset of symptoms of scurvy depends on how long it takes for the person to use up their limited stores of vitamin C. The human body is unable to make vitamin C. For example, if the diet includes no vitamin C at all, the average onset of symptoms is about four weeks.

The many roles of vitamin C

Vitamin C is important for many metabolic processes, including:

- **Collagen formation** – collagen is used in different ways throughout the body. Its primary role is to strengthen the skin, blood vessels and bone. The body also relies on collagen to heal wounds.
- **Antioxidant function** – the metabolism of oxygen within the body releases molecular compounds called 'free radicals', which damage cell membranes. Antioxidants are substances that destroy free radicals, and vitamin C is a powerful antioxidant.
- **Iron absorption** – the process of iron absorption is aided by vitamin C, particularly non-haem iron (the form of iron found in plant foods such as beans and lentils).
- **Infection fighting** – the immune system, particularly cells called lymphocytes, requires vitamin C for proper functioning.
- **Other roles** – vitamin C is used to produce other important substances in the body such as brain chemicals (neurotransmitters).

Early symptoms of scurvy

Many of the early symptoms and signs of scurvy are similar to various mild complaints. A person may not visit their doctor because they believe, for example, that they have the flu or some other self-limiting illness.

Some of the non-specific symptoms of scurvy may include:

- generally feeling unwell
- fatigue
- loss of appetite
- nausea
- diarrhoea
- fever
- painful joints and muscles
- small 'pinpoint' bleeding around hair follicles visible in the skin.

Late symptoms of scurvy

Symptoms and signs of severe scurvy are more specific and may include:

- swollen, spongy and purplish gums that are prone to bleeding
- loose teeth
- bulging eyes (proptosis)
- bleeding into the skin (severe and easy bruising)
- scaly, dry and brownish skin
- very dry hair that curls and breaks off close to the skin
- slow-healing wounds
- opening of previously healed scars
- bleeding into the joints and muscles, which causes areas of swelling over the bones of the arms and legs
- premature stopping of bone growth (in babies and children).

Complications of scurvy

In babies and young children with scurvy, the growth of the long bones in the arms and legs is typically stunted. This is because the lack of vitamin C prompts the growth plates in the bones to prematurely harden. In people of all ages, untreated scurvy may lead to complications including anaemia, heart attack or death.

Regular dietary intake is important

Dietary intake of vitamin C (from food and drinks) is essential, because the human body cannot make this vitamin from other compounds. We also need to have vitamin C as a regular part of our diet because the body cannot store vitamin C for very long.

High-risk groups for scurvy

There are various factors or lifestyle issues that might increase the risk of scurvy. These include:

- **unhealthy diet** – people who regularly neglect their diet such as alcoholics, illicit drug users, the elderly or the mentally ill
- **crash dieting** – particularly some diets that exclude food groups (for example, extreme versions of the high-protein, low-carbohydrate diet)
- **dependency** – some elderly people or young children who are not given adequate care
- **allergy diets** – that are very restrictive in an attempt to manage particular allergies
- **eating disorders** – like anorexia nervosa or bulimia
- **smoking** – because smokers need more vitamin C to cope with the extra stress on their body
- **fussy eating** – some fussy eaters will not eat fruits and vegetables.

Diagnosis of scurvy

Tests used to diagnose scurvy may include:

- physical examination
- medical history
- detailed questions about dietary habits
- blood tests to check vitamin C and iron levels
- x-rays of joints including the knee, wrist and ribs.

Treatment of scurvy

Scurvy is relatively easy to treat – the person simply needs to increase their daily intake of vitamin C. A doctor may recommend a short-term course of vitamin C supplements (usually a minimum of 250 mg per day) to speed relief of symptoms. Bleeding in the skin and gums should stop within 24 hours of effective treatment. Joint and muscle pain may take a few weeks to settle.

Other nutritional deficiencies, such as anaemia, may need treatment with an improved diet and the short-term use of supplements. Underlying problems such as eating disorders or alcoholism may need to be addressed. The doctor may also recommend that the patient consult with a dietitian.

Sources of vitamin C

Dietary sources of vitamin C include:

- fruits such as oranges, lemons, limes, grapefruits, blackcurrants, mangoes, kiwifruits, tomatoes and strawberries
- vegetables, particularly green vegetables such as cabbage, capsicum, spinach and broccoli
- kidney and liver.

Precautions in taking vitamin C

Taking large quantities of vitamin C supplements may be harmful. Never take more than the recommended dose of a vitamin C supplement without your doctor's knowledge and approval.

Overdosing on vitamin C can cause problems, including:

- nausea, abdominal cramps and diarrhoea
- decreased effect of some prescription medications, such as certain blood-thinning drugs
- kidney stones in people with kidney disease or a history of kidney stones.

Where to get help

- Your doctor
- Dietitians Association of Australia Tel. 1800 812 942

Things to remember

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