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Explainer: what is scurvy and is it making a comeback?

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Abstract
A major hospital in western Sydney recently reported a number of diabetes patients were suffering from scurvy, a historical disease common in sailors on long voyages who were deprived of citrus fruit and vegetables.

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Scurvy was common in sailors on long voyages who were deprived of citrus fruit and vegetables.

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A major hospital in western Sydney recently reported a number of diabetes patients were suffering from scurvy, a historical disease common in sailors on long voyages who were deprived of citrus fruit and vegetables.
Scurvy is caused by severe and chronic deficiency of vitamin C (ascorbic acid), and is in modern times extremely rare. But considering our current dietary habits and their association with lifestyle diseases such as diabetes, could scurvy be making a comeback?

What is it?

In 1747, before the protective effects of vitamin C had been identified, British physician James Lind conducted the first clinical experiment in the history of medicine. He provided oranges and lemons to a group of sailors who were showing symptoms of scurvy. They showed remarkable improvements in a short time.

Vitamin C is necessary for the production of collagen – a vital, structural protein in connective tissues throughout our body – and iron absorption. Because humans can’t naturally make vitamin C, it has to be provided from external sources – either fruits and vegetables or foods fortified with it.

A lack of vitamin C results in a defective formation of collagen and connective tissues, which can result in easy bruising, bleeding gums, blood spots in the skin, joint pain and delayed wound healing.

Because vitamin C is needed for iron absorption, anaemia – which is a lack in the number and quality of red blood cells that carry oxygen – and fatigue may be present in those who are deficient. A blood test to determine vitamin C levels is used to confirm a scurvy diagnosis.

Is it coming back?

The recently reported cases of scurvy reflect poor-quality diets that don’t include sufficient fruit and vegetables. Half of Australians aged over 18 meet the recommended guidelines of eating two or more daily serves of fruit.
Only 7% of the population meet the guidelines for vegetables – five to six or more servings for men depending on age, and five or more for women. Only one in 20 (5.1%) adults meet both.

The situation is not limited to Australia. In the United Kingdom, it has been claimed wartime diseases such as scurvy are being seen in children because of diets high in junk food, which are worse for them than rationing was 70 years ago.

Kiwi fruit and strawberries are two excellent sources of vitamin C.

An estimated 25% of British men and 16% of women on low incomes have blood vitamin C concentrations indicative of deficiency, and a further fifth of the population have levels in the depleted range. This is due, in part, to inadequate access to fresh fruit and vegetables. Similar patterns are being identified in the United States.

Some people are more at risk of scurvy than others. Those at high risk are usually elderly people who may have difficulty chewing vitamin C-rich foods, and those with a diet devoid of fresh fruits and vegetables due to low incomes, ignorance or excessively restrictive diets, for example as a result of allergies.

It is estimated that up to 50% of older adults may have a marginal or even deficient vitamin C status. This is especially true for those who live for long periods in
institutions such as hospitals, and rely on in-house food for their nutrient requirements.

It’s common practice in hospital kitchens to cook vegetables for prolonged times, which reduces their vitamin C content. Hospitals also often use the cook-to-chill food service system, and vitamin C is lost from food during chilled storage after cooking. Further, patients may dislike hospital food or feel too unwell to eat enough.

Smokers are also at an increased risk of scurvy because smoking decreases concentrations of Vitamin C in the blood by up to 40%.

**How can scurvy be prevented?**

Scurvy can be prevented by consuming enough vitamin C, either in the diet or as a vitamin supplement. Citrus fruits such as oranges and lemons, as well as kiwi fruit, strawberries, guava, papaya and blackcurrants, are excellent sources. Vegetables high in vitamin C include capsicum, broccoli, potatoes, cabbage, tomatoes, and spinach.
Overcooking vegetables is likely to destroy vitamin C content. This is due partly to a reaction with oxygen that renders the vitamin inactive, and partly to leaching of the vitamin into the water used for cooking. It has been shown that 10% of the vitamin C content of cabbage was lost by heat-associated destruction during cooking, while 80% was leached into the cooking water.

When cooking vegetables, don’t drop them into the water until it’s boiled. This is because rapidly boiling water contains less oxygen than cold water, and the reaction with oxygen kills off the vitamin’s protective qualities.

Losses during cooking can be reduced by at least half if vegetables are only one-quarter covered by water, rather than being completely immersed. Use of the vegetable cooking water in soups and gravies would also substantially increase the amount of vitamin C you get.

Substantial losses of vitamin C also occur during reheating of chilled food. However, the losses are dependent on the time taken to reheat, as well as the portion size of the foods. Reheating a bulk portion (2kg) of food results in an average vitamin C loss of 23%, compared with losses of 10 to 15% if individually portioned food is reheated for the same length of time.

The re-emergence of scurvy is a poor reflection on the nation’s diet. So eat more fruits and vegetables, and make sure the latter aren’t overcooked.

- Diet
- Diabetes
- Vitamin C
- Malnutrition
- Fruit and vegetables
- Scurvy

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James Lind and Captain Cook notwithstanding, the British were latecomers in the fight against scurvy. The Dutch-based Schouten & Le Maire voyage across the Pacific in 1616 had made a detour to Africa.
to stock up on lemons in order to combat “scheurbuik” (scurvy). This proved highly successful. Despite their voyage being well-publicized (its journals were translated into English and several other languages) it took at least a century for this knowledge to have any practical effect.

2. Thomas Johnson

“Losses during cooking can be reduced by at least half if vegetables are only one-quarter covered by water”

Better still is to steam them. This not only retains more nutrients than boiling, but also makes the vegetables tastier!

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