

Chapter 9
Web Text Box 1

Scurvy: when the posttranslational modification in collagen fails

Scurvy, a very unpleasant disease in which blood vessels become leaky, is caused by a lack of vitamin C in the diet. Vitamin C is a cofactor for the enzymes that carry out the posttranslational modification of proline and lysine to generate the hydroxyproline and hydroxylysine in collagen molecules (book page 141). Without vitamin C, collagen, which is necessary for the physical strength of blood vessels, fails to form properly. In 1747 James Lind demonstrated that citrus fruits (which we now know to be rich in vitamin C) prevented scurvy, a finding that allowed explorers to make long-distance sea voyages that had previously been impossible.