5.1: Prelude to Lipids

In the 1920s, anthropologist Vilhjalmur Stefansson lived with and studied a group of Inuit. The Inuit were fishers and hunters, primarily of sea mammals such as whales, walruses, and seals. They consumed a high-protein, high-fat diet. In fact, the Inuit consumed an average of 75 percent of their daily energy intake from fat. Patricia Gadsby, “The Inuit Paradox,” Discover, 1 October 2004. http://discovermagazine.com/2004/oct/inuit-paradox/article_print. Stefansson’s research focused on the fact that the Inuit diet had no adverse effects on either their health or his own. Lieb, C. W. “The Effects of an Exclusive Long-Continued Meat Diet.” JAMA 87, no. 1 (1926): 25–26. doi:10.1001/jama.1926.02680010025006

Video 5.1.1: Why Omega-3 Fatty Acids Are Essential

Dr. Gerard L. Guillery reviews the benefits of omega-3 fatty acids in this video, as part of a “10 Steps to Better Health” series
These findings were supported by a later study in 1972, when the Greenland Inuit first caught the attention of Dr. H. O. Bang from Aalborg University in Denmark. He noted that although the Inuit consumed massive amounts of fatty ocean fish, which are packed with omega-3s, none of the Inuit tested showed signs of heart disease. In addition, there was significantly less evidence of joint disease and skin disease than found in Western countries. Further research led Bang and his associate, Dyerberg, to conclude that the omega-3 fatty acids (docosahexaenoic acid, or DHA, and eicosapentaenoic acid, or EPA) present in the diet offer significant health benefits:


- **Heart disease.** Further research supports Bang and Dyerberg’s finding and shows DHA and EPA to be beneficial to heart health and human development. EPA and DHA tend to reduce blood pressure, prevent blood-clot formation (thereby reducing the risk of stroke), and protect against irregular heartbeats.

- **Inflammation and autoimmune diseases.** According to research published in the *Journal of the American College of Nutrition*, animal experiments and clinical intervention studies indicate that omega-3 fatty acids have anti-inflammatory properties. Sears, B. “Anti-Inflammatory Diets for Obesity and Diabetes.” *J Am Coll Nutr* 21 (2008). The low incidence of autoimmune and inflammatory disorders such as psoriasis, asthma, and Type 1 diabetes and the complete absence of multiple sclerosis has been observed and studied in the Inuit population in Greenland. Brzezinski, A. “Review.” *Gastroenterol Hepatol* 3, no. 10 (2007): 787–88. [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3104160/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3104160/). Subsequent studies concur with these findings and it is believed that omega-3 fats play an important role in the prevention and treatment of coronary artery disease, high blood pressure, arthritis, other inflammatory and autoimmune disorders, and cancer. Simopoulos, A. "Omega-3 Fatty Acids in Inflammation and Autoimmune Diseases." *J Am Coll Nutr* 21, no. 6 (2002): 495–505. [http://www.jacn.org/content/21/6/495.full](http://www.jacn.org/content/21/6/495.full).

- **Brain health.** Omega-3 fats play an important role in maintaining mental health and are crucial for brain function. Omega-3 fatty acids may provide benefits such as expanding learning and memory capacities. Early evidence suggests that the consumption of omega-3 fats is essential for synaptic transmission in the brain. Furthermore, omega-3 fats seem to be most effective when obtained from foods rather than from supplements.
You Decide

What sources of omega-3 fatty acids would you include in your diet and why?

As you read further, you will learn the different types of fats, their essential roles in the body, and the potential health consequences and benefits of diets rich in particular lipids. You will be better equipped to decide the best way to get your nutritional punch from various fats in your diet.