

Inuit Paradox: Can we all eat lots of fat without weight gain or heart disease?

Want to eat lots of cheese and fatty foods, and never gain weight or get heart disease? Forget moving to France; it would be far more helpful to be a Greenland Inuit. Or a polar bear.

Nearly 20 years ago, French epidemiologists announced that the French had a high fat diet and drank a lot of wine, but had very low rates of cardiovascular disease. This “French paradox” took the world by storm. Could you really eat that poorly and still stay healthy?

As an example of media coverage of the “French paradox,” a 1991 clip from CBS’ “Sixty Minutes” showed a public health researcher sitting in a French restaurant, surrounded by bottles and glasses of wine, while “b-roll” footage showed diners downing what appear to be buttery, fatty morsels of food. “The French may have lower rates of heart attacks because their diet is high in cheese and wine,” an introduction to the clip announced.

It turned out that reality was far more complicated. People in the towns studied—Toulouse, Strasbourg and Lille—also ate a lot of fruits and vegetables, and other cities did not share these paradoxical rates. In addition, people who had a certain gene that transported cholesterol had lower heart disease rates despite drinking alcohol—but no gene, no benefit.

The Inuit gene advantage

More recently, a report in *Science* last year reported that the Inuit, natives of Greenland, also have a diet high in fat—especially Omega-3 fatty acids—and lower rates of heart disease, but this announcement did not take the world by storm.

This was probably because nearly all the 191 Inuit studied have a gene that helps them reduce low-density lipoproteins (LDL), the so-called “bad cholesterol” linked to cardiovascular disease. The gene also lowers fasting insulin levels, offering protection against diabetes. Only two percent of Europeans in the study and 15 percent of Han Chinese shared these gene variants.

These unique versions of the genes have helped the Inuit survive on a diet that is very high in marine mammal fat (from eating seals and whales). They also apparently have helped them process omega-3 fatty acids carried by fish eaten by those seals and whales. Ras Nielsen, a University of California, Berkeley, biologist who led the Inuit study, [observed that](#):

We found that (the Inuit) have unique genetic adaptations to this diet, so you cannot extrapolate from them to other populations. A diet that is healthy for the Inuit may not necessarily be good for the rest of us.

Even for the Inuit, the genetic change came at a price. The same mutations that helped them cope with an Arctic diet also made them shorter, by an average of nearly an inch.

A year before his Inuit study, Nielsen also reported similar genetic adaptations among Arctic polar bears. For the bears, genes including APOB, which encodes the main protein in LDL, were changed to help the bears metabolize glucose, triglycerides and cholesterol in ways that did not contribute to heart disease and other problems of obesity (a polar is estimated to be about half fat). Moreover, Nielsen found that these genetic changes occurred as polar bears moved north and diverged as a species from more temperate brown bears, indicating a similar genetic move had been made by the Inuit.

The Inuits aren't necessarily alone in their adaptations to northern climates and diets. Other studies have found variants of genes that process fatty acid chains among [native Siberians](#), and a gene involved in [controlling blood glucose](#) that helps Inuit survive periods of hypoglycemia. But living near the Arctic circle, and not France, offers a protection that doesn't come through culture or habit (unless you continue that habit for tens of thousands of years).

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