**Why Polar Bears Are Fat, But Have Healthy Hearts**

Hefty polar bears, which love to sink their teeth into greasy blobs of fat, could hold the key to avoiding heart disease. Continue reading →

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Polar bears appear to be genetically superior to humans when it comes to warding off heart disease, a new study on the hefty bears finds.

What's remarkable is that polar bears are among the most fat-obsessed beasts in the animal kingdom.

"The life of a polar bear revolves around fat," according to Eline Lorenzen of UC Berkeley who worked on the study. It's published in the latest issue of the journal Cell.

"Nursing cubs rely on milk that can be up to 30 percent fat and adults eat primarily blubber of marine mammal prey," Lorenzen explained. "Polar bears have large fat deposits under their skin and, because they essentially live in a polar desert and don't have access to fresh water for most of the year, rely on metabolic water, which is a byproduct of the breakdown of fat."

Our culture is fat-phobic, valuing skinny people who ideally eat low-fat diets, so how is it that evolution has led to fat polar bears that eat mostly fat?

Lorenzen and her colleagues looked at the genomes of 79 polar bears from Greenland and 10 brown bears from different locations around the globe to answer that question and more.

They first determined that polar bears and brown bears diverged less than 500,000 years ago. That's incredible, considering that prior theories estimated the two species parted evolutionary ways up to 5 million years ago.

[Video: Why Polar Bears Don't Hibernate](https://www.seeker.com/animals/videos/why-polar-bears-dont-hibernate-video.htm)

"In this limited amount of time, polar bears became uniquely adapted to the extremities of life out on the Arctic sea ice, enabling them to inhabit some of the world's harshest climates and most inhospitable conditions," the study's senior author Rasmus Nielsen, also of UC Berkeley, said in a press release.

Up to half of the body weight of polar bears consists of fat, and their blood cholesterol levels are high enough to cause cardiovascular disease in humans.

Nielsen and his team, however, discovered that mutations in genes involved in cardiovascular function allowed polar bears to rapidly evolve the ability to consume a fatty diet without developing high rates of heart disease. One such gene, called APOB, is known to play a role in moving cholesterol from the bloodstream into cells, thus reducing the risk of heart disease.

"Such a drastic genetic response to chronically elevated levels of fat and cholesterol in the diet has not previously been reported," co-author Eske Willerslev of the University of Copenhagen said. "It certainly encourages a move beyond the standard model organisms in our search for the underlying genetic causes of human cardiovascular diseases."

Polar bears might therefore hold the genetic key to humans avoiding heart disease. Hopefully these majestic animals will still be around for us to benefit - and admire.

Heart attacks aren't doing them in, but declining habitat due to disappearing Arctic sea ice is. It's estimated that the worldwide population of polar bears is only about 20,000 to 25,000.

Photo: Polar bear on Kap Tobin, Scoresby Sound, Central East Greenland. Credit: Rune Dietz, Aarhus University.

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