

The Inuit Paradox

How can people who gorge on fat and rarely see a vegetable be healthier than we are?

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Patricia Cochran, an Inupiat from Northwestern Alaska, is talking about the native foods of her childhood: “We pretty much had a subsistence way of life. Our food supply was right outside our front door. We did our hunting and foraging on the Seward Peninsula and along the Bering Sea.



GRAY SEAL

“Our meat was seal and walrus, marine mammals that live in cold water and have lots of fat. We used seal oil for our cooking and as a dipping sauce for food. We had moose, caribou, and reindeer. We hunted ducks, geese, and little land birds like quail, called ptarmigan. We caught crab and lots of fish—salmon, whitefish, tomcod, pike, and char. Our fish were cooked, dried, smoked, or frozen. We ate frozen raw whitefish, sliced thin. The elders liked stinkfish, fish buried in seal bags or cans in the tundra and left to ferment. And fermented seal flipper, they liked that too.”

Cochran’s family also received shipments of whale meat from kin living farther north, near Barrow. Beluga was one she liked; raw muktuk, which is whale skin with its underlying blubber, she definitely did not. “To me it has a chew-on-a-tire consistency,” she says, “but to many people it’s a mainstay.” In the short subarctic summers, the family searched for roots and greens and, best of all from a child’s point of view, wild blueberries, crowberries, or salmonberries, which her aunts would mix with whipped fat to make a special treat called *akutuq*—in colloquial English, Eskimo ice cream.

Now Cochran directs the Alaska Native Science Commission, which promotes research on native cultures and the health and environmental issues that affect them. She sits at her keyboard in Anchorage, a bustling city offering fare from Taco Bell to French cuisine. But at home Cochran keeps a freezer filled with fish, seal, walrus, reindeer, and whale meat, sent by her family up north, and she and her husband fish and go berry picking—“sometimes a challenge in Anchorage,” she adds, laughing. “I eat fifty-fifty,” she explains, half traditional, half regular American.

No one, not even residents of the northernmost villages on Earth, eats an entirely traditional northern diet anymore. Even the groups we came to know as Eskimo—which include the Inupiat and the Yupiks of Alaska, the Canadian Inuit and Inuvialuit, Inuit Greenlanders, and the Siberian Yupiks—have probably seen more changes in their diet in a lifetime than their ancestors did over thousands of years. The closer people live to towns and the more access they have to stores and cash-paying jobs, the more likely they are to have westernized their eating. And with westernization, at least on the North American continent, comes processed foods and cheap carbohydrates—Crisco, Tang, soda, cookies, chips, pizza, fries. “The young and urbanized,” says Harriet Kuhnlein, director of the Centre for Indigenous Peoples’ Nutrition and Environment at McGill University in Montreal, “are increasingly into fast food.” So much so that type 2 diabetes, obesity, and other diseases of Western civilization are becoming causes for concern there too.

Today, when diet books top the best-seller list and nobody seems sure of what to eat to stay healthy, it’s surprising to learn how well the Eskimo did on a high-protein, high-fat diet. Shaped by glacial temperatures, stark landscapes, and protracted winters, the traditional Eskimo diet had little in the way of plant food, no agricultural or dairy products, and was unusually low in carbohydrates. Mostly people subsisted on what they hunted and fished. Inland dwellers took advantage of caribou feeding on tundra mosses, lichens, and plants too tough for humans to stomach (though predigested vegetation in the animals’ paunches became dinner as well). Coastal people exploited the sea. The main nutritional challenge was avoiding starvation in late winter if primary meat sources became too scarce or lean.

These foods hardly make up the “balanced” diet most of us grew up with, and they look nothing like the mix of grains, fruits, vegetables, meat, eggs, and dairy we’re accustomed to seeing in conventional food pyramid diagrams. How could such a diet possibly be adequate? How did people get along on little else but fat and animal protein?

What the diet of the Far North illustrates, says Harold Draper, a biochemist and expert in Eskimo nutrition, is that there are no essential foods—only essential nutrients. And humans can get those nutrients from diverse and eye-opening sources.

One might, for instance, imagine gross vitamin deficiencies arising from a diet with

scarcely any fruits and vegetables. What furnishes vitamin A, vital for eyes and bones? We derive much of ours from colorful plant foods, constructing it from pigmented plant precursors called carotenoids (as in carrots). But vitamin A, which is oil soluble, is also plentiful in the oils of cold-water fishes and sea mammals, as well as in the animals' livers, where fat is processed. These dietary staples also provide vitamin D, another oil-soluble vitamin needed for bones. Those of us living in temperate and tropical climates, on the other hand, usually make vitamin D indirectly by exposing skin to strong sun—hardly an option in the Arctic winter—and by consuming fortified cow's milk, to which the indigenous northern groups had little access until recent decades and often don't tolerate all that well.

As for vitamin C, the source in the Eskimo diet was long a mystery. Most animals can synthesize their own vitamin C, or ascorbic acid, in their livers, but humans are among the exceptions, along with other primates and oddballs like guinea pigs and bats. If we don't ingest enough of it, we fall apart from scurvy, a gruesome connective-tissue disease. In the United States today we can get ample supplies from orange juice, citrus fruits, and fresh vegetables. But vitamin C oxidizes with time; getting enough from a ship's provisions was tricky for early 18th- and 19th-century voyagers to the polar regions. Scurvy—joint pain, rotting gums, leaky blood vessels, physical and mental degeneration—plagued European and U.S. expeditions even in the 20th century. However, Arctic peoples living on fresh fish and meat were free of the disease.

Impressed, the explorer Vilhjalmur Stefansson adopted an Eskimo-style diet for five years during the two Arctic expeditions he led between 1908 and 1918. "The thing to do is to find your antiscorbutics where you are," he wrote. "Pick them up as you go." In 1928, to convince skeptics, he and a young colleague spent a year on an Americanized version of the diet under medical supervision at Bellevue Hospital in New York City. The pair ate steaks, chops, organ meats like brain and liver, poultry, fish, and fat with gusto. "If you have some fresh meat in your diet every day and don't overcook it," Stefansson declared triumphantly, "there will be enough C from that source alone to prevent scurvy."



HERRING

In fact, all it takes to ward off scurvy is a daily dose of 10 milligrams, says Karen Fediuk, a consulting dietitian and former graduate student of Harriet Kuhnlein's who did her master's thesis on vitamin C. (That's far less than the U.S. recommended daily allowance of 75 to 90 milligrams—75 for women, 90 for men.) Native foods easily supply those 10 milligrams of scurvy prevention, especially when organ meats—preferably raw—are on the menu. For a study published with Kuhnlein in 2002, Fediuk compared the vitamin C content of 100-gram (3.55-ounce) samples of foods eaten by Inuit women living in the Canadian Arctic: Raw caribou liver supplied almost 24 milligrams, seal brain close to 15 milligrams, and raw kelp more than 28 milligrams. Still higher levels were found in whale skin and muktuk.

As you might guess from its antiscorbutic role, vitamin C is crucial for the synthesis of connective tissue, including the matrix of skin. "Wherever collagen's made, you can expect vitamin C," says Kuhnlein. Thick skinned, chewy, and collagen rich, raw muktuk can serve up an impressive 36 milligrams in a 100-gram piece, according to Fediuk's analyses. "Weight for weight, it's as good as orange juice," she says. Traditional Inuit practices like freezing meat and fish and frequently eating them raw, she notes, conserve vitamin C, which is easily cooked off and lost in food processing.

Hunter-gatherer diets like those eaten by these northern groups and other traditional diets based on nomadic herding or subsistence farming are among the older approaches to human eating. Some of these eating plans might seem strange to us—diets centered around milk, meat, and blood among the East African pastoralists, enthusiastic tuber eating by the Quechua living in the High Andes, the staple use of the mongongo nut in the southern African !Kung—but all proved resourceful adaptations to particular eco-niches. No people, though, may have been forced to push the nutritional envelope further than those living at Earth's frozen extremes. The unusual makeup of the far-northern diet led Loren Cordain, a professor of evolutionary nutrition at Colorado State University at Fort Collins, to make an intriguing observation.

Four years ago, Cordain reviewed the macronutrient content (protein, carbohydrates, fat) in the diets of 229 hunter-gatherer groups listed in a series of journal articles collectively known as the Ethnographic Atlas. These are some of the oldest surviving human diets. In general, hunter-gatherers tend to eat more animal protein than we do in our standard Western diet, with its reliance on agriculture and carbohydrates derived from grains and starchy plants. Lowest of all in carbohydrate, and highest in combined fat and protein, are the diets of peoples living in the Far North, where they make up for fewer plant foods with extra fish. What's equally striking, though, says Cordain, is that

these meat-and-fish diets also exhibit a natural “protein ceiling.” Protein accounts for no more than 35 to 40 percent of their total calories, which suggests to him that’s all the protein humans can comfortably handle.

This ceiling, Cordain thinks, could be imposed by the way we process protein for energy. The simplest, fastest way to make energy is to convert carbohydrates into glucose, our body’s primary fuel. But if the body is out of carbs, it can burn fat, or if necessary, break down protein. The name given to the convoluted business of making glucose from protein is gluconeogenesis. It takes place in the liver, uses a dizzying slew of enzymes, and creates nitrogen waste that has to be converted into urea and disposed of through the kidneys. On a truly traditional diet, says Draper, recalling his studies in the 1970s, Arctic people had plenty of protein but little carbohydrate, so they often relied on gluconeogenesis. Not only did they have bigger livers to handle the additional work but their urine volumes were also typically larger to get rid of the extra urea. Nonetheless, there appears to be a limit on how much protein the human liver can safely cope with: Too much overwhelms the liver’s waste-disposal system, leading to protein poisoning—nausea, diarrhea, wasting, and death.

Whatever the metabolic reason for this syndrome, says John Speth, an archaeologist at the University of Michigan’s Museum of Anthropology, plenty of evidence shows that hunters through the ages avoided protein excesses, discarding fat-depleted animals even when food was scarce. Early pioneers and trappers in North America encountered what looks like a similar affliction, sometimes referred to as rabbit starvation because rabbit meat is notoriously lean. Forced to subsist on fat-deficient meat, the men would gorge themselves, yet wither away. Protein can’t be the sole source of energy for humans, concludes Cordain. Anyone eating a meaty diet that is low in carbohydrates must have fat as well.



KELP

Stefansson had arrived at this conclusion, too, while living among the Copper Eskimo. He recalled how he and his Eskimo companions had become quite ill after weeks of eating “caribou so skinny that there was no appreciable fat behind the eyes or in the marrow.” Later he agreed to repeat the miserable experience at Bellevue Hospital, for science’s sake, and for a while ate nothing but defatted meat. “The symptoms brought on at Bellevue by an incomplete meat diet [lean without fat] were exactly the same as in the Arctic . . . diarrhea and a feeling of general baffling discomfort,” he wrote. He was restored with a fat fix but “had lost considerable weight.” For the remainder of his year on meat, Stefansson tucked into his rations of chops and steaks with fat intact. “A normal meat diet is not a high-protein diet,” he pronounced. “We were really getting

three-quarters of our calories from fat.” (Fat is more than twice as calorie dense as protein or carbohydrate, but even so, that’s a lot of lard. A typical U.S diet provides about 35 percent of its calories from fat.)

Stefansson dropped 10 pounds on his meat-and-fat regimen and remarked on its “slenderizing” aspect, so perhaps it’s no surprise he’s been co-opted as a posthumous poster boy for Atkins-type diets. No discussion about diet these days can avoid Atkins. Even some researchers interviewed for this article couldn’t resist referring to the Inuit way of eating as the “original Atkins.” “Superficially, at a macronutrient level, the two diets certainly look similar,” allows Samuel Klein, a nutrition researcher at Washington University in St. Louis, who’s attempting to study how Atkins stacks up against conventional weight-loss diets. Like the Inuit diet, Atkins is low in carbohydrates and very high in fat. But numerous researchers, including Klein, point out that there are profound differences between the two diets, beginning with the type of meat and fat eaten.

Fats have been demonized in the United States, says Eric Dewailly, a professor of preventive medicine at Laval University in Quebec. But all fats are not created equal. This lies at the heart of a paradox—the Inuit paradox, if you will. In the Nunavik villages in northern Quebec, adults over 40 get almost half their calories from native foods, says Dewailly, and they don’t die of heart attacks at nearly the same rates as other Canadians or Americans. Their cardiac death rate is about half of ours, he says. As someone who looks for links between diet and cardiovascular health, he’s intrigued by that reduced risk. Because the traditional Inuit diet is “so restricted,” he says, it’s easier to study than the famously heart-healthy Mediterranean diet, with its cornucopia of vegetables, fruits, grains, herbs, spices, olive oil, and red wine.

A key difference in the typical Nunavik Inuit’s diet is that more than 50 percent of the calories in Inuit native foods come from fats. Much more important, the fats come from wild animals.

Wild-animal fats are different from both farm-animal fats and processed fats, says Dewailly. Farm animals, cooped up and stuffed with agricultural grains (carbohydrates) typically have lots of solid, highly saturated fat. Much of our processed food is also riddled with solid fats, or so-called trans fats, such as the reengineered vegetable oils and shortenings cached in baked goods and snacks. “A lot of the packaged food on supermarket shelves contains them. So do commercial french fries,” Dewailly adds.

Trans fats are polyunsaturated vegetable oils tricked up to make them more solid at room temperature. Manufacturers do this by hydrogenating the oils—adding extra hydrogen atoms to their molecular structures—which “twists” their shapes. Dewailly makes twisting sound less like a chemical transformation than a perversion, an act of public-health sabotage: “These man-made fats are dangerous, even worse for the heart than saturated fats.” They not only lower high-density lipoprotein cholesterol (HDL, the “good” cholesterol) but they also raise low-density lipoprotein cholesterol (LDL, the “bad” cholesterol) and triglycerides, he says. In the process, trans fats set the stage for heart attacks because they lead to the increase of fatty buildup in artery walls.

Wild animals that range freely and eat what nature intended, says Dewailly, have fat that is far more healthful. Less of their fat is saturated, and more of it is in the monounsaturated form (like olive oil). What’s more, cold-water fishes and sea mammals are particularly rich in polyunsaturated fats called n-3 fatty acids or omega-3 fatty acids. These fats appear to benefit the heart and vascular system. But the polyunsaturated fats in most Americans’ diets are the omega-6 fatty acids supplied by vegetable oils. By contrast, whale blubber consists of 70 percent monounsaturated fat and close to 30 percent omega-3s, says Dewailly.

Omega-3s evidently help raise HDL cholesterol, lower triglycerides, and are known for anticlotting effects. (Ethnographers have remarked on an Eskimo propensity for nosebleeds.) These fatty acids are believed to protect the heart from life-threatening arrhythmias that can lead to sudden cardiac death. And like a “natural aspirin,” adds Dewailly, omega-3 polyunsaturated fats help put a damper on runaway inflammatory processes, which play a part in atherosclerosis, arthritis, diabetes, and other so-called diseases of civilization.

You can be sure, however, that Atkins devotees aren’t routinely eating seal and whale blubber. Besides the acquired taste problem, their commerce is extremely restricted in the United States by the Marine Mammal Protection Act, says Bruce Holub, a nutritional biochemist in the department of human biology and nutritional sciences at the University of Guelph in Ontario.



HALIBUT BONES

“In heartland America it’s probable they’re not eating in an Eskimo-like way,” says Gary Foster, clinical director of the Weight and Eating Disorders Program at the Pennsylvania School of Medicine. Foster, who describes himself as open-minded about Atkins, says he’d nonetheless worry if people saw the diet as a green light to eat all the butter and bacon—saturated fats—they want. Just before rumors surfaced that Robert Atkins had heart and weight problems when he died, Atkins officials themselves were stressing saturated fat should account for no more than 20 percent of dieters’ calories. This seems to be a clear retreat from the diet’s original don’t-count-the-calories approach to bacon and butter and its happy exhortations to “plow into those prime ribs.” Furthermore, 20 percent of calories from saturated fats is *double* what most nutritionists advise. Before plowing into those prime ribs, readers of a recent edition of the *Dr. Atkins’ New Diet Revolution* are urged to take omega-3 pills to help protect their hearts. “If you watch carefully,” says Holub wryly, “you’ll see many popular U.S. diets have quietly added omega-3 pills, in the form of fish oil or flaxseed capsules, as supplements.”

Needless to say, the subsistence diets of the Far North are not “dieting.” Dieting is the price we pay for too little exercise and too much mass-produced food. Northern diets were a way of life in places too cold for agriculture, where food, whether hunted, fished, or foraged, could not be taken for granted. They were about keeping weight on.

This is not to say that people in the Far North were fat: Subsistence living requires exercise—hard physical work. Indeed, among the good reasons for native people to maintain their old way of eating, as far as it’s possible today, is that it provides a hedge against obesity, type 2 diabetes, and heart disease. Unfortunately, no place on Earth is immune to the spreading taint of growth and development. The very well-being of the northern food chain is coming under threat from global warming, land development, and industrial pollutants in the marine environment. “I’m a pragmatist,” says Cochran, whose organization is involved in pollution monitoring and disseminating food-safety information to native villages. “Global warming we don’t have control over. But we can, for example, do cleanups of military sites in Alaska or of communication cables

leaching lead into fish-spawning areas. We can help communities make informed food choices. A young woman of childbearing age may choose not to eat certain organ meats that concentrate contaminants. As individuals, we do have options. And eating our salmon and our seal is still a heck of a better option than pulling something processed that's full of additives off a store shelf."

Not often in our industrial society do we hear someone speak so familiarly about "our" food animals. We don't talk of "our pig" and "our beef." We've lost that creature feeling, that sense of kinship with food sources. "You're taught to think in boxes," says Cochran. "In our culture the connectivity between humans, animals, plants, the land they live on, and the air they share is ingrained in us from birth.

"You truthfully can't separate the way we get our food from the way we live," she says. "How we get our food is intrinsic to our culture. It's how we pass on our values and knowledge to the young. When you go out with your aunts and uncles to hunt or to gather, you learn to smell the air, watch the wind, understand the way the ice moves, know the land. You get to know where to pick which plant and what animal to take.

"It's part, too, of your development as a person. You share food with your community. You show respect to your elders by offering them the first catch. You give thanks to the animal that gave up its life for your sustenance. So you get all the physical activity of harvesting your own food, all the social activity of sharing and preparing it, and all the spiritual aspects as well," says Cochran. "You certainly don't get all that, do you, when you buy prepackaged food from a store.

"That's why some of us here in Anchorage are working to protect what's ours, so that others can continue to live back home in the villages," she adds. "Because if we don't take care of our food, it won't be there for us in the future. And if we lose our foods, we lose who we are." The word Inupiat means "the real people." "That's who we are," says Cochran.

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