

# Studying ancient man to learn to prevent disease

September 15 2009, By Faye Flam

---

Health care as we know it didn't exist 3,000 years ago. But along the Georgia coast, the Pacific Northwest, and coastal Brazil, people grew tall and strong and lived relatively free of disease. They ate game, fish, shellfish and wild plants.

But as corn farming spread through various regions of the Americas, people got shorter. Many became prone to anemia and began dying of tuberculosis and other infectious diseases.

"It's counterintuitive -- with agriculture, people should have been better nourished," said Emory University [anthropologist](#) George Armelagos. But a different story is emerging from studies of ancient bones and teeth as well as blood samples from isolated hunters and farmers.

Hunters, of course, were not exactly invulnerable. Their skeletons showed many fell prey to violence. But new evidence may overturn what we understood about the diseases that killed humans over the centuries and how those threats have changed in the modern world.

With prevention now being touted as a strategy to counter crushing health care costs, insights from the past could help us better understand whether we can really prevent disease and how to best go about it.

The latest effort is mapping health over at least the last 3,000 years across the globe. Although that study is just gearing up, the results are backing up earlier work showing that people were probably healthier

3,000 years ago than they were 300 years ago.

In Europe and America, health started to improve only recently -- about 150 years ago -- with safer food and better sanitation, and the rise of modern medicine.

"Our health conditions didn't pop out of nowhere," said Clark Spencer Larsen, an anthropologist at Ohio State University. "Our interest is in looking at the context for our health today."

Emory's Armelagos said this work might help settle debates over the so-called Paleolithic diets, which periodically become trendy, advocating little more than wild meat, seafood, a few nuts, and vegetables.

Did humans really evolve to eat this way, or has our species adapted to dairy products, domestic animals and grain?

A surprising amount of information can be gleaned from skeletons, said Larsen, so he and colleagues are studying 17,000 of them as part of the Global History of Health Project. They unveiled their first results, which covered Europe, this year.

The global project followed a similar one that compared different populations living in the Americas over the last 3,000 years.

That project showed that the rise of farming often came along with a fall in health. One common measure of health is height, said project leader Richard Steckel of Ohio State University. This can be approximated by thighbone length when researchers don't have complete skeletons. When people are poorly nourished, their children fail to grow to their full potential height.

People got shorter through most of the last 3,000 years, reaching the

lowest point between the 1600s and late 1800s, Steckel said. That's when British philosopher Thomas Hobbes coined the phrase "nasty, brutish and short" to describe life before civilization.

Several other telltale signs on the bones show that farming populations often suffered from anemia and Vitamin B-12 deficiency. There was also more infectious disease -- TB, for example.

Armelagos, who was not in the project, said it was not that surprising that [infectious diseases](#) would rise with farming since it allowed denser centers of populations. Humans have certainly always gotten sick, but disease was less likely to spread into epidemics when populations were sparse, he said.

With the rise of cities, crowding and exposure to human waste allowed disease to spread as never before. Raising animals also allowed new pathogens to jump to humans. Livestock hosted influenza, allowing the viruses to mutate and evolve, leading to ever more deadly pandemics.

And when farming of grains brought about greater quantities of food, he said, what people ate lacked certain nutrients -- iron and Vitamin B-12, for example, whose effects show up in the bones and teeth.

The only health measure that was generally worse for hunter-gatherers was violence, said Ohio State's Steckel. Many of their skeletons had signs of injuries inflicted by other humans. Otzi, the 5,300-year-old "ice man" discovered frozen in the Alps, may have been typical. An analysis shows he was 45 years old and the cause of death was an arrow lodged in his shoulder.

Longevity will be harder to estimate -- but more research may eventually reveal whether hunter-gatherers who avoided spears in the back lived longer than their farming counterparts.

Some clues may come from isolated pockets of modern people who still live more ancient lifestyles. This month, for example, a collaboration of gerontologists and anthropologists published a study on a remote group in Bolivia called the Tsimane.

These indigenous people got most of their food from growing rice and a starchy vegetable called manioc, with some added protein from game and fish.

They live in groups of 50 to 100 people with no sanitation, running water, electricity or modern medical care.

"This population lives in conditions as close to those of a historical population as we can get in the real world today," said team member Eileen Crimmins, a gerontologist from the University of Southern California.

For this study, the researchers focused on the concept of inflammation as an agent of our deterioration and aging. Though inflammation can help the body clear infections, it's also been associated with heart disease as well as cancer and Alzheimer's. One common signpost of inflammation is a substance called C-reactive protein or CRP.

The Tsimane CRP was so high that they appeared to be suffering sky-high inflammation levels -- enough that they should be dropping dead from heart attacks. And yet they had very little evidence of heart disease or the sort of deterioration of the vascular system that appears to be almost inevitable among Western populations.

Working in their favor, most Tsimane had low body fat and low cholesterol, though they had unusually low levels of the "good" HDL cholesterol.

Their overall life expectancy is in the 40s, but the average is brought down by a high infant mortality rate, said collaborator Hillard Kaplan of the University of New Mexico. Those who reach adulthood usually live into their 60s or early 70s.

"What's really fascinating is that as different as our environments are, the schedule of life isn't all that different from ours," Kaplan said. "A 65-year-old Tsimane looks and acts pretty similar to a 65-year-old American."

But instead of dying from heart disease, the Tsimane die from infections. Kaplan suspects that fighting a relentless onslaught of infection eventually breaks down their immune systems by the time they reach 70.

Thomas McDade, an anthropologist from Northwestern University, recently discovered that Tsimane of the past may have benefited from traditional medicine. He found parents with the greatest traditional knowledge of local medicinal plants had the healthiest children. The sickest children belonged to those who had lost this knowledge.

---

*(c) 2009, The Philadelphia Inquirer.*

*Visit Philadelphia Online, the Inquirer's World Wide Web site, at [www.philly.com/](http://www.philly.com/)*

*Distributed by McClatchy-Tribune Information Services.*

Citation: Studying ancient man to learn to prevent disease (2009, September 15) retrieved 18 April 2024 from <https://medicalxpress.com/news/2009-09-ancient-disease.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private

study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.