

# An old question: diet and exercise

## What ancient mummies tell us about what to eat

BY PETER WHORISKEY  
THE WASHINGTON POST

On a foggy day in August 1936, an anthropologist and his crew set sail for Kagamil Island, a small volcanic speck of hot springs and cliffs in the Bering Sea. A person identified as “Brown Bear” had told them of a cave full of mummies and other human remains. Shortly after landing, they found the opening in the rocks near a steam jet.

According to the notes of the anthropologist, Ales Hrdlicka, what lay within was “wonderful riches”.

“Space within cave is limited, in most of it one can not stand up, in none of it can use shovels; must work with hands like badgers ... As the salt deposit is penetrated into, there appears mummy after mummy, in different states of preservation — male, female and especially children ... a huge whale shoulder blade ... two entire kayaks ...”

Nearly 80 years later, the mummies from Kagamil and elsewhere have excited the interest of scientists who say what they have learned from the remains challenges a central tenet of conventional thinking about what we ought to eat.

Heart disease, the leading cause of death in the U.S., is often blamed on modern diets and a sedentary lifestyle. According to this thinking, if only people ate the “right” foods and exercised more, they could live longer. This view is encapsulated in the current version of the government’s Dietary Guidelines for Americans, which are under review and being reissued

soon. They have long recommended dietary habits deemed good for your heart — lower intakes of saturated fat and salt, more emphasis on lean meat and seafood.

“Poor diet and physical inactivity are associated with major causes of morbidity and mortality in the United States,” according to those guidelines.

But examinations of the bodies of the Unangans from Kagamil Island and other pre-modern people indicate that, in fact, the modern scourge of heart disease is not at all new, and that people who exercised more than we do as a matter of necessity, and whose diet was free from modern temptations, also suffered striking levels of heart disease, according to the researchers.

In recent years, X-ray based scans of mummies from around the world — including the hunter gatherers of Kagamil as well as those from ancient Egypt, Peru and the American Southwest — found signs of heart disease or atherosclerosis, the plaque lining the arteries near the heart.

Even the reconstructed man, who lived 5,000 years ago, showed signs of atherosclerosis. His mummified remains were discovered in the Italian Alps in September 1991.

For years, scientists have argued over the extent to which modern diets ought to be blamed for the high rates of heart disease. As an American Heart Association publication summarizes: “There can be little doubt that the Western diet is closely tied to the development of atherosclerosis.”

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This belief is widely shared, but it has led to a fierce debate over how exactly people ought to reform their diet. Many leading health groups, including the American Heart Association, have concluded that a person’s heart disease risk depends on “both the quantity and quality of fat in an individual’s diet,” and they urge people to reduce the amount of animal products — especially beef, pork and lamb — that they consume.

That approach has met strong criticism in recent years by critics who argue instead that a diet rich in proteins and lower in carbohydrates — the so-called “cave-man” approach — makes it easier to maintain a stable weight and metabolism.

The new research may undercut both positions. By turning up evidence of heart disease in populations with widely varying diets, the mummy research suggests that maybe some other unrecognized cause is at work besides what we choose to eat.

“Although commonly assumed to be a modern disease, the presence of atherosclerosis in pre-modern human beings raises the possibility of a more basic predisposition to the disease,” according to the researchers, who include specialists in cardiology, X-rays, anthropology and other fields.

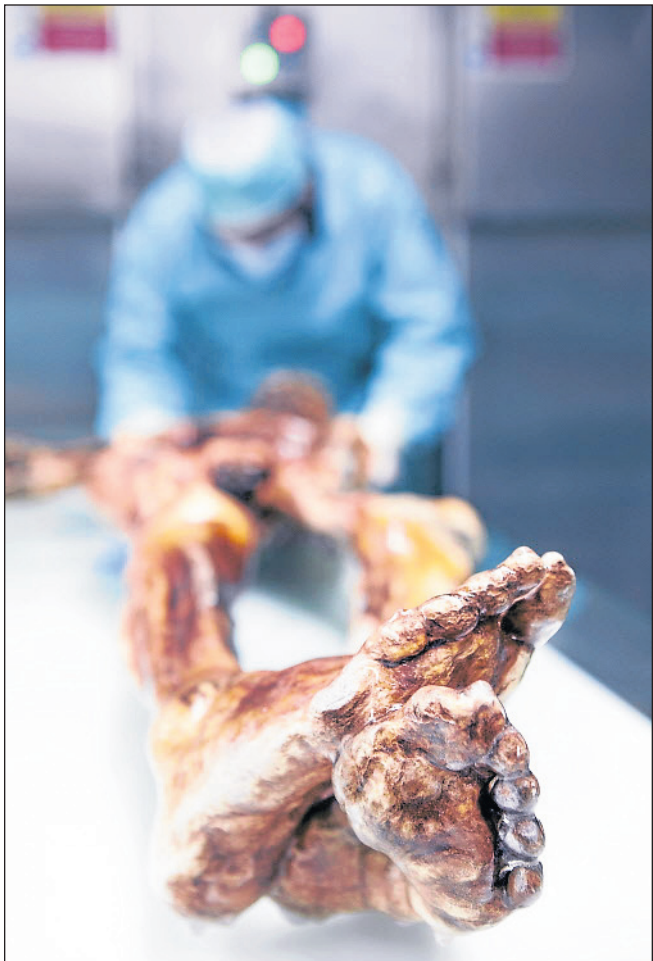
As the research has found its way over the years into some of the world’s most esteemed medical journals, including the Lancet, which in 2013 published an article about four groups of mummies, critics of the work have charged that the number of mummies that have been examined is relatively small — only a couple hundred or so — and insufficient to support broad conclusions. Moreover, the bodies have been dead a long time, and maybe some other chemical changes create the appearance of arterial plaque.

But the very basic reaction to the mummy research has been this: Given all the research linking heart disease and diet, the results were too unlikely to believe.

“In my opinion the ancient populations did intense physical activity and followed a diet rich in vegetable, free from saturated fats, and therefore [have a] low risk of developing atherosclerosis,” Gino Fornaciari a paleopathologist at the University of Pisa, wrote in an email.

In the past, he said, only “elite individuals” such as kings would have suffered from atherosclerosis because they could have afforded foods that match those of the modern diet.

He said inaccuracies in reading the scans of tissues that were long dead, and desiccated, might have led to inaccuracies in conclusions. The scans, known as CT scans for computerized



SOUTH TYROL MUSEUM OF ARCHAEOLOGY | M.LAFOGLER | REUTERS  
**A 5,300-year-old mummified corpse known as the Iceman, or Oetzi, is offering scientists new clues about health. A scientist at the European Academy in Bolzano, northern Italy, examines the mummy in 2012.**

tomography, are based on computerized analysis of multiple X-ray images. The plaque that causes heart disease consists in part of calcium; those calcified remnants remain in the mummies and show up in the scans.

“On the basis of my long experience of paleo-pathologist of mummies,” Fornaciari said, many false findings are possible.

But the mummy researchers, including cardiologists who look at such scans in living humans, note that the appearance of the atherosclerosis in the CT scans in the mummies is “virtually identical” to the appearance of atherosclerosis in their patients.

This similarity, they said, makes it unlikely that some change in the ancient bodies has created an illusion of atherosclerosis.

Indeed, other researchers find the evidence of ancient heart disease around the world compelling.

“These results confirm that atherosclerosis was present in ancient civilizations with wide cultural differences,” Anthony Heagerty, a cardiologist at the University of Manchester, wrote in response to the Lancet article, citing other research along similar lines.

# Bacteria may affect liver damage in alcoholism

BY KATHRYN DOYLE  
REUTERS

Differences among alcoholics in who gets severe liver damage and who doesn’t might be partly due to differences in their gut microbes, suggests a new study using mice and people.

“There is substantial inter-individual diversity in the susceptibility of alcoholics to liver injury,” said senior study author professor Gabriel Perlemuter of Hopital Antoine-Beclere, in Clamart, France.

“Despite a similar amount of alcohol intake, some patients will develop severe liver lesions whereas others won’t have any liver injury,” Perlemuter told Reuters Health by email.



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**The connection between gut bacteria and liver damage in heavy drinkers is being studied.**

then transplanted microbes from a human alcoholic without liver disease to the same mice, the liver lesions improved.

“Genetic susceptibility to liver disease does not explain all the individual susceptibilities to alcohol-induced liver injury,” Perlemuter said.

It’s not clear how many people in the population have protective gut microbiota, but answering this question will help develop future treatment or prevention of liver disease, he said.

“We want to clearly identify protective bacteria to use them as probiotics,” Perlemuter said. “Such treatments may prevent or improve liver lesions.”

This would be particularly important for patients with alcohol addiction who do not succeed in quitting alcohol entirely, he said.

“Many people with who drink alcohol feel ashamed,” he said. “It is impossible to simply tell them to stop drinking alcohol.”

Many people who have alcohol intake disorders are looking for help, either after losing a driver’s license or losing family support, he said.

“We think that all the physicians who treat patients with alcohol-induced liver disease and/or alcohol addiction should think about how to improve microbiota of their patient,” but individual tests for intestinal microbiota are not currently available, Perlemuter said.

“This is the beginning of a story and we are currently working on this,” he said.

# BMI index may mislabel 54M Americans

**A new study examines what actually constitutes healthy weight**

BY AMINA KHAN  
THE LOS ANGELES TIMES

LOS ANGELES — Good news for some in the high-BMI crowd: A new study from the University of California, Los Angeles, finds that some 54 million Americans who are labeled as obese or overweight according to their body mass index are, when you take a closer look, actually healthy.

The findings, published in the International Journal of Obesity, reveal that employers could potentially saddle people with unfairly high health insurance costs based on a deeply flawed measure of actual health.

“This should be a final nail in the coffin for BMI,” said lead author A. Janet Tomiyama, a psychologist at UCLA.

Body mass index is calculated by dividing a person’s weight in kilograms by the square of the person’s height in meters. According to the Centers for Disease Control and Prevention, a “healthy” BMI is 18.5 to 24.9, an overweight BMI is 25 to 29.9 and an obese BMI is 30 or higher. The calculation has been seen as a slightly more nuanced way to measure health than weight alone.

But over time, researchers have begun to suspect that people with “healthy” BMIs can be very unhealthy, and those with high BMIs can actually be in very good shape.

“The public is used to hearing ‘obesity,’ and they mistakenly see it as a death sentence,” Tomiyama said. “But obesity is just a number based on BMI, and we think BMI is just a really

crude and terrible indicator of someone’s health.”

That would be a pretty big deal, especially since the U.S. Equal Employment Opportunity Commission recently proposed rules that would allow employers to penalize employees for up to 30 percent of their health insurance costs if they don’t meet 24 health criteria — which include meeting a specific BMI. If body mass index doesn’t accurately reflect health, then those with high BMIs potentially could be overcharged for no reason.

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To find out whether BMI correlated with actual markers of health, a team of UCLA researchers analyzed data from 40,420 individuals who participated in the 2005-2012 National Health and Nutrition Examination Survey. They looked at individuals’ blood pressure, triglycerides, cholesterol, glucose, insulin resistance and C-reactive protein data — markers that are linked to heart disease and inflammation, among other issues.

They found that nearly half (47.4 percent) of overweight people and 29 percent of obese people were, from a metabolic standpoint, quite healthy. On the



KAREN ROACH | FOTOLIA  
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flip side, more than 30 percent of individuals with “normal” weights were metabolically unhealthy.

“The reason I think people rely on BMI is because it’s easy; if you know someone’s weight and you know someone’s height, then out pops this magical number,” Tomiyama said. “But getting blood pressure is pretty easy too. It takes maybe 20 seconds if you have the machine. And so I really think focusing on better health markers like blood pressure is a better way to go about it — particularly when we’re talking about financial penalties.”

Their results showed that


using BMI as the primary indicator of health means that 74.9 million adults in the U.S. are being miscategorized as healthy or unhealthy. (That includes the 34.4 million people who are considered overweight and the 19.8 million people considered obese, according to BMI.)

“Policymakers should consider the unintended consequences of relying solely on BMI,” the authors wrote in the study, “and researchers should seek to improve diagnostic tools related to weight and cardiometabolic health.”

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