

Heredit y explains African-American paradox, researcher says

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Research from a University of North Texas historian supports the idea that the nation and region of origin of your ancestors contributes to your risk of developing, or not developing, a growing list of medical conditions.

Constance Hilliard, professor of history specializing in pre-colonial African history, discovered that West African women living in regions infested by tsetse flies, which attack cattle and so prevent dairy farming, have a much lower rate of postmenopausal hip fractures caused by osteoporosis than their East African peers. The West African women, however, have diets low in calcium, which prevents bone loss that leads to osteoporosis. The research was recently published in the Bonekey edition of *Nature*.

Using data for women from 40 nations, including Cameroon and Nigeria in West Africa and Kenya in East Africa, on the amount of hip fractures, annual [dairy consumption](#) and prevalence of a genetic mutation that leads to lactose intolerance, Hilliard determined that the West African women were "essentially immune" to osteoporosis, with only three hip fractures per 100,000 people.

The East African women, who were living in regions with dairy farming, suffered 243 hip fractures—still far lower than the rate for U.S. women of 595 fractures, and residents of other nations with much larger dairy farming and much larger calcium consumption.

Both ethnic groups, Hilliard notes, lack the genetic alleles, or variations, needed to process the lactose in milk, and also have little access to other foods high in calcium.

"Osteoporosis appears to have entered the human genome approximately 10,000 years ago with the advent of [dairy farming](#). In a genetic trade off, those humans who received evolutionary advantages through expansion of the food supply with readily available dairy protein might also have genetically adapted their own calcium homeostasis in ways that disadvantage bone strength," Hilliard said.

She said the medical community "needs to look at hereditary history and not put all races in a few categories."

"You may think those in certain races look the same, but their genetics are not necessarily the same," she said. "For example, during my research, I found out that people in India were categorized as Asians and had high rates of osteoporosis, despite living in a dairy culture that considers cows as sacred and not to be slaughtered."

The findings, she said, resolve a longstanding paradox in the public health community: While African-Americans are generally low consumers of dietary calcium, as compared to other racial and ethnic groups in the U.S., they are also at far less risk for developing osteoporosis than the other groups.

"Eighty-five percent of European populations have the genetic variant that allow them to drink milk, but Americans of European descent have higher rates of osteoporosis," Hilliard said.

She is now researching androgen-resistant prostate cancer, the often fatal form of this cancer, in African Americans. African Americans have 2.5 times the rate of this form of cancer than males of European descent.

"Past research has determined a powerful correlation between cancer and high dairy consumption, but African Americans are getting prostate cancer with lower levels of dairy consumption," she says.

Provided by University of North Texas

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