# **An Evolutionary Whodunit: How Did Humans Develop Lactose Tolerance?**

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Got milk? Ancient European farmers who made cheese thousands of years ago certainly had it. But at that time, they [lacked](http://www.pnas.org/content/104/10/3736.abstract) a genetic mutation that would have allowed them to digest raw milk's dominant sugar, lactose, after childhood.

Today, however, 35 percent of the global population — mostly people with European ancestry — [can](http://www.aafp.org/afp/2002/0501/p1845.html) digest lactose in adulthood without a hitch. So, how did we transition from milk-a-phobics to milkaholics? "The first and most correct answer is, we don't know," says [Mark Thomas](http://www.ucl.ac.uk/mace-lab/people/mark), an evolutionary geneticist at University College London in the U.K.

Most babies can digest milk without getting an upset stomach thanks to an enzyme called lactase. Up until several thousand years ago, that enzyme turned off once a person grew into adulthood — meaning most adults were lactose intolerant (or "lactase nonpersistent," as scientists call it).

But now that doesn't happen for most people of Northern and Central European descent and in certain African and Middle Eastern populations. This development of lactose tolerance took only about 20,000 years — the evolutionary equivalent of a hot minute — but it would have required extremely strong selective pressure.

"Something happened when we started drinking milk that reduced mortality," says [Loren Cordain](http://hes.cahs.colostate.edu/faculty_staff/cordain.aspx?sm=a), an exercise physiologist at Colorado State University and an expert on [Paleolithic nutrition](http://www.npr.org/blogs/health/2012/blogs/health/2012/06/01/154166626/the-paleo-diet-moves-from-the-gym-to-the-clinic?live=1). That something, though, is a bit of a mystery.

**The Clues**

Milk, no surprise, is pretty nutritious. It's got protein, a bunch of micronutrients, lots of calcium and plenty of carbohydrates. For the ancient Neolithic farmer, it was like a superfood, says Thomas.

Even lactose-intolerant adults could have benefited from milk. Chemical evidence from ancient pots shows that these long-ago farmers learned to process the milk into [cheese](http://www.npr.org/blogs/thesalt/2012/12/13/167034734/archaeologists-find-ancient-evidence-of-cheese-making) or yogurt, which removes some of the lactose.

But around 8,000 years ago in what's now Turkey — just when humans were starting to milk newly domesticated cows, goats and sheep — mutations near the gene that produces the lactase enzyme started becoming more frequent. And around the same time, adult lactose tolerance developed. The mutation responsible for that may be between 2,000 and 20,000 years old; estimates [vary](http://www.uni-mainz.de/FB/Biologie/Anthropologie/MolA/Download/Leonardi%20et%20al.%202012.pdf).