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Salmonella: Medieval Skeleton Unlocks Ancient History of Potentially Deadly Bacteria

BY **KATHERINE HIGNETT** ON 7/25/18 AT 11:53 AM EDT

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SALMONELLA

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HISTORY

Researchers have found the oldest evidence of salmonella in human remains from Europe in the ancient skeleton of a woman from Norway.

The discovery changes scientists' understanding of this fiendish family of bacteria. The domestication of pigs, the authors wrote in the journal *Current Biology*, might be linked to the spread of certain types of salmonella in humans.

Salmonella can cause diarrhea, vomiting, nausea and even death. A certain type of salmonella—*Paratyphi C*—can cause a deadly disease called enteric fever. Today, this is mostly found in hot countries, occurring only rarely in Europe or North America. But around the year 1200, it infected the young Norwegian.

"This is the first time that any salmonella have been found in old human remains in Europe, which is surprising because other salmonella are more common today," study author and University of Warwick professor Mark Achtman said in a statement.

Achtman and colleagues used the woman's teeth and bones to reconstruct an ancient salmonella *Paratyphi C* genome. They compared this to contemporary sequences stored in a database.

An ancient skeleton lies partially uncovered. Scientists used medieval bones to unwrap the history of salmonella.

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The team discovered the ancient bacteria shares its lineage with types of salmonella that cause septicemia and a typhoid-like epidemic in pigs. Researchers think various strains of salmonella developed their preferences for different hosts over some 4,000 years in Europe. This is about the same time humans started domesticating pigs on the continent, the scientists said.

"As well as reshaping our understanding of *Salmonella enterica*, our research has triggered intriguing speculations about historical host jumps during the Neolithic period between humans and their domesticated animals," Achtman said.

The study adds to a growing body of research investigating the ancient origins of the bacteria we still battle today. Earlier this year, scientists found *Paratyphi C* in 500-year-old skeletons from Mexico, he explained. "They speculated the *Paratyphi C* entered the Americas together with Europeans."

At the moment, salmonella is causing chaos in the U.S. food industry, with high-profile suppliers issuing recalls of iconic American snacks like Goldfish crackers amid fears of possible contamination with the harmful bacteria.

Turkey, melons, breakfast cereal, tahini paste and even rattlesnake pills have also recently been linked to salmonella outbreaks. As well as disposing of any products that might be contaminated, the Centers for Disease Control and Prevention recommends ensuring meat is always cooked thoroughly. Those involved in preparing food should always make sure to wash hands and surfaces thoroughly.

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