



A new study suggests that Christian religious practices influenced the evolution of our modern chicken (Credit: [Xalanx/Depositphotos](#))

For about 6,000 years, humans and chickens have led an interconnected existence, with the latter serving the former a regular supply of nourishing meat and eggs. Evolving from an Asian species of red jungle fowl, our modern domesticated chicken is remarkably passive, can lay many eggs quickly, and has little fear of humans. But these traits were not always common in the animal, and a team of scientists has recently managed to pinpoint the time in history when chickens went through their major evolutionary shift.

The international research team built its study off previous discoveries that focused on a specific genetic variant that looked to be indicative of selective evolutionary pressures. The thyroid-stimulating hormone receptor (TSHR) is understood to be significant in enabling faster egg-laying and reduced aggression.

Archaeological records have long shown an increase in the volume of chicken bones from the 9th century CE onwards. The research team took these historical records and developed a new mathematical model to study chicken DNA. This approach allowed them to pinpoint when the TSHR variant in chickens started to appear with greater frequency.

Their study showed that from about 920 CE, selection on the TSHR variant began to notably appear. While virtually 100 percent of modern domesticated chickens display the TSHR variant, around 1,100 years ago only 40 percent of chickens were estimated to carry it.

It became clear to the researchers that between the 9th and 12th centuries, chickens underwent a dramatically fast evolutionary process developing traits that made them increasingly more useful and manageable to humans. Naturally, the researchers looked to understand the social and historical factors at play over that time to try to understand what was pushing this speedy evolutionary shift.

"This significant intensification of chicken and egg production has been linked to Christian fasting practices, originating with the Benedictine Monastic Order, which disallowed the consumption of meat from four-legged animals during fasting periods, but the restrictions did not extend to birds or eggs," says study author Anders Eriksson. "These dietary rules were adopted across Europe and applied to all segments of society around 1000 AD."

The team add that increased urbanization was a factor in the growing trend to consume chicken and eggs across that time period.

"This study demonstrates just how easy it is to drive a trait to a high frequency in an evolutionary blink of an eye, and suggests that simply because a domestic trait is ubiquitous, it may not have been a target for selection at the very beginning of the domestication process",

says Greger Larson, who led the research team.

The research also fascinatingly highlights how brief social and cultural changes in human society can profoundly affect the natural and artificial pressures on domestic plants and animals.

The team's research was published in the journal [*Molecular Biology and Evolution*](#).

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