

Boy or girl? In lizards, egg size matters

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Whether baby lizards will turn out to be male or female is a more complicated question than scientists would have ever guessed, according to a new report published online on June 4th in *Current Biology*. The study shows that for at least one lizard species, egg size matters.

"We were astonished," said Richard Shine of the University of Sydney. "Our studies on small alpine [lizards](#) have revealed another influence on lizard sex: the size of the egg. Big [eggs](#) tend to give girls, and small eggs tend to give boys. And if you remove some of the yolk just after the egg is laid, it's likely to switch to being a boy, even if it has female [sex chromosomes](#); and if you inject a bit of extra yolk, the egg will produce a girl, even if it has male sex chromosomes."

In many animals, the sex of offspring depends on specialized sex chromosomes. In mammals and many reptiles, for instance, males carry one X and one Y chromosome, while [females](#) have a pair of X chromosomes. In contrast, animals such as alligators depend on environmental cues like temperature to set the sex of future generations.

The new findings add to evidence that when it comes to genetic versus environmental factors influencing sex determination, it doesn't have to be an either/or proposition. In fact, Shine and his colleagues earlier found in hatchlings of the alpine-dwelling *Bassiana duperreyi* that extreme nest temperatures can override the genetically determined sex, in some cases producing XX boys and XY girls. His group had also noticed something else: large lizard eggs were more likely to produce daughters and small eggs to produce sons.

Despite the correlation, Shine said he had assumed that the association was indirect. In fact, his colleague Rajkumar Radder conducted studies in which he removed some yolk from larger eggs, more likely to produce daughters, to confirm that assumption.

"We were confident that there would be no effect on hatchling sex whatsoever," Shine said. "When those baby boy lizards started hatching out, we were gob-smacked."

Shine thinks there will be much more to discover when it comes to lizard sex determination.

"I suspect that the ecology of a species will determine how it makes boys versus girls, and that our yolk-allocation effect is just the tip of a very large iceberg," he said.

Source: Cell Press ([news](#) : [web](#))

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