

Researchers find colder temperatures barely slow down striking rattlers.

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In nature, how quickly a creature moves can mean the difference between life and death. Venomous rattlesnakes defend themselves by uncoiling and striking out when faced with predators or prey.

Most cold-blooded creatures tend to move more slowly when the temperature drops—but striking rattlers appear to be an exception. Cold weather barely slows them down and they still [strike](#) fairly quickly.

San Diego State University ecologist Rulon Clark and his students went to New Mexico last summer for several weeks to observe and collect a dozen Mojave rattlesnakes from their [native habitat](#), and brought them back to the lab in San Diego to study, along with a dozen Western rattlers they collected locally.

When they placed the snakes in a temperature controlled container, they found that the rattlers continued to strike quickly at a balloon that played the role of an intruder, even when they lowered the temperature considerably and made the box quite cold. At most, they were about 25% slower, which goes against the logic behind dropping temperature and the impact on mobility.

"We expected their strike to be about half as fast for every 10 degree drop in temperature, but they're still able to uncoil and strike fairly rapidly, even at our lowest test temperatures" Clark said.

To strike, rattlesnakes must propel their head toward their target and open their mouth fast enough to pose a threat to a potential predator.

"By far, the hardest part of the study was working with snakes in the 35 C (95 F) treatment," said Malachi Whitford. "The snakes were extremely fast, making them very difficult to corral."

Whitford, who conducted the experiments, was a doctoral candidate in Clark's lab at the time of the study and first author of the paper published July 20 in the *Journal of Experimental Biology*.

In the lab, some snakes displayed quite the personality. One of the

Mojave rattlers nicknamed Hulk would strike at anything that moved very quickly, and repeatedly tried to escape his enclosure.

Snakes have a morning routine, much like most of us. They bask in the sun, charging themselves up with heat they will need to retain as the [temperature drops](#) at night.

How they continue to respond quickly at night when it's cold will be part of the next study the researchers conduct. It's apparent, however, that snakes are more vulnerable in [cold weather](#), even if the difference in vulnerability is not as great as expected for these ectotherms that rely on external sources of heat.

Clark's lab is studying how a whole range of processes relate to temperature, including other types of movements, sensory systems, activity cycles, metabolism, and how frequently they eat.

Tim Higham, a biomechanics expert with the University of California, Riverside collaborated with Clark for the lab study, providing expertise on measurement instruments used to observe and capture strike speed. Grace Freymiller, a doctoral student in Clark's lab was part of the field trip to New Mexico and also contributed to the study.

More information: Kathryn Knight. Chilly rattlesnakes strike slower, but not as slow as expected, *The Journal of Experimental Biology* (2020). [DOI: 10.1242/jeb.230938](https://doi.org/10.1242/jeb.230938)

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