1st Quarter AOW: Z-Chart NAME _____
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Vipers are fast ... but not necessarily the fastest

By Los Angeles Times, adapted by Newsela staff on 03.23.16

A study finds vipers aren't the fastest kind of snakes. Photo: Nathan Hunsinger/Dallas Morning News/TNS

They say that to kill a rattlesnake, all you have to do is shoot in its general direction. It will intercept the bullet and unintentionally kill itself.

The lunging movements of rattlesnakes and other vipers, which are venomous, have been described as “lightning fast” and the “fastest strike on the planet.” The speed they employ to capture their food would be enough to cause even experienced jet pilots to black out.

However, some of the standard wisdom about the speed of viper strikes might not be entirely correct, new research reveals. It turns out that vipers are not necessarily the fastest in the world. Nonvenomous snakes can move just as fast.

Snakes Can Strike Faster Than The Blink Of An Eye

Snakes rely on their ultra-quick ability to strike in order to eat and to defend themselves. When necessary, they can hit a target in as little as 50 to 90 milliseconds. For the sake of comparison, a blink of an eye takes 202 milliseconds.

“It’s such a cheesy sentence, but it’s literally true: They strike within a blink of an eye,” said David Penning, a science student at the University of Louisiana at Lafayette.

Penning was trying to see how a snake’s size affected its ability to strike. One day, student researcher Baxter Sawvel clocked a harmless Texas rat snake striking with similar speed to what they would expect of a viper. Surprised, they ran the test again and again and soon a new question emerged: Are vipers really the fastest snakes?

To find out, Penning and the others tested the reflexes of 14 Texas rat snakes and snakes from two venomous species: six western cottonmouth vipers and 12 western diamondbacked rattlesnakes.

Vipers Have Some Speedy Competition

The snakes were filmed with a high-speed video camera as they lashed out at a waving glove meant to cause a protective response. The venomous snakes were housed in a special case to make sure they could not escape.

It turns out that the harmless rat snakes struck just as fast as — if not faster than — the vipers across short distances.

On average, the rat snakes accelerated toward their target at a rate of 190 meters per second squared. The cottonmouths and rattlesnakes, on average, were slightly slower, although the single fastest snake in the experiment was a rattlesnake.

A body or object that is accelerating encounters resistance, measured as G-force, and the faster it moves, the higher the G-force pushing back against it.

Despite High G-Forces, Snakes Stay Conscious

The snakes Penning and the others tested accelerated so quickly they experienced Gforces that would make lesser animals — including humans — pass out. Fighter jet pilots experience a mere 2 to 5 Gs when taking off from an aircraft carrier. At about 8 Gs, pilots wearing protective suits lose the ability to move their limbs, and at 10 to 15 Gs, even the best pilots start to lose vision. By comparison, the fastest snake in Penning's experiment hit 28 Gs.

The snakes not only maintain consciousness, they also show some degree of control as they ready an attack. While more tests are needed to find out how exactly they do this, it is possible that the short duration of the strike prevents injury to the critter.

People seem to have a built-in assumption that vipers are especially quick, but there is no reason for this, Penning said.

Rat snakes and rattlesnakes alike want to catch the same types of food, so they use similar means to close the distance between predator and prey.

Snakes Are Much Faster Than Humans

Furthermore, rat snakes do not seem to be special among nonvenomous snakes, Penning said. Initial evidence suggests that several other species are capable of moving as fast as vipers, too.

“Prey aren’t just passively waiting to be eaten,” Penning said. “They have their own defenses and lives. They don’t care what kind of snake you are. They just don’t want to get caught.”

A snake's strike is over before most mammals can muster a startle response or jump out of the way.

The same thing goes for humans as well.

“Our startle response time is pathetically slow compared to a snake’s ability to strike,” Penning said. One should never take chances with a venomous snake in the wild, he added.

“You won’t be able to grab it before it’s able to do something back, and that ‘something back’ is a hospital visit, or worse.”