

Bigger, scarier weapons help spiders get the girl (w/ video)

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The jumping spider's big eyes can be steered independently. The one on the right is aimed right at the camera and you can see the retina. The other one is looking somewhere else. (Cynthia Tedore)

(PhysOrg.com) -- If you're a red-headed guy with eight bulging eyes and a unibrow, size does indeed matter for getting the girl.

More specifically, the bigger a male jumping spider's weapons appear to be, the more likely his rival will slink away without a fight, leaving the bigger guy a clear path to the waiting female.

Duke University graduate student Cynthia Tedore, working with her dissertation advisor, visual ecologist Sönke Johnsen, wanted to know what visual signals matter most to magnolia green jumping spiders, which have an impressive array of eyes, including two giant green ones that face forward.

Vision is clearly important to these quarter-inch animals, which can be "very predaceous and aggressive," when love is in the air.

Tedore's lab in the basement of Duke's biological sciences building is lined with wire shelves covered with row after row of Lucite boxes, each holding an individual chartreuse [jumping spider](#). Full-spectrum lights and squares of green paper mimic sunlight and leaves to keep the spiders calm between bouts. They're fed leftover fruit flies from other labs.

In pairs, 24 males squared off for 10 minutes in "the arena," a box festooned with female silk to put the males in a fighting frame of mind. Over the course of 68 of these cage matches, the male with the bigger chelicerae, heavy, bristling fangs hanging in front of their mouth parts, usually scared the other guy off without a fight.

"The males wave their forelegs at each other for a period, and then the smaller male runs off," Tedore said. "That's why we think they're using vision to size each other up. Most of the time, the smaller one will run away before it comes to blows."

On the rare occasion that a male with smaller [weapons](#) won, he tended to have chelicerae which were less red. That's the opposite of what Tedore expected, and she's not sure what the color differences are about. It may be that the spiders who invest fewer resources into making red fangs gain some agility or endurance as a tradeoff.

Seven of the matches were scored as ties. Seventeen of the contests

turned into shoving matches, with the [spiders](#) butting chelicerae against each other. Occasionally one would flip an opponent on his back, then chase and pounce on him. Tedore had to break up a couple of contests before time expired so that nobody got hurt.

Tedore said her work provides another glimpse into how these creatures, which have tiny brains and never met their parents, manage to make decisions and navigate their world. "I don't really think of them as conscious, but they're following rules of some kind. I think of them more as robots."

In her next series of experiments, Tedore is pitting males against video images of other males that have artificially exaggerated chelicerae and altered colors.

More information: "Weaponry, color, and contest success in the jumping spider *Lyssomanes viridis*," Cynthia Tedore, Sönke Johnsen. *Behavioral Processes*, 2011. [Doi:10.1016/j.beproc.2011.10.017](https://doi.org/10.1016/j.beproc.2011.10.017)

Provided by Duke University

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