

The eyes have it for perfect predator

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(PhysOrg.com) -- The most striking feature of jumping spiders is their arsenal of big eyes. In contrast to web-building spiders, they rely on their excellent vision to actively hunt and catch their insect prey. New research gives an insight into just how incredibly sophisticated the jumping spider's vision actually is, and explains why they are such an effective predator.

As published in the [Journal of Experimental Biology](#), and highlighted in the current issue journal *Nature*, Daniel Zurek and his colleagues from Macquarie University, Australia, decided to test the functioning ability

of just one of the three sets of eyes of the [jumping spider](#) species *Servaea vestita*. Using removable dental silicone they covered the larger central pair of eyes and the pair positioned more to the rear of the spiders' heads, leaving just the smaller forward-facing pair of eyes (the anterior lateral eyes) uncovered.

They then showed the spiders moving dots on a screen as well as tethered live house flies, favoured prey of the spiders, and recorded their responses to each, replicating this experiment with 52 individual spiders.

"Even when the spiders were confined to [visual input](#) from this secondary pair of eyes, they could respond to targets that are very hard for other animals to see. They were able to detect, stalk and attack flies, which was unexpected," Zurek says.

"We believe this pair of eyes could have been underestimated by scientists in the past, and may be the most versatile element of their visual system, providing both spatial acuity and motion detection.

"It's astonishing that these animals, which have a body length of just 12 millimetres and a brain a fraction of the size of a honeybee's, have developed such a sophisticated visual system covering almost 360 degrees with such high resolution," he added.

"They divvy up different visual tasks, such as motion detection or high acuity detail analysis across the various sets of eyes, and it is likely that this modular approach helps the [spider](#) to handle the computational demands of vision."

Provided by Macquarie University

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