

Tarantulas help parse fear in the human brain

November 9 2010



Tarantula spider. Credit: International Society of Arachnology

The human brain may respond differently to threats based on proximity, trajectory, and expectations, according to a study published this week in the journal *Proceedings of the National Academy of Sciences*.

Dean Mobbs and colleagues at the Cognition and Brain Sciences Unit at the Medical Research Council in Cambridge, England, used [functional magnetic resonance imaging](#), or fMRI, to observe brain activity as 20 study participants watched what they believed to be a live video of researchers placing a tarantula near each participant's foot.

Though the video was actually prerecorded, the participants believed the

spider was placed into one of six compartments that the authors manipulated to entice the spider to move toward or away from each participant.

Participants noted their expected and actual [fear](#) experiences throughout the experiment.

The authors observed greater activity in the brain's panic response center--and the participants reported greater fear--when the tarantula crept closer than when the tarantula retreated, regardless of the spider's absolute proximity.

Activity in some [brain](#) regions fluctuated according to the spider's trajectory, while other regions engaged only during extreme fear or when the spider was most distant from the participant, the authors report.

The results suggest that different components of the brain's "fear network" serve specific threat-response functions.

Additionally, this information may help researchers diagnose and treat patients who suffer from clinical phobias, according to the authors.

More information: "Neural activity associated with monitoring the oscillating threat value of a Tarantula," by Dean Mobbs et al. *Proceedings of the National Academy of Sciences*.

Provided by Proceedings of the National Academy of Sciences

Citation: Tarantulas help parse fear in the human brain (2010, November 9) retrieved 26 April 2024 from <https://medicalxpress.com/news/2010-11-tarantulas-parse-human-brain.html>

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