

# My, What Big Teeth You Have! Threatening Objects Appear Closer

December 11, 2012

When we're faced with things that seem threatening, whether it's a hairy spider or an angry mob, our goal is usually to get as far away as we can. Now, new research suggests that our visual perception may actually be biased in ways that help motivate us to get out of harm's way.

Our bodies help us respond to threats by engaging our fight-or-flight response and enabling us to act quickly: Our heart rate and blood pressure ramp up, and we produce more of the stress hormone cortisol. But research suggests that the body may also demonstrate its preparedness through certain perceptual biases.

In accordance with the *threat-signal hypothesis*, psychological scientist Emily Balcetis of New York University and colleagues reasoned that if we need to be increasingly prepared to act as a threat gets closer, then we're best served by misperceiving objects as being closer to us the more threatening they are.

Importantly, this hypothesis suggests that we should misperceive threatening objects as closer than nonthreatening objects that evoke equally strong and negative responses, such as disgust.

The researchers tested this hypothesis in two studies reported in [Psychological Science](#), a journal of the [Association for Psychological Science](#).

In the first study, Balcetis and colleagues recruited 101 college students to participate in a study supposedly about attitudes toward "island life." After entering the room, the students stood 156 inches away from a live tarantula that was placed on a tray on a table. The students reported how threatened and disgusted they felt at that moment and estimated the distance to the tarantula.

The results showed that the more threatened participants felt, the closer they estimated the tarantula to be. But a different effect emerged when considering the effect of disgust. The more disgusted they felt, the further away they estimated the tarantula to be.

To pinpoint the specific effect of threat, the researchers conducted a second study in which they experimentally manipulated participants' experiences of threat and disgust and compared the effects to a case when they felt no emotions.

They recruited 48 female college students to participate in a study on "impressions." When they arrived, the participants met a male student they had never seen before (the male student was actually in on the experiment).

Each participant was randomly assigned to watch one of three videos. Participants in the threat condition

watched a video in which the male student talked about his love of guns, how he hunted as a hobby, and how he experienced feelings of pent-up aggression.

Participants in the disgust condition watched a video in which the same male student talked about having done disgusting things to customers' orders while working in a fast food restaurant, including urinating in customers' sodas and spitting in their food.

Finally, participants in the neutral condition watched a video in which the male student talked about the classes he was taking next semester in a neutral manner.

After watching the video, the participants were brought back into the room with the male student, who sat 132 inches away from them. To get a measure of their physiological arousal, the researchers recorded each participant's heart rate immediately before the interaction. The participants rated how "threatening" and how "disgusting" they felt the male student was at that moment. They also estimated how many inches separated them from the male student.

The results showed that the female students who watched the threatening video estimated that the male student was closer (average 55.0 inches) than the students who watched either the disgusting (average 78.4 inches) or the neutral video (average 73.9 inches). This relationship held even after the participants' heart rate was taken into account.

In both studies, feelings of threat — but not disgust — were related to participants' estimates of distance, providing further evidence in support of the threat-signal hypothesis.

"Although fear and disgust are both negative and intense emotions, they differ in the amount of immediate action they call for," the researchers explain. "Both fear and disgust may be associated with avoidance tendencies, but fear typically necessitates active mobilization to withdraw from or dispel potential threats, whereas disgust does not."

This research suggests that our perception can be biased in ways that may help to promote functional action — in this case, getting away from sources of threat. But an important question remains: Does perceiving objects as physically closer actually make us quicker to act?

Addressing questions like these will help paint a clearer picture of how our experiences of emotion can guide action by shaping how we perceive the environment around us.

Co-authors on this research include Shana Cole of New York University and David Dunning of Cornell University.