

Why we fight: Men check out in stressful situations

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A new study by USC researchers reveals that stressed men looking at angry faces had diminished activity in the brain regions responsible for understanding others' feelings.

Turns out the silent and stoic response to [stress](#) might be a guy thing after all.

"These are the first findings to indicate that sex differences in the effects of stress on social behavior extend to one of the most basic social transactions — processing someone else's facial expression," said Mara Mather, director of the Emotion and Cognition Lab at USC.

In an article appearing the October 6 issue of the journal *NeuroReport*, Mather and her coauthors present a series of tests indicating that, under [acute stress](#), men had less [brain](#) response to [facial expressions](#), in particular, fear and anger.

In both men and women, looking at pictures of faces caused activity in the part of the brain used in basic visual processing (the "fusiform face area") and in parts of the brain used for interpreting and understanding facial expressions.

However, men under acute stress showed decreased activity not only in the fusiform face area but also decreased coordination among parts of the brain that help us interpret what emotions these faces are conveying.

In a marked sex difference, women under stress showed the opposite — women under stress had increased activity in the fusiform face area and increased coordination among the regions of the brain used in interpreting facial emotions compared to the control group.

Cortisol levels, a known indication of stress, were manipulated using the cold pressor stress test, with no significant sex differences in baseline cortisol or degree of cortisol change.

Men and women under stress were as adept as those in the control group at remembering the faces.

"The study indicates that experiencing acute stress can affect subsequent activity and interactions in [brain regions](#) in opposite ways for males and females," said Mather, associate professor of gerontology and psychology in the USC Davis School of Gerontology and the USC College of Letters, Arts and Sciences.

"Under stress, [men](#) tend to withdraw socially while women seek emotional support," Mather said.

Prior research has shown the crucial role of the insula in helping us simulate the experiences of others, while the temporal pole has been shown to be important for understanding the emotions of others. Both are part of a known circuit — along with the inferior frontal region and the amygdala — that contribute to empathy and social understanding.

The study looked at forty-seven right-handed non-smokers. All participants were asked to refrain from exercise or caffeine in the hour before the study and none of the participants were on hormone birth control or steroid medications.

More information: Mather et. al, "Sex differences in how stress

affects brain activity during face viewing." *NeuroReport*: October 2010.

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