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## Men and women 'respond differently to danger'

### Men and women may respond differently to danger, a brain scan study suggests.

A team from Krakow, in Poland, used functional magnetic resonance imaging (fMRI) to assess brain activity when 40 volunteers were shown various images.

Men showed activity in areas which dealt with what action they should take to avoid or confront danger.

But the study, presented to the Radiological Society of North America, found more activity in the emotional centres of women's brains.

The researchers, from Jagiellonian University Hospital in Krakow, carried out scans on 21 men and 19 women.

Brain activity was monitored while the volunteers were shown images of objects and images from ordinary life designed to evoke different emotional states.

#### Fight or flight response

The images were displayed in two runs. For the first run, only negative pictures were shown. For the second run, only positive pictures were shown.

While viewing the negative images, women showed stronger and more extensive activity in the left thalamus.

This is an area which relays sensory information to the pain and pleasure centres of the brain.

Men showed more activity in an area of the brain called the left insula, which plays a key role in controlling involuntary functions, including respiration, heart rate and digestion.

In essence, activity in this area primes the body to either run from danger, or confront it head on - the so-called "fight or flight response".

Researcher Dr Andrzej Urbanik said: "This might signal that when confronted with dangerous situations, men are more likely than women to take action."

#### Positive images

While viewing positive images, women showed stronger activity in an area of the brain associated with memory.

With men, the stronger activity was recorded in an area associated with visual processing.

Dr Urbanik believes these differences suggest women may analyse positive stimuli in a broader social context and associate positive images with a particular memory.

For instance, viewing a picture of a smiling toddler might evoke memories of a woman's own child at this age.

Conversely, male responses tend to be less emotional.



Women tend to have a more emotional response

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