A SIGHT FOR FRIGHTENED EYES - SCIENTISTS REVEAL HOW WE RECOGNISE THE LOOK OF FEAR

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Whether it's the look of love, happiness, or the look of fear, humans use facial expressions to communicate important information to one another. But which parts of the brain read these cues, and how do they do it? A paper in this week's Nature by a group of international scientists, including Professor Philippe Schyns from the University of Glasgow, offers new insights into how we recognize fear in people's eyes.

The study focuses on a case study of a 38-year-old woman with rare bilateral damage to her amygdala - an almond-shape part of the brain in the temporal lobe. Unusually, she is completely unable to recognize fear from facial expressions - this deficit though can be rescued by instructing her to concentrate her attention on the person's eyes. The researchers found, however, that the woman (named SM in the study) only succeeded in directing her gaze to the eye regions of facial images when given explicit reminders.

SM's problem is that although she can physically see facial features, she can't recognise the emotion of fear. Her impairment stems from an inability to make normal use of information from the eye region within faces when judging emotions, although she can read emotions from the mouth. Her selective impairment in recognizing fear is explained by the fact that that the eyes are the most important feature for identifying fear. However, the subject's recognition of fearful faces became entirely normal when she was instructed to look at the eyes.

According to the results, impaired fear recognition after this type of brain injury is due to the amygdala's hampered ability to direct the visual system to seek information - not a damaged capacity to process information from the eyes. The positive effect of explicit reminders may also help those who suffer from disorders such as autism, which affects around half a million people in the UK, and also features abnormal fixations to certain facial features.

The research helps explain the amygdala's role in fear recognition, and could point to new ways of treating patients with defective emotion perception. For example, the study opens the possibility for developing a strategy for those who suffer from conditions that inhibit facial recognition by directing their gaze to the eye region of faces, such as through additional instruction and training.

The study was conducted through the use of many trials that included the use of 30 control subjects (women of a comparable mean age). The technology used to conduct the experiment was developed at the University of Glasgow, and involved random sampling of facial information to find out which is diagnostic of emotion recognition.

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