

[Skip to comments.](#)

Terror shows only in the eyes (possible insight into autism)

news@nature.com ^ | 05 January 2005 | Roxanne Khamssi

Posted on **01/07/2005 12:33:08 AM PST** by [neverdem](#)

Terror shows only in the eyes

[Close window](#)

Published online: 05 January 2005; | doi:10.1038/news050103-4

Terror shows only in the eyes

Roxanne Khamssi

Knowing where to look is key to recognizing others' emotions.

A woman who cannot recognize fear in people's faces is causing neuroscientists to rethink theories of how our brains read emotions.

Scientists have been testing the 38-year-old woman for more than a decade. She has a rare disease that has damaged both sides of her amygdala, the almond-shaped part of the brain that is known from imaging studies to be involved in recognizing facial expressions.

•
Focusing on a person's eyes is crucial for detecting their fear.

© *Punchstock*

The woman, known as SM, finds it very difficult to tell from facial expressions when another person is afraid, although she has no problem recognizing other emotions, such as happiness, sadness and anger.

Originally, researchers thought this meant that different emotions are processed by distinct neural circuits in the brain. But new studies with SM, published in this week's *Nature*¹, suggest quite a different explanation.

A closer look

Neuroscientist Ralph Adolphs of the California Institute of Technology in Pasadena and his colleagues showed SM photographs of various different facial expressions and asked her what emotion she thought the people were feeling.

This is a radical rethink of amygdala function.

Ralph Adolphs
Neuroscientist at the
California Institute of

Researchers have done this many times before. But this time, to find the part of the faces on which SM was focusing, the team used a 'bubble test' in which only part of the face is revealed at a time.

The researchers were intrigued to find that SM totally avoided looking at people's eyes. She discerned her information simply from looking around the nose and mouth.

Technology, Pasadena

This was generally enough for her to identify emotions such as happiness or anger, where features such as a smile, or bared teeth, are important.

But wide eyes are a particularly important component of a fearful expression. Because SM was only looking at the nose and mouth, she did not notice the eyes and concluded that the person was feeling neutral.

"First you have to look at the eyes, and then the brain has to make use of that information to figure out it's fear," explains Adolphs.

Rescue effort

When the researchers simply told SM to look at people's eyes, she did, and her ability to distinguish fear dramatically improved.

She needed constant reminding, as otherwise she stopped looking at the eyes. But this ability to regain lost function simply through receiving the correct instructions is extremely unusual in patients with brain damage. It suggests that SM doesn't have a problem processing the visual cues at all.

Instead, says Adolphs, the area she has damaged may tell us where and how to look. "It's a radical rethink of amygdala function," he says.

If our brains simply took in all the information around us, we would be completely overwhelmed, he points out. "What's needed is selectivity of some kind, to decide what's important," he says.

Adolphs believes that the amygdala is a critical component of such a mechanism.

Potential treatments

The team suggests that this new understanding could be used to help develop treatments for people with disorders such as autism, who find it difficult to read emotions. ADVERTISEMENT

Autism sufferers are known to focus abnormally on certain facial features. Giving them direct reminders of how to look at other people's faces could help them to improve their perception of social cues.

[Top](#)

References

1. Adolphs R., *et al. Nature*, **433**. 68 - 72 (2005). | [Article](#) |

[Top](#)

Story from news@nature.com:
<http://news.nature.com/news/2005/050103/050103-4.html>

© 2004 Nature Publishing Group | [Privacy policy](#)

TOPICS: [Culture/Society](#); [Extended News](#); [News/Current Events](#); [Technical](#); [Testing](#)

KEYWORDS: [AMYGDALA](#); [AUTISM](#); [TERROR](#)

Here's the referenced article from news@nature.com: [A mechanism for impaired fear recognition after amygdala damage](#)

[The amygdala and autism: implications from non-human primate studies](#) You can click on PubMed's related links.

[Dorland's Illustrated Medical Dictionary](#)

1 posted on **01/07/2005 12:33:09 AM PST** by **neverdem**
 [[Post Reply](#) | [Private Reply](#) | [View Replies](#)]

To: **Incorrigible**

ping

2 posted on **01/07/2005 12:36:21 AM PST** by **neverdem** (May you be in heaven a half hour before the devil knows that you're dead.)
 [[Post Reply](#) | [Private Reply](#) | [To 1](#) | [View Replies](#)]

To: **neverdem**

Almond-shaped part of the brain? I guess sometimes you feel like a nut, sometimes you don't.

3 posted on **01/07/2005 12:43:32 AM PST** by **blogbat** (Blogbat: ein Fahrgeschäft durch die Weltnachrichten)
 [[Post Reply](#) | [Private Reply](#) | [To 1](#) | [View Replies](#)]

To: **All**

[Fear and the Amygdala](#)

4 posted on **01/07/2005 12:58:24 AM PST** by **neverdem** (May you be in heaven a half hour before the devil knows that you're dead.)
 [[Post Reply](#) | [Private Reply](#) | [To 2](#) | [View Replies](#)]

To: **neverdem**

Great thread, neverdem.

Lots to think about.

5 posted on **01/07/2005 4:50:26 AM PST** by **syriacus** (Was Margaret Hassan murdered because she could have testified about the oil for food corruption?)
 [[Post Reply](#) | [Private Reply](#) | [To 1](#) | [View Replies](#)]

To: **syriacus**; **El Gato**; **JudyB1938**; **Ernest_at_the_Beach**; **Robert A. Cook, PE**; **lepton**; **LadyDoc**; **jb6**; ...

FReepmail me if you want on or off my health and science ping list.

6 posted on **01/07/2005 8:36:37 AM PST** by **neverdem** (May you be in heaven a half hour before the devil knows that you're dead.)
 [[Post Reply](#) | [Private Reply](#) | [To 5](#) | [View Replies](#)]

To: **neverdem; Lazamataz**

I think Natalie Portman was great as Princess Amygdala.

7 posted on **01/07/2005 8:41:04 AM PST** by **Cogadh na Sith** (--Scots Gaelic: 'War or Peace'--)
[[Post Reply](#) | [Private Reply](#) | [To 4](#) | [View Replies](#)]

Disclaimer: Opinions posted on Free Republic are those of the individual posters and do not necessarily represent the opinion of Free Republic or its management. All materials posted herein are protected by copyright law and the exemption for fair use of copyrighted works.

Free Republic
Home · Browse · Search

News/Activism
Topics · Post Article

FreeRepublic, LLC, PO BOX 9771, FRESNO, CA 93794

FreeRepublic.com is powered by software copyright 2000-2003 Robinson-DeFehr Consulting, LLC.