

## A Neuroscientific Look at Speaking in Tongues



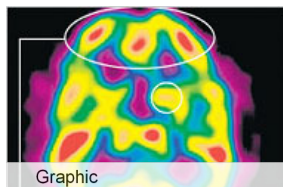
Evelyn Hockstein/Polaris

Women at a Pentecostal church in the Congo.

By [BENEDICT CAREY](#)  
Published: November 7, 2006

### Correction Appended

### Multimedia



Graphic

Evidence for a Religious State

### Related

#### Web Link

[The Measurement of Regional Cerebral Blood Flow During Glossolalia: A Preliminary SPECT Study \(Psychiatry Research: Neuroimaging\)](#)

The passionate, sometimes rhythmic, language-like patter that pours forth from religious people who “speak in tongues” reflects a state of mental possession, many of them say. Now they have some neuroscience to back them up.

Researchers at the [University of Pennsylvania](#) took brain images of five women while they spoke in tongues and found that their frontal lobes — the thinking, willful part of the brain through which people control what they do — were relatively quiet, as were the language centers. The regions involved in maintaining self-consciousness were active. The women were not in blind trances, and it was unclear which region was driving the behavior.

The images, appearing in the current issue of the journal *Psychiatry Research: Neuroimaging*, pinpoint the most active areas of the brain. The images are the first of their kind taken during this spoken religious practice, which has roots in the Old and New Testaments and in Pentecostal churches established in the early 1900s. The women in the study were healthy, active churchgoers.

“The amazing thing was how the images supported people’s interpretation of what was happening,” said Dr. Andrew B. Newberg, leader of the study team, which included Donna Morgan, Nancy Wintering and Mark Waldman. “The way they describe it, and what they believe, is that God is talking through them,” he said.

Dr. Newberg is also a co-author of “Why We Believe What We Believe.”

In [the study](#), the researchers used imaging techniques to track changes in blood flow in

### More Articles in Health »

### Today's Headlines Daily E-Mail



Sign up for a roundup of the day's top stories, sent every morning.

[See Sample](#) | [Privacy Policy](#)

Advertise on NYTimes.com

### MOST POPULAR - HEALTH

E-MAILED BLOGGED VIEWED

1. Fuel Lines of Tumors Are New Target
2. Mind: A Fate That Narcissists Will Hate: Being Ignored
3. Personal Best: Fell Off My Bike, and Vowed Never to Get Back On
4. The Vanishing Mind: Children Ease Alzheimer's in Land of Aging
5. Recipes for Health: Pumpkin and Ginger Scones
6. Vital Signs: Exercise: For Type 2 Diabetes, 2 Types of Training
7. Study Finds No Progress in Safety at Hospitals
8. Vital Signs: Aging: Unsteady on Your Feet? Try Moving to Music
9. Vital Signs: Diet: Good-for-You Things Come in Orange
10. Well: Phys Ed: The Benefits of Weight Training for Children

[Go to Complete List »](#)

ADVERTISEMENTS

each woman's brain in two conditions, once as she sang a gospel song and again while speaking in tongues. By comparing the patterns created by these two emotional, devotional activities, the researchers could pinpoint blood-flow peaks and valleys unique to speaking in tongues.

Ms. Morgan, a co-author of the study, was also a research subject. She is a born-again Christian who says she considers the ability to speak in tongues a gift. "You're aware of your surroundings," she said. "You're not really out of control. But you have no control over what's happening. You're just flowing. You're in a realm of peace and comfort, and it's a fantastic feeling."

Contrary to what may be a common perception, studies suggest that people who speak in tongues rarely suffer from mental problems. A recent study of nearly 1,000 evangelical Christians in England found that those who engaged in the practice were more emotionally stable than those who did not. Researchers have identified at least two forms of the practice, one ecstatic and frenzied, the other subdued and nearly silent.

The new findings contrasted sharply with images taken of other spiritually inspired mental states like meditation, which is often a highly focused mental exercise, activating the frontal lobes.

The scans also showed a dip in the activity of a region called the left caudate. "The findings from the frontal lobes are very clear, and make sense, but the caudate is usually active when you have positive affect, pleasure, positive emotions," said Dr. James A. Coan, a psychologist at the [University of Virginia](#). "So it's not so clear what that finding says" about speaking in tongues.

The caudate area is also involved in motor and emotional control, Dr. Newberg said, so it may be that practitioners, while mindful of their circumstances, nonetheless cede some control over their bodies and emotions.

**Correction: Nov. 11, 2006**

*An article in Science Times on Tuesday about brain images of people speaking in tongues misstated the origins of the practice in America. It is thought to have begun in Pentecostal churches established in the early 1900s, not in charismatic churches. The charismatic movement began decades later.*

[More Articles in Health »](#)

 [Click here to get 50% off Home Delivery of The New York Times.](#)

**Tips**






To find reference information about the words used in this article, hold down the ALT key and click on any word, phrase or name. A new window will open with a dictionary definition or encyclopedia entry.

**Related Searches**

- [Brain](#)
- [Religion and Churches](#)

**INSIDE NYTIMES.COM**



<p>OPINION »</p>  <p>Letters: When Treaties Are Stuck in the Senate</p>	<p>WORLD »</p>  <p>For City Dwellers, a Taste of the Orderly Life</p>	<p>N.Y. / REGION »</p>  <p>The Menu: One Entree. That's It.</p>	<p>ARTS »</p>  <p>Survivors Celebrate a Family Reunion</p>	<p>OPINION »</p> <p><b>Why Do French Scholars Love U.S. Colleges?</b> A Room for Debate forum on what's driving the global academic marketplace.</p>	<p>U.S. »</p>  <p>Beer With Kick Is Caught in F.D.A.'s Net</p>
------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------

Find your dream home with The New York Times Real Estate

Follow The New York Times on Twitter

The new issue of T is here

See the news in the making. Watch TimesCast, a daily news video.





The Neediest Cases

The Neediest Cases Need You.

[Donate Now](#)

The New York Times

[Home](#) | [World](#) | [U.S.](#) | [N.Y./Region](#) | [Business](#) | [Technology](#) | [Science](#) | [Health](#) | [Sports](#) | [Opinion](#) | [Arts](#) | [Style](#) | [Travel](#) | [Jobs](#) | [Real Estate](#) | [Automobiles](#) | [Back to Top](#)  
[Copyright 2007 The New York Times Company](#) | [Privacy Policy](#) | [Search](#) | [Corrections](#) | [RSS](#) | [First Look](#) | [Help](#) | [Contact Us](#) | [Work for Us](#) | [Site Map](#)