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## Figuring Out the Shy Brain

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Researchers at [Vanderbilt University](#) think they may have discovered why some people imbibe the social scene like smooth vodka, while others would rather drink rubbing alcohol than meet someone new.



The difference may come down to two areas of the brain that underlie our response to new stimuli: the amygdala and hippocampus. The amygdala plays a crucial role in the brain's response to new stimuli, in part to figure out if we should be mobilizing for a threat. The hippocampus is vital to memory formation, particularly in the movement and consolidation of information from short to long term memory.

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The researchers used functional magnetic resonance imaging (fMRI) to examine adults who were either social mavens (“uninhibited temperament,” to use the study vernacular) or extremely shy (inhibited temperament). Study participants were shown pictures of unfamiliar faces multiple times. Individuals with an uninhibited temperament demonstrated habituation—the normal tendency to get used to stimuli—in both the amygdala and hippocampus. In other words, their response in those regions of the brain increased when the faces were new but declined as they became familiar.

In contrast, individuals with an inhibited temperament failed to habituate no matter how many times they saw the faces—meaning familiar faces triggered the same brain response as the unfamiliar.

“This failure to habituate provides a novel neural mechanism for understanding the shy and cautious behavior that is characteristic of inhibited individuals,” said Jennifer Urbano Blackford, Ph.D., assistant professor of Psychiatry and Psychology and lead author of the study.

“Individuals who familiarize more slowly may find encounters with new people overwhelming and thus avoid new social experiences, whereas those who adjust more quickly may be more likely to seek novel social experiences.”

Blackford and colleagues think that this failure to habituate may be a key cause of social anxiety disorder, the persistent, chronic fear of a specific social situation. Social anxiety disorder is the second most common anxiety disorder and affects approximately one in 10 adults in the United States.

So does this mean that we may one day see a medication to remedy shyness? More than likely. On the other hand, perhaps studies like this could also lead to meds to treat the chronically uninhibited. In a brave new world, there’s a little soma in it for all of us.

The study was published in the February 2012 issue of the journal *[Social Cognitive and Affective Neuroscience](#)*.

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