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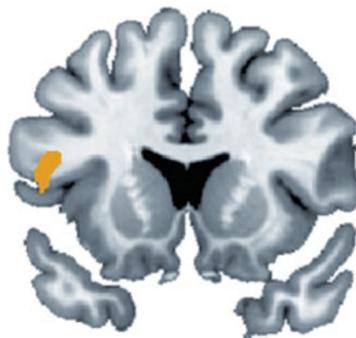
## Neural Responses Reveal Our Optimistic Bent

Why adjusting our expectations to reality is so difficult

See Inside By Andrea Anderson | April 10, 2012 | 5

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Most of us hold unrealistically optimistic views of the future, research shows, downplaying the likelihood that we will have bad experiences. Now a study in *Nature Neuroscience* last October has found clues to the brain's predilection for the positive, identifying regions that may fuel this "optimism bias" by preferentially responding to rosier information.



Areas in the prefrontal cortex spring to action when we learn our risk of misfortune is lower than we thought. If the risk is higher, the right inferior frontal gyrus responds.

Image: From "How unrealistic optimism is maintained in the face of reality," by Tali Sharot, Christoph W. Korn and Raymond J. Dolan, in *Nature Neuroscience*, Vol. 14; 2011

Tali Sharot, a University College London [neurology](#) researcher, and her colleagues asked 19 individuals between the ages of 19 and 27 to estimate their odds of experiencing 80 unfavorable events, such as contracting various diseases or being the victim of a crime. Participants were then told the actual average probability of each before repeating the exercise.

The participants revised most of their estimates the second time around, but 79 percent of those tested paid much more attention when their actual risk was lower than what they had initially guessed. After getting the good news, these subjects rated their risk for these events as significantly lower than they did earlier. In contrast, when they had underestimated their odds of meeting with a particular misfortune, they made less drastic revisions to their guess or none at all—clinging to their earlier belief that they would probably avoid the bad luck.

Using functional MRI, the researchers found areas in the prefrontal cortex, where conscious reasoning takes place, that were active when participants received information that was better than anticipated. The greater the difference between the subjects' initial guess of their risk and the true probability, the more activity appeared in these regions, hinting that they contribute to positive error correction.

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Domestication - it's a matter of time (always is for me, that's my 'hammer' for all nails)

Activity in another part of the brain, the right inferior frontal gyrus, changed in response to discouraging information. There, however, activity did not correspond as closely with the magnitude of error in the participants' initial risk estimates, matching the poorer correction later. That inconsistent neural response was observed most clearly or most often in individuals who scored higher on standard tests for optimism as a personality trait.

This finding jibes with past studies that observed an optimism bias in about 80 percent of the population. Its absence can signal anxiety or [depression](#). Yet being overly optimistic has consequences, too, Sharot says, preventing us from taking some precautions to avoid harm or misfortune. Realizing the brain's partiality may be half the battle. "If you are aware of the optimism bias, you can commit to actions or rules that will help protect you," Sharot notes.

*This article was published in print as "Unflagging Optimism."*

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**1. fcsuper**  
12:49 PM 4/10/12

Hmmmm, this doesn't really take into account the effect of mind over matter, where optimism is rewarded with success (even if that success isn't 100% of expectations). The scientists running this study have biased the test methods to provide the results they sought. In that, they have become the very expression of the optimism bias they seem to disparage (as least this article seems to, if not the study itself).

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**2. SmFarley**  
06:59 PM 4/11/12

They test a total of 19 individuals? How can we take this article seriously??

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**3. tamarahl**  
02:13 PM 4/12/12

I also wonder where they got the original statistics from about an individual's probability of experiencing negative event x. Nation-wide reports of the likelihood of robbery are averages of many different areas with very different crime rates. For example, middle and upper middle class neighborhoods experience less violent crime, generally, than lower income areas. Thus, national statistics are not necessarily very good

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indicators of an \*individual\* person's likelihood of experiencing a particular crime - for that level of prediction you need to take into account a wide variety of variables. The researchers would have had to have matched participants very closely based on demographic data and various risk factors, which I suspect they didn't do.

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#### 4. Travza

12:15 PM 4/14/12

"Hmmm, this doesn't really take into account the effect of mind over matter, where optimism is rewarded with success (even if that success isn't 100% of expectations). The scientists running this study have biased the test methods to provide the results they sought."

The study wasn't testing for any "mind over matter" aspects, it was simply observing varying levels of activity in the brain. It made no comment on whether or not the brain region was the cause, but merely analyze what brain regions were more active. Also, how did they "bias test methods to provide the results they sought."? There was an obvious null hypothesis here, if they had preformed the scan and no brain areas were more active than others they would have successfully disproved their hypothesis.

"They test a total of 19 individuals? How can we take this article seriously??"

Agreed, it would have been nice to see a larger sample size. It would also be interesting to see whether or not their brain scans differed from those suffering from conditions like depression or from a control group.

"Thus, national statistics are not necessarily very good indicators of an \*individual\* person's likelihood of experiencing a particular crime - for that level of prediction you need to take into account a wide variety of variables"

Irrelevant for the purposes of the study. This was a study designed to estimate how the brain responds to being told its estimate are in error. Even if the researches had completely fabricated their values that would still be tested.

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#### 5. MarkAA

11:06 AM 4/25/12

Hmm ...

Sorry, but there is no -good- research showing any kind of 'mind over matter.' This is the optimism fallacy - optimism 'studies' by the 'mind over matter' folks is subject to an optimism bias - they simply overstate the 'effect' of optimism, often by putting the cart before the horse. The correlation of 'optimism' with better health, for example, can be easily explained by the possibility (probability?) that those with better health feel better and are 'optimistic' as a result - not as a cause. The bulk of studies show that optimism = unrealistic. See, e.g., 'Why People Believe Weird Things: Pseudoscience, Superstition, and Other Confusions of Our Time', and Barbara Ehrenreich's 'Bright-sided: How the Relentless Promotion of Positive Thinking Has Undermined America' (2009). See generally - [http://en.wikipedia.org/wiki/Optimism\\_bias](http://en.wikipedia.org/wiki/Optimism_bias)

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