

## Male brain, estrogen boost

**M**ohamed Kabbaj knew that testosterone could protect males from the effects of anxiety and depression. He also knew that the male brain converted most testosterone to estrogen. What he didn't know was whether testosterone could provide anxiety protection *without* undergoing that change.

The answer, as his lab reported in *Biological Psychiatry* earlier this year, was “No.” No protection without the conversion to estrogen first.

Much research has underscored the gender differences in response to treatments for anxiety and depression. In previous studies, the Kabbaj lab focused on females and estrogen. This time, his lab team — led by Nicole Carrier and Samantha Saland — focused on males. So far, the link between testosterone conversion and anxiety/depression has been detected only in laboratory animals. But Kabbaj says the results are potentially promising for humans as well.

“It will be critical to identify how testosterone

and estrogen act within the brain in both males and females,” he said, “to improve our understanding not only of sex differences in mood disorders, but also of new ways to approach the development of treatments that are more effective in both men and women.”

Kabbaj knows that physicians are watching his work with interest.

“I go to a lot of meetings that psychiatrists also attend,” he said. “They really like the sex-differences work. They're very excited about it.”



Mohamed Kabbaj

“There is an enzyme in the brain that ‘mediates’ the conversion of testosterone into estrogen,” said Kabbaj, professor in Biomedical Sciences. “We inhibited that enzyme in a specific brain area implicated in the regulation of mood. And when you do that, you lose the antidepressant effect of testosterone.”

The search for this and other ways to defuse anxiety and depression is the reason the National Institute of Mental Health chose Kabbaj in 2013 for a six-year, \$1.8 million grant. Each year, according to the NIMH, major depressive disorder affects more than 20 million U.S. adults — mostly women.

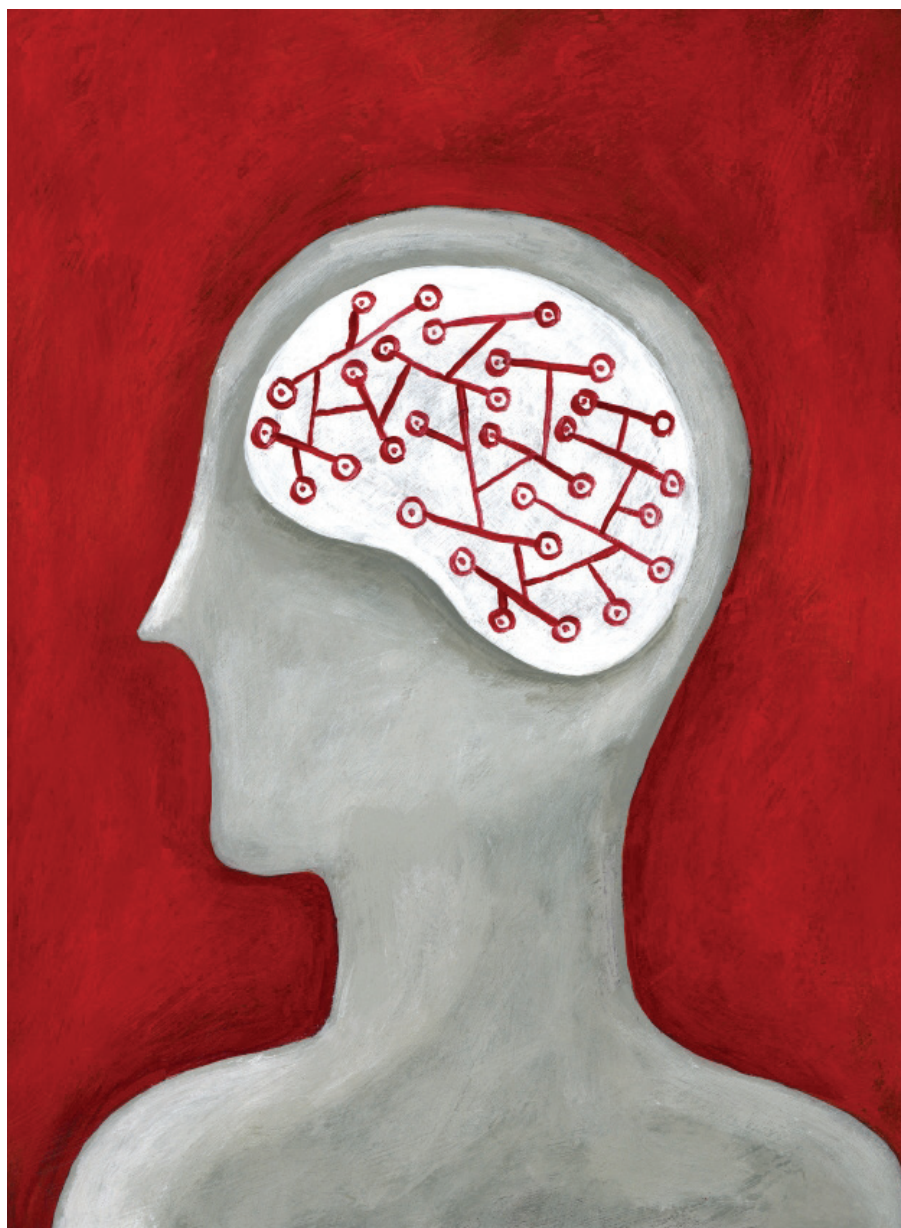


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