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What Brain Scans Can Tell Us About Marriage

By **TARA PARKER-POPE**

THE sudden breakup of Al and [Tipper Gore](#)'s seemingly idyllic marriage was the latest and among the sharpest reminders that the only two people who know what's going on in a marriage are the two people who are in it.

The truth is that most marriages, even our own, are something of a mystery to outsiders.

Several years ago, a marriage researcher — Robert W. Levenson, director of the psychophysiology laboratory at the [University of California, Berkeley](#) — and his colleagues produced a video of 10 couples talking and bickering. Dr. Levenson knew at the time that five of the couples had been in troubled relationships and eventually divorced. He showed the video to 200 people, including pastors, marriage therapists and relationship scientists, asking them to spot the doomed marriages. They guessed wrong half the time.

“People on the outside aren't very good at telling how marriages are really working,” he said.

Even so, academic researchers have become increasingly fascinated with the inner workings of long-married couples, subjecting them to a battery of laboratory tests and even brain scans to unravel the mystery of lasting love.

Bianca Acevedo, a postdoctoral researcher at the [University of California, Santa Barbara](#), studies the neuroscience of relationships and began a search for long-married couples who were still madly in love. Through a phone survey, she collected data on 274 men and women in committed relationships, and used relationship scales to measure marital happiness and passionate love.

Dr. Acevedo expected to find only a small percentage of long-married couples still passionately in love. To her surprise, about 40 percent of them continued to register high on the romance scale. The remaining 60 percent weren't necessarily unhappy. Many had high levels of relationship satisfaction and were still in love, just not so intensely.

In a separate study, 17 men and women who were passionately in love agreed to undergo scans to determine what lasting romantic love looks like in the brain. The subjects, who had been married an average of about 21 years, viewed a picture of their spouse. As a control, they also viewed photos of two friends.

Compared with the reaction when looking at others, seeing the spouse activated parts of the brain associated with romantic love, much as it did when couples who had just fallen in love took the same test. But in the older couples, researchers spotted something extra: parts of the brain associated with deep attachment were also activated, suggesting that contentment in marriage and passion in marriage aren't mutually exclusive.

"They have the feelings of euphoria, but also the feelings of calm and security that we feel when we're attached to somebody," Dr. Acevedo said. "I think it's wonderful news."

So how do these older couples keep the fires burning? Beyond the brain scans, it was clear that these couples remained active in each other's lives.

"They were still very much in love and engaged in the relationship," Dr. Acevedo said. "That's something that seems different from the Gores, who said they had grown apart."

Indeed, if there is a lesson from the Gore breakup, it's that with marriage, you're never done working on it.

"It's not that you have to be constantly scared about your relationship, but you do have to renew it," said Stephanie Coontz, a marriage historian at Evergreen State College in Olympia, Wash. "I think the warning we should take from this is not that marriages are doomed, but that you can't skate indefinitely and be doing different things and not really be paying attention to the marriage itself."

Research from [Stony Brook University](#) in New York suggests that couples who regularly do new and different things together are happier than those who repeat the same old habits. The theory is that new experiences activate the [dopamine](#) system and mimic the brain chemistry of early

romantic love.

In a new study, the Stony Brook scientists will have couples playing either a mundane or exciting video game together while their brains are being scanned.. The goal is to see how sharing a new and challenging experience with a spouse changes the neural activation of the brain.

But for those of us without a brain scanner, there are simple ways to find out if your relationship is growing or vexed by boredom. Among the questions to ask yourself: How much does your partner provide a source of exciting experiences? How much has knowing your partner made you a better person? In the last month, how often did you feel that your marriage was in a rut?

If the answers aren't exactly what you hoped for, take heart. From a statistical standpoint, your risk for divorce begins to fall once you've passed the 10-year mark. According to Betsey Stevenson, an economist at the [University of Pennsylvania's Wharton School](#), recent [Census Bureau](#) data show that only about 4 percent of recently ended marriages involved couples married for 40 years or more.

And it's worth noting that the Gores married in 1970s, the beginning of a generation of couples that has consistently struggled with marriage more than any other group. Dr. Stevenson calls them the "greatest divorcing generation."

Lost in the discussion about the Gore divorce is the inherent optimism that the decision represents. Professor Coontz recalls living next door to a couple in their 70s who disliked each other so much that during the summer, they sat outside in lawn chairs on the opposite sides of the house. "I think it's good that people can go ahead and start over before they get to that level of anger and hostility," she said.

Dr. Stevenson called the Gore breakup a "glass-half-full story."

"They had 40 years of marriage, and they had what, by many dimensions, should be considered a successful marriage," she said. "The fact that they both can look forward and see a promising future by not being married — it's unfortunate that the answer is 'yes,' but it's also somewhat a celebration about how much optimism they have for the rest of their lives."

Tara Parker-Pope writes the Well column for The New York Times and is the author of "For Better:

The Science of a Good Marriage,” which was released last month by Dutton.