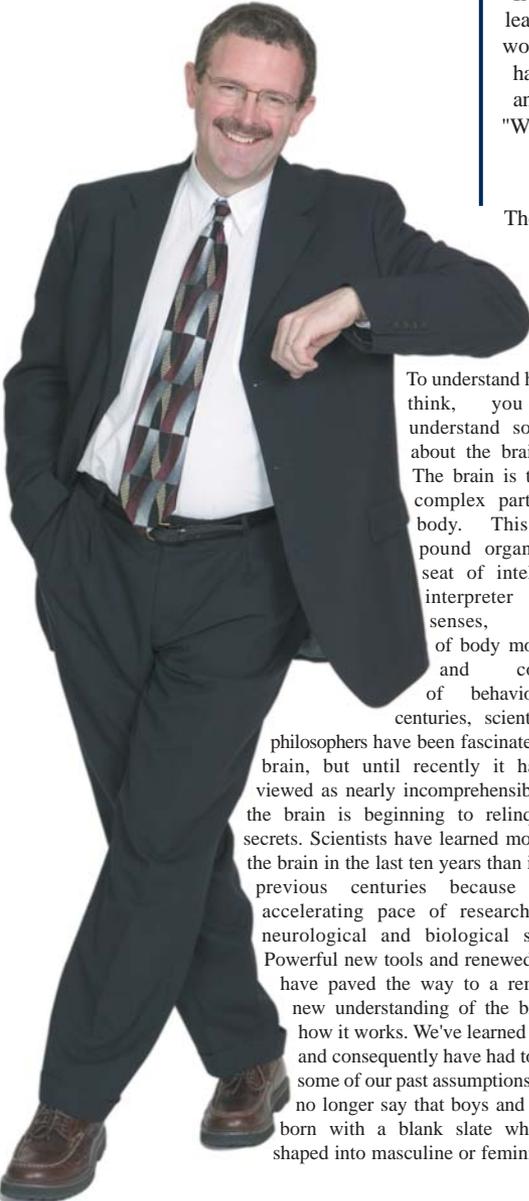


How a Man's Mind *REALLY* Works! Part 1

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Fairmont Medical Center-Mayo Health System

Photo by Jeff Silker



If you are a typical *Womeninc* reader, I know you are interested to learn how a man's mind works. I mean how a man's mind REALLY works! When I presented this topic to a recent women's conference I had no idea it would be so warmly welcomed, so highly anticipated and generate so much interest. I had to stop for a minute and wonder, "What was I thinking?" I listened to the many women who responded to the talk, and it boiled down to this:

"Help us women understand you men!"

The urgency became clear when they asked if I had ever noticed that women's problems start with *men*. Consider the following list:

MEN-opause, **MEN**-strual pain and **MEN**-tal illness

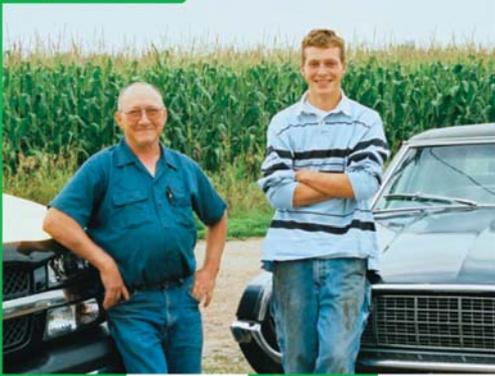
To understand how men think, you must understand something about the brain itself. The brain is the most complex part of the body. This three pound organ is the seat of intelligence, interpreter of the senses, initiator of body movement, and controller of behavior. For centuries, scientists and philosophers have been fascinated by the brain, but until recently it had been viewed as nearly incomprehensible. Now the brain is beginning to relinquish its secrets. Scientists have learned more about the brain in the last ten years than in all the previous centuries because of an accelerating pace of research in the neurological and biological sciences. Powerful new tools and renewed interest have paved the way to a remarkable new understanding of the brain and how it works. We've learned so much and consequently have had to discard some of our past assumptions. We can no longer say that boys and girls are born with a blank slate which gets shaped into masculine or feminine traits

by the environment and culture. In a survey of scientific literature from some thirty cultures on all continents, no matter which culture is studied, you will discover that although socialized differences between men and women exist, there is a primary nature to being a "man" or "woman" on which culture has only a minor effect. Understanding these two different natures holds the keys to a better life, work, parenting and especially the success of all intimate relationships, including marriage. Using advances in these sciences, I want to provide you with some practical, useful and inspiring science.

Right about now you've got somebody in mind; maybe it's your husband, brother or boss. Someone who has made you say to yourself, "What could he be thinking?" Sometimes they do things that drive you crazy! The things I say will apply to roughly eighty percent of men. We'll be talking in generalities about how average men will behave most of the time, in most situations. But no matter whether the man you're thinking of is a lover or a liar, smart or a smart aleck, all men have at least one thing in common. No, it's not what you're thinking.... it's the male brain!

Let's look at how the male brain differs biologically from the female brain and how that affects his thinking and behavior. Every human brain has about 100 billion neurons or nerve cells, but we all start out as a single fertilized cell. During the miracle of fertilization, egg and sperm come together to form a new human being with forty-six chromosomes, including two X's destined to be a girl, or an X and Y with the blueprint for a boy. Up until six weeks of development, things look virtually identical. Then hormones surge to stimulate brain growth and the developing brain is bombarded with these powerful chemicals. When the fetal brain gets saturated with higher doses of testosterone, the male hormone, certain critical areas grow and become connected to other areas of the brain. When the developing brain gets higher

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doses of estrogen and progesterone, the female hormones, certain other areas grow and connect. The brain is being sexualized, either feminized or masculinized, by these powerful hormones. Boys and girls, men and women share these hormones. It's a matter of degree, with boys having ten times more testosterone than girls, who also have testosterone. Girls have much higher levels of estrogen and progesterone than the boys they will grow up to wonder about.

The human brain is divided into three parts. The brainstem handles digestion, breathing, and the "fight or flight" response to

...all men have at least one thing in common...

danger. The limbic system is wrapped around the brain stem. Its two primary jobs are to handle our emotional and sensory response to the world. The cerebral cortex forms lobes at the top of the brain, which are wrapped around the limbic system and are divided into two hemispheres—the right and the left. It handles our thinking, speaking, moral reasoning, movement and senses of touch, sight and hearing.

Both male and female brains are set up with these three basic parts. The difference lies in the size of certain parts and the strength of their interconnections. We can see some physical differences under the microscope by directly measuring the size or counting the number of neurons, but how can we tell about function?

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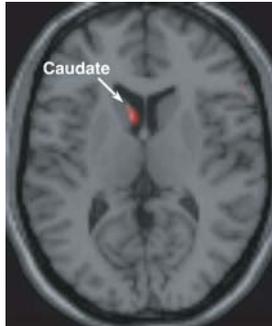
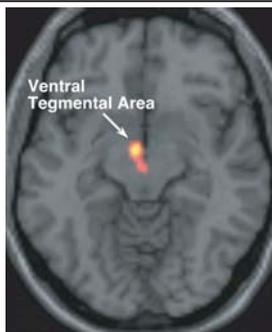
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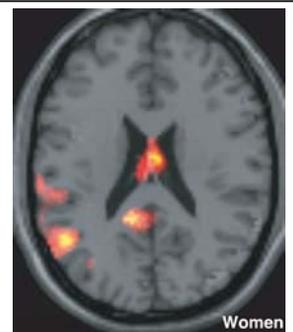
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Love, Visualized

One part of the brain that shows heightened activity in passionate lovers is the tiny ventral tegmental area, where dopamine is produced for distribution to other regions, including the caudate.



The caudate nucleus is also lit up. It processes dopamine and plays a key role in the brain's motivation and reward system. Activity here was greatest among subjects who scored high on the Passionate Love Scale.



Women



Men

When brain scans of men and women are compared, women tend to show more activity in areas that process attention, emotion and memory recall. Men, by contrast, are more active in areas associated with the integration of visual stimuli and sexual arousal.

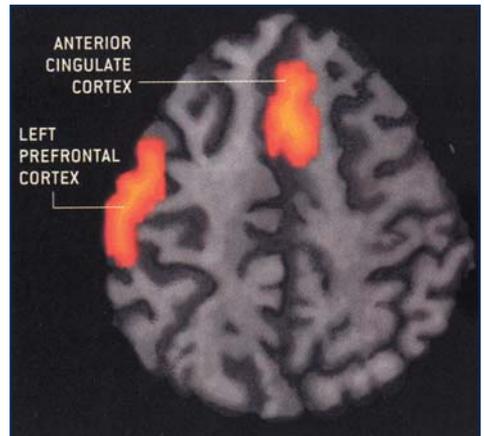
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Pictures, as the saying goes, speak a thousand words. PET scans, or positron emission tomography, are pictures of the actual brain at work. Scientists take a picture of the brain and then scan it again during a specific brain activity, such as doing math problems, singing songs or thinking of a loved one. The brain is a very clever organ that opens up the capillary beds to receive vital blood flow with oxygen and glucose only when it is active. When we subtract the two images from each other, we can see the areas of the brain that changed during that activity. Since the 100 billion neurons talk to each other differently in men and women, certain parts of our brain tissue look different on these scans.

Shown above are scans portraying the differences between brain activity in men and women who are passionately in love. When they are compared, women tend to show more activity in areas of the brain that process attention, emotion and memory recall. Men, by contrast, are more active in areas associated with the integration of visual stimuli and sexual arousal. We can actually tell if someone is in love by their brain scan pattern. But what if he tells you he is in love and you think he is lying?

To the right is a scan that shows what a brain looks like when someone is telling a lie. You will see increased activity in the anterior cingulate cortex and the left prefrontal cortex.

In big cities, you can go to a mall and get a non-medical 3-dimensional ultrasound of your baby in the uterus. Couples can give each other "His and Hers" CT scans to search head to toe for hidden disease. I imagine the time is coming when you could haul your hubby down to the local PET scan shop for a little interrogation about what he was REALLY doing 'til two o'clock in the morning on Friday night!



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In the next issue, we will look at how the differences science has found between men's and women's brains translate into behavior. It may answer your questions about why men are better map readers, but won't stop to ask for directions, or why they love their cars and the TV remote! ♪

Editor's Note: Dr. Parnell presented "How A Man's Mind Really Works" at the Fairmont Medical Center 2004 women's seminar, "ReTreat Yourself—Renew Your Feminine Spirit." With several requests to have the presentation repeated, Dr. Parnell graciously shares with *Womeninc* readers insight to understanding the men in their lives.