Family Therapy Magazine interviewed Helen Fisher, PhD, to find out about her fascinating research on the brain and romantic love. Dr. Fisher is a biological anthropologist and a research professor at the Center for Human Evolution Studies in the Department of Anthropology at Rutgers University.
What happens in the brain when we fall in love?
My colleagues and I have studied more than 75 brain scans of people who claimed to be “madly in love.” Seventeen had just fallen in love, 15 had just been rejected in love, and most recently, 17 reported that they were still in love after an average of 21 years of marriage. We’ve got quite a range of people, but there are some commonalities in all three cases. Activity can be found in a tiny sector near the base of the brain called the ventral tegmental area. It produces dopamine and sends it to many brain regions, in particular to the brain’s reward system—the system for wanting, focus, motivation, goal-oriented behavior, energy and elation. So, when you fall madly in love with someone, the brain is producing dopamine, a natural stimulant, to give you the focus, energy, elation, and motivation to win life’s greatest prize—a mating partner.

Among those rejected in love, we likewise found activity in the ventral tegmental area, but interestingly, we also found activity in the brain region called the nucleus accumbens—the same region that becomes activated when you are addicted to cocaine. In fact, we found three brain regions, associated with craving, that become active when you are rejected in love.

Now, you crave the person when you are madly and happily in love also, but we didn’t find activity in the addiction centers among those who were happily in love, only in those who had been rejected in love. In a long-term study including 17 scans of people who were in their ‘50s and married an average of 21 years, results yielded again the same activity in the brain region associated with feelings of intense romantic love, the ventral tegmental area. So, when you’re in love over the long term, you can remain in love long term. But, the difference between those who were in love long term as opposed to those who had just fallen in love was activity in two regions. Among those in love long term, we no longer found activity in a brain region called the insular cortex, which is linked with feelings of anxiety. Instead, we found activity in a different brain region that is linked with feelings of calm. So, when you’re in love for a good while, you still want the person to come home from work, you want to share your day, go on vacations with that person, and you’re still in love, but you don’t have that early anxiety about the relationship—it’s now replaced with calm. If your partner is on a business trip and you get up in the morning and you don’t get an email from him or her first thing, you don’t fall into despair. You just figure you’ll talk later in the day.

We also reproduced an early study of intense romantic love that was conducted in China. I had long felt that romantic love was a shared experience around the world. Look at poetry, love songs, operas, plays, you name it, and you see evidence of romantic love all over the world and, sure enough, we found exactly the same brain activity among those who were studied in China previously. It seems to be a brain system that evolved a long time ago. And I think this brain system evolved from what we call “animal attraction.” All kinds of animals become attracted to certain individuals, but of course they don’t write songs or poetry, and they don’t have myths and legends because they don’t have a big cerebral cortex. But you can see at the
beginning of a breeding season, a male fox will begin to follow a female and he won’t eat or sleep, but will obsessively follow her, sit next to her and lick and pat, then snuggle together. If you saw this on a park bench in New York, you would think this is romantic love, but it ends after the season is over.

Romantic love is one of three different brain systems that evolved for mating and reproduction. One is the sex drive, the craving for sexual gratification, linked predominantly with testosterone in both men and women. The second is romantic love—elation, giddiness, euphoria, possessiveness, obsessive thinking, and high motivation. The third brain system is attachment; that sense of calm and security you can feel with a long-term partner. I think the sex drive evolved to enable you to seek out a whole range of partners. You can feel the sex drive just sitting and flipping through a magazine, it doesn’t necessarily have to be focused on anybody. I think romantic love evolved to enable you to focus your mating energy on just one person at a time and attachment evolved in order to enable you to stick with that person, at least long enough to help raise a child together as a team.

All forms of love are different degrees of these three basic brain systems: sex drive, romantic love and attachment.

Gender differences and similarities
There are a lot of differences between male and female brains. In the process of mate selection, there are some standard ones. In terms of what they are looking for, men seek out a mate in good health with fertility. Men fall in love quicker because they are so visual. They tend to be attracted to women who show signs of youth, health, and fertility. This is why many women spend their lives trying to look good for men, because men are so visual and they are looking for signs of health and youth. This isn’t to say that a 65-year-old man wants a 21-year-old girl. A lot of them would like a 55-year-old woman, but they are attracted to women who show signs of health, youth and fertility. Women tend to be drawn to men who show signs of status, background, class, resources, and for millions of years both sexes were adaptive. Men needed a woman who could raise healthy babies and women in return needed a man who could provide for their children. These are old, primordial appetites.

We did not find gender differences in brain regions associated with feeling romantic love. There’s every indication that men feel romantic love just as intensely as women do. In terms of differences, we did find one in the males. We found activity in a brain region that is linked with the integration of visual stimuli. Not surprisingly, men are more visual. When they look at a photograph of their sweetheart in the MRI brain scanner, the regions associated with integration of visual stimuli become activated, but not so much in women. I think that comes from the fact that for millions of years, men had to look at women and size them up to determine if they could produce healthy babies and men, today, are still doing that. And of course, women are still trying to look good for men. As a testament to this, we have the huge visual pornography industry, which is catered to and consumed by men.

In women we found much more activity in three brain regions associated with memory recall. We don’t know for sure, but my hypothesis is, you can’t really look at a man and know if he’ll be a good husband and a good father. You have to remember what he perhaps did not do last Christmas; what he said he would do on Valentine’s Day; what he promised to do next summer. And women spend their lives on the telephone talking about what he did or didn’t do. What I think they’re doing is creating a memory trail of what he didn’t do so that they can size him up as a reproductive partner.

Tips for family therapists about the brain and personality styles
Keep in mind that brains are not all alike. We’ve evolved four styles of thinking and behaving, and to reach people of these different styles, you’ve got to know a little bit about who they are.

There are two parts to personality. There’s your character—everything you’ve been brought up to believe, do, say and think. And then there’s your temperament—all those traits that come out of your biology. I’m studying 10 million people now on a dating website and I created a questionnaire to see to what degree people express these four broad temperament styles. About 50 percent of who you are does come from your biology. Some people are biologically more stubborn, while some are more predisposed to alcoholism. Some are more creative, mathematically skilled, or verbally skilled. There’s a great deal that comes out of your biology. It doesn’t mean that you can’t change it. People who are predisposed to alcoholism give up drinking, so it’s not a determined trait; but the bottom line is, some people are more genetically curious than others or more stubborn.

I went through all of the biological literature and found that there are four brain systems that are linked with styles of thinking and behaving: dopamine system, serotonin system, estrogen system and testosterone system. They’re all linked in one way or another in a constellation of personality traits. What’s important for the therapist is that when people of two different styles of thinking and behaving marry each other, they can forge some great strength, because they will have in their partner a brain that can do some of the things that they can’t do, and that can help them. But there will also be some misunderstandings because people don’t think alike biologically. They’re not trying to be difficult; they just don’t think the same way.

The Explorer
Those who are expressive of the dopamine system in the brain tend to be novelty seeking, curious, risk taking, creative, spontaneous, energetic, generous, mentally flexible, independent, autonomous, and tend to look outward, not inward. They typically don’t do well in therapy unless you can make it an adventure for them. I call this type the Explorer.

The Builder
The second broad personality style, or temperament dimension, is linked with the serotonin system. These people tend to be cautious but not fearful, they’re social with close friends, they’re popular and want to belong, they’re into networking and they like the familiar. In the brain, as you drive up the level
of serotonin, exploratory behavior goes down. Builders tend to be traditional, conventional, orderly, meticulous, quite literal, more religious, and they make good managers.

**The Director**

The third type is high testosterone. These can be male or female. They tend to be analytical, logical, direct, decisive, tough-minded, good at rule-based systems, like math or engineering, mechanics, computers, etc. They are skeptical and inventive, and not as social as other types. They tend to have only a few very close friendships and are not social butterflies.

**The Negotiator**

The fourth type is expressive of estrogen and oxytocin systems. There are many more women than men in this category, as there are many more men in the Director category. Negotiators see the big picture because of the way their brains are built. Estrogen builds many more connections between the two hemispheres of the brain and between the front and the back of the brain. They are imaginative, intuitive, have very good verbal skills, and excellent people skills. They tend to be idealistic and altruistic. They are very nurturing, trusting and have diplomatic intelligence.

Let me stress that we are all a combination of these. These categories merely highlight the predominant style that comes through in our personalities.

What I’d really like therapists to take away from this is that you can learn a great deal about someone as soon as they walk in the door just by the words they use. The Explorer (high dopamine type) uses words like explorer, high energy, adventure, fun, active, and experience.

Builders (high serotonin) frequently use the words family, values, trustworthy, loyalty, and respect.

So the relevant questions that come up now are: What is it like when an Explorer marries an Explorer? What is it like when an Explorer marries a Builder? Or a testosterone type marries high estrogen? I’ve outlined 10 very basic and broad matches. After a study of 40,000 people was completed, it turns out that Explorers are naturally drawn to other Explorers. If you are the risk-taking, curious type and you want to sit home and read Shakespeare with your partner, you want somebody who is going to be okay sitting home and reading with you, or going to the movies with you, fly off to China with you, or do things with you that are exciting, interesting and new.

Builders, likewise, tend to be drawn to other Builders. Traditional people look for traditional people. They want somebody who is equally interested in networking and building home, family and community.

Additionally, Directors are naturally drawn to Negotiators (high testosterone and high estrogen) and vice versa. Not to say that there are “bad” matches, but it’s a matter of whether or not you continue to respect the person and accept their personality style over the long haul.

An Explorer with another Explorer is going to have a very different lifestyle and problems and joys than will a Builder with a Builder or an Explorer with a Builder. For example, a couple of Explorers don’t tend to bicker. The little things don’t bother them. They’re not orderly or need things done in a certain way. They don’t follow rules and schedules. Their problems will likely be the big things like adultery, because they’re inclined to novelty-seeking, and often you will see addiction issues. Or, there can be a tendency toward being reckless in business and finance. Again, they won’t have day-to-day troubles, but will likely have some bigger picture troubles.

On the other hand, two Builders will likely argue over how to mop the floor. They follow rules, schedules, they like to plan ahead and they insist that things be done in the “right way.” They can be stubborn and cautious, but probably will not have issues of adultery and addiction. Let’s say an Explorer meets a Builder, and maybe she’s been dating other Explorers, but in her 30s she wants to get married and settle down. She finds this Builder who offers home, stability, family, community, loyalty and trust, with rules and schedules and she thinks this is the cat’s meow. So they marry and it’s a wonderful relationship and it can remain a wonderful relationship, because the Builder will provide order for the Explorer, get her to settle down and be less reckless. Vice versa, the Explorer will get the Builder out into the world and energize him to do new things. However, there might be a problem on Saturday night when the Builder wants to see the same friends in the same place at the same time and the Explorer says, “We’ve done this 100 times—can’t we do something different?”

To sum it up, these personalities can cause great struggles, or they can be immensely useful to each other. A lot of times when these couples come in for help, it’s not going to actually be a problem with each other, it’s more about them not understanding who the other person really is and that they’re not going to change. If somebody is stubborn, they are going to be stubborn. But maybe once they realize how much of a problem it can create, they will work to minimize it. And of course therapists can help them find ways to still express themselves without being what others might consider irritating.

There’s more to personality than childhood and there’s more to personality than your particular problems with your partner, and when you begin to understand these aspects of the brain, you can begin to play into people’s needs in a biological way that might be quite effective.