

# **His Brain, Her Brain:<sup>1</sup> The Impact upon Patient, Personal, and Professional Relationships**

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*“Men are different from women. They are equal only in their common membership in the same species, humankind ... To maintain that they are the same in aptitude, skill, or behaviour is to build a society based on a biological and scientific lie.” Anne Moir, Ph.D.<sup>1</sup>*

*“There is no unisex brain. Girls arrive already wired as girls, and boys arrive already wired as boys ... Their brains are different by the time they’re born, and their brains are what drive their impulses, values and their very reality.” Louann Brizendine, M.D.<sup>2</sup>*

*“Infants are not blank slates, on whom we scrawl instructions for sexually-appropriate behaviour ... They are born with male or female minds of their own. They have, quite literally, made up their minds in the womb, safe from the legions of social engineers who impatiently await them.” Anne Moir, Ph.D.<sup>3</sup>*

## **Origin of the Differences**

### 1) Genetics

Research shows that *“sex chromosome genes contribute directly to the development of a sex difference in the brain.”<sup>4</sup>*

Researchers have found at least fifty-four genes that are produced in different amounts in male and female mouse brains *prior to* any male hormonal influence. Eighteen of these genes were found at higher levels in the male brains, while thirty-six were found at higher levels in the female brains.<sup>5</sup>

### 2) Testosterone Wash

The corpus callosum is the largest structure connecting the right and left sides of brain. This pipeline of more than 300 million fibers functions like a powerful, lightening fast, monster cable that enables both sides of the brain to communicate with each other and process for each other.<sup>6</sup>

The gush of testosterone actually causes sections of the corpus callosum to decrease in size by dissolving portions of the connection or by decreasing the growth of the nerves.<sup>7</sup>

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<sup>1</sup> This talk and handout are excerpted from Walt and Barb Larimore’s book, ***His Brain, Her Brain: How divinely designed differences can strengthen your marriage.*** (Grand Rapids: Zondervan, 2008).

### 3) Estrogen Wash

In unborn females, the opposite happens. Exposure to the female hormone, estrogen, actually prompts the nerve cells to grow more connections between the left and right brain. So not only is a girl's corpus callosum larger than a boy's before birth, it continues to be larger in childhood and adulthood.<sup>8</sup>

Male brains contain about 6.5 times more gray matter — the “thinking matter” Female brains have more than 9.5 times as much white matter — the “processing matter.”<sup>9</sup>

Not only do women have a relatively larger connection between the hemispheres, but theirs is composed almost completely of white matter. *“The implication of women having more white matter connecting between the hemispheres of the brain is that they would have better communication between the different modes of perceiving and relating to the world,”* says Dr. Raquel Gur. *“On the other hand, men,”* who have a relatively smaller corpus callosum that is made up of less white matter, *“would demonstrate a stronger concentration on working within any one of those modes.”*<sup>10</sup>

*“There is more to be known, more detail and qualification perhaps to add—but the nature and cause of brain differences are now known beyond speculation, beyond prejudice, and beyond reasonable doubt.”* Anne Moir, Ph.D.<sup>11</sup>

Researchers are beginning to recognize that these differences are not bad but good. Ruben C. Gur, Ph.D., says, *“Most of these differences are complementary. They increase the chances of males and females joining together. It helps the whole species.”*<sup>12</sup>

### Different Brain Types and Processing

The systematizing and empathizing brain types manifest themselves in myriad ways:

- in the toys kids prefer (girls like humanlike dolls, boys like mechanical trucks);
- in response to verbal impatience (males order others, females negotiate with others);
- in navigating (women personalize space by finding landmarks, men see a geometric system and take directional cues in the layout of routes);
- in play (boys compete, girls cooperate).<sup>13</sup>

Drs. Ruben and Raquel Gur show with fMRI that women's brains light up in more areas and use more brain pathways than men's brains when given a variety of tasks. Because a woman's brain is so highly interconnected when compared to a man's more compartmentalized brain, women are better designed to multitask. Not only is a woman's brain designed to multitask, it virtually never turns off.<sup>14</sup>

Her Brain: You're on your computer, moving between six or seven open screens on your desktop. Perhaps you're juggling three or four Word documents, an Excel spreadsheet or two, and your home budgeting program. It's a digital Grand Central Station. Now add another dimension: Imagine that some of the open files and programs are actually weeks old and have been running in the background the whole time. Even worse, your computer

is infected with advertisements that pop up. You've tried to close these unwanted files and pop-ups many times. You've installed anti-spyware programs and rebooted your computer, but those pesky things just keep coming back. Welcome to a woman's mental and emotional world.<sup>15</sup>

#### **Implications for healthcare professionals:**

- A history from a female and male can be very different.
- His brain tends to relay facts with little or no emotion,
- Her brain tends to relay facts with emotion.

Studies show that men can take up to seven hours longer, on average, than women to process emotional stimuli, thoughts, and feelings. Most of the time, women need to talk in order to process, but men need time, space, and quiet. Then, to top it off, he not only has difficulty expressing his feelings in words, but he, like most men, takes much longer to process and express those feelings.<sup>16</sup>

#### **Implications for healthcare professionals:**

- When presenting an emotional topic (bad news, difficult diagnoses, or decisions that have to be made), learn the art of:
  - Giving his brain time and/or time alone to think about it, and
  - Giving her brain permission and time to talk about it.

#### **Different Ability to see, smell, and listen**

*"Women can see colors and textures that men cannot see. They hear things men cannot hear, and they smell things men cannot smell."* Leonard Sax, M.D., Ph.D.<sup>17</sup>

With repeated exposure to a variety of smells, women quickly get better and better at detecting odors. This increased sensitivity was five orders of magnitude greater for these women than for the men who were tested. The guys just couldn't detect the odors, even with practice. In other experiments, women did better than men at spotting a target odor against a background of other aromas, a setting more like real-world experience.<sup>18</sup>

Brain-imaging shows that men listen with only one side of their brain but women use both. Women can listen to, comprehend, and process as many as seven separate auditory inputs (such as conversations) at the same time, whereas men can barely follow one. One reason for this is a woman's larger corpus callosum that connects her brain's left and right hemispheres and enables her to use several highly connected hearing centers in both sides of her brain simultaneously.<sup>19</sup>

#### **Implications for male healthcare professionals:**

- Recognize how her brain perceives colors, smells, and sounds.
- Listen to the input from your spouse and staff about your office atmosphere and how you dress.
- Learn how to appreciate the olfactory skills of the women around you.

## **Different Ability to feel touch and pressure**

British researchers have found that women, when compared to men, feel more pain in more parts of the body more often and for a longer duration. An adult woman's skin is at least ten times more sensitive than a man's to touch and pressure.<sup>20</sup>

*"In childhood and adulthood, tests that measure the skin sensitivity of males and females produce differences so striking that sometimes male and female scores do not even overlap. In fact, the most sensitive boys seem to feel less than the least sensitive girls."* J. M. Reinisch, Ph.D.<sup>21</sup>

High oxytocin levels in women not only stimulate the desire to touch, but oxytocin also sensitizes the touch receptors of the skin. This is why women are four to six times more likely to touch another woman during a conversation than a man is to touch another man. This is also why a mother is not only more likely to rush to the aid of a toddler who has fallen and is crying than a father, but is more likely to touch, caress, or hug the child. No wonder we use terms like *"staying in touch," "personal touch," "thin skinned,"* or *"so-and-so gets under my skin."*<sup>22</sup>

### **Implications for healthcare professionals:**

- Learn how to touch the opposite sex appropriately :
  - during listening/counseling and
  - during examination.

## **Differences in Reading People**

Her brain is more sensitive to reading facial expressions and better at decoding nonverbal communication.<sup>23</sup>

Baby girls, for example, prefer to gurgle at people, but boys are just as content to gurgle at toys or mobiles. Two-to-four-day-old girls spend almost twice as long as boys in maintaining eye contact with an adult, whether the adult was silent or talking.<sup>24</sup>

Further, baby girls observe and follow the eyes of an adult more often than baby boys and make more eye contact than boys. No wonder some researchers now believe that what we've called a woman's "intuition" may just be her natural ability to notice small details and changes in the appearance or behavior of others.<sup>25</sup>

One author observes, *"It is obvious to a woman when another woman is upset or feeling hurt, while a man generally has to physically witness tears or a temper tantrum or be slapped on the face before he even has a clue that anything is going on."*<sup>26</sup>

*"A woman's intuition is like a slow motion camera that rapidly captures immense amounts of data instantaneously and then delivers a conclusion that sweeps over us—hitting us like a ton of bricks."* Arthur Abella<sup>27</sup>

“Being a woman is like having giant, invisible antennae that reach out into the world, constantly aware of the emotions and needs of those around you.” Louann Brizendine, M.D.<sup>28</sup>

### **Implications for healthcare professionals:**

- Learn how to appreciate the female intuition of your spouse, your staff, and your patients.

### **Different Language**

When it comes to talking, women are naturally good at it, they enjoy it, and they do a lot of it. In addition, the neural connections between a woman’s emotional processing and memory centers are larger, far more active, and more strongly connected to the verbal centers of the brain than in men.

She is designed to connect memories, words, and feelings, so her conversation tends to be laden with emotion and meaning. Not so with men. The biologic design of men causes them to be less likely to identify and communicate their emotions.

With a smaller hippocampus, men remember fewer emotional experiences than women. Furthermore, the portions of his brain that process emotion are much smaller and much less connected than those in her brain. So a man’s capacity to feel and express emotions is physically separated from his ability to verbally express them.

In conversation, men are much less likely (or even able) to talk about emotions and generally express much less emotional content than the average woman. This is why male conversations are usually filled with facts and are devoid of emotion.

*“The reluctance men have with feeling and with communicating emotions has a biological root. Their capacity to feel is, to a greater degree than in women, physically divorced from their capacity to articulate; further, the emotional centres of the male brain are located far more discretely than in the woman.”* Anne Moir, Ph.D.<sup>29</sup>

Barb’s Secrets for talking to Walt:

- It’s pretty easy:
- Make an appointment. At breakfast I might say, “Honey, tonight after dinner, can we talk about our vacation plans?”
- Give him an agenda. I might say, “I want to talk with you about the best time to schedule the repair work on the car.”
- Let him know there’s a time limit. “Would you consider taking a ten-minute break at half time to chat?”
- Let him know whether I want a solution to the topic of our discussion or whether I just want him to listen.
- Make sure he has to listen to only one audio input at a time (no children talking, TV blaring, or radio playing).
- I don’t interrupt when he’s speaking.
- I do not expect him to be my girlfriend.

So when a man is dealing with a project, a problem, a stress, or an emotion, a man will typically become very quiet. While using his right brain to solve problems or deal with emotions, it is hard for a man to use his left brain to listen or speak.

His compartmentalized brain is designed to do one thing at a time; it is difficult for him to solve a problem and converse at the same time. Scans show that when a man is sitting silently, his brain is either at rest or he's "having a conversation with himself."<sup>30</sup>

Most women find this incomprehensible, and even frightening, if they don't understand that this is how a male's brain is designed to work. It's almost the opposite of her brain. A woman's brain is never at rest, and when she is dealing with a problem, she not only wants to talk, she needs to talk.

Her conversation with another person allows her to reduce stress and talk through the problem. It's important for men to realize that when she does this, she's not necessarily looking for a solution in the same way he would.

It's perfectly natural for women to want to talk about her feelings and emotions. It's also perfectly natural for men to avoid extended conversation as much as possible—particularly if it is emotionally focused.

### **Different Language in Marriage**

Given these opposite starting points, it should be no surprise that a common dissatisfaction for married women, at least after a few years, is that the men in her life don't provide the conversation she needs.

*"Just as (a husband) finds sex enjoyable in its own right, (a wife) needs conversation ... As with most women, it makes her feel more romantic love for (him) because she can deeply share her life with her husband ... The atmosphere it creates contributes much to her happiness. The man who takes time to talk to a woman will have an inside track to her heart ... However, if a wife's expectation is that the men in her life will be the sole provider of oxytocin-rich relationships and conversations, she is likely to feel unloved and quite alone ... She may expect the men in her life to be available and able to meet her emotional and conversational needs, but that's not the way he is built!"* Willard F. Harley, Jr., Ph.D.<sup>31</sup>

### **Different Conversation**

His brain is built to see conversation as a means to an end, whereas her brain is designed to see talking as an end in itself. Women bond through conversation and give support by listening. Women define themselves, at least in part, by the quality of their relationships and conversations. So for a woman, talking is not optional even though the men in her life are not designed with the same need or capacity to listen.

#### **Implications for male healthcare professionals:**

- Learn the art of listening to your spouse, your staff, and your patients.

#### **Implications for female healthcare professionals:**

- Learn the art of talking to males: Your spouse, your staff, and your patients.

## **Different Facial Expressions**

A woman can use up to six “listening expressions” on her face in any ten-second period of conversation. Whether women are speaking or listening, they reflect in their faces what they are feeling. A woman’s facial expressions communicate feelings to such an extent that when two women are talking to each other, it can be very difficult to tell who is sharing and who is responding. Guys, on the other hand, tend to listen with almost no facial expressions.

### **Implications for healthcare professionals:**

- Women, don’t expect men to listen like you do – and, don’t interpret their “stoic” face as non-emotional or not understanding.
- Men, understand and appreciate the female facial expressiveness.

Men speak the language of action. Women speak the language of relationship.

*“To prove his love for her, he climbed the highest mountain, swam the deepest ocean, and crossed the widest desert. But she left him—he was never home.”<sup>32</sup>*

*“It seems to us quite natural that the closest friend of most women should be another woman, because women’s biology places a premium on relationships, and like attracts like.” Anne Moir, Ph.D.<sup>33</sup>*

## **Different Emotional Processing**

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*“Nothing less than the health of her relationships and family may depend on her developing oxytocin-based relationships with other women ... with whom she can more fully develop her*

own emotional world and thus depressurize her emotions and relationships.” Michael Gurian<sup>35</sup>

### **The science clearly shows that there are two distinctly different brains.**

“Raging at men’s innate maleness is as useful as raging against the weather, or the existence of the Himalayas; we believe it is rather more sensible to put on a raincoat, and abandon plans to bulldoze Everest.” Anne Moir, Ph.D.<sup>36</sup>

“It’s time to put to death the delusion that his brain and her brain are the same. They are not and never have been ... His brain and her brain are as different as night and day, and yet night and day tell us that our world is spinning properly.” Walt Larimore, M.D.<sup>37</sup>

“The view that men are from Mars and women from Venus paints the differences between the two sexes as too extreme ... The two sexes are different, but are not so different that we cannot understand each other.” Simon Baron-Cohen, Ph.D.<sup>38</sup>

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<sup>1</sup> Anne Moir and David Jessel, *Brain Sex: The Real Difference Between Men and Women* (New York: Dell, 1992), 5.

<sup>2</sup> Louann Brizendine, *The Female Brain* (New York: Morgan Road Books, 2006).

<sup>3</sup> Anne Moir and David Jessel, *Brain Sex: The Real Difference Between Men and Women* (New York: Dell, 1992), 20.

<sup>4</sup> *Journal of Neuroscience* vol. 22, no. 20 (October 15, 2002): 9005-14.

<sup>5</sup> *Brain Research. Molecular Brain Research* vol. 118, no. 1-2 (October 21, 2003): 82-90.

<sup>6</sup> *Journal of Neuroimaging* vol. 32, no. 3 (September 2006): 989-94.

<sup>7</sup> *Ultrasound in Obstetrics and Gynecology* vol. 18, no. 4 (October 2001): 343-47.

<sup>8</sup> *Prenatal Diagnosis* vol. 21, no. 2 (February 2001): 116-20. *NeuroImage* vol. 20, no. 1 (September 2003): 512-19.

<sup>9</sup> [www.medicinenet.com/script/main/art.asp?articlekey=50512](http://www.medicinenet.com/script/main/art.asp?articlekey=50512) (April 12, 2007).

<sup>10</sup> [www.sciencedaily.com/releases/1999/05/990518072823.htm](http://www.sciencedaily.com/releases/1999/05/990518072823.htm) (April 12, 2007).

<sup>11</sup> Moir, *Brain Sex*, 11.

<sup>12</sup> [www.webmd.com/content/Article/104/107367.htm](http://www.webmd.com/content/Article/104/107367.htm)

<sup>13</sup> Hara Estroff Marano. “The New Sex Scorecard.” July/August 2003. *Psychology Today*. [www.psychologytoday.com/articles/pto-20030624-000003.html](http://www.psychologytoday.com/articles/pto-20030624-000003.html).

<sup>14</sup> Onion, “Scientists Find Sex Differences in Brain.”

<http://abcnews.go.com/Technology/Health/story?id=424260>.

<sup>15</sup> Feldhahn, Shaunti, and Jeff Feldhahn. *For Men Only: A Straightforward Guide to the Inner Lives of Women* (Sisters, Ore.: Multnomah, 2006), 54.

<sup>16</sup> Anne Moir and Bill Moir, *Why Men Don’t Iron: The Fascinating and Unalterable Differences between Men and Women* (New York: Citadel, 1999), 86.

<sup>17</sup> [www.time.com/time/printout/0,8816,1032332,00.html](http://www.time.com/time/printout/0,8816,1032332,00.html)

<sup>18</sup> [www.findarticles.com/p/articles/mi\\_m3488/is\\_6\\_84/ai\\_103995707](http://www.findarticles.com/p/articles/mi_m3488/is_6_84/ai_103995707)

<sup>19</sup> *Journal of Neuroscience Research* vol. 41, no. 4 (December 2001): 333-37.

<sup>20</sup> [www.news-medical.net/?id=11498](http://www.news-medical.net/?id=11498)

<sup>21</sup> *Archives of Sexual Behavior* vol. 3, no. 1 (January 1974): 51-90.

<sup>22</sup> Barbara and Allan Pease, *Why Men Don’t Listen and Women Can’t Read Maps: How We’re Different and What to Do about It* (New York: Broadway Books, 2000), 35.

<sup>23</sup> Hutt, C. “Biological bases of psychological sex differences.” Paper given to The European Society for Paediatric Endocrinology, Rotterdam (June 1976).

<sup>24</sup> *Infant Behavior and Development* vol. 23 (2001): 113-15.

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- <sup>25</sup> Lutchmaya, "Foetal testosterone and eye contact in 12-month-old infants." *Infant Behaviour and Development* 25 (2002): 327–35.
- <sup>26</sup> Pease, *Why Men Don't Listen and Women Can't Read Maps: How We're Different and What to Do about It* (New York: Broadway Books, 2000), 19.
- <sup>27</sup> [http://en.thinkexist.com/quotes/abella\\_arthur/](http://en.thinkexist.com/quotes/abella_arthur/)
- <sup>28</sup> [www.usatoday.com/tech/science/discoveries/2006-08-21-female-brain\\_x.htm](http://www.usatoday.com/tech/science/discoveries/2006-08-21-female-brain_x.htm)
- <sup>29</sup> Moir, *Brain Sex*, 136.
- <sup>30</sup> Pease, *Why Men Don't Listen and Women Can't Read Maps*, 78.
- <sup>31</sup> Willard F. Harley Jr., *His Needs, Her Needs: Building an Affair-Proof Marriage* (Grand Rapids, MI: Revell, 2001), 69.
- <sup>32</sup> Pease, *Why Men Don't Listen*, 136.
- <sup>33</sup> Moir, *Brain Sex*, 128.
- <sup>34</sup> Moir, *Brain Sex*, 136.
- <sup>35</sup> Michael Gurian, *What could he be thinking? How a Man's Mind Really Works* (New York: St. Martin's, 2003), 93.
- <sup>36</sup> Moir, *Brain Sex*, 128.
- <sup>37</sup> Walt Larimore, M.D., Barb Larimore, *His Brain, Her Brain: How divinely designed differences can strengthen your marriage.* (Grand Rapids: Zondervan, 2008).
- <sup>38</sup> Simon Baron-Cohen, *The Essential Difference: The Truth about the Male and Female Brain* (New York: Basic Books, 2003), 1.