

## **New Research on Mother-Infant Bonding**

Miriam Grossman

**THERE WAS ONCE A HOLY RABBI** who studied the mystical books of Judaism and understood the inner secrets of the Torah. One day while he was studying, he heard his little grandson crying. He closed the book and went outside to see what happened. His grandson said he had been playing hide-and-seek with friends, and had found an exceptionally good place to hide. His friends looked and looked for him without success. After a while, they gave up and went to play a different game. They forgot about him, all because he had found such a great place to hide! And that's why, the little boy explained, he was crying.

The Rabbi said, "My child, this is a valuable lesson. What happened with your friends is what happens between God and man. God hides Himself in this world. Sometimes it's easy to find Him. But occasionally, He hides Himself very, very well. He wants us to continue looking, even when He's hard to find! When we give up, and get busy with other things, He cries."

For me, one place it is easy to see evidence of a Divine Creator is in the science of procreation and the bond between mother and infant. The biology is awesome, and I can't get enough of it.

But the science is more than awesome; it's ammunition. And those of us who believe the natural family is ideal for children and for civilization—we need ammunition, because we are at war. We are fighting dangerous ideas about sexuality, gender, and family. One of those ideas is that conceiving, carrying, and giving birth to a child can be separated from biology without harm to any of the parties. We are supposed to

believe that the family created with gamete donation or surrogacy is equivalent to the natural family; those children will fare just as well as children created the old-fashioned way. Biological bonds are disposable, we are told. Children do not need their biological mothers and fathers—all they need is love.

The only effective way to fight these ideas, I believe, is with hard science. Hard science is our best ammunition, because you cannot argue with what is seen under a microscope. You cannot argue with MRIs and CAT scans. And hard science supports the natural family as the ideal for children, and especially for infants. Science shows that the attachment between mother and child is unique and powerful, and that it begins before birth.

The literature is full of examples. Here are a few.

A pregnant woman produces new chemicals with distinct odors.<sup>1</sup> The chemicals are released beneath her arms and around her nipples. From the first moment of life, a baby recognizes the unique scent of his mother. A newborn placed on his mom's abdomen will crawl up toward the source of the scent, toward the breast.

How does a newborn, in this world for only a few minutes, know his mother's scent? Because he has been swimming in it for many months. The amniotic fluid that surrounds the developing fetus contains the new scents, and the fetus has developed the ability to taste at an early stage of development. By the time of birth, he's been surrounded by his mother's unique scent for six months.

Her scent is soothing to him. Researchers conducted an experiment in which cotton was soaked in amniotic fluid and placed close to the faces of newborns. Compared to infants who were not exposed to the fluid, these infants cried less. The scent is familiar; it has a calming effect.

Mothers can also distinguish the scent of their newborns, because babies have unique pheromones that are released from the top of their heads. Biology matters.

Research indicates that a fetus recognizes its mother's voice in five

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1. S. Vaglio *et al.*, "Volatile Signals During Pregnancy: A Possible Chemical Basis for Mother Infant Recognition," *Journal of Chemical Ecology* 35.1 (January 2009): 131-9, doi: 10.1007/s10886-008-9573-5.

seconds.<sup>2</sup> A study done at 36 weeks gestation indicated that a baby's heart rate and activity decrease when he hears his mother's voice, indicating that he is listening and orienting himself to it. In the experiment, the mother is recorded reading a passage from a book, and then other women are recorded reading the same passage. The baby is monitored while the recordings are played. The decreased heart rate and activity levels are an indication of focusing and orienting. He is listening to his mother's voice. It has also been demonstrated that only a few hours after birth, newborns prefer their mother's voice over that of other females. They prefer their mother's native language as well.

A fascinating example of this science is found in *Jepthah's Daughters* by Robert Oscar Lopez.<sup>3</sup> The book is a collection of testimonials by individuals who were either adopted or the result of sperm or egg donation.

Lopez tells the story of a woman whose earliest memory is of hearing beautiful music. The woman was adopted at birth, and her adoptive parents were wonderful people but not at all musical. So the musical memory was a mystery. When she was 30, the woman met her biological mother. She was a singer! The early memory was of her mother singing during the pregnancy, and it was embedded in her brain.

The biological bond between a mother and infant is unique and powerful, and it starts before birth.

Birth jolts a newborn into a new, harsh reality—bright lights, loud noises, cold and hunger. Any reminder of the ideal life in utero is heavenly. So of course, an infant is comforted by being close to his mother, smelling her, hearing her, feeling her heartbeat.

What about mothers? We know that oxytocin, the hormone of attachment and trust, changes the female brain. During pregnancy, labor, and delivery, oxytocin levels are sky-high. One study compared two groups of mothers: those who had natural labor and delivery, and those who had a planned C-section. When their infants were two weeks old, the mothers underwent functional MRIs during which they listened to their babies cry.

Women who went through labor and delivery were more sensitive to

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2. K.M. Voegtline *et al.*, "Near-Term Fetal Response to Maternal Spoken Voice," *Infant Behavior & Development* 36 (2013): 526-33.

their babies' cries.<sup>3</sup> Such is the power of oxytocin priming the pregnant woman's brain to care for her infant, and the surrogate's brain is just as sensitive to the hormone as anyone else's. As they go through pregnancy, labor, and delivery, mothers' brains are primed into becoming "mommy brains," focused on the newborn, on taking care of the newborn, on bonding with the newborn. Hard science suggests that "hormone-induced alterations of the female brain may make mothers more vigilant, nurturing and attuned to the needs of their young, as well as improve their spatial memory and learning."<sup>4</sup>

Of note, in the female brain, romantic love and maternal love are similar.<sup>5</sup>

Oxytocin continues its powerful effects during breastfeeding. The hormone is released in the mother's brain in response to suckling; it travels to the breast, causing milk to be available. The milk contains oxytocin, which acts on the child's brain to increase attachment. The mother/infant bond is cemented.

Mothering also hardwires the infant brain. Studies of rats and their offspring show that the brain activity of baby rats calms down when the mother is in the nest.<sup>6</sup> We know now that the first days, hours, and months of an infant's life are crucial for brain development, and that mothering affects that development.

Science shows that the attachment between mother and child is unique and powerful, and that it begins before birth.

This biological bond is acknowledged in some instances. Eighteen states have laws prohibiting the removal of a puppy from his mother before he reaches eight weeks of age. The puppies need their mother, and the mother needs her puppies. Yet we have no regulation of surrogacy, the intentional removal of a newborn from his mother at birth.

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3. G. Leng *et al.*, "Oxytocin and the Maternal Brain," *Current Opinion in Pharmacology* 8.6 (December 2008): 731-4, doi: 10.1016/j.coph.2008.07.001.

4. Craig H. Kinsley and Kelly G. Lambert, "The Maternal Brain," *Scientific American* (January 2006).

5. Andreas Bartels and Semir Zeki, "The Neural Correlates of Maternal and Romantic Love," *Neuroimage* 21.3 (March 2004): 1,155-66.

6. Ruth Feldman, "The Adaptive Human Parental Brain: Implications for Children's Social Development," *Trends in Neurosciences* 38.6 (June 2015): 387-99.

There is a famous children's book called *Are You My Mother?* by P.D. Eastman. I believe it will soon be banned for its politically incorrect message about mothers and their babies. It is the story of a little bird whose mother flies off to find him a worm right before he is born. The bird comes out of his shell, and his mother is gone. He gets upset, and he runs around trying to figure out who his mother is. He asks a dog, a cat, an airplane, and many other things. At one point, he gets frustrated, and says, "I have a mother . . . I know I do. I will find her. I will. I WILL."

This simple cry speaks volumes, because right now, because of third party reproduction—donated sperm, donated eggs, surrogacy—we are creating a whole generation of people who do not know who their mothers and fathers are.

Life is not always perfect. There is tragedy. There is disease, and there is death. There are wars. Families are separated. Not every family has a biological mother and father around. But that reality does not mean that we stop holding up the natural family as an ideal for the child.

A baby is born knowing his mother; I would even say loving his mother. All he wants is to be held close, inhaling her scent, hearing her voice. If that's not love, I don't know what is. She is not a stranger—she is his entire universe.

Science demonstrates that the bond between mother and child is unique, it is powerful, and it begins before birth. Biology matters; it's not up for debate. Let us take this ammunition and use it.

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