

The Science of Attraction

By Horacio Sanchez

The question has been asked, is love a function of the heart or does our human chemical makeup influence what we *perceive* to be “a matter of the heart.” I am of the opinion that when people attempt to separate functions, it oversimplifies very complex body functions. For example, pharmaceutical companies pay millions of dollars to have very bright scientist identify manmade chemicals that can increase or inhibit a chemical produced in the brain associated with emotional issues: only to find out years later that although it inhibits the identified problem it produces a range of side effects. Then a voice at the end of the TV commercial says that the medication can cause unexplained weight gain, upset stomach, excessive tiredness, unusual bleeding or bruising, lack of energy, loss of appetite, yellowing of the skin or eyes, blisters, fever, hives, swelling of the face, throat, tongue, lips, eyes, hands, feet, ankles, or lower legs, difficulty swallowing or breathing, fast heartbeat, bloody urine, back pain, depression, thoughts or suicide, and death. One of the truisms of the human brain that everyone should accept and never forget is that nothing in the brain works in isolation. Therefore, it would be as foolish to debate the heart versus neurobiology as it is to debate nature versus nurture. That said, in addition to the mysteries of the heart, there are some neurobiological functions that play a powerful role in our attractions and relationships.

I will focus on only one discrete chain of events in the human brain that influence attraction. It has long been known that memories and behaviors associated with emotions are attributed to the small almond-shaped group of nuclei located deep within the medial temporal lobes of the brain. The almond-shaped structure is called the amygdala. The amygdala's primary responsibility is your survival. As a result, it is hardwired to be alerted to things that are different and calmed by things that are familiar. This is why experiencing change is difficult because it causes emotional reactions in the human brain. The reaction to things that are different ensures that man is at an increased state of alertness when encountering anything new until it becomes more familiar and is deemed safe. This basic brain function explains why man grouped with those he physically resembled and was more suspicious of those who looked different. The amygdala usually has a lower level of reaction to people who look like us and who share things in common. This means cliques are a natural occurrence of the human brain, because we are attracted to individuals we have more things in common with and are suspicious about those we have the least in common with.



The amygdala also produces nonverbal emotional expression seen through facial expression, hand movements, postures, and gestures. These nonverbal expressions are hardwired because people of all races and genders produce them without ever formally being taught. The ability to interpret people's emotional condition is such an important aspect of survival that the amygdala is highly sensitive to the emotional cues of others. Therefore, we tend to subconsciously focus on the facial expressions, hand movements, postures, and gestures of others at all times. This is one of the reasons babies are so influenced by their parents, because the brain is hardwired to monitor their movements closely.

The amygdala is the first filter of the human brain. Nature designed information to be processed in the amygdala milliseconds before it is processed by the cortex. The cortex performs high level executive functions and is slower to react. Since the amygdala's role is to keep us alive,

stimuli are screened in the amygdala first in order that we can instantaneously react to danger. One other relevant function of the amygdala is that it is where our values, beliefs and attractions are housed. This sheds light as to why beliefs are difficult to change: because they are held in a part of the brain that produces a negative chemical reaction to things that are different. Therefore, man experiences a negative emotional reaction to things that challenge existing beliefs milliseconds before he or she has had an opportunity to consider it objectively in the cortex. In other words our logical brain has been emotionally influenced.

So what does this all have to do with attraction? In order for us to be productive creatures, man could not constantly monitor his or her environment for danger because certain tasks required focus. This is where microsaccades come in. Your eyes never stop moving, even when they are fixed on an object. The largest of these little eye movements are microsaccades. Microsaccades work in conjunction with the amygdala to keep you alive. While your conscious mind is fixed on an object, microsaccades scan the environment. Microsaccades monitor subtle movements in the field of vision. Researchers proposed that the constant monitoring of motion in the vision field is crucial to survival because it indicated when a predator was approaching or prey escaping. As the nervous system evolved it produced the ability to detect even very subtle movement patterns. Researchers now believe these little eye movements expose a person's subliminal thoughts. Even when fixed on an object your attention is subconsciously shifted to objects of attraction, interest, and danger (Hafed and Clark 2002).

As infants and children our brains are hardwired to focus on the movements, expressions, and gestures of mom and dad. Microsaccades calibrate these patterns to the subtlest of movements. Remember, the amygdala is attracted to that which is familiar. The first level of attraction happens from a distance when microsaccades identify a movement pattern that is familiar and redirects our attention toward it. So before you noticed his smile or the color of her eyes, you were subconsciously drawn to how he or she moved prior to even being in the conscious field of vision. As a result, it is likely that many people go unnoticed unless their movements are perceived threatening or familiar.



This science produces two significant ramifications related to attraction. It is now accepted that since movements are an expression of our chemical disposition, that they provide insight into our personalities. Therefore, individuals with similar movement patterns often have many things in common. If the movement patterns of mom and dad are often the most familiar, it is not surprising that we often find mates who are like our parents. This is true even if our parents suffer from emotional disorders or behavioral problems. Remember, the amygdala sometimes biases our cognitive behavior before we can make

logical assessment.

Also, since temperament is predictive of our tolerance for variance, it is not surprising that those with more easy temperaments can become attracted to someone with unfamiliar patterns. For these individuals “opposites can attract.” However, for the difficult or shy and anxious temperaments, variance is more chemically disturbing. This might give insight as to why pathology attracts pathology. Individuals with the greatest emotional issues will have the lowest tolerance to variance. If they are subconsciously attracted to the most familiar patterns of parents, they are more likely to repeat the patterns even if they are cognitively poor decisions. The amygdala is attracted to what is familiar without making judgment as to if it is good or bad. As children our brains are wired to monitor the movement of parents and even if the conscious brain says it is undesirable, the little eye movements that are on high alert for things that are attractive will force us to notice and feel drawn.

This does not mean that some people are doomed to fatal attractions. Resiliency studies showed that when individuals gain a sufficient amount of protective factors, it results in improved brain function, increased chemical balance, and emotional health. If individuals born with difficult or shy and anxious temperaments who suffer from emotional issues gain protective factors they can make healthier decisions in life.