Chemistry Of Love: Changes in the Body and Mind

Abstract

Falling in love has unnoticeable yet extreme effects on the way we function as human beings and ever since the dawn of time, people have tried to explain this phenomenon.

Being in love actually changes the physiology of our brain and alter the biochemical balance of our Human body. We experience distress, anxiety and depression while simultaneously we feel peace, euphoria and arousal.

This is understandably incredibly complicated and painful to go through but why do people chase after it that much?

Introduction

[image: ?????????? ??????? ??? stages of love]People believe that love is broken down into stages. Opinions differ on how many these stages actually are, ranging from three to ten stages. Although, three are the core stages that are common everywhere.[bookmark: _Toc25702568]Figure 1: The science behind Lust, Attraction, Attachment and Companionship

Lust is the need for sexual gratification. This need is actually embedded in our instinctive sub-consciousness and derives from our primitive reproductive behaviors. Reproduction is vital for the perpetuation of our species.

The second phase, attraction, is theorized to derive from similar components of our animalistic instincts. Lust and attraction can happen at the same time as people tend to lust over people they feel attracted to. But they can surely exist on their own. When someone is attracted to a person they find interesting, this stimulates the areas of the brain that get switched on when we receive some form of reward or approval. These are feelings that birth addictive feelings.

Lastly, the third phase is the sole factor people should rely on if they want to be in long term relationships. While lust and attraction pretty much focus on romantic relationships, attachment is a factor present in bonds between close friends, parent-infant bonding and many other forms of intimacy.

Changes in the body and mind

When we fall in love, our biochemical composition goes through a lot of changes. These changes have a wide range, from hormone rushes to malfunctions within the brain structure.

· Mind

Being in love, caused major blood flow in the brain. The overall circulation of our bodies undergoes a dramatic increase. This has as a result, the instant activation of certain parts of the

brain that actually operate when people experience obsessive-compulsive behaviors. As these certain functions are implicated when we are in love, people can sometimes feel an overwhelming fixation on the other person.

It is also observed that during the first phases, the body releases a surplus of hormones.

Oxytocin is the most present and at the highest level and that is the reason why today we call it the Love Hormone or the Love drug. Oxytocin is also heightened during in childbirth and breast-feeding. It has also been linked with empathy, trust and sexual activity besides love.

[image: ?????????? ??????? ??? chemistry of love]Dopamine has acquired the name Pleasure hormone and we have huge amounts of it during the process of falling in love. The neurons in the human brain are responsible for the dopamine release. This particular hormone is a neurotransmitter[footnoteRef:1] associated with euphoria. Dopamine is also released when people feed their psychological or their physical addictions, including gambling, eating or drug abuse. Every time someone thinks of the individual they love, which is rather often, the brain released huge amounts of dopamine which causes them to seek out for this feeling, exactly like a drug addict. [1: Neurotransmitter: A chemical messengers that send information between neurons by crossing a synapse.]

Figure2: ScienceHook - The chemistry Behind Love

Estrogen and Testosterone, in women and men respectively, are responsible for the sex drive of people. A slight bigger increase is observed in men when they experience feelings of love, however women seem to exert it more. Theories suggest that this happens to make reproduction more likely, as women tend to be pickier with their partners.

Something worth mentioning is the fact that some areas of the brain stop functioning completely. The frontal cortex of our brain, which is the core mechanism for logical judgement, shuts down. Some studies have shown that if we take this back to our animalistic ancestors, this is yet another way to make reproduction happen more easily.

· Body

Our minds might take an intense toll during this process, however, our bodies go through some changes as well.

The beginning of a relationship can be very exciting. There are a lot of new sensations that our bodies experience. As was previously mentioned, the brain releases substances that regulate our emotions or mood. This can lead to a physical and psychological attachment that can be borderline obsessive. This actually intensifies when the person of interest is far away and can cause a lot of anxiety or even depressive attitudes.

The feeling of addiction someone get derives both from our psychology and our biology. When they are unable to get their “fix” by being with the person they want to be, they experience distress.

It is scientifically proven that a rejection or a break-up can cause people to react as if they

endure physical pain.

However, being in a successful relationship can have opposite effects, meaning that people who are with the person the love can endure pain better. It is proven by a research that feeling love, or in this case, being in love can actually have the same numbing effect of a painkiller. The study suggested that when individuals who recently got into a relationship had MRI scans performed, their brains were completely different from those who had not.

Results showed that non-single people, when shown a picture of their lover, areas of the brain that correspond with euphoria were stimulated. Something that accompanied those results were the higher levels of pain endurance. It was estimated that their pain levels reduced by as much as 40% in comparison to people who were shown pictures of friends or acquaintances where their pain was reduced 15% at most.

“Butterflies”

The phrase “I am feeling butterflies” is one of the most, if not the most, common phrases used to describe love.

That is because the limbic part of our brain releases hormones such as cortisol and oxytocin. These chemicals might co-exist but they are contradicting parties. Oxytocin is the happy hormone, it gives us a sentiment of peace and safety. Cortisol on the other hand is an alarm, it is responsible for our anxiety. That is why butterflies happen. The two opposite hormones give us a faint sense of nausea while our stomachs tend to pulse because our body wants to be prepared at any given moment.

Within social experiments, it was also observed that couples who have lived together for a significant amount of time tend to synchronize their breathing patterns and also their heart rates. A research provided by the European Journal showed that living with a loved one can decrease the chances of heart disease and heart attacks, for both sexes, greatly. According to the study, those who lived by themselves of were single, were more prone to cardiovascular issues. It is believed that living with a person you love can help people develop healthier habits in their diet or activities.

Another fact about love that is very widely known is the dilation of pupils. This is yet another defense mechanism for our body that has evolved in human nervous systems. It is a combination of chemical reactions within the brain that passes through our blood and our body uses it to prepare itself once again for any given scenario. The dilation is useful as it provides the individual with a greater field of view.

Conclusion

To repeat in short, falling in love is something that most people go through during their life time. Every time it happens it leaves a distinct mark, much like a scar, that is etched in their minds, bodies and souls. It is correctly assumed to be the most intense feeling a human can experience. It can drive one into insanity. Falling in love erases someone’s free will, it is like they are guided by their emotions.

So when someone tells you they are madly in love… believe them.

Works Cited

1. Ananthaswamy, A. (2004, May 5). Hormones converge for couples in love. Retrieved from NewScientist: https://www.newscientist.com/article/dn4957-hormones-converge-for-couples-in-love/
2. Jared837. (2018). Neurotransmitter. Retrieved from Wikipedia: https://simple.m.wikipedia.org/wiki/Neurotransmitter
3. MacGill, M. (2014, September 4). What is the link between love and oxytocin? Retrieved from MedicalNewsToday: https://www.medicalnewstoday.com/articles/275795.php
4. Moor, A. (2018, September 6). This Is What Happens to Your Body When You Fall in Love. Retrieved from BestLife: https://bestlifeonline.com/what-happens-to-your-body-when-you-fall-in-love/
5. ScienceHook. (2016, April 29). Chemistry Behind Love. Retrieved from Youtube: https://www.youtube.com/watch?v=75hVA6OUOAY&t=6s
6. WINTER, C. (2019, November 11). Falling In Love: The 10 Stages You'll Go Through. Retrieved from A conscious Rethink: https://www.aconsciousrethink.com/7175/falling-in-love-stages/
7. Wu, K. (2017, February 14). Love, Actually: The science behind lust, attraction, and companionship. Retrieved from Harvard University: http://sitn.hms.harvard.edu/flash/2017/love-actually-science-behind-lust-attraction-companionship/

- Figure 1: The science behind Lust, Attraction, Attachment and Companionship 2
- Figure 2: ScienceHook - The chemistry Behind Love 3