

## Why does heartbreak hurt?



We have all experienced a broken heart. I still remember the pain that I felt after my high school sweetheart decided that our relationship was over. I froze as a rush of sadness and betrayal swarmed over and through my body until tears suddenly rushed down my face. My mom watched him exit out of our house and immediately came to embrace me in my bedroom. After hours of being with my mom, I began to feel better as she hugged me and watched chick flicks with me the rest of that night.

Can a broken heart really hurt? And is it possible to recover? Scientists and psychologists have been studying this question for years, trying to determine what causes heartbreak and if there is a maximum limit that humans can endure. We have each experienced it, from a break-up to the death of a loved one. For some, the pain can be too much for the body, leading to suicidal thoughts, looking to escape from the mental and physical pain that heartbreaks cause.

Scientists found that when puppies lose their mothers, they make a sound called the separation distress cry. In fact, it was found that all young mammals make this noise when they are either in pain or miss their mother. The circuits in the brain that cause this distress are part of the pain matrix. All humans experience this distress when they are sad or depressed, which also causes us

to feel physical and mental pain. We are each born with this because our mental brain works as an alarm system to our bodies. Once our brain is alarmed of pain, it will try to prevent damage to our bodies.

When we look at the wild and history, it is noticeable that mental pain is the glue that keeps us all together, including couples, families, and communities. When a baby in the wild misses their mother and begins crying, it helps them survive due to their mothers coming back to them and the babies seeking for their mothers. When we view this as humans, specifically in today's world, when someone we love leaves or is taken from us, it is the pain that draws us back together.

Love always hurts, and mental pain is the price we pay for our ability to love. It can be addicting to love and have you feel like you may need a rehab for the heartbreak. After all, our breathing syncs with another's after being together for a long amount of time and our hearts can actually break when that person leaves. When scientists began studying heartbreak, they found that our hearts can react similarly to a heart attack, but instead, they change shape when going through a sad or stressful event. This is called broken heart syndrome, which is the cause of 7% of cardiac hospital admissions. So, a heartbreak really does physically hurt and can cause your heart to physically break.

Scientists were surprised when they found how dramatically heartbreak affects our bodies. The feelings that come with heartbreak – grief, loneliness, anxiety – are monitored by our nervous systems and immune systems, which adjust to these feelings to avoid confrontation in our bodies. Scientists were also curious to how heartbreak affects our brains. They took partners that have been together for at least 75% of their lives and separated them for a period of time. When the partner left, the other partner felt emotions of grief and loneliness and acted similarly to those that are truly grieving a loved one. When scientists looked at the brain functions, they found that the same neurons that are triggered from drug addiction were triggered when their partner left them. Memories attached to a loved one, such as photographs, also trigger these neurons to react in such a manner, proving that love really is addictive.

Scientists also found that narcotics not only soothe physical pain, but also soothe mental pain. This study focused on the separation of puppies and mothers. When the puppies were given a small dose of morphine, they no longer felt lonely and began playing with other puppies. This is not to say that it is safe to take narcotics when you are feeling sad or lonely, but this study brought scientists to a realization about other drugs that are not dangerous nor addictive and may

have the same effect. Research is being conducted on two drugs that may also eliminate mental and physical pain without the side effects of narcotics.

The good news is that our brains produce endorphins, which are a natural remedy for pain. Endorphins are released in the brain during aerobic exercise, when we're close to someone we love, and immediately after severe injuries. They attach to special receptors in the brain (GPCR) and cause these receptors to change their shape. This then triggers sensible neurons, which will eventually ease the pain. So, the next time a loved one is in pain, give them a hug because you will help heal them through endorphins.

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<https://www.theguardian.com/lifeandstyle/2022/aug/28/clinically-awful-why-the-pain-of-a-broken-heart-is-real>