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## Ask A Scientist: What benefit, evolutionarily or otherwise, does love provide to people? Are we better for it or without it?

Abigail Barnes, Graduate Student in the Department of Psychology, University of Tennessee, Knoxville Aug 29, 2018

Lust, attraction, attachment, intimacy, affection, desire – it's all related to the big "L" word: Love. Our culture seems to focus a lot on romantic love, but at one point or another, a lot of us have wondered if we would all be better off without it. I mean really, what benefit is there? Can't we just say "Nevermind, not worth it, think I'll devote my time to something more consistent and predictable, thanks"?

Well, either fortunately or unfortunately, the answer is no. People are better off with love for a variety of reasons, but evolution is at the forefront.

To talk about the evolution of love, we need to talk a little bit about evolution in general. The driving force of evolution is natural selection, which simply put, is nature's tendency to kill off things that aren't better adapted to their environments. This means that individuals who are better suited to live in a particular environment will have more offspring, and eventually the genes of the poorly suited individuals will be overcome by the genes of the better suited offspring.

At an individual level, the evolutionary "goal" is to have more offspring, so more of your genes will be passed down. It's not just about the *number* of offspring though; it's about the survival of the offspring as well. For your genes to continue down the evolutionary line, your children need to have children – which they can't do if they're dead.

Human evolution is tricky because we have highly complex brains, which allow us to outsmart nature in a lot of ways. Our big brains are certainly our biggest evolutionary advantage, so it makes sense that love would have evolved because of our brains. So, to look at the evolution of love, we need to look at the evolution of the human brain.

As the human brain got bigger and more complex, babies had to be born earlier because their developing brains were too energetically demanding. This resulted in human babies needing a lot more care than pretty much any other animal (elephants need a similar amount, but that is mostly because elephants are huge, so they also need to be born early). In fact, human infants are in need of constant care for about two years. All that care couldn't feasibly be done by one parent. It's easy to see how babies with two parents survived more often than babies with just one.



Courtesy of The University of Tennessee, Knoxville.

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So, natural selection favored children that had two parents. Why do we need love for that, though? Logically, humans would want their babies to survive. Wouldn't they just agree to stay together for the necessary time, then go their separate ways?

Well, maybe humans could do that – but maybe not. After all, what if a better mate came along? Maybe one partner would leave, deciding that the current child wasn't worth giving up the potential child from the new match. When it comes to reproduction, there are a lot of "logical" things to do that might favor the individual, but not necessarily the species. Having a bunch of babies born with little chance of survival isn't good for the human species.

To overcome this obstacle, our brains evolved to trick us. The trick is a pretty big one: emotions. Love is an emotion after all, and when you ask about the benefit of love, you might as well wonder if emotions in general are unnecessary. Emotions seem annoying, don't they? They make us do a whole bunch of irrational and illogical things. Why do we even have them?

Some evolutionary psychologists believe that our emotional brains evolved to help reconcile our selfish natures with our social natures. Acting selfishly doesn't make you very popular, so if humans were all super selfish, then we wouldn't have been able to form the highly complex social systems that still exist today. So, our brains gave us a cop-out. You don't have to argue the merits of punishing someone for stealing something they need. Instead, you can rely on feelings of justice. You don't have to decide whether there is logic behind population control; you can rely on feelings of morality. You don't have to wonder if there is reason to suspect someone is dangerous; you can rely on feelings of fear. Likewise, you don't have to consider the pros and cons of your current partner. You can rely on love.

Basically, it's easier to ensure a human baby will survive if the parents *feel* something for each other, rather than relying on logic. That's the evolutionary benefit of love: it increases the survival and success of offspring.

We know that answer isn't going to be satisfying. A lot of you are going to say, "But I'm in love, or have been in love, and I have no interest in kids. How can kids be the reason for love?" For clarification, kids are not necessarily the reason *you* fall in love – rather, kids are the reason love exists as an emotion. Also, you don't have to want kids to fall in love. Your brain experiences love because it's genetically programmed to do so. This genetic programming comes from hundreds of years of evolution, when babies that had parents whose brains experienced love, or something like it, had a much higher survival rate.

Okay, but is there any evidence for this? Well, we know that the most intense feelings of love start to fade after about two years, which happens to be when human children start to become more self-sufficient. Additionally, feelings of love seem to originate from regions of the brain that are relatively new in our evolutionary history. A lot of those regions are involved in language, which is highly developed in humans. Collectively, this gives credit to the idea that love is related to our increasingly complex brains and caring for infants.

Even though love may be an evolutionary trick our brains play on us, it's still a beneficial part of our lives. Love gives us close relationships and a strong support system. Romance is a great stress-reducer and confidence-booster. Our brains and bodies love being in love, if it's a healthy relationship. However, if your romantic relationship feels more stressful than stress-relieving, you might want to recognize how irrational your brain is being and make the logical decision to call it quits. We promise your brain will thank you later, and it's got lots more love to feel for someone else.

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