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Wellness

The pandemic has separated people. Science suggests this may make their hearts grow fonder.

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By Galadriel Watson
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When my daughter's university abruptly switched to online learning in March, she said goodbye to her campus for an unknown length of time and to a new friend who had rapidly become important. This forced separation could have spelled the end of their friendship, but so far time and distance don't seem to be diminishing it. In fact, these challenges could be making it even stronger.

This is an observation the Roman poet Sextus Propertius put into words about 2,000 years ago, when he included an early version of the adage “Absence makes the heart grow fonder” in one of his poems. These days, as we wait to reunite with family and friends, many of us may be feeling a growing tug at our heart strings. Week after week, our affections for distant loved ones seems to expand. But does scientific research prove the saying is true?

Look to rodents

Prairie voles are one of the very few mammals that are monogamous like humans, so Zoe Donaldson, an assistant professor of psychology and neuroscience at the University of Colorado at Boulder, turned to them for clues about how longing for loved ones works in people, too.

She co-authored a paper that asked, “What is it that really cements bonds over time? What is it that keeps us coming back for more?” she says. “And a big part of that is this desire to reunite.”

Her team looked at the brains of 17 voles (enough animals to be statistically valid). At the beginning of the experiment, a vole was given the choice to run toward one of two unknown, opposite-sex voles. The researchers then made one of these unknown voles its mate. A couple of days later, and again two weeks after that, it was given the choice to run toward either this mate or another unknown vole.

The researchers zoned in on the part of the brain called the nucleus accumbens. “This is a part of the brain that lights up when you’re happy, when you’re experiencing pleasure,” Donaldson says. “It also lights up when we’re with family members, or if we’re holding hands with our partners.” For example, one study saw such activity when 17 people who were intensely in love looked at photos of their partners.

In Donaldson’s experiment, each vole in question had a certain degree of activity in this brain region when deciding between two unknown voles. A couple of days after one of these voles had become its mate, though, more cells activated when it was about to run to this mate rather than the unknown vole. And two weeks after that — when the mating voles had had even more time to bond — the cluster of activated cells became even larger.

“These cells might be saying, ‘You should go reunite with your partner,’” Donaldson says. This brain activity “drives them to want to be with their partners, presumably because it’s rewarding.” With human brains expected to react in the same way, this suggests we’re also highly, biologically motivated to return to the people who matter.

Donaldson illustrates this with an anecdote about two of her lab students, who finally saw each other after the local stay-at-home order lifted. “Without even thinking, they ran across the store to give each other a hug, which you’re totally not supposed to do,” she says. “But the way they both explained it was that they just couldn’t help themselves, they were so excited to see each other.”

A built-in need

Why does our brain make sure we are drawn to certain people? Because we rely on others throughout our life spans: from nourishment and protection as infants to support when we're older, explains Naomi Eisenberger, professor of social psychology at the University of California at Los Angeles, as well as director of its Social and Affective Neuroscience Laboratory. "And so, we come with these built-in mechanisms to make sure that we maintain social connection and avoid social isolation," she says.

Eisenberger co-authored a study on humans that focused on a broader region in the brain called the ventral striatum, which is also related to rewards. Participants reported to what degree they felt lonely, if at all. They then viewed images of loved ones or strangers while being scanned with functional magnetic resonance imaging (fMRI). Thirty-one people underwent this process, considered a reasonably sized sample for expensive fMRI studies.

"Our lonely subjects showed more activity in reward-related regions when they were looking at their loved ones" than when they were looking at strangers, says Eisenberger. This contrasts with less lonely people, whose brains showed about the same amount of activity no matter whose photo they viewed. "This fits in with the idea that when you are feeling disconnected from others, there's more reward associated with seeing those others again."

A hunger-like craving

A different study, now under peer review, homed in on yet another area of the brain, the substantia nigra, also important for reward and motivation. This time, researchers compared cravings for social interaction with cravings for food.

Forty participants spent 10 hours either isolated without social interaction (in 2019, before the pandemic) or fasting. The researchers then used fMRI to scan the participants' brains while they looked at photos of their favorite social activities and foods. After fasting, the region showed increased activation when looking at food images. After isolation, it reacted to social images.

These results demonstrate that a lack of social interaction creates a craving similar to hunger and a shared neural signature. Livia Tomova is the study's co-author and a postdoctoral fellow with the department of brain and cognitive sciences at the Massachusetts Institute of Technology. She says, "If already one day of being alone makes our brains respond as if we had fasted for the whole day, it indicates that our brains are very sensitive to the experience of being alone."

Far yet close

Additional studies indicate that geographically distant people may try harder than others to maintain their bonds.

One study looked at 63 young couples. Those in long-distance relationships discussed deeper issues with each other and had more meaningful interactions than couples who were geographically close.

Another study looked at the cellphone calls of about 400,000 people in an unidentified European country over seven months. If people who lived far apart hadn't spoken for a while, their next phone call lasted longer. The researchers say this indicates that people generally want to invest more in a relationship when there's a risk that time and distance have started to make a rift.

Ways to stay connected

What can we do to invest in the relationships that are important to us and get through the time until we can see our loved ones again? The researchers had some thoughts about this.

Donaldson encourages those missing loved ones to "go ahead and engage in what we can do, which is virtual meetups and things like that," even though "this is a weak substitute for our normal interactions." Eisenberger suggests doing something nice for someone else. This "seems to have a stress-reducing effect and may make us feel more connected to other people," she says.

And Tomova advises using social media carefully. "If you engage with social media in a very passive way — you just scroll through pictures of others — it seems to make you feel *less* well afterward," she says, mentioning a particular study. However, actively engaging with others, for example by chatting on social media or through a messaging app, may help you fulfill your need for personal contact.

My daughter and her university friend have been doing that, using Snapchat as their primary way of staying in touch. For them, like so many others, only time will tell whether the separation caused by the pandemic has strengthened their bond.

Galadriel Watson is a freelance writer, comics artist and author of many books for kids, including "*Running Wild*" and "*Extreme Abilities*."