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ESSAY

## Friends for Life: An Emerging Biology of Emotional Healing

By DANIEL GOLEMAN

A dear friend has been battling cancer for a decade or more. Through a grinding mix of chemotherapy, radiation and all the other necessary indignities of oncology, he has lived on, despite dire prognoses to the contrary.

My friend was the sort of college professor students remember fondly: not just inspiring in class but taking a genuine interest in them — in their studies, their progress through life, their fears and hopes. A wide circle of former students count themselves among his lifelong friends; he and his wife have always welcomed a steady stream of visitors to their home.

Though no one could ever prove it, I suspect that one of many ingredients in his longevity has been this flow of people who love him.

Research on the link between relationships and physical health has established that people with rich personal networks — who are married, have close family and friends, are active in social and religious groups — recover more quickly from disease and live longer. But now the emerging field of social neuroscience, the study of how people's brains entrain as they interact, adds a missing piece to that data.

The most significant finding was the discovery of "mirror neurons," a widely dispersed class of brain cells that operate like neural WiFi. Mirror neurons track the emotional flow, movement and even intentions of the person we are with, and replicate this sensed state in our own brain by stirring in our brain the same areas active in the other person.

Mirror neurons offer a neural mechanism that explains emotional contagion, the tendency of one person to catch the feelings of another, particularly if strongly expressed. This brain-to-brain link may also account for feelings of rapport, which research finds depend in part on extremely rapid synchronization of people's posture, vocal pacing and movements as they interact. In short, these brain cells seem to allow the interpersonal orchestration of shifts in physiology.

Such coordination of emotions, cardiovascular reactions or brain states between two people has been studied in mothers with their infants, marital partners arguing and even among people in meetings. Reviewing decades of such data, Lisa M. Diamond and Lisa G. Aspinwall, psychologists at the University of Utah, offer the infelicitous term “a mutually regulating psychobiological unit” to describe the merging of two discrete physiologies into a connected circuit. To the degree that this occurs, Dr. Diamond and Dr. Aspinwall argue, emotional closeness allows the biology of one person to influence that of the other.

John T. Cacioppo, director of the Center for Cognitive and Social Neuroscience at the University of Chicago, makes a parallel proposal: the emotional status of our main relationships has a significant impact on our overall pattern of cardiovascular and neuroendocrine activity. This radically expands the scope of biology and neuroscience from focusing on a single body or brain to looking at the interplay between two at a time. In short, my hostility bumps up your blood pressure, your nurturing love lowers mine. Potentially, we are each other’s biological enemies or allies.

Even remotely suggesting health benefits from these interconnections will, no doubt, raise hackles in medical circles. No one can claim solid data showing a medically significant effect from the intermingling of physiologies.

At the same time, there is now no doubt that this same connectivity can offer a biologically grounded emotional solace. Physical suffering aside, a healing presence can relieve emotional suffering. A case in point is a functional magnetic resonance imaging study of women awaiting an electric shock. When the women endured their apprehension alone, activity in neural regions that incite stress hormones and anxiety was heightened. As James A. Coan reported last year in an article in *Psychophysiology*, when a stranger held the subject’s hand as she waited, she found little relief. When her husband held her hand, she not only felt calm, but her brain circuitry quieted, revealing the biology of emotional rescue.

But as all too many people with severe chronic diseases know, loved ones can disappear, leaving them to bear their difficulties in lonely isolation. Social rejection activates the very zones of the brain that generate, among other things, the sting of physical pain. Matthew D. Lieberman and Naomi Eisenberg of U.C.L.A. (writing in a chapter in “Social Neuroscience: People Thinking About People,” M.I.T. Press, 2005) have proposed that the brain’s pain centers may have taken on a hypersensitivity to social banishment because exclusion was a death sentence in human prehistory. They note that in many languages the words that describe a “broken heart” from rejection borrow the lexicon of physical hurt.

So when the people who care about a patient fail to show up, it may be a double blow: the pain

of rejection and the deprivation of the benefits of loving contact. Sheldon Cohen, a psychologist at Carnegie-Mellon University who studies the effects of personal connections on health, emphasizes that a hospital patient's family and friends help just by visiting, whether or not they quite know what to say.

My friend has reached that point where doctors see nothing else to try. On my last visit, he and his wife told me that he was starting hospice care.

One challenge, he told me, will be channeling the river of people who want to visit into the narrow range of hours in a week when he still has the energy to engage them.

As he said this, I felt myself tearing up, and responded: "You know, at least it's better to have this problem. So many people go through this all alone."

He was silent for a moment, thoughtful. Then he answered softly, "You're right."

*Daniel Goleman is the author of "Social Intelligence: The New Science of Human Relationships."*

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