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# Your Phone vs. Your Heart

By **BARBARA L. FREDRICKSON**

CAN you remember the last time you were in a public space in America and didn't notice that half the people around you were bent over a digital screen, thumbing a connection to somewhere else?

Most of us are well aware of the convenience that instant electronic access provides. Less has been said about the costs. Research that my colleagues and I have just completed, to be published in a forthcoming issue of *Psychological Science*, suggests that one measurable toll may be on our biological capacity to connect with other people.

Our ingrained habits change us. Neurons that fire together, wire together, neuroscientists like to say, reflecting the increasing evidence that experiences leave imprints on our neural pathways, a phenomenon called neuroplasticity. Any habit molds the very structure of your brain in ways that strengthen your proclivity for that habit.

Plasticity, the propensity to be shaped by experience, isn't limited to the brain. You already know that when you lead a sedentary life, your muscles atrophy to diminish your physical strength. What you may not know is that your habits of social connection also leave their own physical imprint on you.

How much time do you typically spend with others? And when you do, how connected and attuned to them do you feel? Your answers to these simple questions may well reveal your biological capacity to connect.

My research team and I conducted a longitudinal field experiment on the effects of learning skills for cultivating warmer interpersonal connections in daily life. Half the participants, chosen at random, attended a six-week workshop on an ancient mind-training practice known as metta, or "lovingkindness," that teaches participants to develop more warmth and tenderness toward themselves and others.

We discovered that the meditators not only felt more upbeat and socially connected; but they also altered a key part of their cardiovascular system called vagal tone. Scientists used to think vagal tone was largely stable, like your height in adulthood. Our data show that this part of you is plastic, too, and altered by your social habits.

To appreciate why this matters, here's a quick anatomy lesson. Your brain is tied to your heart by your vagus nerve. Subtle variations in your heart rate reveal the strength of this brain-heart connection, and as such, heart-rate variability provides an index of your vagal tone.

By and large, the higher your vagal tone the better. It means your body is better able to regulate the internal systems that keep you healthy, like your cardiovascular, glucose and immune responses.

Beyond these health effects, the behavioral neuroscientist Stephen Porges has shown that vagal tone is central to things like facial expressivity and the ability to tune in to the frequency of the human voice. By increasing people's vagal tone, we increase their capacity for connection, friendship and empathy.

In short, the more attuned to others you become, the healthier you become, and vice versa. This mutual influence also explains how a lack of positive social contact diminishes people. Your heart's capacity for friendship also obeys the biological law of "use it or lose it." If you don't regularly exercise your ability to connect face to face, you'll eventually find yourself lacking some of the basic biological capacity to do so.

The human body — and thereby our human potential — is far more plastic or amenable to change than most of us realize. The new field of social genomics, made possible by the sequencing of the human genome, tells us that the ways our and our children's genes are expressed at the cellular level is plastic, too, responsive to habitual experiences and actions.

Work in social genomics reveals that our personal histories of social connection or loneliness, for instance, alter how our genes are expressed within the cells of our immune system. New parents may need to worry less about genetic testing and more about how their own actions — like texting while breast-feeding or otherwise paying more attention to their phone than their child — leave life-limiting fingerprints on their and their children's gene expression.

When you share a smile or laugh with someone face to face, a discernible synchrony emerges between you, as your gestures and biochemistries, even your respective neural firings, come to mirror each other. It's micro-moments like these, in which a wave of good feeling rolls through two brains and bodies at once, that build your capacity to empathize as well as to improve your health.

If you don't regularly exercise this capacity, it withers. Lucky for us, connecting with others does good and feels good, and opportunities to do so abound.

So the next time you see a friend, or a child, spending too much of their day facing a screen, extend a hand and invite him back to the world of real social encounters. You'll not only build up his health and empathic skills, but yours as well. Friends don't let friends lose their capacity for humanity.

*Barbara L. Fredrickson is a professor of psychology at the University of North Carolina, Chapel Hill, and the author of "Love 2.0: How Our Supreme Emotion Affects Everything We Feel, Think, Do, and Become."*

