

Meditation/Compassion

Contributed by Dean Radin, PhD, IONS' Senior Scientist

In a widely reported experiment investigating the neuroscience of empathy, a recent study found that the brains of women who saw their partners receiving an electric shock responded as though they themselves had received the shock. Researchers at University College London used a functional MRI scanner to examine the brains of 16 women while they received a shock to see what areas of their brains would be most active, and then they ran the same experiment again, except that they shocked the women's romantic partners while they were watching. The results showed that intense empathetic feelings have a neurological basis, and consequently that the phrase, "I feel your pain," is at times literally true.

This was an intriguing finding, but what would have happened if the researchers had run a similar experiment, but shocked the partners when they were not visible to the women? If that experiment indicated that the women's brains reacted to their partners receiving a shock, even when out of sight, then that would have provided revolutionary evidence for telepathy, surely worthy of front-page news.

Well, as IONS' members know, advances at the frontiers of consciousness research are often overlooked by the mainstream, because in fact such an experiment was published in early 2003 in a well-regarded medical journal (*Alternative Therapies*). The authors of that study, Leanna Standish and Leila Kozak from Bastyr University, and L. Clark Johnson and Todd Richards from the University of Washington, Seattle, used functional MRI to examine one person's brain while a checkerboard pattern was flashed in the eyes of a distant partner. The pair of participants in the experiment were a male and female in their 50s who had known each other as colleagues for two years.

They spent 10 minutes in silent meditation before the session to "attune" to each other, then one took the role of the receiver in the MRI while the other observed the checkerboard stimulus.

When the male was the receiver, his brain showed no unusual responses, but when the female was the receiver, her brain's visual cortex systematically "lit up" when her partner was exposed to the flickering stimulus. She was isolated by heavy-duty electromagnetic, magnetic and acoustical shielding, and blind to when the stimuli would appear, providing clear evidence for a telepathy-like connection. The study was funded by the National Institutes of Health, but it didn't appear as headline news because of what I called the "Emperor's New Media" in the last issue of *Shift* (#2)--some ideas are so revolutionary that they are invisible to the mainstream.

As we wait for the world to realize that some paradigms have already shifted, in the IONS laboratory we have been studying a first cousin of telepathy--reports of "gut feelings." We noticed that when people report intuitive hunches, they are often described as visceral sensations in the pit of the stomach. To investigate the possible gut-intuition relationship in more detail, we ran an experiment using an electrogastrogram (EGG).

To measure the EGG, electrodes are placed on the surface of the abdomen; this produces an electrical signal with a cyclic period of about 20 seconds. The frequency and amplitude of the EGG changes in response to gastrointestinal activity and to emotions. To see if one person's gut might respond to a distant person's emotions, we recorded the EGG of an isolated "receiver" while exposing a distant "sender" to four emotion-provoking multimedia programs, at random times.

Twenty-six pairs of adult friends and relatives participated in the study. Results showed that when the distant senders were experiencing positive or sad emotions, as compared to a neutral no-emotion condition, the receivers showed larger increases in their EGG amplitudes. In statistical terms, the results were quite strong ($p = 0.006$ for positive emotions, $p = 0.0009$ for sad emotions).

One of the implications of this study is that those odd sensations in your gut are sometimes attributable to a bad burrito. But they might also be due to our innate intuitive perceptions. Sometimes "I feel your pain" serves to remind us that everyone's suffering is our own.

`There is no separation of mind and emotions; emotions, thinking, and learning are all linked.'--ERIC JENSEN

Cultivating CompassionWhat are the benefits of meditation? Researchers at the Institute of Noetic Sciences have been tracking this question for more than 20 years. Today, there is greatly increased interest in studying the effects of meditation-based interventions on health and well-being. One such study now under way is the Cultivating Emotional Balance (CEB) project at the University of California, San Francisco. The study was initiated in conversations between Paul Ekman, a pioneering emotion researcher, and His Holiness the Dalai Lama.

This study involves a randomized clinical trial to assess the effects of an eight-week intervention combining psychological training with meditation. Most research in this area has focused on improving negative results such as anxiety and depression. However, researchers are beginning to recognize that well-being lies not only in the reduction of difficulties, but also in the cultivation of positive emotion, and virtues such as love, altruism, and compassion. Empirical research in these areas has been limited by the lack of reliable measures for such constructs.

In support of this research program, the Institute of Noetic Sciences co-sponsored and hosted on the IONS campus a University of California, San Francisco (UCSF) invitational conference entitled "Compassion: Conceptualization and Measurement. " Other co-sponsors included the Fetzer Institute, the Institute for Research on Unlimited Love, the Mind and Life Institute, the Santa Barbara Institute, and the University of California, Berkeley, Center for Peace and Well-Being. A multidisciplinary team of researchers (from the University of California at Davis, Berkeley, and San Francisco; Stanford University; Arizona State University; the University of San Francisco; and the University of Massachusetts) convened with Buddhist scholars, meditation teachers, and clinicians to discuss a thorny issue: how researchers might go about measuring compassion.

Margaret Kemeny, PhD, professor and director of the Health Psychology program at UCSF and principal investigator of the CEB project, and Cassandra Vieten, PhD, director of the CEB project and research psychologist at the Institute of Noetic Sciences, organized the meeting. Through it they sought to identify a working definition of compassion and the components that make it up. Time was devoted to brainstorming interdisciplinary methodologies for measuring components of compassion. And from the meeting came the formation of research teams to develop such measures. The focus was toward developing measures that do not rely primarily on self-report questionnaires, but instead allow researchers to look at implicit manifestations of compassion, such as facial expression and interpersonal interactions, psychophysiological reactions to compassion-evoking stimuli, and the language one uses when talking about experiences of compassion. Teams formed during the meeting are currently working toward putting these ideas into action in their respective laboratories. The measurement methods that result will be used in CEB and other projects to better understand how the capacity for compassion might be cultivated.