

## Mind-Body Connection

RESEARCHERS FIND THOUGHTS, BELIEFS AND ATTITUDES AFFECT US PHYSICALLY—SOMETIMES PROFOUNDLY

By Marina Pissano

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A cancer patient guided by the soothing voice of a narrator takes an inner journey, a peaceful walk down a quiet beach, where she is warmed by the sun and calmed by the sound of waves gently lapping up on the sand. At her feet, she spies a beautiful shell that suddenly opens to reveal a secret message: Hope.

That New Age, touchy-feely talk may sound flaky—skip the guided imagery, just shoot me full of chemo, thank you—but Oakley Ray, a psychologist and researcher at Vanderbilt University in Nashville, Tenn., says there is a strong correlation among the mind, the body and health.

"It's not magical thinking," he says. "It's science. Changes in our mind change our biology."

The mind, as the functioning of the brain, communicates with the body. The body communicates with the mind. And it happens on a cellular and molecular level. In fact, the nervous system, immune system and endocrine (hormonal) system are all intimately connected, says Robert Ader, a psychiatrist and director of the Center for Psychoneuroimmunology Research at the University of Rochester Medical Center in New York.

The mind can't cure cancer in Jane Thomas or any one else. It can't cure heart disease. But in "How the Mind Hurts and Heals the Body," an article in the January issue of the journal *American Psychologist*, Ray concludes the impact of psychosocial factors on health and the course of disease is enormous. His review of 100 years of research concludes that more than 50 percent of the deaths in this country can be attributed to behavioral and social factors. When it comes to staying healthy or fighting disease, not just life events and stressors, but thoughts,

emotions, attitudes, belief systems, coping skills and support systems can hurt or help us.

Recognizing the role of the mind-body link in medicine, the National Institutes of Health in 1999 awarded \$10 million to set up five centers around the country to focus on mind-body interactions and health. The centers study how beliefs, attitudes, values and stress affect physical health.

Some people consider this alternative medicine, says Bruce S. Rabin, a stress and immune-system researcher and professor of pathology and psychiatry at the Uni-

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versity of Pittsburgh School of Medicine, one of the NIH mind-body centers. "This is not alternative medicine. It's not complementary medicine. It's not integrative medicine. This is medicine."

The science that studies interactions between these connected systems and the role of stress and behavior on them is psychoneuroimmunology, or PNI. It brings together psychologists, psychiatrists, neurologists, microbiologists, immunologists and other specialists conducting laboratory and clinical research. They work at the point where psychological, sociological and cultural factors meet biochemistry and physiology.

"When you talk about mind-body medicine, you're using dualistic language," says Ader, considered the "father" of PNI. "But nobody working in this area believes there's any separation between the two. It's all one."

Neurotransmitters in the brain can communicate with the immune system. An activated immune system can release messenger molecules called cytokines that communicate with the nervous system. Cytokines control the "sickness response"—loss of appetite, lowered activity, more sleep. Also, when there are hormonal responses to emotional distress, receptors on the lymphocyte cells of the immune system can receive those hormonal signals.

They don't have all the answers yet, but PNI researchers are carving out a new biopsychosocial health care model they say is replacing the old biomedical model. Changing models will take many years, but the new paradigm is real and revolutionary and has significant implications for the way illnesses are defined, prevented and treated—and for the whole health care system.

### ANCIENT MEDICINE

Looking at the sweep of history, the idea of a mind-body link goes back to the ancient Greeks. But over the centuries, with the rise of science and the discovery of the pathogens that cause disease, medicine adopted a dualistic view that separated mind and body.

Ader recalls that 30 years ago, when "by accident" he came upon a connection between conditioned saccharin aversion in rats and suppression of their immune systems, he was greeted with disbelief by immunologists, who insisted the immune system was autonomous. "They said it was impossible. They said I must be some kind of quack. And those were the polite responses."

The immunologists came around. Among the early studies in humans, Ronald Glaser and his wife, Janice Kiecolt-Glaser, in the 1980s followed 40 first-year medical students for a year and found, sure enough, the stress of exams weakened their immune systems and seemed to lead to more infections and illness. More research followed.

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