The Healing Power of Hope

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THE HEALING POWER OF HOPE Researchers are exploring the scientific basis of this vital emotion that has the ability to alter the course of illness. The Anatomy of Hope by Jerome Groopman, M.D., 248 pages, Random House, $24.95

The ability of the mind to foster healing has long been an intriguing concept. Ailing patients who believe that they can get better often do. In his practice, Dr. Jerome Groopman, an expert in blood diseases, cancer, and AIDS at Beth Israel Deaconess Medical Center in Boston, recognized that giving patients hope for recovery could be helpful in their treatment. But he never realized the full importance of hope for healing until he experienced it firsthand in his recovery from a chronic ailment. In his new book, The Anatomy of Hope: How People Prevail in the Face of Illness, Dr. Groopman tells the dramatic story of his delivery from pain and explains what researchers are discovering about how emotions can control the outcome of illness.

Dr. Jerome Groopman is chief of experimental medicine at the Beth Israel Deaconess Medical Center in Boston and holds the title of Dina and Raphael Recanati Professor of Medicine at Harvard Medical School.

For 19 years, Dr. Groopman suffered from severe back pain. A spinal surgery had paralyzed his legs for a time, and ever since he had lived by restricting his movements for fear of debilitating muscle spasms that would erupt at the slightest provocation. To avoid hurting his back, Groopman had to get out of bed in a special way and sit in a particular manner. He could not play catch with his children and could walk only a few blocks at a time. For the scar tissue that was irritating his spinal nerves, he knew there was no surgical solution.

Dr. Groopman had long since given up seeing specialists for his condition. But in the summer of 1999, an extreme and persistent pain attack led him to Dr. James Rainville at the New England Baptist Hospital Spine Center.

After thoroughly examining Groopman, Dr. Rainville surprised him by saying that he could be freed of his pain. Rainville used a colorful metaphor to describe Groopman's condition. "You are worshiping the volcano god of pain," he said. "The volcano god of pain is your master."

He would have to stop sacrificing to the volcano god who would never be satisfied, Dr. Rainville said. To do this he would have to "reeducate" his muscles, tendons, and ligaments to "erase the memory of trauma" they carried. A program of therapy challenging him with increasing weights would rebuild his muscles, and the pain would eventually subside.

Although skeptical and fearful of the trauma the therapy would cause, Dr. Groopman decided reluctantly to try it. Dr. Ralnville had given him something no one else had, a tantalizing vision of hope.

As expected, the therapy caused considerable pain. But while lying on soothing ice packs, Groopman visualized activities he would like to be able to do, such as walking with his daughter or dancing at a wedding. With these thoughts, a warm feeling seemed to envelop him.
After a little over a year of therapy, the pain subsided. Dr. Rainville had been right. The recovery "seemed almost magical," Dr. Groopman writes. Somehow he had taught his body to forget the pain, and was convinced that the emotion of hope had played a decisive role.

"I was most intrigued by the sense that I may have felt physical changes caused by hope," he writes. "But I distrusted my impression. So I asked, as a scientist, is there a biological mechanism whereby the feeling of hope can contribute to clinical recovery?"

Dr. Groopman delved into the various lines of research that are shedding light on the way the mind can affect the body and promote healing. One of them involves the placebo effect. A leader in this area is Dr. Fabrizio Benedetti of the University of Turin in Italy. The word "placebo," Dr. Groopman notes, is Latin for "I shall please" and comes from the Catholic vesper service for the dead in which mourners were paid to participate to help calm grieving loved ones. Most people think of placebos as fake medications, the sugar pills once given to problem patients to assuage their demands for relief. The thing is, placebos really do work, and sometimes dramatically. Dr. Benedetti has shown experimentally that a neutral agent, such as saline, can actually be as effective as morphine in relieving pain when administered to a patient who is preconditioned to believe that he or she is being given morphine.

He theorizes that in responding to the placebo, the patient's body produces its own pain-relieving chemicals called endorphins and enkephalins that mimic morphine. He also has shown that subjects experience more pain relief when they are aware they are receiving a painkiller than when the painkiller is delivered unannounced, because in expectation of relief, the body's own pain relievers bolster the morphine's effects.

The placebo effect works not only with painkilling drugs, but also with surgery. In a study at Baylor College, osteoarthritis patients were given real and sham arthroscopic knee surgery. The patients with the real surgery reported less pain after recovery, but the patients who received the placebo surgery reported an equal amount of pain reduction.

Just as important as this mind-body connection demonstrated in the placebo studies, Dr. Groopman suggests, is the opposite: a body-mind connection that occurs when an injured or ill part of the body suddenly improves and the brain detects it. This sparks hope in a patient, which sets off a chain reaction of pain-relieving chemicals. The possibility exists that if doctors can make a small improvement in just one symptom (a slight diminution in pain, for example) in an ill patient, the brain may kick in and help provide an even bigger boost toward recovery.

Studies of the circuitry and functioning of the brain have shown no single "hope center" or "hope neurotransmitter," Groopman writes. However, brain researchers such as Joseph LeDoux, professor of science at New York University, have learned that negative emotions such as fear arise in a deep brain structure called the amygdala.

What we have found out about the biological mechanisms of hope is only the beginning, Dr. Groopman writes. He had been taught in a traditional medical curriculum in which each organ was approached "in an isolated, reductionist way." The mind was linked to the body "only in rare instances" such as anxiety and despair. Now Groopman has come full circle in his beliefs. "We are just beginning to appreciate hope's reach and have not defined its limits," he writes. "I see hope as the very heart of healing."

The Body-Mind Connection

-From The Anatomy of Hope

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The stirrings of recovery in our tissues help generate the feeling of hope. At that moment, clinical treatments can have their most profound impact on our psychology. With each increment in improvement, the body sends more signals that inform the brain of a return to health. As with a climber gradually ascending from a deep and threatening crevasse, each upward step makes it easier to see the end and sustain hope.

So, while we are familiar with the mind-body connection, and researchers explore how thoughts and emotions affect our tissues and organs, it will be important to pursue research on what can be termed the body-mind connection: how input from peripheral parts is sent to the central nervous system and alters the chemistry of the brain to shape cognition and feelings.

This is the vicious cycle. When we feel pain from our physical debility, that pain amplifies our sense of hopelessness; the less hopeful we feel, the fewer endorphins and enkephalins and the more CCK we release. The more pain we experience due to these neurochemicals, the less able we are to feel hope.

To break that cycle is key. It can be broken by the first spark of hope: Hope sets off a chain reaction. Hope tempers pain, and as we sense less pain, that feeling of hope expands, which further reduces pain. As pain subsides, a significant obstacle to enduring a harsh but necessary therapy is removed.

People with a variety of maladies ranging from cancer to neurologic disorders to circulatory diseases complain of unremitting fatigue. For decades I would simply acknowledge the expected when my patients told me how exhausted they were. Now I look for ways to alleviate some of the fatigue, because even small reductions in that symptom can have a major impact on a patient's sense of hope.

This phenomenon became apparent to me recently when an older woman with an indolent form of chronic leukemia began to despair. Her malady had not gone into remission. The best way to treat it was not clear, and she appropriately sought the advice of several specialists. I was one of them. All of us echoed the others' words of encouragement; there were still several options to be tried that could make inroads against the disease. Yet our words seemed to fall on deaf ears. Then the primary hematologist noted that the woman's anemia was gradually worsening. He increased her dose of erythropoietin, the genetically engineered growth factor that stimulates red blood cell production in the marrow. The treatment increased her hemoglobin a small amount, but even that boost had a profound impact. "I feel better," she said. "I'm still tired, but not like I was, so fatigued that I didn't want to move out of bed in the morning." With that single change in how she felt, she was able to take in our words of encouragement. It was as if the relentless signals from her tissues, demanding hemoglobin and its gift of oxygen, had crowded every corner of her mind and allowed no room for hope.

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