

The Research of Candace Pert, Ph.D.

Your Body is Your Subconscious Mind: Mind-Body Medicine Becomes the Science of Psychoneuroimmunology (PNI)

Candace Pert, PhD, is Professor, Department of Physiology & Biophysics, Georgetown University School of Medicine, Washington DC, and author of Molecules of Emotion: The Science Behind Mind-Body Medicine.

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“Candace has taken a giant step toward shattering some cherished beliefs held sacred by Western scientists for more than two centuries. Her pioneering research has demonstrated how our internal chemicals, the neuropeptides and their receptors, are the actual biological underpinnings of our awareness, manifesting themselves as our emotions, beliefs and expectations, and profoundly influencing how we respond to and experience our world.

~Deepak Chopra MD, from the Foreword of Molecules of Emotion

Dr. Candace Pert rocketed to fame in the scientific world in the early 70's when, as a fledgling neuropharmacologist, she took on the daunting task of finding the opiate receptor for her doctoral dissertation at the Johns Hopkins School of Medicine. For the next decade and a half she headed a laboratory at the National Institutes of Health which published over 200 scientific articles explaining the discovery of numerous "neuropeptides." The ground-breaking work that Pert did with the opiate receptor was later nominated for a Lasker Award, also known as the "American Nobel Prize," awarded annually for outstanding medical research.

Pert's discovery of the opiate receptor started a revolution that would later create profound shifts within nearly every field of modern medicine. It would ultimately unite immunology, endocrinology, neurophysiology, psychology and biology into a cohesive theory about how our thoughts and emotions are capable of creating wellness or disease in our bodies. It would explain and validate what Eastern healing traditions, shamans, energy healers and most alternative practitioners have understood for eons.

Eastern philosophy would state that consciousness precedes reality. Western thought espouses the opposite view and has taught for hundreds of years that consciousness, thoughts and emotions are products of the physical brain and have little to do with the body or our health. How many times has the statement, "It's all in your head" been given when no logical answer makes sense, thus suggesting that whatever complaint is being reported by the patient is not real. Pert would say it's all in your "bodymind" and it's all important. She maintains that theories of psychosomatic illness must shift, as we uncover ever more scientific research validating that consciousness is a body-mind phenomenon.

The New Science of Psychoneuroimmunology: Everything is Psychosomatic

As a ground-breaking neuroscientist, Pert's research helped to create the foundation for an entirely new interdisciplinary branch of science called "Psychoneuroimmunology" or PNI. PNI unites the three classically separated sciences of neuroscience, immunology and endocrinology and their associated glands and organs into a multidirectional communication network, linked by information carrying molecules called (neuro)peptides. Pert provided PNI with a clear scientific language to use, that of peptides and their receptors, also known as "information substances," thereby helping to legitimize the field. Pert notes that her preferred term was "Psychoimmunoneuroendocrinology" recognizing the inclusion of the endocrine system, but the simpler name of PNI became the accepted term in scientific circles. The more popular name for PNI, soon became "mind-body medicine."

"Thus, we might refer to the whole system as a psychosomatic information network, linking 'psyche,' which comprises all that is of an ostensibly nonmaterial nature, such as mind, emotion and soul, to 'soma,' which is the material world of molecules, cells and organs. Mind and body, psyche and soma."

Dr. Pert's research provides scientific evidence that a biochemical basis for awareness and consciousness exists, that the mind and body are indeed one and that our emotions and feelings are the bridge that links the two. She explains, "The chemicals that are running our body and our brain are the same chemicals that are involved in emotion. And that says to me that we'd better pay more attention to emotions with respect to health."

Using Pert's research as a foundation, we now have a new scientific understanding of the power of our minds and our feelings to directly and profoundly affect our health and well-being. This new science explains that we are one system; the brain is integrated into the body at a molecular level and therefore neither can be treated separately without the other being directly affected. According to Pert, our bodies are in fact our subconscious minds:

"In the end I find I can't separate brain from body. Consciousness isn't just in the head. Nor is it a question of the power of the mind over the body...because they're flip sides of the same thing. Mind doesn't dominate body, it becomes body."

How Did Modern Medicine Get It So Wrong?

Indigenous cultures worldwide have long been known to honor the mind/body/environment connection. Chinese Medicine and Ayurveda, systems of medicine 3000-6000 years old, still correlate organs and illness with specific mental/emotional states and seek to return the patient to mind/body/spirit

balance so that healing occurs organically. And Aristotle suggested there was a connection between mood and health when he wrote, "Soul and body, I suggest, react sympathetically upon each other." So how did Western Medicine come to embrace exactly the opposite view?

Blame it on Rene Descartes, a 17th century French philosopher ("I think, therefore I am") and what we've come to refer to as the "Cartesian Split." Descartes needed human bodies for dissection studies and he made a deal with the Pope of his era. He wouldn't have anything to do with the soul, the mind or the emotions, which remained under the Church's jurisdiction. And modern medicine would take the physical body as its domain, thus dividing the human being into two separate parts that were not to overlap. Descartes declared, "Anything to do with the soul, mind or emotions, I leave to the clergy. I will only claim the realm of the body."

According to this paradigm, to understand a human being, all one had to do was take the body apart and study the various physical components (also referred to as "reductionism"). Sir Isaac Newton, the "Father of Modern Science," also maintained through his "Newtonian Construct" that only physical matter was real and that it was all that really mattered. And so the foundation was laid for the several hundred years of relating health and the curing of disease exclusively to the realm of treating the physical body. This theory is changing slowly, and even today, most modern doctors will ask about physical symptoms and then prescribe drugs or surgery. Using the mind to understand the body is still usually labeled "unscientific" and mind affecting body "psychosomatic" and therefore somehow not relevant.

How Our Emotions and Thoughts Become Our Physical Body Peptides and Receptors: The Molecules of Emotion

What exactly is a molecule of emotion? The first component is the one Pert discovered thirty some years ago that launched her scientific career—the complex molecule known as the receptor, and more specifically—the opiate receptor. She developed a method to measure it and therefore, in a backwards sort of way, prove its existence. This discovery would explain the mechanism by which such opiates as heroin or morphine create their powerful effect on the body, the mind and the emotions. Coincidentally, Pert had a personal experience that had birthed a growing fascination about how these substances caused such a powerful effect on the body, mind and emotions simultaneously.

After a bad fall while horseback riding, she found herself in the hospital, being given a morphine derivative to relieve the pain of a compressed lumbar vertebra. She marveled at the combination of both pain killing effect and the mental and emotional changes induced by the drug. Pert noted the euphoria and blissful altered state she experienced every time she received an injection. She so liked the opiate's "wonderful feeling of being deeply nourished and satisfied" that she

considered continuing on the drug for her pain when she was released from the hospital. Although she eventually decided against that option, her intense physical and emotional experience intrigued her and she wondered about this overlap of physical and emotional effects from a single drug. In this fascination she no doubt had a great deal of company. Many have wondered how such drugs as heroin, marijuana, Librium and cocaine are able to create such intense emotional shifts. This hospital experience would later trigger an interest in proving the existence of the opiate receptor as Pert's doctoral focus.

Receptors sit on the surface of cells and number in the hundreds of thousands on the average cell; specialized cells such as neurons might have millions of receptors surrounding them. These receptors act as tiny scanners and sensors which wait patiently until the exact chemical key comes along that will fit into them, much like a regular key is made to only fit into one specific lock. These chemical keys are called ligands and the most common of these is known as a (neuro)peptide, accounting for nearly 95% of known ligands. Pert describes what happens next as "quite amazing." The peptide delivers its chemical message to the receptor, which then transmits this message deep within the cell, triggering a chain of biochemical reactions which can create huge changes within the cell—of either a positive or negative nature.

Pert calls the peptides the second component of the molecules of emotion. She offers an analogy:

"If the cell is the engine that drives all life, then the receptors are the buttons on the control panel of that engine, and a specific peptide is the finger that pushes that button and gets things started."

Pert then asked the logical question: If we all have the opiate receptor present on the cells within our bodies, then must it not follow that our bodies have the ability to make our own endogenous version of morphine? Why else would these receptors already be present on our cells? Within three years she was proved correct when the natural opiate substance manufactured within the body was discovered and eventually became known as an "endorphin," a shortened version of "endogenous morphine." The implications in this discovery are profound and suggest that we may in fact have a "natural pharmacopeia" potential already present within us. Perhaps someday we will all be capable of manufacturing our own natural biochemicals at will-- in effect orchestrating our own healing. According to Pert, this concept is not as far fetched as it sounds and perhaps not so far off either.

Implications for Disease and Healing: The Power of Unhealed Feelings

Emotions are real—they exist in time and space and are located throughout our minds and bodies. If we accept the concept that peptides and their receptors are the actual biochemicals of emotion, then their presence in the body's nervous

system and nerve cells shows us that the body can be thought of as the unconscious or subconscious mind. Pert explains further:

“As investigations continue, it is becoming increasingly apparent that the role of peptides is not limited to eliciting simple and singular actions from individual cells and organs systems. Rather, peptides serve to weave the body’s organs and systems into a single web that reacts to both internal and external environmental changes with complex, subtly orchestrated responses. Peptides are the sheet music containing the notes, phrases and rhythms that allow the orchestra—your body—to play as an integrated entity. And the music that results is the tone or feeling that you experience subjectively as your emotions.”

Can the kinds and numbers of emotion-linked peptides at receptor sites on our cells influence whether we will stay well or get sick? Pert suggests yes and offers the example of viral illness: “Viruses use these same receptors to enter into a cell, and depending on how much of the . . . natural peptide for that receptor is around, the virus will have an easier or harder time getting into the cell. So our emotional state will affect whether we’ll get sick from the same loading dose of a virus.” This would also explain why some people get much sicker than others from an identical exposure to a virus. Pert considers.... might an elevated mood of happiness, positive expectation or hope offer some protection against a virus? She answers by telling us that she’s never gotten a cold while skiing—a sport she obviously loves.

What does this suggest about the process of developing cancer and an individual’s potential for healing? And further, what is the relationship between the mind, the emotions and a cancer patient’s state of health? Pert suggests there is a profound and direct connection:

“We are all aware of the bias built into the Western idea that the mind is totally in the head, a function of the brain. But your body is not there just to carry around your head. I believe the research findings....indicate that we need to start thinking about how the mind manifests itself in various parts of the body and, beyond that, how we can bring that process into consciousness...the neuropeptides and their receptors are the substrates of the emotions, and they are in constant communication with the immune system, the mechanism through which health and disease are created.”

“Think of (stress-related disease) in terms of an information overload, a situation in which the mind-body network is so taxed by unprocessed sensory input in the form of suppressed trauma or undigested emotions that it has become bogged down and cannot flow freely, sometimes even working against itself, at cross-purposes.”

Your Brain is Not in Charge

In a July 2004 interview with New Dimensions Radio (www.newdimensions.org), Pert and her husband and research partner, immunologist Michael Ruff, discussed the highly complex psychosomatic communication networks of information molecules we are all made of. They explain that we are not “brain centric” at all and that a state of mind is in actuality a state of consciousness in the body as well. The origins of illness really are within us.

Science and medicine have long been convinced that thoughts and emotions originate in the brain. In an interesting twist, Pert and Ruff disagree and suggest that “thoughts and emotions bubble up from the body to the brain, where we can process and verbalize them according to our expectations, beliefs and other filters—some get through and others don’t.” And then, Pert says, the frontal cortex of the brain creates stories and assigns meaning around those thoughts and emotions that do get through.

Our Immune Systems Can Learn and Respond

Pert tell us that neuroscience has now proved that immune cells can be conditioned to respond to stimuli, much like Pavlov’s dogs were conditioned to salivate at the sound of a bell. Psychologist Robert Ader, at the University of Rochester School of Medicine, gave laboratory rats an immune-suppressing drug flavored with sweet-tasting saccharin. Eventually the rats became so conditioned to the effects that giving them only the saccharin and no drug at all caused their immune systems to become depressed—at the unconscious and autonomic level. Pert comments:

“We know that the immune system, like the central nervous system, has memory and the capacity to learn. Thus, it could be said that intelligence is located not only in the brain but in cells that are distributed throughout the body, and that the traditional separation of mental processes, including emotions, from the body is no longer valid.”

Later, in pivotal studies at the Case Western Reserve University in Ohio, scientist Howard Hall proved that the immune system could also be conditioned consciously using self-regulatory practices such as self-hypnosis, biofeedback, guided imagery, relaxation and autogenic training. Using several control groups, Hall demonstrated that with conscious preparation, through using one of the types of practices noted above, individuals could consciously control the stickiness of their white blood cells, as measured by both blood and saliva tests. Pert then asks the obvious question: “If the immune system can be altered by conscious intervention, what does this mean for the treatment of major diseases such as cancer?”

Can suppressing anger or other emotions contribute to the development of cancer—a theory proposed by Dr. Lydia Temoshok in her chapter on this website? Since expressing emotions contributes to a free flowing network of

peptides and cellular communication in the body, Dr. Pert says yes--absolutely. "My research has shown me that when emotions are expressed....all systems are united and made whole. When emotions are repressed, denied, not allowed to be whatever they may be, our network pathways get blocked, stopping the flow of the vital feel-good unifying chemicals that run both our biology and our behavior."

A general theory of cancer suggests that we all have errant or mutated cancer cells created in our bodies every day, yet only some individuals will go on to develop the disease. Normally our immune systems destroy these errant cells, yet in individuals whose immune systems are severely compromised, this mechanism fails. If the immune system is influenced by the "molecules of emotion" and the peptide/receptor system in the body, then what happens if the free flow of peptides is interrupted on a continual basis by the repressed emotions of a lifetime?

Pert says it's not too hard to figure out what might happen in such a case:

"Let me begin to answer by saying that I believe all emotions are healthy, because emotions are what unite the mind and the body. Anger, fear, sadness, the so-called negative emotions, are as healthy as peace, courage and joy. To repress these emotions and not let them flow freely is to set up a dis-integrity in the system, causing it to act at cross-purposes rather than as a unified whole. The stress this creates, which takes the form of blockages and insufficient flow of peptide signals to maintain function at the cellular level, is what sets up the weakened conditions that can lead to disease."

"All honest emotions are positive emotions. Health is not just a matter of thinking 'happy thoughts.' Sometimes the biggest impetus to healing can come from jump-starting the immune system with a burst of long-repressed anger. How and where it's expressed is up to you—in a room by yourself, in a group therapy situation where the group dynamic can often facilitate the expression of long-buried feelings, or in a spontaneous exchange with a family member or friend. The key is to express it (appropriately) and then let it go, so that it doesn't fester, or build, or escalate out of control."

How to Use This Information to Heal: Dr. Candace Pert's Eight Part Program

Pert suggests a program of eight ways to use the information in her ground-breaking book to stay healthy, or to heal if a disease state is already present. Not in the list below is the foundational concept for all that follows: acknowledge and claim all your feelings because they are the entrance point into the bodymind's communication network.

1. **Become conscious.** Educate yourself about these processes and become aware of how your bodymind operates to maintain wellness.

2. **Learn to access the Psychosomatic Network in order to enter the bodymind's conversation and redirect it when necessary.** Use an awareness of the past experiences and conditioning that are stored in the receptors on your cells, to release them at an emotional level. Help for this process can include psychotherapy, personal growth seminars, guided visualization, meditation, hypnotherapy, prayer etc.
3. **Explore your dreams.** Dreams are one of the bodymind's methods of exchanging information for growth and healing. "Capturing that dream and re-experiencing the emotions can be very healing, as you either integrate the information for growth or decide to take actions toward forgiveness and letting go...Your dreams relate not just to your mind, but to your body as well. Dreams can be your own early-warning system, letting you know if a medical condition is developing and helping to bring your attention to the problem area. The body may be discussing this condition with the mind, and you can get in on the conversation by consciously recalling the dream...once you make the decision to pay attention to your dreams, they will start to speak to you, and you will understand them with ever-greater fluency over time, with practice."
4. **Get in touch with your body.** "Your body is your subconscious mind and you can't heal it by talk alone." We can access our minds and our emotions through the physical body. Use bodywork or movement therapy to heal stuck emotions. Take a walk, run, have a massage or spinal adjustment, get a few hugs and see how you feel. Using touch, massage, physical manipulation of various types can release stored or blocked emotions by clearing internal pathways. Many healers or practitioners of eastern healing systems can see blocked energy in the body and are trained to release it at a physical level. All injuries and traumas are stored in the tissues of the body. Pert concludes, "...almost every other culture but ours recognizes the role played by some kind of emotional catharsis or energy release in healing."
5. **Reduce stress.** In Pert's opinion, the most effective way to reduce stress is to learn to meditate and practice it regularly.
6. **Exercise.** Modern lifestyles encourage a sedentary lifestyle. The body was made for moving. Pert suggests trying yoga.
7. **Eat wisely.** "Eating, because of its survival value, has been widely interpreted by evolution to be a highly emotional event." Our gastrointestinal tracts are densely lined with peptides and receptors which busily process information rife with emotional content. Here is also where our "gut feelings" happen. Pert also tells us that she considers sugar to be an addictive substance.
8. **Avoid substance abuse.** These addictive substances bind to our receptors, blocking the natural flow of our own peptides. For example, alcohol binds to what is known as the GABA receptor. Using alcohol to excess floods our GABA receptors, eventually causing them to decrease in sensitivity and/or number, making recovery more difficult

over time. This same kind of action applies to marijuana, tobacco, cocaine and even sugar.

If we can learn to communicate with our bodyminds, we can tap into our body's own language to better understand and facilitate healing. Pert has come to believe that emotions are the key to coordinating all the parts of us into a harmonious and healthy whole.

New Paradigm Medicine: Healthcare of the Future

In November 2002, Dr. Pert and her research partner, Dr. Michael Ruff, were honored for their scientific contributions by The National Foundation for Alternative Medicine at an awards ceremony in Washington DC. They were asked to submit a summary of their views about the future of healthcare and excerpts are taken from this summary below. Pert calls this view "New Paradigm Medicine."

"We have coined the phrase 'New Paradigm Medicine' to reflect the fact that it uses the established scientific method and will require quantum physics to understand the scientific underpinnings. The terms alternative, integrative and complementary are political, not scientific terms. We believe that New Paradigm Medicine will be fully scientifically validated one day. ...We are not a collection of separate organs or systems, but an information network in which our cells are constantly moving from one location to another as they are being formed or replaced, regulated by the molecules of emotion. ...

Thus cancer, in particular, will be appreciated as a disease of the mind as well as the body and treated at centers...where body, mind and spirit are considered. One day, cancer will be cured by interventions that release emotions in a controlled fashion such as guided imagery, art therapy, animal therapy, massage and bodywork, neurolinguistic programming, energy psychology, chiropractic and last but not least music therapy. These will be used in combination—"cocktails"—scientifically optimized and validated protocols by skilled practitioners, and will actually cure or prolong high quality life in many cancers. Whatever the the pain, it's actually the brain where it is perceived. Sophisticated biofeedback methods instead of drugs or surgery will be used to treat it more successfully, along the methods above—and more.

Nutrition will be taken extremely seriously. The fact that most of today's crops are grown for appearance and are seriously depleted of essential nutrients will be appreciated, and supplements and superfoods will be used, based upon controlled scientific clinical data."

The Spiritual Connection

Pert was one of the scientific experts interviewed in the highly acclaimed Bill Moyers PBS series, "Healing and the Mind." At one point, she asked Moyers, "Can we account for all human phenomena in terms of chemicals? I personally think we're going to have to bring in that extra-energy realm, the realm of spirit and soul that Descartes kicked out of Western scientific thought."

She describes this spiritual viewpoint in her book as well:

"Yes, we all have a biochemical psychosomatic network run by intelligence, an intelligence that has no bounds and that is not owned by any individual but shared among all of us in a bigger network, the macrocosm to our microcosm, the 'big psychosomatic network in the sky.' And in this greater network of all humanity, all life, we are each of us an individual nodal point, each an access point into a larger intelligence. It is this shared connection that gives us our most profound sense of spirituality, making us feel connected, whole. As above, so below."

Words of Wisdom: Aim for Emotional Wholeness

Pert concludes her book with the following simple recommendations, gleaned from all the scientific data she has included in describing the tenets of Psychoneuroimmunology and their implications for healing:

"Aim for emotional wholeness. When you're upset or feeling sick, try to get to the bottom of your feelings. Figure out what's really eating you. Always tell the truth to yourself. Find appropriate, satisfying ways to express your emotions. And if such a prescription seems too challenging, seek professional help to feel better."

"I believe the alternative or complementary therapies are a form of professional help much less likely to do harm and more likely to do good than conventional approaches. They work by shifting our natural balance of internal chemicals around, so we can feel as good as possible. They are often particularly helpful for alleviation of the many chronic maladies that currently have no good medical solutions.... ."

"Last but definitely not least, health is much more than the absence of illness. Live in an unselfish way that promotes a state of spiritual bliss that truly helps to prevent illness. Wellness is trusting in the ability and desire of your bodymind to heal and improve itself, if given half a chance. Take responsibility for your own health—and illness."

What the Bleep Do We Know?

If you would like to know more about the science behind how our thoughts and emotions create our reality, including our state of health, then you should consider seeing the film, What the Bleep Do We Know. This a ground-breaking,

user-friendly documentary/movie that uses entertaining visual effects and storytelling to demonstrate the tenets of quantum physics and mind-body science as the force behind the creation of our daily lives. Interviews with award winning physicists and other researchers and scientists such as Candace Pert, are woven provocatively throughout the movie. See www.whatthebleep.com for more info. Available on Amazon.

Candace Pert, PhD is the author of *Molecules of Emotion: The Science Behind Mind-Body Medicine* and *Your Body is Your Subconscious Mind*, a 2 cassette tape set. Dr. Pert and her research partner, Dr. Michael Ruff, have published over 250 scientific articles on peptides and their receptors and the role of these neuropeptides in the immune system. They hold a number of patents for modified peptides in the treatment of psoriasis, Alzheimer's Disease, chronic fatigue syndrome, stroke and head trauma. One of these, peptide T, is currently in Phase II trials in the U.S. for the treatment of AIDS and neuroAIDS.

Source: <http://www.healingcancer.info/book/export/html/34>