Dynamic Chiropractic

Soft Tissue in the "Molecules of Emotion"

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There is no longer any doubt that the mind and body are one. I just read a fantastic book, *Molecules of Emotion,* by Candace Pert,PhD, published in 1999 by Simon & Shuster. In her book, Dr. Pert, a world-renowned scientist who discovered the opiate receptor (among many other important discoveries relating to AIDS and other health problems), documents the mind-body connection.

Until very recently, the main theory of communication between mind and body was based on the hard-wire theories of the neuroanatomists that stressed the concept of nerve endings releasing neurotransmitters that cross synapses and ignite electrical discharges. All brain functions were thought to be determined by the synaptic connections between billions of neurons. It may be that less than two percent of neuronal communication occurs at the synapse.

The communication is due to protein receptors, which act as scanners, similar to our sensory organs, only at the cellular level. The receptors are like "keyholes" dancing around in our cell membranes, waiting to pick up messages carried to them by other vibrating proteins ("ligands"). Each of these bumps on and off the cell membrane until it finds a particular receptor to which it can "bind." Pert calls this binding "sex on a molecular level." The receptor transmits the message it receives from the ligand deep into the cell's interior, where the message can change the state of the cell. The function of cells depends on the specific ligands drifting by in the stream of fluid surrounding every cell. These physiological phenomena at the cellular level can create global changes in behavior, physical activity - even mood. Ninety-five percent of the ligands are peptides (more amino acids) that fit into specific receptors found throughout the body.

The receptors in the brain are also distributed throughout the body. "We have found that in virtually all locations where information from any of the five senses - sight, sound, taste, smell and touch - enters the nervous system, we will find a high concentration of neuropeptide receptors." The emotional brain can no longer be considered at the classical brain locations since the brain neuropeptides are in high concentration at many other areas of the body. The body becomes the unconscious mind. A somatosensory input (laying-on of hands) must go through the dorsal horn, which is the first synapse within the nervous system. The dorsal horn has almost every peptide receptor there is. When the receptor is flooded with a ligand, it changes the cell membrane, allowing the electrical impulse traveling toward it to be facilitated or inhibited, thereby "affecting the choice of neuronal circuitry that will be used." The brain not only filters and stores sensory input, but also associates it with other events or stimuli occurring simultaneously at any synapse or receptor along the way, which is what learning is all about. Therefore, memories are not only stored in the brain, but also in the body. A trauma to soft tissue is literally remembered by the body. We call it "muscle memory."

Receptors for brain peptides are found on immune cells, so those cells can send information to the brain, via immunopeptides, and can also receive information from the brain. By the receptor network

and the ligands stimulating them, the immune nervous and endocrine systems are all hooked up. The same peptides (ligands) found in the brain are also found in the immune system, and the nervous, endocrine, and immune systems are functionally integrated. Immune cells not only have receptors on their surfaces; they also make, store, and secrete the neuropeptides (ligands). Therefore, immune cells not only make the same chemicals that are related to controlling mood in the brain, but also manufacture information chemicals that can regulate mood or emotion. The mind is in the body, in the same sense that the mind is in the brain - both have many similar neuropeptides and receptors.

Thoughts, feelings, touch and the laying-on of hands affect the body's receptors. Touch creates healing by causing ligands to bind with receptors, thereby changing cells and bodily functions. Pert states that chiropractic probably rearranges the peptidergic nerve bundles lying alongside the spine. She feels that the energy of this communication process within our body is what chiropractors call "innate."

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