

Mind-Body Considerations in the Management of Chronic Pain

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Historically in the West, we've been drawn to the notion that the mind is something separate from the body.

This is a belief that was perhaps most clearly developed by a French philosopher in the 17th century, Rene Descartes. Essentially, he held to the view that the mind, with all of its feelings, thoughts and perceptions was like a ghost or spirit that inhabited a mechanical, physical body. He saw the mind as being separate and distinct from the body and as being governed by mental processes that were distinct from body processes. Two hundred years later, this mind-body dualism served as a partial basis for the development of psychiatry, the medical specialty concerned with mental illness as opposed to physical illness.

It turns out that this philosophical position is inaccurate and not very helpful.

Some would argue that it even has set us back a bit in terms of making progress treating a wide variety of medical problems. Specifically, in the field of spine pain, it has led to a significant misunderstanding that pain is sometimes "in one's head" rather than being "real". This in turn suggests that in some cases, and especially when the complaint of back pain is not matched by so-called "objective findings", it really is a psychiatric problem rather than a "legitimate medical problem". This way of describing pain is inappropriate and wrong-headed, and does not fit with the evidence now available to us.

Over recent decades a more accurate and more helpful view of the relationship between mind and body has developed.

Based partly on clinical experience and partly on relatively recent findings from the neurosciences, we have come to appreciate that mind and body are not meaningfully separated from one another. In the same way that the stomach is one of the organs of digestion and the liver is an organ of metabolism and filtration, the brain is the organ of behavior. It keeps us breathing, maintains a steady body temperature, and controls the processes of food absorption and metabolism. It senses the world around us and helps us make sense of our perceptions. It generates complex feelings and even more complex thoughts and ideas. We are able to speak, move, play, laugh and love on the basis of the activity of this organ.

The brain's ability to carry out unbelievably complex tasks, often all at the same time, continues to be beyond our understanding to a significant degree.

Perhaps most amazingly however, we now have clear empirical evidence from functional MRI

studies that the brain (and nervous system) actually rebuilds and reconfigures itself in response to experience. That is, the internal function of individual neurons and the pathways by which nerve cells connect to one another actually change according to the specific conditions that we and our brains are exposed to. Whether the experience is perceived as positive or negative, pleasant or traumatic, the brain actually alters its structure and function in response to life events and life experience. Termed 'plasticity', this process occurs throughout our lives. It is how we learn new things.

In fact, neuronal plasticity is the basis for all learning in our lives – whether intentional or incidental – and our ability to form and store memories.

Whether we are enjoying music at a concert or picking up the emotional pieces after a crisis, we are doing these things because our brains can reshape themselves. Moreover, we will remember what happened and will perhaps respond differently next time because of changes in our brain from the earlier event.

Plasticity is also one of the important characteristics of brain function that has shifted our understanding of the relationship between mind and body.

As a result of this shift, we have begun to manage a wide variety of medical problems differently, and this is perhaps nowhere more important than in the area of pain management. For many decades, health care providers in the west have been puzzled and frustrated by the fact that painful conditions can continue long after a wound or injury has healed. In fact, this is a favored definition of chronic pain: pain that persists past the completion of healing. It is very common for chronic pain sufferers to be told by one physician after another that he or she simply does not understand why the patient continues to hurt when the X-ray, CAT scan or MRI does not show a lesion or unhealed injury. Again, because of the mind-body split described above, it has often been assumed that such pain without positive findings means that the problem is psychological not medical.

We now have evidence that chronic pain in some cases may actually be the result of plasticity gone bad in a sense.

To fully understand the way that physiological and mental processes interact in the experience of pain, we also need to consider the relationship between the perception of pain and our current emotional state. Most of us have noticed that both acute and chronic pain are worse when we are sad, angry, tense or in any way troubled or distressed. Part of the reason for this is the common sense observation that negative life events tend to pile up and compound one another. My low back pain bothers me more when events in my life have taken a bad turn: I can't work, the bills are piling up, I am no longer able to play sports or travel or visit friends in the way I'd like, and so forth. (This, by the way, is why we are so adamant about people with chronic spine pain getting their lives back on track as quickly as they reasonably can.) Conversely, most of us have noticed that our back pain is less bothersome once we are able to once again engage in meaningful activity, and once we have the opportunity to spend pleasurable time with friends and family. It's been noted that "people who have something to do don't hurt as much".

Pleasant and meaningful activities don't literally take pain away unfortunately, but they do tend to reduce

suffering related to pain in a reliable and sometimes very powerful way.

There's another, less apparent aspect of the relationship between pain and mood that we also need to have a clear understanding of. This once again has to do with neurological function in the brain and the specific relationship between pain and depression. Typically, not just sometimes but typically, people living with chronic back pain develop symptoms of clinical depression. This means that they suffer a combination of mood changes – feeling sad, down, blah, bummed out, irritable or edgy – in addition to having a set of changes in the ways they think and feel, and how they function physically. These can include disrupted sleep and appetite, ongoing tiredness and fatigue, loss of enjoyment in formerly pleasurable activities, decreased memory and concentration, pessimism and a poor sense of self-worth, and even thoughts of self-destruction.

We have known for many years that it is nearly impossible to live with persistent pain for more than a few weeks or months, let alone year after year, without developing at least some symptoms of depression.

A very telling exercise is to ask a group of chronic pain sufferers to list the changes and symptoms they experience when they are depressed and then to consider what changes they would make to the list if the heading at the top of the page were "Chronic Pain" rather than "Depression". It turns out that the lists are almost always identical. Chronic pain and depression are not synonymous, and it is definitely possible to have pain without depression and vice versa.

We now have evidence that confirms what we have suspected for the past few decades, which is that the basis for this pain-depression relationship is largely physiological and is not the result of some kind of personal incompetence or failure.

We have known for a long time now that depression is caused in large part by a decrease in available serotonin in certain nerve pathways in the brain. It turns out that these pathways the pain perceiving pathways in the brain to a large degree, so that living with pain actually promotes depression symptoms for neurological reasons. Pain signals sent to the brain from the body day after day actually change the way the brain produces and uses serotonin and other chemicals, with the eventual result that my sleep is disrupted, I don't enjoy my life any more and so on. Important for our purposes, I also hurt more and the increased suffering creates a negative feedback loop such that worse pain means worse depression symptoms, which means even more pain, and on and on.

There is a similar relationship between pain level and the amount of stress, strain and anxiety we feel at any given time.

For our purposes, we will include a number of emotional states under the general heading of anxiety, including tension, stress, and coping with daily hassles, as well as full on fear, anxiety and panic. Anxiety and pain are both states of arousal in the nervous system, which means that again, they have a tendency to feed on or reinforce one another. Physiologically, there are at least two mechanisms at work here. First, stress and panic alter my body chemistry in a way that also increases and sensitizes the function of nerves that conduct pain signals. The more tense, uptight and panicky I am, the more pain signal is being sent to my brain. Secondly, one of the many ways we respond to pain is by tightening up our muscles, making our breathing more shallow and going on high alert. Especially for people with spine pain, tighter muscles

also means more pain.

For many decades, clinicians of many types have consistently observed that pain patients with a history of trauma have a tendency to respond to pain signals in the body differently than patients who have never been traumatized.

Specifically, they tend to be more sensitive to pain and tend to tolerate it more poorly. Referring back to our discussion about brain plasticity, we now know that trauma, especially in childhood, appears to have the effect of changing the way the brain perceives pain. Pain tends to be a "bigger deal" in the lives of people who were physically or sexually abused as children and on balance is more difficult to manage or cope with.

We need to realize that our brains have the ability to learn new things, develop new habits and new patterns subconsciously.

We process a great deal of information we have no apparent use for. We develop desires to eat foods or engage in other activities that are not good for us. We develop habits of moving or not moving. Much of this subconscious behavior is shaped and maintained by the environment around us. This is especially true regarding the ways that we learn to interact with one another and how we behave socially. This is such a persistent and powerful part of our daily lives that we rarely have a conscious awareness that it's taking place.

In the context of chronic pain, how we express pain openly to others depends a great deal on they react!

Most of us know that some people in our lives want to be given information about how we're really getting along with our back pain, and others will give us a chilly reply if we mention it or even let on that we are hurting in some non-verbal way. The tricky part is that the caring people who are likely to be open to and reinforce my overt expressions of pain actually inadvertently put me at risk for a greater level of suffering. Moreover, what I come to believe about my level of pain and what it means can be powerfully shaped by the ways that others react when I indicate that I'm in pain. The common misunderstanding here is that pain that is shaped by social contingencies is somehow not real, that it is imagined or should be called psychological pain rather than organic or physical pain. Again, this viewpoint is inaccurate and unhelpful. Pain is pain, and I am likely to have less of it when the people in my life promote activity and a return to normal functioning rather than disability, dysfunction and worse suffering.

Taken together, these comments have a number of potentially important implications about living with and effectively managing pain.

When initially assessing a problem with chronic spine pain, a complete evaluation is in order that takes into account all aspects of the individual's personal history. Since what I experience as pain is really a mix of experiences, each of the component parts needs to be carefully considered: the painful signal coming from my back and what it is in my body that is generating that signal; whether or not I have a history of mood disorder including current depression symptoms; any history of anxiety disorder or trauma, and the contribution of current stressors; and possible ways that my pain behavior may be inadvertently supported or reinforced by others who care for me. Because of this complex set of relationships, pain – and especially chronic pain – can only be managed effectively when all of the component parts are given due

consideration.

Rather than pretend that mind and body are separate, understand that pain, thought, emotion and overt behavior are all body processes and they have a direct bearing on how pain is experienced and how it is managed.