Chronic pain typically arises from any one of many sources of acute pain but may also begin with another illness, such as cancer or arthritis. Pain is considered chronic when it persists for at least three months. (Illustration by Kathryn Born)

SEEING YOUR DOCTOR ABOUT PAIN

It is not uncommon for people who feel pain to delay going to a doctor because they fear its possible cause. For example, people with a history of cancer may become anxious after the onset of a new pain because they suspect it heralds a recurrence of the disease. In people with a long history of arthritis, the worsening of their chronic pain may be a sign of their increasing disability. For elderly individuals, the persistence or worsening of pain may be associated with their ability to carry on their activities of normal daily living, or may threaten their independence. In short, the setting of the pain, its meaning, and its duration can all influence a person’s ability to tolerate it and to seek treatment for it.

As we have learned more about our bodies’ pain system, however, it has become clear that people should not hesitate to consult with their doctors about ongoing or recurring pain. Physicians should act early and aggressively against a person’s pain, using specific treatments focused on the cause of that discomfort as soon as possible. Not only might this help stem the underlying problem, but such treatment can prevent the onset of chronic pain, which over time can be much worse than the initial sensations.
Making the journey from patient to person takes time. The isolation and fear that can overwhelm a person who has chronic pain grow over time. And the return to a fuller, more rewarding life also takes time. Here are some suggestions to make the transition smoother.

- Learn all you can about your physical condition. Understand that there may be no current cure and accept that you will need to deal with the fact of pain in your life.
- Look beyond your pain to the things that are important in your life. Setting priorities can help you find a starting point to lead you back into a more active life.
- Emotions directly affect physical well-being. By acknowledging and dealing with your feelings, you can reduce stress and possibly decrease the pain you feel. It is normal to feel angry, helpless, hopeless, and alone. It is important, though, to seek help in dealing with these feelings. You can get professional help at pain centers and from mental health professionals.
- Pain increases in times of stress. Relaxation exercises are one way of reclaiming control of your body.
- Reach out and share what you know. Living with chronic pain is an ongoing learning experience.
- Be good to yourself. Nurture supportive friendships, exercise, and eat healthfully.

Adapted from www.theacpa.org (The American Chronic Pain Association)

**Chronic Pain — The Dana Guide**
By Kathleen M. Foley
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sections include: identifying types of pain, pain and the brain, diagnosing and treating pain

Most people have experienced at least one episode of severe pain. You may have done so in breaking a bone, birthing a child, or suffering from acute appendicitis. Your body was confronted with a painful stimulus and your autonomic nervous system (ANS) became hyperactive, producing a fast heart rate, elevated blood pressure, and sweating. But eventually the ANS quieted and the pain went away. Your fracture healed, your baby arrived, your appendix was removed. In each of these examples, pain flared up in response to a known cause. You either received treatment, or your body healed by itself, and you stopped hurting. Doctors call that kind of pain acute pain. It is a normal sensation triggered in the nervous system to alert you to an injury.

In contrast, chronic pain persists for at least three months. For some people, it originates in an episode of acute pain; for others, there is an ongoing cause, such as arthritis or cancer. Most often the cause is musculoskeletal, such as pain in the lower back, knees, neck, limbs, and joints. Headache, nerve injuries, surgical and postoperative pain, and traumatic injury are also common. And some people suffer chronic pain with no evident past injury or body damage. In all of these cases, the symptoms are less apparent to observers than are those of acute pain because over time the autonomic nervous system adapts. People in chronic pain may not moan or groan, sweat, or experience a high heart rate. Nevertheless, they hurt.

It is estimated that more than 50 million Americans suffer from chronic pain, twice as many as suffer from acute pain at any given moment. Women seem more likely to suffer from some kinds of pain than men. Feeling continual pain can cause significant changes in a person’s personality, lifestyle, and ability to function—all of which compromise quality of life. Some people can no longer work, while others lose their appetite or are unable to engage in any physical activities. Many have difficulty sleeping; the resulting exhaustion can lead to irritability and depression, trapping the sufferer in an endless cycle of weariness, depression, and pain.

Chronic pain affects a person’s family members and friends, too. A recent survey found that almost half of American households (43 percent) had someone living with chronic pain due to a specific illness or medical condition. Everyone involved must fight against the emotional stresses caused by this illness.

**Identifying Types of Pain**

Fortunately, many people with chronic pain can be helped once they understand the cause of their pain. One of the first things sufferers can do is to help their doctors identify what type of pain they are experiencing. There are three types: somatic, visceral, and neuropathic.

**Somatic pain** results from activation of some peripheral nerves that send information about the body to the brain without injury to the nervous system itself. People with this condition typically describe their pain as either sharp or dull. It is usually well localized, as, for example, a pinprick or a burn from a hot object.
Visceral pain is also caused by an injury or disease outside the nervous system, this time originating in the viscera (abdomen, bowels). It is characterized by an ongoing, deep, aching, cramping sensation. People with visceral pain have greater difficulty localizing their symptoms and may experience the pain at a site quite distant from its actual cause. An example of visceral pain is chronic abdominal pain.

Neuropathic pain results from direct injury to peripheral nerves or the central nervous system (CNS). It is typically described as burning or stabbing pain. People with neuropathic pain may also have an area of numbness or lack of sensation in the neighborhood of the pain. Some individuals complain of worsening pain when the area is brushed, or excessive pain when even a light touch is applied to the region. The pain caused by shingles is a common example of neuropathic pain.

We can also classify pains by their causes. One group includes chronic pain associated with structural disease such as metastatic cancer, sickle-cell anemia, or rheumatoid arthritis. This group is usually characterized by prolonged episodes of pain alternating with pain-free intervals, or unremitting pain waxing and waning in severity. In these cases, the successful treatment of the pain is closely allied to treating the disease. But in some instances—for example, in a person with advanced cancer that does not respond to anticancer treatment—relieving pain becomes the physician’s only therapeutic goal. For such people, psychological factors may play an important role in exacerbating or relieving the pain. Analgesic (pain-relieving) drug therapy, or pharmacotherapy, is often the mainstay of treatment.

Another group of people suffer from psychophysiologic disorders, meaning those with both physical and mental aspects. These individuals may once have suffered from a structural disease, such as a herniated disk or torn ligament, but psychological factors have caused chronic physiological alterations, such as muscle spasms, which produce pain long after the original injury has healed. Typically, such individuals are physically inactive and spend much of their time thinking and talking about their pain, which often leads to social and emotional isolation. Pain is indeed their major symptom. Such people often respond poorly to analgesic drugs and may suffer from adverse drug reactions and ineffective surgical procedures. Many hospitals have multidisciplinary pain clinics that diagnose and treat these intractable chronic pain syndromes, and such individuals should seek evaluation and treatment at these clinics.

Pain and the Brain

Doctors have focused increasing attention on the interaction between the persistence of pain and a person’s psychological state. There is no doubt that ongoing pain can affect people in profound ways. A recent survey found that 40 percent of patients with chronic pain are uncomfortable discussing their pain; 37 percent say it can be isolating, leaving them feeling alone. One third do not believe people understand how much pain they are in, and one quarter say their family is tired of hearing about their pain.

As our understanding of chronic pain has grown over the past several years, we have developed greater respect for a person experiencing pain. Twenty or thirty years ago, a popular myth claimed that debilitating pain without a clear physical cause was “all in the mind,” meaning that the person’s weak psychological state was what prevented him or her from functioning at a normal level despite the pain. Numerous studies have now shown that the persistence of pain can seriously affect a person’s psychological state and immune mechanisms; in fact, animal studies suggest that pain can even kill.

Today we recognize that pain is indeed in the brain, and that pain without a visible cause can be no less agonizing than other types. We have developed a very sophisticated understanding of the neuroanatomy, neurophysiology, pharmacology, and molecular biology of pain.

Imagine, for instance, that you trip and fall, landing hard on your knee. You would experience an acute, localized, painful sensation in your knee, followed by a dull and aching sensation. This is due to two types of fiber systems that conduct pain from the peripheral nerves into the CNS: A-delta fibers, which are myelinated fibers that conduct rapidly, and C-fibers, which are unmyelinated and conduct slowly. These fibers enter the spinal cord and relay information to the brain through very specialized pain-sensory systems. Recent studies using positron-emission tomography (PET) and magnetic resonance imaging (MRI) have identified specific areas in the cortex—particularly in the anterior cingulate gyrus—that are activated by painful stimuli.

These ascending signals are matched by specific descending inhibitory pathways that help modulate pain. We now think that neurons in the brain release chemicals called endorphins, which might act to turn off the spinal cord’s pain cells. Laboratory experiments have confirmed that painful stimulation leads to the release of endorphins from nerve cells. Chronic pain is associated with changes that are believed to take place in the central modulation of pain—for instance, pain after a stroke affecting the thalamus. This is likely due to a loss of the inhibitory systems.
We can see this process clearly when people develop sensitive areas that become painful if they are touched or even brushed against. There is a clear anatomical and neurophysiological basis for this exquisite sensitivity, which occurs especially in neuropathic pain. Neurons in a person’s spine become abnormally active after repeated stimulation from the C-fibers. Furthermore, CNS neurons become open to more signals, start to activate at lower levels, and sometimes fire spontaneously.

**Diagnosing and Treating Pain**

Chronic pain is both a disease and a symptom. As a symptom, physicians use it as a clue to an overall illness, such as cancer or sickle-cell anemia. As a disease, it demands its own treatment. Assessing a person in pain demands a detailed evaluation that focuses on that individual’s symptoms. Physicians must use a careful physical, neurological, and psychological examination to define the site of the pain, the condition’s associated medical and psychological aspects, and the possible causes.

One of the difficulties in treating pain is that its level is subjective. Doctors must rely on their patients’ descriptions of pain, and what one person may describe as “unbearable” another might call “uncomfortable.” Doctors use several methods to help their patients express how much pain they feel:

- **Categorical scales,** which use a variety of words, such as *mild, moderate,* and *severe.*
- **Numerical scales,** which ask individuals to rate their pain as a number from zero to ten, with zero representing no pain, and ten representing the worst pain possible.
- **Visual analog scales,** which consist of a four-inch line whose ends are labeled “no pain” and “worst possible pain”; an individual marks on the line the intensity of his or her pain. For young children, similar scales use a series of cartoon faces, from crying to smiling broadly.

These pain-intensity scales have been validated by large studies. The Joint Commission on Hospital Accreditation has now mandated that health care facilities use such scales, meaning each patient must be asked routinely about his or her pain intensity. A physician can use the results to assess a person’s pain and to map how it changes, thus helping doctor and patient plan appropriate treatment together.

Many different types of treatment are available for pain. The most common over-the-counter painkillers are aspirin and acetaminophen (Tylenol is an example). Anti-inflammatory drugs include ibuprofen and naprosyn. Newer anti-inflammatory drugs include cyclooxygenase-2 (or COX-2) inhibitors. Examples of these are Celebrex and Vioxx; they cause less gastrointestinal disturbance or irritation than aspirin or other anti-inflammatory drugs. Antidepressants such as Elavil (amitriptyline) can be useful, as well as such anticonvulsants as Neurontin (gabapentin). For severe intractable pain, neurosurgical procedures such as dorsal column stimulators, lesioning of pain pathways, and cingulotomy are sometimes used.

It has long been known that drugs derived from opium poppies—morphine, heroin, codeine, and demerol (synthetic)—are quite effective in relieving pain. However, fears of addiction and physicians’ lack of knowledge impede many people from receiving the benefits of these opioid medications. More recently, researchers have given renewed attention to their role and use. Many studies have shown that doctors can manage these drugs to help people with cancer, without the feared side effects. Individuals suffering from chronic pain can gain relief for months and years with ongoing opioid therapy. In some patients with pain, opioid medications can be injected directly into a person’s cerebrospinal fluid and can work alongside their chemical relatives, the endorphins.

Research suggests that the wide variation in people’s responses to pain treatment with analgesic drugs may be genetically based. For example, 10 percent of the population cannot metabolize codeine in the body to the active agent morphine. Such individuals therefore do not obtain effective pain relief with standard doses of codeine. Animal studies have found a wide variation in the distribution and type of opiate receptors; that finding suggests that similar genetic variations in opiate receptors may occur in humans, though that has not yet been demonstrated.

Some researchers are exploring ways of taking advantage of our understanding of the molecular biology of pain. New drug development is focusing on N-methyl-D-aspartate (NMDA) antagonists, calcium channel blockers, nerve growth factors, and new anesthetic agents for pain relief, but the challenges are varied and complex. Another area of research begins with the knowledge that there are particular types of opioid receptors located in specific areas of the brain, spinal cord, and peripheral nervous system. We might thus be able to develop new analgesics targeted for specific receptors in the brain. The symptom of chronic pain can cause people to feel helpless, but our ability to treat the condition is improving all the time.
About Kathleen M. Foley

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