

*breakthrough strategies in*  
**low back pain management**

*a handbook for*

# Reclaiming Your Life



**by Anthony H. Guarino, M.D.**

*Notice:* This book is intended for reference only; it is designed to help you make informed decisions. It is not a medical text or guide for self-treatment. If you suffer from low back pain or any other illness, please seek competent medical care from a licensed health care professional.

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# Introduction

*My greatest insights into the nature of low back pain  
have come from my patients.*

**Y**OU KNOW IT IF YOU HAVE IT—A CONSTANT PAIN IN YOUR LOW BACK that never leaves. It's always there. You seek out new doctors; you try new medications; you participate in a specialized exercise regimen.

You try to work on your attitude knowing that if you can alter your perception of pain, you can alter the pain itself. Sometimes you have good days, and you are hopeful. Other days are particularly painful and you try not to despair. You view the world through the distorted lens of your ever-present pain. You wonder if there is any hope; you wonder if anything will ever change. If you can relate to any of these experiences, this book is for you.

As director of pain management services at Barnes-Jewish West County Hospital and faculty member at Washington University School of Medicine, both in St. Louis, Missouri, I deal with pain issues of all kinds. The sheer number of patients experiencing low back pain has inspired me to focus my attention on those who suffer from this devastating illness and find a way to make a difference in their lives. Patients like you have shown me what a life-altering impact low back pain can have on the individual, his family and ultimately—society. Its costs include depression, inactivity, disability, divorce and addiction. I have written this book to offer hope and guidance for anyone who identifies with this debilitating and often chronic condition.

In *A Handbook for Reclaiming Your Life: Breakthrough Strategies in Low Back Pain Management* you will discover that managing pain

requires a multidisciplinary approach requiring your active, educated participation. Know that through this battle, you can and will become stronger, and regain confidence and peace in your life.

This book will show you that the psychological benefits of pain management are even more important than the physical ones. Pain's reach goes way beyond sensation. It invades your emotions and interferes with relationships. It skews your view of yourself and the world around you. It can even rob you of spirituality and cause you to doubt your beliefs. But just as an injured soldier must practice walking, talking and any number of normally easy functions in order to regain mastery over his body, if you suffer with chronic back pain, you too must work with determination and self-control to modify your pain state. That doesn't mean you will be pain-free, but it does mean you can function at home, in the workplace, and find enjoyment in life.

Back pain is surprisingly prevalent in our society. While you don't wish suffering on others, there is something consoling in knowing you are not alone in the struggle. Back pain is the most common cause of chronic pain in the United States. By some estimates, it affects 80 percent of adults at some time during their lifetime.

First, you must understand the nature of pain to better understand how to manage it; you must know what is happening to your body, so you can take the most appropriate actions to improve the quality of your life. There are many unknowns about pain—it can't be "measured" and sometimes even its source can't be identified—but you can find solace in at least understanding the physical mechanics of pain.

Next, it is important to choose the right physician and this book will offer some practical guidelines. In the final analysis, however, trust your instincts. You will know when you and your doctor are a good fit. You will know when you are making progress.

Because patients, especially those who have been going from doctor to doctor in search of relief, are bombarded with tests and

medical terminology, you will want to know how a diagnosis is made, or a remedy determined, or a therapy recommended. You will want to understand the potential promise inherent in today's various medical interventions, from shots, to medications and surgery. You will want to be aware of the numerous options available to help you with your struggle. In this book, you will also be given the tools needed to ask informed questions of your doctor.

Do you wonder about disability claims and need some guidance? I have included an entire chapter on how to navigate this terrain with confidence.

Do you have people who care about you, but don't truly understand what you are going through? Have you ever wondered how your pain is affecting their lives? I will help you understand the effect of your pain on everyone around you and guide you to use it as an incentive to take back control of your life.

Through my patients, I have seen the destructive consequences of low back pain. Although I have spent years in specialized medical education and research, my greatest insights into the nature of low back pain have actually come from my patients. Through them I have learned what can't be found in my medical books. My goal is to ease the pain and facilitate the healing for all back pain sufferers—and to share with you, through this book, what my patients have taught me.

*Anthony H. Guarino, MD*  
*St. Louis, Missouri*

# 1

## Overview

*After colds, low back pain is the most common reason to visit a physician.*

**L**OW BACK PAIN IS ONE OF THE MOST COMMON CONDITIONS in today's society, affecting approximately 80 percent of the U.S. adult population at some time in their lives. This has an enormous financial and socioeconomic impact on society.

Approximately 50 percent of the working population have back problems every year, and the total medical cost to treat back pain exceeds \$80 billion annually. Low back pain is one of the most commonly given reasons for absenteeism in this country—second only to coughs. It is cited as the most frequent complaint in workers' compensation claims and the most common reason for early Social Security disability payouts.

The highest incidence of low back pain reported to doctors is from patients in the 45- to 64-year-old age group; back pain affects both men and women, and includes all races. It is the most common cause of activity limitation in individuals under the age of 45, the fifth most common reason for admission to the hospital and the third ranking reason for surgical intervention. Research has shown that approximately one percent of the population in the U.S. is considered permanently disabled, with an additional one percent temporarily disabled from back conditions.

### **The Physiology of Pain** | *The ways that pain affects us*

Understanding the mechanisms of pain can be helpful. The International Association for the Study of Pain defines it as an “un-

pleasant sensory and emotional experience associated with actual or potential tissue damage.” They recognize that if you suffer from pain, you feel it, it is not pleasant, it may affect your mood and you may experience real tissue damage now or in the future. The way pain affects you can in fact be divided into six different categories: biological, psychological, behavioral, cognitive, spiritual and cultural.

The biological effect is what most people associate with the word “pain.” It is a signal to the body that an injury has occurred. Think about the last time you attempted to remove a hot cup from the microwave. That burning sensation in your hand as you quickly put down the cup is an example of the biological manifestation of pain. Similarly, the lower back sends a message to your brain that there is a problem, alerting you to alter your movement accordingly so as not to increase the damage.

Studies have more recently documented the very real psychological effects of pain. There are emotional consequences to constant suffering, and results such as depression, anxiety, and insomnia are potentially life altering.

The behavioral effects of pain change the way a person moves or acts. If you twist your ankle while walking down the street, the resulting pain will cause you to alter the way you are walking and you may limp to compensate for the injury. For people with chronic back pain, that can mean using a cane, walking hunched over or leaning to one side. When you suffer from pain, you will try to minimize that pain by experimenting with different physical positions, diet and exercise as appropriate, medications, and finally surgery, if needed.

Pain impacts us cognitively by forcing us to think about it in an effort to determine its causes and possible remedies. Perhaps this is why you are reading this book right now.

Pain affects us spiritually by reminding us that we are in fact human, and as such, vulnerable and mortal. Pain leads us to question its purpose and our own role in that larger picture. It helps us to change what we can and accept what we cannot change.

The cultural effects of pain are the lifestyle changes that occur in avoidance of pain, like using a treadmill instead of running, avoiding long car trips, or eliminating activities that may involve heavy lifting. Pain is a complex process that touches many aspects of our lives.

### **Acute Pain versus Chronic Pain | *What is the difference?***

Acute pain is triggered by tissue damage resulting from illness, injury or surgery. It is self-limiting, which means it doesn't last longer than a few weeks or months. The word *acute* comes from the Latin word "needle," referring to a sharp pain. Touching a hot pan causes acute pain. The source of the pain is the pan, which stimulates the pain receptors in the hand and causes it to be withdrawn. You can pinpoint the area and, once the burn heals, you will no longer have pain. People suffering from chronic pain have no such reassurance.

Chronic pain occurs long after an injury has healed. Medically, we consider pain chronic if it lasts longer than six months. The word *chronic* comes from the Greek word for "time." Like acute pain, it can be described as tingling, jolting, burning, dull, sharp or throbbing. It can be continuous or it can come and go.

The cause of chronic pain is unclear and therefore not well understood. Oftentimes, there is no evidence of disease or damage to your body that your doctor can easily link to your pain. Examples of chronic pain states can include back pain, interstitial cystitis, fibromyalgia, diabetic neuropathy and headaches. A slight variation is a form that is both chronic and intermittent, in that it comes and goes. Good examples of "chronic intermittent pain" include migraines, irritable bowel syndrome and rheumatoid arthritis.

### **The Role of Our Nervous System** | *How messages are sent*

In order to understand any pain, you need to understand the role of our nervous system—that two types of nerve fibers relay messages to our spinal cord and brain: A-delta fibers and C fibers. The A-delta fibers respond first and the C fibers, considered peripheral nerves, respond second.

Under normal circumstances, A-delta fibers serve as a warning system. The nerves respond to the damaging extremes of heat or cold, accidental or surgical trauma, and inflammation. Normally sensory nerves bring information regarding pain and other sensations, such as heat, cold, vibration or touch to the spinal cord. The spinal cord takes the data, modifies it and then distributes it to the nerves, which are in turn responsible for relaying the specifics to the brain.

However, under some circumstances another set of nerves is also activated. The best example of how this second set, or C fibers, works, is to think about what happens when you hit your funny bone, the ulnar nerve in your arm. The first sensation you feel is a sharp, tingling pain. This is a result of A-delta fiber activity. Your early warning nerves carry the message that you just hit your funny bone directly to the spinal cord, at approximately 40 mph. The second sensation you feel is an aching that slowly spreads up and down the inner side of your arm. This is caused by the C fibers, which carry their message at a rate of three mph to the spinal cord. The difference in the rate of speed explains the difference in pain perception.

### **The Role of Our Spinal Cord** | *The body's gatekeeper*

Think of the sensory nerves as a highway and the spinal cord as the tollbooth that allows for messages sent by the nerves to be modified, re-sent or canceled prior to traveling on to the brain. This is known as the *gate theory* and it aptly describes one of the important functions of our spinal cord.

Specific areas of the spinal cord are responsible for magnifying the pain message in order to allow for a release of amino acids known as Substance P. Substance P expands the area of receptivity to incoming pain signals. Medical science has not yet determined why this occurs, but it does.

When a pain signal travels to the brain, the brain interprets whether it is a normal or abnormal message. The brain can alter the information by releasing impulses that reconfigure the transmission or by releasing endorphins, which decrease the intensity of the signal. The brain gives meaning to the pain message, which is why we grimace, limp or cry in response to the signal. However, when the brain and the spinal cord are bombarded with a high level of intense pain communication, they eventually lose the ability to provide these normal checks and balances. This is what can happen to a person who suffers from chronic pain.

### **The Role of Inflammation** | *When it works and when it hurts*

Inflammation is a process designed to fight infection or repair tissue damage caused by an injury. When it is working correctly, it plays a vital role in our body's response system; when it is out of control, chronic pain can result.

Think about the last time you fell and scraped your knee. After sustaining the fall, the cells in the damaged area released chemicals that irritated the pain nerves causing those nerves to send out a signal to the spinal cord, which in turn made you aware that an injury had occurred. At the same time, muscle spasms developed to further protect the area by restricting movement. Blood vessels in the surrounding area constricted to reduce bleeding from the site. Last, white blood cells and other connective tissue cells started the cleanup process.

In chronic pain states, such as rheumatoid arthritis, an inflammatory process may be out of control and instead of repairing any damage, it makes the natural health of tissues worse. In this disease state,

it is thought that the body is attacking itself. Symptoms can wax and wane and corresponding destructive changes to synovial joints may occur.

### **Neuropathic Pain** | *When the nervous system malfunctions*

Neuropathic pain is a state caused by an injury or a dysfunction in the nervous system, such as an infection. Injury to the nervous system that results in chronic pain can occur anywhere from the peripheral nerve terminal in the skin to the cerebral cortex in the skull. Neuropathic pain is distinguished from other types in that the sensory symptoms persist beyond the typical healing period.

Examples of neuropathic pain syndrome include phantom (stump) pain following an amputation; diabetic neuropathy where the blood flow is altered causing numbness, tingling, or real pain; and post herpetic neuralgia found in many patients who develop shingles, where a virus that has remained dormant after a childhood bout with chickenpox, manifests itself later in life through the nerves causing itching, rashes and persistent pain.

Diabetes is one of the most common disease states associated with neuropathic pain, and other examples include hypothyroidism, alcoholism, AIDS and multiple myeloma. The symptoms most often associated with neuropathic pain include spontaneous burning, shooting pain, numbness or tingling of the affected area and allodynia, a condition whereby pain results from a stimulus that would not usually cause discomfort, such as a light touch of the skin.

In neuropathic pain, the central nervous system—the combination of the brain and spinal cord—undergoes changes with the peripheral nerve injury. The good news is that research has shown that pain messages can be interrupted. Technically stated, stimulation and propagation of the large fiber (A-beta) sensory inputs could override neuropathic sensory inputs thus reducing the perceived intensity of pain.

This occurs in life when we hurt our hands and shake or rub them resulting in a reduced pain perception.

How can this help you? Have you ever noticed that if you hit your finger with a hammer that your back doesn't hurt as much? Pain signals go through a gate before being sent to the brain and the "squeaky wheel gets the grease." Similarly, we can control or alter the messages that are going through the gate in an effort to cause the spinal cord to reach an imbalanced state, resulting in confusion over painful versus nonpainful impulses; thereby we can affect the signals that are going to your brain.

### **Causes of Low Back Pain | *Why is this happening?***

Low back pain is caused by several different factors, including problems with muscles, ligaments or nerves, disc problems, or stress. Muscles or ligaments that have been injured, such as with a strain, can cause pain. Did you exercise too vigorously? Did you lift something too heavy? Did you twist your body in a quick movement?

If you have low back pain that coincides with pain radiating down one or both legs, it can be a disc problem. The disc is a cushion that sits between the bones of your spine. Over time and with activity, the cushion can bulge or herniate out of its usual space. This bulging can press on the nerves, causing an irritation that in turn causes pain to travel down the leg.

Another reason for back pain is stress. The pain may start, continue or worsen during an emotionally stressful time. Stress, whether conscious or unconscious, causes the muscles in the back to tighten, which results in pain.

### **Description of Low Back Pain | *Its symptoms***

Do you suffer from one or more of the following characteristics of low back pain? Have you felt a throbbing, aching, shooting, stabbing or a

dull quality pain in your back? Or perhaps, does the discomfort go up or down or radiate to one or both legs, with little or no pain in the back?

What about a feeling of numbness or weakness in one or both legs? Do problems with your sleep result in decreased energy or feelings of depression or anxiety? Does your pain move to different parts of the body, including the back or arms? Do you have pain that is exacerbated by stress or emotional issues?

These are just a few of the typical symptoms that accompany low back pain, and if you answered yes to one or more of these questions, you may indeed suffer from low back pain.

### **A Range of Practitioners | *Who can help?***

A variety of health care providers can treat low back pain utilizing a wide range of traditional and nontraditional methods. In looking for treatment, most patients start with their general practitioner. Primary care physicians have general training in all areas of medicine and can determine whether more specialized care is needed; they may refer you to an anesthesiologist, a chiropractor, a neurologist, a neurosurgeon, an orthopedist, an osteopath or a physiatrist. Be aware that many cases of back pain resolve on their own with little or no treatment.

It is important to understand the specialists available and how they can help you. An *anesthesiologist* has specialized training in treating pain problems because this area of medicine focuses on decreasing a person's perception of pain. The treatment approach could include medication management, spinal injections or the use of physical therapy.

A *chiropractor* restores normal function of the spine through a series of manipulations. Chiropractic is based on the belief that abnormal function in the nervous system causes disease states to occur. Chiropractors utilize massage therapy, physical therapy, nutritional counseling and vitamin therapy in their practice.

*Neurologists* are medical doctors who specialize in the nervous system. They use nonsurgical techniques to diagnose and treat back pain. *Neurosurgeons*, on the other hand, focus on the surgical treatment of nervous system problems.

*Orthopedists*, also medical doctors, specialize in the surgical treatment of skeletal problems. Common orthopedic surgeries include knee or hip replacements, joint surgery and spinal surgery, such as a laminectomy or discectomy.

An *osteopath* is a doctor of osteopathy who practices similarly to medical doctors but may also incorporate conventional medical, surgical and pharmacological principles with chiropractic techniques such as manipulation of the spine to aid general musculo-skeletal problems.

Finally, a *physiatrist*, not to be confused with psychiatrist, is a medical doctor who focuses on patient rehabilitation, especially after stroke or injury to a muscle or joint.

### **Emergencies** | *When to seek immediate help*

Certain symptoms of back pain should not be ignored and constitute an emergency. If you suddenly lose control of your bowel or bladder, you should be seen in the emergency room immediately. Bowel or bladder problems include difficulty in controlling or initiating the urine stream or bowel movement, no feeling in the groin or anal area, or the inability to achieve an erection. Any of these symptoms indicate the possibility of “cauda equina syndrome,” a situation where the nerves that control the bowel and bladder become compressed or flat. If the situation is not corrected in 24 to 48 hours, the damage can be permanent.

Weakness in the legs or feet also constitutes an emergency and care is needed immediately. If you experience a dragging of your foot, or foot drop, it may be a result of an inability to flex your foot and toes up toward your head. Back pain that awakens you from sleep can indicate

the presence of a tumor or spinal infection. This is called “rest pain” and can be described as severe throbbing and aching that is actually made worse by rest.

In general, if you are involved in a motor vehicle accident or sustain any type of fall, imaging studies should be done to rule out trauma to the spine. Or, if back pain is so severe that it impairs function and typical daily activities, you should see a doctor immediately or be evaluated in the nearest emergency room.

Assuming that your back pain is none of the above, the best course in the early stage is to let the pain be your guide. Using bed rest in short stints, taking anti-inflammatories, and rotating ice and heat is the best course of action. Use ice for 20 minutes every 4 hours for the first 24 hours, then switch to heat for 20 minutes every 4 hours for the next 24 hours. After 48 hours, there is no concrete rule for alternating ice and heat though some will swear by it.

If the pain persists, seek help from your doctor. Your doctor will perform a thorough evaluation and design a treatment plan compatible with your needs, including referral to a specialist if needed.

### **Risk Factors for Back Pain | *Who gets it?***

Determining risk factors that predispose an individual to low back pain is a daunting task given the complicated nature of the disease. In general, there are three classifications of risk factors associated with low back pain: physical or biomechanical, personal, and psychosocial.

Physical factors include occupations that require frequent bending and lifting, working with the back in an awkward position, postural stress to the back, and operating vibrating equipment. These factors explain the frequency of low back pain reported in certain occupations such as construction workers, drivers and nurses.

Personal risk factors include lifestyle, gender, age, weight, genetics and poor general health. The person who holds a job that is physically

demanding, requiring frequent lifting or movement of the back will have an increased risk of back injury, as opposed to the person who occupies a sedentary position. Although I know of no studies which support a claim that gender by itself is a risk factor, men suffer back pain more frequently than women because men still fill a larger percentage of the physically demanding jobs in our society. Age plays a role in back pain: As one ages, the tissue in the back becomes less elastic and degeneration results, leading to increased vulnerability to pain. Excess weight is also a risk factor because obesity places additional strain on the structures of the back. If one or more of your parents had back problems, the likelihood that you too will experience some difficulties increases. And finally, poor general health has many manifestations including back pain.

Psychosocial factors contributing to back pain are those circumstances in patients' lives that are both psychological and social in nature. Conditions such as work environment, marital status, and a prior history of back pain can play a role. Job satisfaction is one of the most significant factors that consistently affects the frequency of low back pain; research has shown a connection between a worker's perception of the physical and psychosocial environment at work and actual pain. Psychological factors, especially depression, are clearly associated with low back pain, although the literature has not been clear whether depression precedes the incidence or follows the onset of pain.

