

SPECIAL REPORT


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CHRONIC PAIN EXPLAINED:

How to manage
chronic pain in the
workers' comp system

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Look for this symbol for chronic pain treatment recommendations.

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Highlights & Insights

- Pain is a personal experience that is difficult to measure directly, which makes diagnosis problematic because there are no specific objective medical tests
- Appropriate pain management is a moral and social imperative
- Chronic pain is a disease in itself; it usually has both physical and psychological factors that can be mitigated or prevented
- Adverse Childhood Experiences (ACE scores) are risk factors for chronic pain
- Disconnect between objective pathology and subjective complaints
- Stakeholders should partner in early recognition and prevention
- Comprehensive interdisciplinary approach is the best method for recovery
- Exercise and return to work result in the best permanent outcomes
- Opioids are rarely an appropriate treatment for chronic pain

This paper explores “pain” issues, their causes, and how workers’ compensation claims professionals can help prevent the development of chronic pain, while maximizing injured worker recovery.

Introduction

Pain is a global healthcare crisis. It causes increased mortality, lost quality of life, significant patient suffering, increases substantial medical and absence expenses, and contributes to lost employer productivity. In workers’ compensation, a small percentage of claims account for a disproportionate amount of system expense, and claims administration time and effort, and from that pool, a considerable number of these “catastrophic”¹ claims involve injured workers who are diagnosed with a “chronic pain” syndrome.

The primary goals of workers’ compensation systems are to maximize recovery and return the injured worker to regular life activities and work. This can be achieved by providing timely, quality evidence-based medical care. The workers’ compensation system is structured on foundations of function, ability, or impairment, but does not compensate for “pain and suffering” in the manner seen in civil litigation.

When employers and claims professionals partner with treating physicians to take positive steps to prevent or lessen an injured worker’s potential slide into a chronic pain syndrome, the results are significant. They can do this by understanding the definition of pain, the causes of chronic pain, the ramifications of untreated pain on mood, sleep, and function, and the evidence-based medical treatment that can prevent chronic pain. Additionally, claims professionals must understand how their decision making and communication process while they are adjusting the claim may contribute to the development of chronic pain.

Using this information, they can be on alert for any signs that an injured worker may be developing a chronic pain syndrome.

¹ High impact chronic pain is defined as pain that has lasted three months or longer and is accompanied by at least one major activity restriction, such as being unable to work outside the home, go to school, or do household chores. These people report more severe pain, more mental health problems and cognitive impairments, more difficulty taking care of themselves, and higher health care use.

Pain Statistics

The CDC notes² 20% of U.S. adults, i.e., 50 million people, suffer from chronic pain and 1 in 12 suffer from high-impact pain.³ This is more people than those who have diabetes, heart disease, and cancer combined.⁴ The group health care system spends over \$750 billion per year on the treatment and consequences of uncontrolled pain.

Definition of Pain

No two individuals experience pain in quite the same way, making it difficult to define. In 2020, the International Association for the Study of Pain (IASP) re-defined pain as “an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage.”⁵

In revising the definition of pain, the IASP intended to convey the nuances and the complexity of pain with the hope that it would lead to improved assessment and management of those suffering from pain.



The IASP later expanded their definition by adding qualifying notes and the etymology of the word pain for further valuable context.

- Pain is always a personal experience that is influenced to varying degrees by biological, psychological, and social factors.
- Pain and nociception are different phenomena. Pain cannot be inferred solely from activity in sensory neurons.
- Through their life experiences, individuals learn the concept of pain.
- A person's report of an experience as pain should be respected.
- Although pain usually serves an adaptive role, it may have adverse effects on function and social and psychological well-being.
- Verbal description is only one of several behaviors to express pain; inability to communicate does not negate the possibility that a human or a nonhuman animal experiences pain.

A multinational, multidisciplinary task force developed the revised definition with input from all potential stakeholders, including persons in pain and their caregivers. This definition recognizes the key role of processes in the nervous system and brain (both neurological and psychological) in the experience of pain.

2 Prevalence of Chronic Pain and High-Impact Chronic Pain Among Adults — United States, 2016 | MMWR (<http://www.cdc.gov>)

3 High impact chronic pain is defined by National Center for Complementary and Integrative Health as pain that has lasted three months or longer and is accompanied by at least one major activity restriction, such as being unable to work outside the home, go to school, or do household chores. These people report more severe pain, more mental health problems and cognitive impairments, more difficulty taking care of themselves, and higher health care use. (<https://www.nccih.nih.gov/research/research-results/prevalence-and-profile-of-high-impact-chronic-pain#>)

4 Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research. Appendix C. The Economic Costs of Pain in the United States. (<https://www.ncbi.nlm.nih.gov/books/NBK92521/>)

5 Terminology | International Association for the Study of Pain (<https://www.iasp-pain.org>)

The Economic Costs of Pain can be Divided into Five Components:



1. The direct claims costs of medical care and increased indemnity benefits due to pain.
2. The costs of complex claims administration, including, medical and work history record retrieval, bill review, utilization review, independent medical review, independent medical examinations, interpreter and transportation services, legal services, and more.
3. Direct and indirect costs for the employer due to lower economic productivity, replacement costs and fewer hours worked.
4. The direct costs of lost productivity and income for the injured worker.
5. The indirect cost of any of these contributes to further emotional reaction and further decompensation on the part of the patient. This relates to pain-induced substance abuse, social rejection, mental disorders, and unemployment that leads potentially to violence and crime.

Pain Terminology⁶

The highly subjective and personalized nature of pain makes it a complex problem to diagnose and treat.

Pain is categorized as:

1. **nociceptive** (from tissue injury)
2. **neuropathic** (from nerve injury)
3. **nociplastic** (from a sensitized nervous system)

Pain

Despite the old idiom “I feel your pain,” no one can feel another person’s pain. While one might commiserate with another, pain is nonetheless very much a personal experience.

The response to pain is affected by the individual's past life experiences, beliefs, and emotional state.

Pain is a subjective phenomenon and cannot be measured objectively. Although measures such as heart rate, respiration rate, blood pressure, and sympathetic discharge of the body may indicate presence of pain, these are not direct measures of a person’s pain and therefore cannot be quantified. Additionally, pain scores cannot be applied universally across all people since the meaning of pain varies among individuals; for example, a pain rating of 7/10 may mean a moderate level of tolerable pain to one and a severe level of intolerable pain to another. Therefore, pain scores are best used individually to compare a baseline score against itself in time or in response to the treatment.



6 2021 ACPA – Stanford Resource Guide To Chronic Pain Management: An Integrated Guide to Comprehensive Pain Therapies. (<https://med.stanford.edu/content/dam/sm/pain/documents/ACPA-Stanford-Resource-Guide-to-Chronic-Pain-Management-2021-Edition-4-18-21-.pdf>)

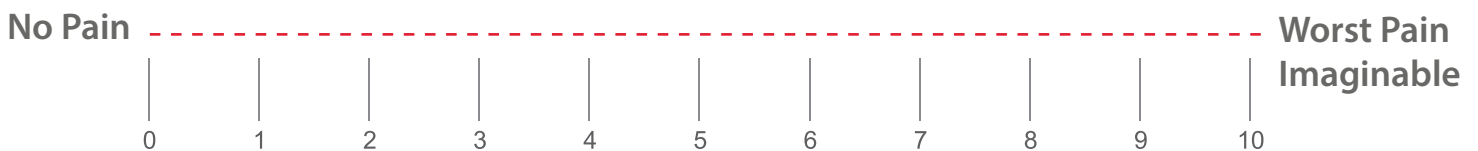
Pain Intensity Rating Scales

There are a number of pain intensity rating scales that have the advantages of being brief and easy to administer. While there is no single industry standard for which pain scale to use, they can help doctors and clinicians understand certain aspects of a person's pain such as duration, severity and type. Such tools include a visual analog scale (VAS), most often a 10-cm line anchored at one end by the description "no pain" and at the other end by "worst possible pain," on which the patient marks the line at the point that best describes their pain intensity. Also used is a numerical rating scale (NRS) "On a scale of 0 to 10, in which 0 is no pain and 10 is the worst pain imaginable, how severe is your pain?" The categorical scale allows the patient to choose from four categories of intensity, from "none" (0) to "severe" (7-10)."

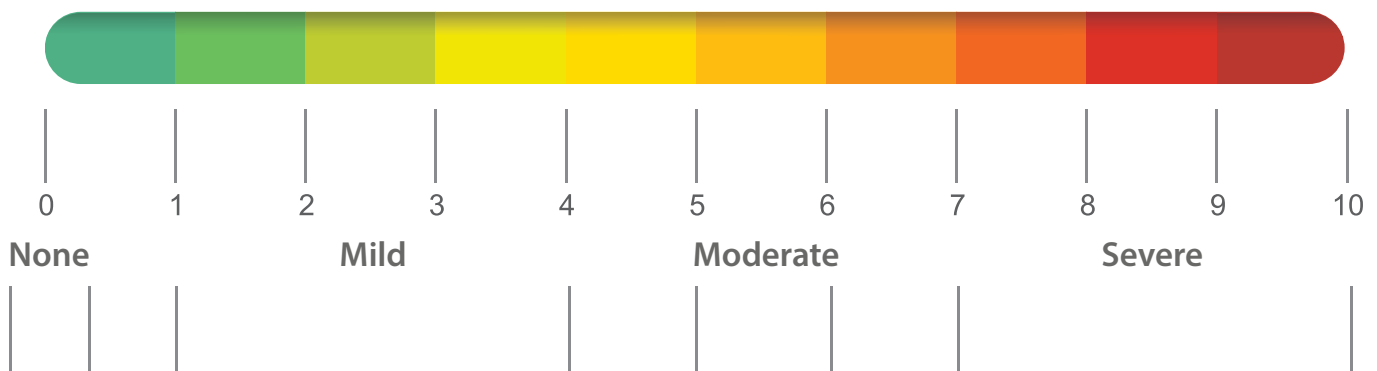
Visual Analogue Scale (VAS)

No Pain ----- Moderate Pain ----- Worst Pain

Numerical Rating Scale



Categorical Scale



Pain Faces Scale

A faces scale may be useful for patients who are unable to use the previously noted scales, such as children, the elderly, or patients with dementia.



0

No Hurt



2

Hurts just a little bit



4

Hurts a little bit more



6

Hurts even more



8

Hurts a whole lot



10

Hurts as much as you can imagine

Acute Pain

Acute pain (duration of 1-3 months) is a physiologic response to noxious stimuli that can become pathologic, is normally sudden in onset, time limited, and often caused by injury, trauma, or medical treatments such as surgery.

Pain is not all bad. Acute pain is an essential part of human life and has survival value.

Pain may be a sign that something has happened, or that something is wrong. Acute pain is usually time-limited and resolves with appropriate treatment. Pain can assist us with identifying diseases, locating the source of bodily damage, avoiding injury, and assisting with recovery. For musculoskeletal injuries, acute pain has an important function in diagnosis and in recovery. Painful experiences teach us to avoid things that hurt or that can damage us physically.

Chronic Pain

Chronic pain (duration ≥ 3 months) can result from an underlying medical disease or condition, injury, medical treatment, inflammation, or an unknown cause.

Chronic pain usually starts with an injury or disease. However, even after the initial injury has healed, whether or not there is residual damage, the pain becomes chronic, persists, and relentlessly amplifies. Physical and psychological factors are typically present and overlap, as chronic pain is rarely purely physical or only psychological.

Chronic pain is a multi-system disease as it also disrupts the nervous system as well as the immune, endocrine, and inflammatory systems. People with chronic pain describe not only unrelenting pain, but experience weight gain, sexual difficulties, sleeplessness, fatigue, irritability, and memory and concentration problems. Chronic pain is also directly associated with reduced life expectancy.

Chronic pain is a problem that ruins lives as it impacts not only an individual's physical life but also aspects of psychological and social functioning.⁷ It affects relationships and is associated with higher divorce and suicide rates, and an increased risk of substance abuse. It is often accompanied by a sense of hopelessness and loss of self-esteem. Thus, chronic pain may be a precipitating cause of challenges, which lead to other difficulties, which lead to further emotional decompensation, and thus increased perceptions of pain – a circular repetitive process of decompensation.

While depression, anxiety, poor sleep, poor coping skills, and adverse social conditions can be the result of chronic pain, these factors can predispose individuals to develop chronic pain. Chronic pain is a leading cause of disability and often interferes with an individual's ability to return to work.

There is a strong relationship between pain and emotions. Research has confirmed that the severity of depression, anxiety, and anger are some of the most critical factors in identifying chronic pain patients with the greatest suffering and dysfunction⁸. There is thus a challenge in differentiating causes from effects.

7 Feinberg, S., & Mackey, S. (Eds.). (2021). *ACPA-Stanford Resource Guide to Chronic Pain Management: An Integrated Guide to Comprehensive Pain Therapies (2021 Edition)*. RockIn, CA: American Chronic Pain Clinic.

8 Gilam, G., Cramer, E. M., Webber, K. A., Ziadni, M. S., Kao, M.-C., & Mackey, S. C. (2021). Classifying chronic pain using multidimensional pain-agnostic symptom assessments and clustering analysis. <https://doi.org/10.1101/2021.04.21.21255885>.

In a *Lancet* editorial,⁹ the following sums up the dilemma for a person who is experiencing chronic pain:

To live with chronic pain is to live with daily challenges around simple tasks that others take for granted. It often means being disbelieved, stigmatized for not getting better, or judged as not coping. It might mean living with poor mental health and self-esteem, absenteeism from school or work, the breakdown of relationships, and socioeconomic disadvantage.

Due to the difficulty of diagnosing, differentiating, or substantiating chronic pain, and although not the norm, purposeful lying or exaggerating (malingering¹⁰), chronic pain can occur and should not be ruled out.

Sometimes chronic pain is diagnosed as a somatoform symptom disorder (formerly known as “somatization disorder” or “somatoform disorder¹¹”), which is a form of mental illness that causes or exacerbates one or more bodily symptoms, including pain.

The Uniqueness of Chronic Pain

Pain remains the most feared symptom for patients, having significant medical, social, psychological, and financial consequences. While pain can be a symptom of an injury or illness, when pain becomes chronic¹² and leads to prolonged suffering, it becomes a disease unto itself and typically can result in disability and dysfunction.

For clinicians, the treatment of pain can be a complex and arduous duty. The difficulty in accurately diagnosing and successfully treating chronic pain can make practitioners feel defeated or discouraged, especially if the presentation is complex and if the worker presents without hope or with a disabled mindset. The clinician who does not recognize the potential onset or understand the nature of chronic pain, may inadvertently contribute to this syndrome by ignoring psychosocial factors and focusing on “fixing” the individual with pills, procedures, and surgery – sometimes with disastrous results.



9 Lancet 2017; 391: 1391–454

10 Malingering is falsification or profound exaggeration of illness (physical or mental) to gain external benefits such as avoiding work or responsibility, seeking drugs, avoiding trial (law), seeking attention, avoiding military services, leave from school, paid leave from a job, among others. It is not a psychiatric illness according to DSM-5 (Diagnostic and Statistical Manual of Mental Diseases, Fifth Edition).

11 Somatic symptom disorder (SSD) is characterized by somatic symptoms that are either very distressing or result in significant disruption of functioning, as well as excessive and disproportionate thoughts, feelings and behaviors regarding those symptoms (DSM-5).

12 Chronic (or persistent) pain can be described as ongoing or recurrent pain, lasting beyond the usual course of acute illness or injury healing, more than 3 to 6 months, and which adversely affects the individual's well-being.

Chronic Pain Syndromes

There are a multitude of chronic pain syndromes including headache, fibromyalgia, myofascial pain syndrome, failed back surgery syndrome, complex headache, non-specific abdominal pain and neuropathic pain, and as a subset, complex regional pain syndrome. These syndromes can be difficult to manage both in terms of diagnosis and treatment, potentially requiring a team of multidisciplinary experts to work together in a cohesive, integrated fashion to obtain best results.

Headache

Headache is ubiquitous in society and one of the most common presenting complaints to physicians. It is a major cause of decreased productivity and absence (sick days) from work.



Greater than two-thirds of people suffer from at least one headache per year, and chronic recurrent headaches are experienced in 36% of women and 19% of men. Headaches can be debilitating, and frequently cause alarm and fear, but they are rarely (.004%) a symptom of an underlying serious disease. There is no consensus on what constitutes ideal headache management. Various conventional and alternative health care practitioners and self-help remedies share the burden of treatment.

The diagnosis of headache, in contrast to many other medical conditions, depends almost entirely on the medical history, as objective physical findings are rarely present.

Tension-type headaches usually start episodically, associated with stress, fatigue, or such activities as prolonged reading, but they may progress into a chronic condition. They represent the vast majority (about 90%) of all headaches. Depression and anxiety are commonly associated with tension-type headaches. The cause of these headaches is unclear, but there may be a relationship to psychological stress or excessive muscle contraction.



Treatment includes a combination of psychological, physical, and medication approaches. Stress reduction and relaxation techniques, meditation, biofeedback, stretching, exercise, and conditioning can be helpful. Effective medications can include simple, over-the-counter analgesics and prescription anti-depressants.

Migraine, although common, is still poorly understood, with treatment often depending upon trial and error. It is not a single entity and has two major and multiple less common variants. Migraine is present in 12-15% of adults and 2-3 times more common in women than men. Migraine predominantly affects adults below the age of 40. The two major variants include migraine without (approximately two-thirds) and with (one-third) aura (flashing lights, shimmering zigzagging lines, and areas of lost vision). The cause of migraine remains a mystery, but there does appear to be a strong genetic influence. There appears to be a relationship between cerebral blood flow and migraine, with the symptoms of migraine a result of constriction of the cranial blood vessels and the headache then caused by subsequent blood vessel enlargement or dilatation.



For frequent migraine sufferers, prophylactic medication can be useful to reduce the frequency of attacks. The most commonly used drugs are NSAIDs, beta-blockers (e.g., Propranolol), calcium channel antagonists

(e.g., Verapamil), and antidepressant medications (e.g., Amitriptyline). Side effects can be a problem from these medications. Botulinum toxin (BOTOX®) injections can be effective for migraine headaches. Among the non-drug treatments, behavioral therapies such as relaxation and biofeedback can be effective. Some reports have stated that acupuncture is effective in certain cases.

Cluster headaches are a less common type of headaches (0.5% of males and less than 0.1% of females) and tend to be devastatingly severe and lead to progressive emotional and physical decompensation. They typically begin in the 20 to 40 age range and do not have a genetic predisposition. Cluster headaches are characterized by excruciating pain that lasts 15-90 minutes, located behind or around one eye, although pain can radiate to the temple, jaw, nose, chin, and teeth.



Treatment with 100% oxygen inhalation can be effective for an acute attack within 10-15 minutes in 60-70% of cases. Injection of sumatriptan or dihydroergotamine is presently the most effective treatment of cluster headaches. Other drugs used in prophylactic treatment include methysergide, methylergonovine, ergonovine maleate, lithium, and calcium antagonists.

Post-traumatic headache or post-concussion syndrome is found post mild to moderate closed head injury and also after flexion-extension (whiplash) injuries. The primary symptoms, usually strikingly consistent from patient to patient, include one or more of the following:

1. headache
2. neck, and upper back/shoulder area pain
3. sleep disturbance
4. cognitive abnormalities
5. mood and personality changes
6. dizziness

Post-traumatic headache is a common complaint in individuals after head trauma. In most cases the patient notes the onset of headache within twenty-four hours of injury, but in some cases, it may not be apparent for several days to weeks. The headache usually consists of a bilateral pressure-like sensation located in the back or front of the head, although it can be one-sided. While most patients complain of a constant headache, it can also wax and wane in intensity and severity. Exercise, bending over, coughing or rapid movement of the head usually increases complaints. Symptoms decrease with rest, relaxation and sleep. Patients may complain of migraine-like symptoms such as nausea and vomiting plus light sensitivity (photophobia). A brain injury can be the initiating factor for chronic migraine and cluster headaches.

Headaches represent the most common symptoms in patients after a closed head injury and usually persist for more than two months in 60% of patients. There does not appear to be any correlation with the degree of injury or period of unconsciousness. With a usual lack of "objective" findings, there is occasional skepticism regarding the validity of the injured workers' complaints, but malingering is rare, and the majority of patients have truly valid symptoms.





When there is cognitive dysfunction, treatment includes reassurance, cognitive retraining, psychosocial readjustment, communication, leisure skills training, physical rehabilitation and vocational counseling/rehabilitation. Specific treatment for post-traumatic headaches can include appropriate education, medications, biofeedback, TENS, acupuncture, stress management training along with physical rehabilitation and conditioning.

Myofascial Pain Syndrome (MPS) and Fibromyalgia Syndrome (FS)

The terms myofascial pain and fibromyalgia refer to syndromes of musculoskeletal discomfort.

Myofascial Pain Syndrome (myo = muscle and fascial = the covering of the muscle), or MPS refers to soft tissue tenderness and pain with a specific zone of discomfort or pain (“trigger point”) within the muscle that triggers pain that refers away from the trigger point to contiguous areas.

Common complaints with MPS include muscle spasm, tenderness, stiffness, limitation of motion, and weakness. Myofascial pain occurs equally regardless of sex or gender. X-rays and laboratory tests are not useful with this condition and any abnormalities found on testing are either coincidental or reflect another condition.

Causes of myofascial pain syndromes can therefore include acute and cumulative trauma, the physical condition and emotional state of the individual, and also familial factors. In patients with a remote history of trauma and latent trigger points, MPS activation may come about with intense heat or cold, weather changes, or emotional stimuli.

The characteristics of myofascial pain may long outlast the precipitating event, which sets up a self-generating pain cycle that is perpetuated through lack of proper treatment, sustained muscle tension, distorted posture, pain reinforcing behavior, and failure to reduce other contributing factors such as sleep disturbance.

Fibromyalgia Syndrome (FMS) is a chronic pain disorder characterized by diffuse muscle soreness and stiffness associated with specific, reproducible tender points. Most individuals suffer from sleep disturbance and many from emotional dysfunction. Many patients with fibromyalgia have multiple complaints suggesting a profound constitutional disorder. They commonly have subjective complaints of joint pain, stiffness, swelling, numbness or coldness of the extremities, headaches, bowel pain and irregularity, non-refreshing sleep, and fatigue. Physical examination characteristically is normal, except for the described tender points. X-rays and laboratory tests are normal.



FMS is usually idiopathic (without a specific etiology). Several factors such as dysfunction of the central and autonomic nervous systems, neurotransmitters, hormones, immune system, external stressors, psychiatric aspects have been implicated in causing FMS.¹³ There is some thought that fibromyalgia may be triggered by physical or psychological trauma. Fibromyalgia appears to be quite common, possibly affecting 10 million Americans, and 75-90 percent of the people who have FMS are women (most commonly between the ages of 30-50).

Some individuals with FMS have other concurrent complaints that roughly parallel the severity of the disorder and prognosis. These can include headaches, non-anatomic paresthesias, atypical (non-cardiac) chest pain, irritable bowel syndrome (recurrent abdominal pain and constipation and/or diarrhea), difficulty concentrating and thinking, non-refreshing sleep, fatigue, temporomandibular disorder, and other less common complaints.



Treatment for myofascial pain and fibromyalgia is directed first towards diagnosing and treating factors such as structural abnormalities, medical conditions, or emotional dysfunction. Trigger or tender points are then identified and treated directly with a number of different techniques including spray (with an icy-cold vapo-coolant) and stretch, massage and acupressure. Acupuncture may also be beneficial. Other techniques include needling (trigger point injections) of the affected areas either with or without a local anesthetic. Steroid injections are not recommended.

A careful and graduated physical rehabilitation program of stretching, strengthening and conditioning coincides with these treatments. A TENS (transcutaneous electrical nerve stimulation) unit may be helpful. Other treatments include gentle aerobic conditioning, psychological approaches (biofeedback, psychotherapy, health coaching, cognitive-behavioral therapy) and non-opioid medications (antidepressants, anti-neuropathic agents, muscle relaxants and nonsteroidal anti-inflammatory agents).



Failed Back Surgery Syndrome (FBSS)

Failed back surgery syndrome is defined by the International Association for the Study of Pain as “lumbar spinal pain of unknown origin either persisting despite surgical intervention or appearing after surgical intervention for spinal pain originally in the same topographical location.”



The pain may originate after surgery, or the surgery may exacerbate or insufficiently ameliorate existing pain. Thus, failed back surgery syndrome is a syndrome with many causative etiologies and marked heterogeneity among patients.¹⁴

The majority of published definitions for FBSS include new, recurrent, or persistent pain in the back and/or legs following spinal surgery [2–8], with an incidence estimated to be around 20%.¹⁵ Patients with FBSS typically have a low health quality of life, high psychological morbidity and frequent use of health care.

Numerous investigations have revealed that workers' compensation status is a negative risk factor for outcomes after spine injuries and surgeries.¹⁶



While some may argue for “salvage” surgery, these individuals are best treated with a multidisciplinary functional restoration biopsychosocial approach (see page 17, Successful Chronic Pain Management).

Complex Neuropathic Pain Conditions

Neuropathic pain refers to pain related to the nervous system and can be divided into two basic categories: peripheral (nerves) and central (brain and spinal cord) etiologies.

Common peripheral neuropathic conditions include polyneuropathy from diabetes or induced by chemotherapy, radicular pain (from injury to a nerve root), and postsurgical chronic neuropathic pain. Central neuropathic pain

14 Orhurhu VJ, Chu R, Gill J. Failed Back Surgery Syndrome. 2021 Jun 20. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan-. PMID: 30969599.

15 Klimont Gatzinsky, et. al. Optimizing the Management and Outcomes of Failed Back Surgery Syndrome: A Proposal of a Standardized Multidisciplinary Team Care Pathway. Pain Research and Management Volume 2019, Article ID 8184592, 12 pages <https://doi.org/10.1155/2019/8184592>

16 Daniels, Alan H. MD; Kuris, Eren O. MD; Kleinhenz, Dominic T. MD; Palumbo, Mark A. MD. Spine Surgery Outcomes in Workers' Compensation Patients. Journal of the American Academy of Orthopaedic Surgeons 25(10):p e225-e234, October 2017. | DOI: 10.5435/JAAOS-D-16-00895

conditions include multiple sclerosis, poststroke pain, spinal cord injury–related pain, postherpetic neuralgia, complex regional pain syndrome, and trigeminal neuralgia.

The clinical presentation of neuropathic pain commonly includes descriptions of burning, pins and needles (paresthesia), tingling, numbness, electric shocks/shooting, crawling, itching, and intolerance to temperature. In more advanced cases, patients may describe pain arising from stimuli that are not usually painful (termed allodynia) or pain from normally painful stimuli that is out of proportion to what would be expected (termed hyperalgesia).



Multidisciplinary conservative care and nonopioid medications (tricyclic antidepressants, serotonin norepinephrine reuptake inhibitors, gabapentinoids, topicals, and transdermal substances) are recommended as first line therapy; combination therapy (first line medications) and tramadol and tapentadol are recommended as second line; serotonin-specific reuptake inhibitors/anticonvulsants/NMDA antagonists and interventional therapies as third-line; neurostimulation as a fourth-line treatment; low-dose opioids (usually no greater than 50 morphine equivalent units) are fifth-line; and finally, targeted drug delivery is the last-line therapy for patients with refractory pain.

Complex Regional Pain Syndrome

Complex regional pain syndrome (CRPS) is a chronic neuropathic pain condition defined as a disorder of regions of the body characterized by spontaneous and evoked pain that is disproportionate in time or degree to the usual course of any known trauma or other lesion.

The pain is not restricted to a specific nerve territory or dermatome and usually has a distal extremity predominance of abnormal sensory, motor, sudomotor, vasomotor, and/or trophic findings. The syndrome shows variable progression over time.

The diagnosis of CRPS is based on the Budapest Diagnostic Criteria¹⁷ as follows:

1. Continuing pain, which is disproportionate to any inciting event.
2. Must report at least one symptom in three of the four following categories:

Sensory: Reports of hyperesthesia and/or allodynia

Vasomotor: Reports of temperature asymmetry and/or skin color changes and/or skin color asymmetry

Sudomotor/Edema: Reports of edema and/or sweating changes and/or sweating asymmetry



17

Complex regional pain syndrome: practical diagnostic and treatment guidelines, 4th edition. Harden RN, Oaklander AL, Burton AW, Perez RS, Richardson K, Swan M, Barthel J, Costa B, Graciosa JR, Bruehl S, Reflex Sympathetic Dystrophy Syndrome Association. Pain Med. 2013 Feb;14(2):180-229. Epub 2013 Jan 17.

Motor/Trophic: Reports of decreased range of motion and/or motor dysfunction (weakness, tremor, dystonia) and/or trophic changes (hair, nail, skin)

3. Must display at least one sign at time of evaluation in two or more of the following categories:

Sensory: Evidence of hyperalgesia (to pinprick) and/or allodynia (to light touch and/or temperature sensation and/or deep somatic pressure and/or joint movement)

Vasomotor: Evidence of temperature asymmetry ($> 1^{\circ}\text{C}$) and/or skin color changes and/or asymmetry

Sudomotor/Edema: Evidence of edema and/or sweating changes and/or sweating asymmetry

Motor/Trophic: Evidence of decreased range of motion and/or motor dysfunction (weakness, tremor, dystonia) and/or trophic changes (hair, nail, skin)

4. There is no other diagnosis that better explains the signs and symptoms.

While physicians and therapists have many tools in their treatment armamentarium, the single most important treatment for these patients is education and learning how to manage their chronic pain condition. Patients who can learn about the cause and meaning of their pain are able to make better choices regarding the use of their extremity which may improve their functionality and overall quality of life.

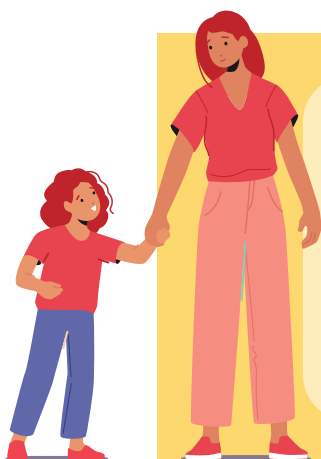


The selection of a treatment approach depends on the severity of symptoms and the degree of disability. Of paramount importance is that a successful treatment outcome for CRPS depends on a coordinated functional restoration interdisciplinary team approach. Building a therapeutic alliance between the patient and the treatment team is of critical importance.

Since pain and limb dysfunction are the major early complaints, pain control, education, physical rehabilitation, and emotional stabilization are the main treatment objectives. Coexisting problems such as depression, sleep disturbance, anxiety, fear of reinjury, and generalized physical deconditioning should be evaluated and treated.

Therapeutic approaches include medication management, interventional procedures (for example stellate ganglion and lumbar sympathetic block), and most importantly, physical rehabilitation (i.e., physical and occupational therapy) and psychological care including cognitive behavioral therapy (CBT), and relaxation training. These and a variety of techniques that, directly or indirectly, are aimed at blocking or interrupting chronic changes to an overactive nervous system and in some cases decreasing sympathetic hyperactivity. Patients are encouraged to use the affected limb. Treatment is more successful if started early rather than later in the disease process.

Adverse Childhood Experiences (ACEs)



A history of Adverse Childhood Experiences (ACEs)¹⁸ has been strongly linked to development of chronic pain and other chronic illnesses. In America, ACEs are common. Sixty-one percent of adults reported experiencing at least one type of ACE in childhood. It is often the cumulative effect of multiple ACEs which may put an injured worker “at risk for delayed recovery.”

A few examples of ACEs include:

- Major illness or injury
- Parental divorce or separation
- Having a family member incarcerated
- Death of a family member
- Living with a family member who is addicted to alcohol or other substances
- Living with a family member who is depressed or had other chronic mental illness
- Severe poverty or lack of quality nutrition
- Sexual or physical or emotional abuse
- Abandonment and neglect

While ACEs are associated with long-term health and behavioral outcomes later in life, the potential negative effects of ACEs can be overcome by a strong support system and building resilience (effective coping skills). With appropriate medical and social support, a person can still successfully flourish developmentally despite ACEs.



Methods of Diagnosis for Chronic Pain

An early indicator of potential chronic pain is when there is a poor correlation between the degree of tissue damage or deformity (objective findings) and the subjective complaints. There are sophisticated tests to measure changes in body chemicals (blood, urine, spinal fluid analysis, etc.) as well as structure (changes from the norm on physical examination or by various tests and procedures (imaging studies, etc.). However, there is no definitive test or procedure that can measure another person's pain and suffering. Complicating matters is that two individuals with the exact same injury and pathology can present differently; one with complaints of severe chronic pain while the other may have little or no pain complaints.

Successful chronic pain evaluations should start with coordinated quality medical, psychological, and physical therapy evaluations. These evaluations should not only determine the objective physical ramifications of the injury but also the entirety of the injured worker's presentation including assessment of factors that may lead to delayed recovery and a poor outcome from traditional treatment approaches.

Successful Chronic Pain Management

Evidence-based causation and treatment guidelines indicate that once a chronic pain condition sets in, rest, excessive medications and often invasive interventions and surgery may not be beneficial and may even be harmful.

Treatment success is achieved by building a bond of trust and communication not only between the injured worker and the clinician but also with the employer, claims handlers, attorneys, case managers, and others.



The physician–claims interaction is critical towards avoiding authorization delays and care denials. Working as partners can make the difference between early return to work and a positive outcome versus never returning to work, loss of enjoyment of life, excessive cost, and a resulting chronic pain syndrome.

While an injured worker may have risk factors for delayed recovery (be a potential chronic pain patient), this does not rule out the need for medications, procedures, or even surgery. It is important to recognize that these approaches may not have the expected outcome when there are nonphysical factors that are affecting the injured worker.

History has taught us that some treatment modalities may be inappropriate such as ever-increasing doses of opioids, experimental or unproven surgeries, and others. The chronic pain patient is at particular risk of inconclusive results followed by further decompensation from disappointment or frustration and may be unable to form realistic expectations regarding experimental or investigative treatment options.

If a patient is diagnosed with chronic pain, the claims handler should realize that successful treatment may take time and also may be costly. Treatment may include the need for additional efforts such as engagement in a functional restoration program. The success overall is getting an injured worker stabilized, returned to work, and case closed, while avoiding massive and unnecessary medical costs. Thus, investment in such efforts may markedly reduce costs overall.



The *biopsychosocial* approach is currently viewed as the most appropriate perspective to understanding, assessing, and treating chronic pain disorders and disability.^{19 20 21 22 23} This whole-person rehabilitation approach encourages the injured worker to oversee his or her own health and well-being (the “locus of control” is with the injured worker), while learning and being educated about their condition. It involves utilizing evidence-based medicine approaches including minimizing any passive therapy and invasive treatments, optimizing medications, and through psychological pain management and physical restorative treatment approaches.

Chronic pain reflects a complex and dynamic interaction among biological, psychological, and social factors. Injured workers with chronic pain benefit from being well informed about their diagnosis and the associated treatments. Such education may likewise present additional costs for time with physicians, therapists, and others, however the benefits will generally outweigh the cost. This knowledge may relieve the fears that may interfere with receiving maximum benefits from carefully and appropriately selected treatments. Education can also prevent unrealistic expectations that lead to disappointment with less than expected benefit or even a bad outcome from treatment.

Individuals successful with chronic pain management take control of and re-engage in their life activities. They achieve mastery over when and how to access the medical community in a way that is most beneficial for them. The goal is mitigation of suffering, being independent and returning to a productive life including return-to-work, despite a chronic/persistent pain problem. See Helpful Resources on page 20.

Workers' Compensation & Chronic Pain

Workers' compensation benefit delivery systems are complex and difficult to understand. Injured workers often feel lost in the process. They often feel confused, disbelieved, and disrespected, all of which feeds a sense of hopelessness and abandonment – all leading to potential contribution to the development or instigation of chronic pain perceptions and a poor outcome.

The best and most effective method to mitigate potential chronic pain issues in workers' compensation is to promptly determine compensability, communicate the claims process and status with the injured worker, provide immediate quality evidence-based medical care, and identify delayed recovery factors. And, most importantly, working with the doctor and employer to encourage stay-at-work (SAW) and return-to-work (RTW) even when that requires modified duties. In order to attain the best outcome, every effort should be taken to promptly communicate with the healthcare provider, patient, employer, and any other stakeholder that will help the injured worker get expedited treatments in order to return to full functionality and work. Working is the best preventative measure and best medicine to support and enhance an employee's perception of being valued and to prevent chronic pain.

Workers' compensation factors which contribute to creating a chronic pain patient:

- + Employers who treat all injuries as fraudulent, and injured workers as frauds.
- + Employers who do not immediately report all injuries; thereby delaying prompt compensability determination and benefits.

19 Gatchel RJ. Comorbidity of chronic mental and physical health disorders: The biopsychosocial perspective. *American Psychologist* 2004;59:792-805.

20 Gatchel RJ. *Clinical Essentials of Pain Management*. American Psychological Association, Washington, DC, 2005.

21 Gatchel RJ, Okifuji A. Evidence-based scientific data documenting the treatment- and cost-effectiveness of comprehensive pain programs for chronic nonmalignant pain. *Journal of Pain* 2006;7:779-793.

22 Turk DC, Gatchel RJ (Eds.). *Psychological Approaches to Pain Management: A Practitioner's Handbook*, 2nd ed. Guilford, New York, 2002.

23 Turk DC, Monarch ES. Biopsychosocial perspective on chronic pain. In: D. C. Turk & R. J. Gatchel (Eds.), *Psychological Approaches to Pain Management: A Practitioner's Handbook* (2nd ed.). Guilford, New York, 2002.

- + Employers who create barriers that delay return to work.
- + Employers (front line supervisors or managers) who do not remain in contact with injured employees (particularly during time off from work).
- + Delays in compensability determination by the claims administrator.
- + Medical treatment authorization delays which result in a lack of access to quality, evidence-based medical care due to a complex and unnecessary authorization process.
- + Failure to recognize underlying delayed recovery factors (ACEs).
- + Inaccurate or delayed diagnosis by the medical provider.
- + Physicians who focus on pathology and not on the whole person.
- + Healthcare providers who do not provide the time for meaningful patient interaction and education.
- + Healthcare providers who do not follow evidence-based medicine treatment protocols.
- + Healthcare providers or the injured worker's hostility towards the employer/payer.
- + Attorneys who do not focus on assisting the injured worker in returning to health and work.
- + Lack of communication between stakeholders that delays care and leads to chronic pain and unemployability.

Delayed recovery and ever-worsening disability are even more pronounced in individuals with poor coping skills and other behavioral, characterological, personality, and psychological issues. Underlying personality structure and motivation are often determinants for disability. Chronic pain complaints may be linked with significant disability.²⁴

9 Steps to Achieve Positive Outcomes

1. Recognize when there are delayed recovery factors (including ACEs) which may increase the likelihood of chronic pain.
2. Recognize that pain medicine escalation without benefit is a risk factor for a poor outcome.
3. Minimize delays in compensability determinations and treatment authorizations which may result in poor and costly outcomes.
4. When an injured worker is identified as a risk for chronic pain, make prompt referrals to appropriate medical professionals including alternative therapies when possible.
5. Emphasize appropriate communication with the injured worker.
6. Set appropriate expectations for recovery and return to work to modified or full duty.
7. Overcome fear of re-injury through communication and education.
8. Support physical activity and alternative therapies for pain management.
9. Encourage the injured worker to seek support from family, friends, social, and if appropriate, religious communities.



24 Aronoff GM. Chronic pain and the disability epidemic. Clin J Pain 1991;7:330-8.

Chronic Pain Paper Resources

Clinician Chronic Pain Resources:

AAFP Chronic Pain Management Toolkit
UF Pain Assessment and Management Initiative
Stanford Pain Management Series
Integrative Approaches to Chronic Pain Management Course

Pain-Related Organizations:

The American Chronic Pain Association (ACPA)
American Society for Pain Management Nurses (ASPMN)
American Academy of Pain Medicine (AAPM)
International Association for the Study of Pain (IASP)
National Center for Complementary and Integrative Health (NCCIH)

Chronic Pain Apps and Websites:

ACPA Stanford Resource Guide
Back in Control - David Hanscom, MD
Calm
Curable
DOC Journey - David Hanscom, MD
Freedom From Chronic Pain - Howard Schubiner, MD
Integrative Pain Science Institute
Manage My Pain
MazeMasters
PainScale
Pathways
Painaction
Retrain Pain Foundation
Take Courage Coaching - Becky Curtis

Chronic Pain Virtual Reality Technology:

Applied VR
Karuna
Flowly
Harvard Med Tech

Supporting Articles:

PLOS One Journal - (7/27/2020) Health and wellness coaching positively impacts individuals with chronic pain and pain-related interference - <https://bit.ly/CPPIArt1>

Mayo Clinic - (12/18/2020) 8 Tips for Managing Chronic Pain - <https://bit.ly/CPPIArt2>

Risk & Insurance (10/13/21): Harvard Med Tech and Hartford Tout Virtual Reality as Injured Worker Treatment Avenue - <https://bit.ly/CPPIArt3>

Healthline (11/20/21): FDA Approves New Virtual Reality Device to Help Ease Chronic Pain - <https://bit.ly/CPPIArt4>

Business Insurance (9/14/21): Medical use of virtual reality shows promise - <https://bit.ly/CPPIArt5>

NCCIH (9/18): Chronic Pain: In Depth - <https://bit.ly/CPPIArt6>

Chronic Pain Patient Videos:

Ways to Manage Chronic Pain - <https://bit.ly/CPPIVid1>

A Car With Four Flat Tires - <https://bit.ly/CPPIVid2>

Explain pain to patients in 5 minutes - <https://bit.ly/CPPIVid3>

How Becky Defeated Chronic Pain - <https://bit.ly/CPPIVid4>

Tame the Beast - <https://bit.ly/CPPIVid5>

Understanding Pain: Brainman chooses - <https://bit.ly/CPPIVid6>

Persistent Pain Explained in 3 minutes - <https://bit.ly/CPPIVid7>

Understanding pain in less than 5 minutes - <https://bit.ly/CPPIVid8>

What is Chronic Pain? <https://bit.ly/CPPIVid9>



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Dr. Annu Navani is the Chief Medical Officer for Boomerang Healthcare, with 20+ years of experience in the medical industry. Dr. Navani completed her Anesthesiology residency at the Medical College of Wisconsin, Milwaukee and a fellowship in Pain Medicine from the University of California, Davis. Over the last decade and a half, she has served as Founder and CEO of Comprehensive Spine and Sports Center. Dr. Navani is also an Adjunct Clinical Associate Professor at the Division of Pain at Stanford University. Annu sits on the Editorial Board of the journal, Pain Physician and serves on the board of the American Society of Interventional Pain Physicians, The Ortho Biologic Institute Networks, the California Society of Industrial Medicine and Surgery, and the California Society of Interventional Pain Physicians. In addition, she has authored several national guidelines on opioids, interventional spine epidural procedures, facet joints, and biologics in the lumbar spine. For more information about Dr. Navani, visit www.boomeranghc.com/team.

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William (Bill) M Zachry is currently a member of the Board of Directors of State Compensation Insurance Fund (SCIF). He has served on the board since 2010 and is currently the Chair of the Audit Committee. His experience includes being a Senior Fellow at the Sedgwick Institute, where he did research, writing, and speaking on Risk Management issues involving The National Opioid Epidemic, Workers' Compensation cost drivers, Workers' Compensation Fraud, The Internet of Things (IoT), AI and Big Data in Insurance, and CRISPR- Cas 9. Prior to working at the Sedgwick Institute, Mr. Zachry was the Group Vice President of Risk Management at the Safeway/Albertsons Company, where he was awarded Risk Manager of the Year from RIMS and Workers' Compensation Professional of the Year from the California Coalition on Workers' Compensation. Bill was also a member (And Chair) of the California Fraud Assessment Commission for ten years. Bill has received multiple commendations and awards for his involvement and participation in fraud-fighting in California. In 2020, he received the Summa Comp Laude®/David. J. DePaolo Award for his career contributions to the workers' compensation and insurance industry and has served on the Comp Laude® Advisory board since 2016.



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