Section 1

Since the chiropractic profession's genesis in 1895, Doctors of Chiropractic have played a vital role in the diagnosis and treatment of pain. Emphasis has been placed on the etiology of pain syndromes, how the body reacts to pain, how different chiropractic treatment methodologies ameliorate or eliminate pain, and how alternative treatments can be used to relieve many painful conditions. In addition to chiropractic treatment, pain management generally benefits from a multidisciplinary approach that includes pharmacologic measures (to include analgesics such as non steroidal anti inflammatory medicines), pain modifiers (such as tricyclic antidepressants or anticonvulsants), non-pharmacologic measures (such as physical therapy and physical exercise), and psychological measures (such as biofeedback and cognitive therapy).

The purpose of this continuing education seminar is to broaden the Doctor of Chiropractic's knowledge base regarding the nature of pain, pain theories and the physiological and non physiological aspects of pain. Additionally, the course information is intended to enhance the reader's diagnostic abilities relative to pain syndromes and to provide an overview of chiropractic and alternative pain management methodologies.

Pain Perspectives

The International Association for the Study of Pain (IASP) defines pain as:
"An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage". Pain is always subjective. Each individual learns the application of the word through experiences related to injury in early life. Accordingly, pain is that experience we associate with actual or potential tissue damage. It is unquestionably a sensation in a part or parts of the body, but it is also always unpleasant and therefore also an emotional experience. Many people report pain in the absence of tissue damage or any likely pathophysiological cause. Typically, this happens for psychological reasons. There is usually no way to distinguish their experience from that due to tissue damage if we take the subjective report. If they regard their experience as pain and if they report it in the same ways as pain caused by tissue damage, it should be accepted as pain. This definition avoids tying pain to the stimulus. Activity induced in the nociceptor and nociceptive pathways by a noxious stimulus is not pain, which is always a psychological state, even though we may well appreciate that pain most often has a proximate physical cause.[1]

"Clinically, pain is whatever the person says he or she is experiencing whenever he or she says it occurs"[2]

"Pain is a category of complex experiences, not a single sensation produced by a single stimulus" - Ronald Melzack and Patrick Wall[3]

"Pain is the result of nociception; activity in the nervous system that results from the stimulation of nociceptors. This nociception activity is carried to the brain via the spinal cord, and conveys information, without conscious awareness, about damage to body tissues. Pain is the conscious experience of sensorial information and a feeling of unpleasantness that can manifest as a result of nociception. As a part of the body's defense system, pain triggers mental and physical behavior that seek to end the painful experience. It is also a feedback system that promotes learning, making repetition of the painful situation less likely. The nociceptive system may transmit signals that trigger the sensation of pain, it is a critical component of the body's ability to react to damaging stimuli and it is part of a rapid-warning relay instructing diverse organs and principally the central nervous system to initiate reactions for minimizing injury." [4]

Pain Epidemiology

- In the USA, 23.3 million surgical procedures are performed each year, and most, if not all, result in some form of pain[5,6,7]
- Pain in persons with cancer also remains a significant problem, with studies suggesting that as many as 30% to 40% of cancer patients and 70% to 80% of cancer patients undergoing therapy or in the end stages of life have unrelieved pain[8,9,10,11,12,13]
- The Mayday Fund survey noted that pain is a part of life for many Americans, with 46% of respondents reporting pain at some time in their lives.[14]
- It has been estimated that 9% of the US adult population suffers from moderate to severe chronic nonmalignant pain.[15]

Epidemiology

- A complaint of pain is reported to be the main reason for visiting the emergency department in more than 50% of cases [16] and is present in 30% of family practice visits.[17]
- Epidemiological studies of differing countries and cultures have reported widely varying prevalence rates for chronic pain, ranging from 12-80% of the population.[18]
- Studies suggest that the presence of pain becomes more common as people approach death. A study of 4,703 patients found that 26% had pain in the last two years of life, increasing to 46% in the last month.[19]
- Perquin et al. performed a survey of 6,636 children (0–18 years of age) and found that 54% of their respondants had experienced pain in the preceding three months. A quarter reported having experienced recurrent or continuous pain for three months or more, and a third of these reported frequent and intense pain. The intensity of chronic pain was higher for girls, and girls' reports of chronic pain increased markedly between ages12 and 14.[20]

An Australian Study of the Epidemiology of Pain By Simon L Strauss, Fiona H Guthrie*, and Fred Nicolosi* dated 1986 revealed the following **key findings :**

- the pain prevalence rate was 355 per 1000.
- as age increases the pain prevalence rate increases.
- Females have higher pain prevalence rates than males over all age 80 groups.
- the majority of respondents reported suffering from back pain.
- the majority of respondents described their pain as discomforting (the second point of a five point scale based on the McGill Pain Questionnaire).
- the cause of pain for the majority of respondents was of unknown or spontaneous origin.
- the majority of respondents had suffered from pain for three years or more.
- the pain is generally experienced either continuously or on a daily basis.
- the majority of respondents (70%) visited a health professional for treatment. This health professional was a doctor in 80% of cases.
- respondents undertaking self-treatment or no treatment did so because they considered health professionals could not help.[21]

Peter M Kent and **Jennifer L Keating** in their 2005 study entitled "The epidemiology of low back pain in primary care" reported the following findings:

- In the studies Looney and Stratford, low back pain (LBP) prevalence was estimated to be 6.8% in North America, 12% in Sweden, 13.7% in Denmark, 14% in the United Kingdom, 28.4% in Canada, and 33% in Belgium.[22]
- The prevalence of LBP in children is low (1%-6%) but increases rapidly (18%–50%) in the adolescent population. The prevalence of LBP peaks around the end of the sixth decade of life.[23]
- In the USA, for people aged 45 years or less, LBP is the most frequent cause of activity limitation and women were twice as likely to report severe activity limitation.[24]
- Carey found that in a sample from North Carolina USA, 61% of recent-onset (<12 weeks) LBP sufferers sought care during their most recent episode. Those seeking care were likely to have more intense pain, leg pain, or a pain onset at work, than those who did not seek care.[25]
- In an Australian study Walker found women more likely to seek care for LBP (adjusted odds ratio 1.7, 95%CI 1.3 to 2.2).[26]
- The most common clinicians consulted for back pain in North America are chiropractors, general medical practitioners and orthopaedists.[27]
- LBP is a sizeable proportion of casemix for some primary-contact disciplines. Physiotherapy LBP casemix has been estimated to be 25% .[28]
- Chiropractic LBP casemix has been estimated to be 41%. Back pain is the ninth most common presentation in general medical practice, contributing between 3.8% and 7.1% of presenting complaints.[29]
- The six most common types of treatment received by adults when seeking care for LBP are back exercises/stretching, massage, spinal manipulation, prescribed medication, non-prescription medication, and bed rest.[30]
- Von Korff defined natural history as the development of a condition in the absence of treatment, and defines clinical course as its development in the presence of treatment. Recent systematic reviews of the clinical course of LBP indicate that rapid improvements occur in the first three months post-onset, but that improvements are gradual thereafter. At 6 months post-onset, 16% (range 3–40%) of patients initially off-work remain off-work, and at 12 months post-onset, 62% (range 42–75%) still have pain. Within 12 months of onset, recurrences of both pain (60%, range 44–73%), and recurrences of work absence (33%, range 26–37%) are common.[31], [32]

Pain Definitions

Allodynia
Pain due to a stimulus that does not normally provoke pain. The term allodynia was originally introduced to distinguish hyperalgesia from hyperesthesia, the conditions seen in patients with lesions of the nervous system where touch, light pressure, or moderate cold or warmth evoke pain when applied to apparently normal skin. Allo means "other" in Greek and is a common prefix for medical conditions that diverge from the expected.

Odynia is derived from the Greek word "odune" or "odyne," which is used in "coccydynia" and is similar in meaning to the root from which we derive words with -algia or -algesia in them. The term allodynia applies to conditions which may give rise to sensitization of the skin, e.g., sunburn, inflammation, trauma. Allodynia involves a change in the quality of a sensation, whether tactile, thermal, or of any other sort. [33]

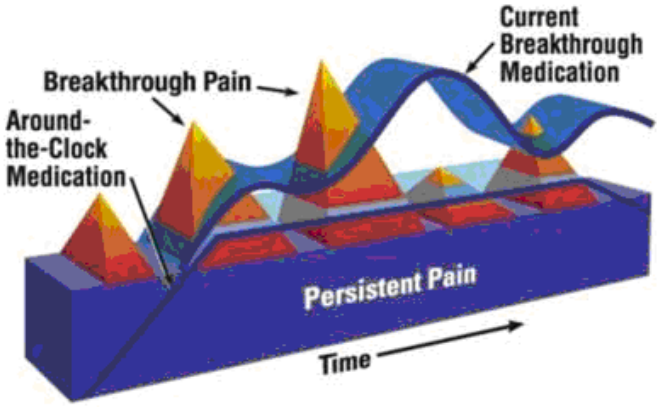
Analgesia
Absence of pain in response to stimulation which would normally be painful.[34]

Anesthesia Dolorosa
Pain in an area or region which is anesthetic.[35]

Breakthrough Pain
Moderate to severe pain that lasts 12 hours or more per day is referred to as persistent pain. Medical physicians will often prescribe a longer-acting medication that will help to alleviate persistent pain for up to 12 hours or more. Unfortunately, up to 86% of patients already receiving longer-acting pain medication also experience sudden flare-ups of pain that "break through" the medication they are taking.[36] This is called "breakthrough pain," or "BTP."

In patients who have moderate to severe pain, two components are usually present: persistent pain (lasting 12 or more hours/day) and breakthrough pain (BTP), a transitory flare up of pain of moderate to severe intensity occurring on a background of otherwise controlled pain.[37,38,39]
In one survey, patients experienced an average of 4 episodes of BTP per day.[40] Based on the results from this same survey, the onset of BTP is often sudden, reaches maximal intensity within 3 minutes, and lasts for a median duration of 30 minutes.[41]

There are 3 types of breakthrough pain - spontaneous, incident, and end-of-dose failure. The etiology of BTP may be related to a disease or condition, or to its treatment.
Breakthrough pain has been further defined as a transitory exacerbation of moderate to severe pain occurring in patients against a background of persistent pain otherwise controlled with chronic opioid therapy.[42]



Breakthrough pain strikes quickly and without warning in many cases.[43] Untreated breakthrough pain can decrease a patient's quality of life by negatively affecting their mood and interactions with others, and by limiting their activities of daily living.[44]

Medications that are typically prescribed for persistent pain are called "longer-acting," "sustained-release," or "around-the-clock" medicine. Some examples of longer-acting medicines are pills that are taken every 8 to 12

hours or a skin patch that is worn for several days. Conversely, medicines required for breakthrough pain are called "shorter-acting," "supplemental," or "rescue" medicines.

In the assessment of pain and in the development of a diagnosis and treatment plan, it is important to understand the following characteristics regarding breakthrough pain:

- Episodes of breakthrough pain may either be spontaneous, occurring without a precipitated event, or precipitated; initiated by a volitional or non-volitional event. The etiology of breakthrough pain can be related to a disease or condition, or to its treatment. Episodic pain is also known as breakthrough pain.
- Chronic pain can be one or two types: persistent pain, which is continuous pain, and breakthrough pain, or incident pain.
- Breakthrough pain is called that because it "breaks through" a regular pain medicine schedule.
- Breakthrough pain may be different for each person and it is often unpredictable.
- Breakthrough pain typically has a rapid onset, can last up to an hour.
- The quality of breakthrough pain may feel very much like persistent pain, except that it is more severe.
- Breakthrough pain is generally a result of the same cause, or source, as persistent pain.
- In 1994, the Agency for Healthcare Research and Quality (AHCPR) defined breakthrough pain as "intermittent exacerbations of pain that can occur spontaneously or in relation to specific activity". The Agency for Healthcare Research and Quality (AHCPR) guidelines do not contain specific recommendations for assessing breakthrough pain and/or selecting and analgesic or analgesic does of medication to treat breakthrough pain.
- Movement-related pain is often referred to as "incident" pain. Incident pain, or movement-related pain, can occur as a result of coughing, swallowing, positional changes, and activity.
- Breakthrough pain could be related to: a direct relationship between a tumor progression, such as bone metastasis, or nerve compression in the cancer patient, or as a result of a treatment modality, such as a prostatectomy or mastectomy, or a variety of disorders, such a arthritis.
- Currently, there is not an independently validated assessment tool available to evaluate breakthrough pain.[45]

Causalgia
A syndrome of sustained burning pain, allodynia, and hyperpathia after a traumatic nerve lesion, often combined with vasomotor dysfunction and later trophic changes.[46]

Central Pain
Pain initiated or caused by a primary lesion or dysfunction in the central nervous system.[47]

Dysesthesia

An unpleasant abnormal sensation, whether spontaneous or evoked. Special cases of dysesthesia include hyperalgesia and allodynia. [48]

Hyperalgesia
An increased response to a stimulus which is normally painful. Hyperalgesia reflects increased pain on suprathreshold stimulation. For pain evoked by stimuli that usually are not painful, the term allodynia is preferred, while hyperalgesia is more appropriately used for cases with an increased response at a normal threshold, or at an increased threshold, e.g., in patients with neuropathy.. Current evidence suggests that hyperalgesia is a consequence of perturbation of the nociceptive system with peripheral or central sensitization, or both.[49]

Hyperesthesia
Increased sensitivity to stimulation. Hyperesthesia may refer to various modes of cutaneous sensibility including touch and thermal sensation without pain, as well as to pain. The word is used to indicate both diminished threshold to any stimulus and an increased response to stimuli that are normally recognized.[50]

Hyperpathia
A painful syndrome characterized by an abnormally painful reaction to a stimulus, especially a repetitive stimulus, as well as an increased threshold. It may occur with allodynia, hyperesthesia, hyperalgesia, or dysesthesia. Faulty identification and localization of the stimulus, radiating sensation, and after-sensation may be present, and the pain is often explosive in character.

Hypoalgesia
Diminished pain in response to a normally painful stimulus. Hypoalgesia refers only to the occurrence of relatively less pain in response to stimulation that produces pain.[51]

Hypoesthesia
Decreased sensitivity to stimulation that is normally painful. [52]

Neuralgia
Pain in the distribution of a nerve or nerves.

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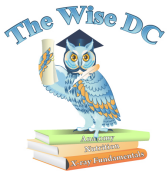

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