

Understanding Chronic Pain: An Educational Session on Chronic Pain

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Objectives

- To better understand the nature of pain
- To differentiate between acute and chronic pain
- Identify strategies for coping and managing with chronic pain
- Provide self-help resources

What is pain?

- International Association for the Study of Pain
 - Unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.
- A multiple system output activated by an individual-specific pain neurosignature; the neurosignature is activated whenever the brain concludes that body tissues are in danger and action is required. Pain is allocated an anatomical reference in the virtual body (Moseley 2003a).

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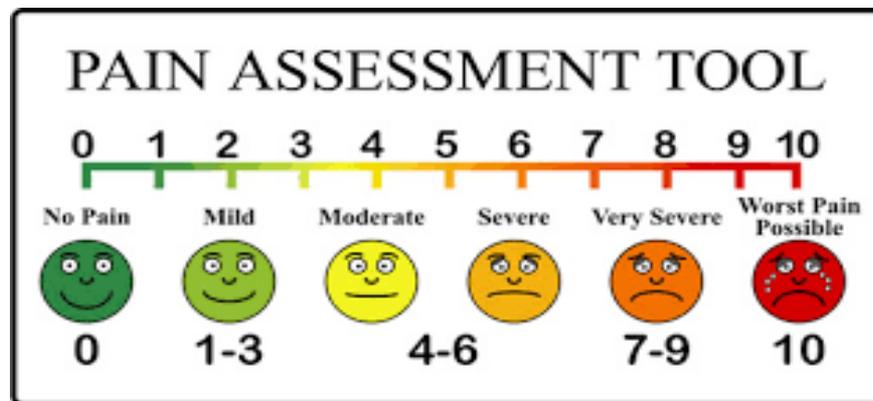
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How do we describe pain?

- Location
- Severity/intensity



- Quality (burning, itching, sharp, dull, tingling)

ACUTE PAIN

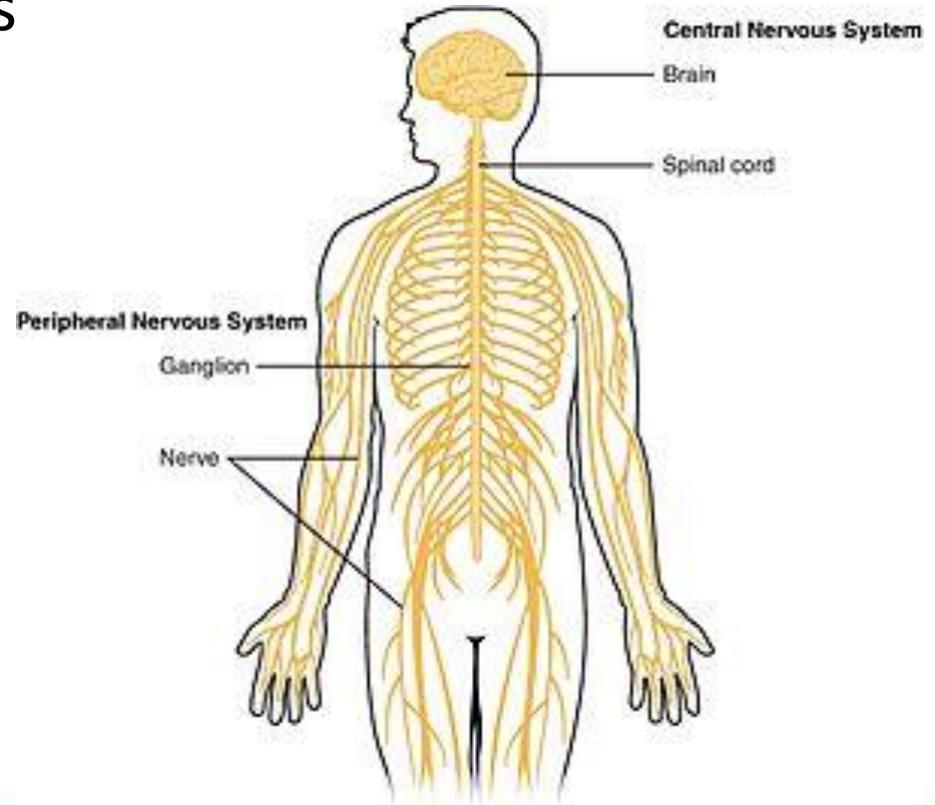
Acute Pain

- Typically sudden onset
- Has an obvious, identifiable cause
 - Injury
 - Surgery
 - Illness
- Usually short duration (less than 1 month)
- Localized to the site of the injury/surgery/illness
- Intensity related to the severity of the condition
- Adaptive: alerts individual to the presence of harm/danger



The Nervous System

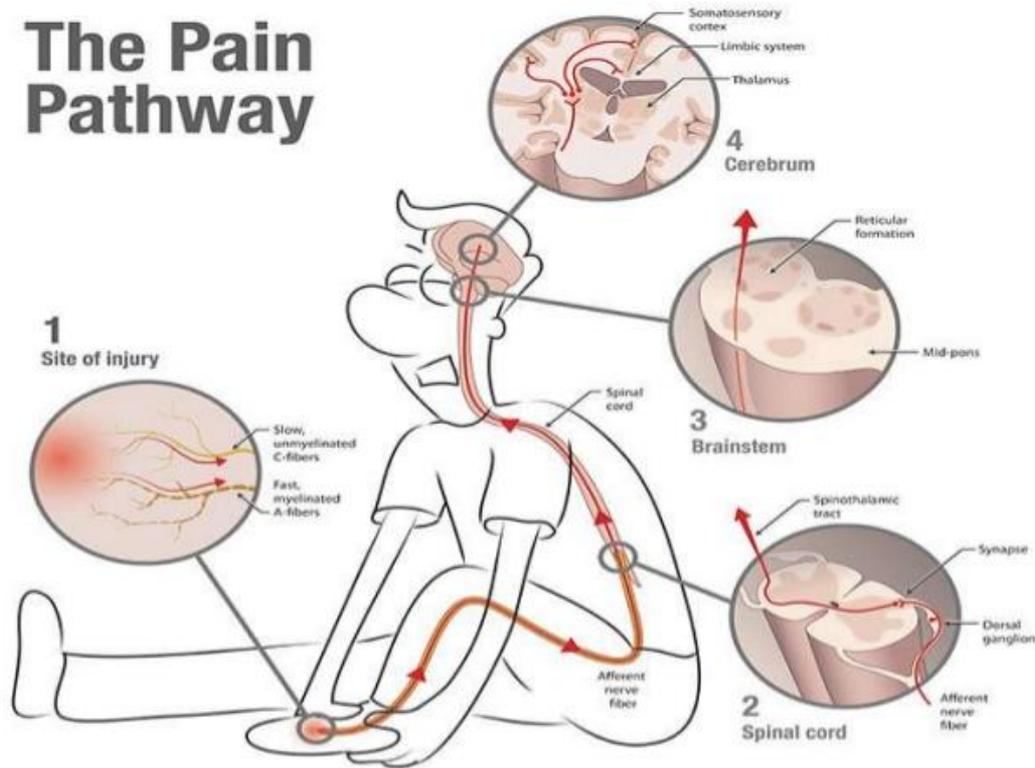
- Each part of your body has nerves around it.
- Human body contains 45 miles or 72 km of nerves and more than 400 individual nerves.
- Nerves connect all body parts to spinal cord which carries information to the brain.



Pain Processing



The Pain Pathway



► Nociception

- Danger detection
- Process through which receptors are activated and activate nerve fibers that send danger signal to spinal cord and brain.

► Perception of Pain

- Occurs in the brain
- Pain is a product of the brain

Processing Danger Signal in the Brain

A TYPICAL PAIN NEUROTAG

1. PREMOTOR/ MOTOR CORTEX
organize and prepare movements
2. CINGULATE CORTEX
concentration, focusing
3. PREFRONTAL CORTEX
problem solving, memory
4. AMYGDALA
fear, fear conditioning, addiction
5. SENSORY CORTEX
sensory discrimination
6. HYPOTHALAMUS/ THALAMUS
stress responses, autonomic regulation, motivation
7. CEREBELLUM
movement and cognition
8. HIPPOCAMPUS
memory, spacial recognition, fear conditioning
9. SPINAL CORD
gating from the periphery



Pain and Cognitive Factors

- Pain perception is also influenced by stress, emotions, thoughts, beliefs, expectations, and attention.
- Attention
 - Painful stimulus + engaging in a cognitive task = lower pain perception; less activation of brain areas associated with pain processing (Petrovic et al., 2000)
- Beliefs
 - Higher levels of pain catastrophizing associated with more activation in brain areas associated with pain processing (Seminowicz & Davis, 2006)
- Expectations
 - Expecting a painful stimulus activates brain areas involved in pain processing (Koyama et al., 2005)

Perception of Pain

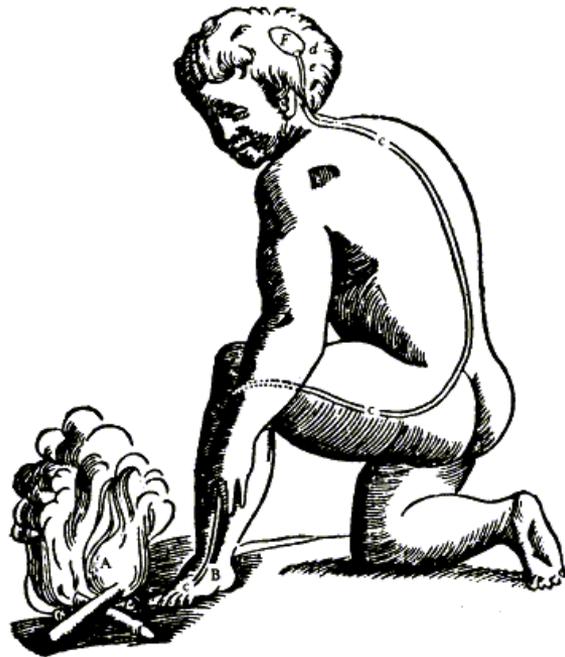
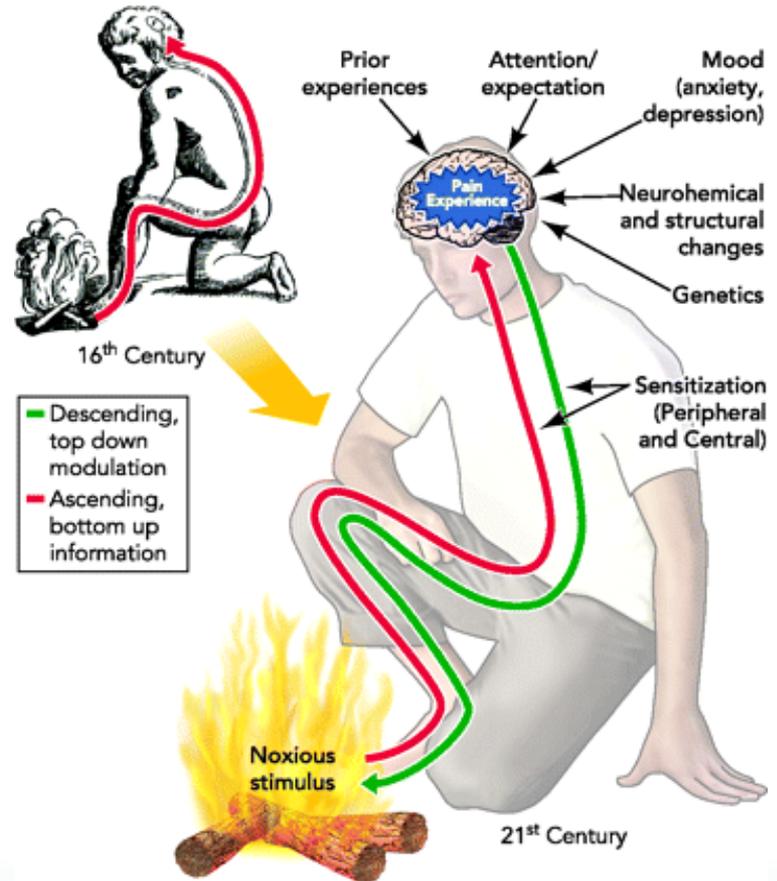


Fig. 1



CHRONIC PAIN

Chronic Pain

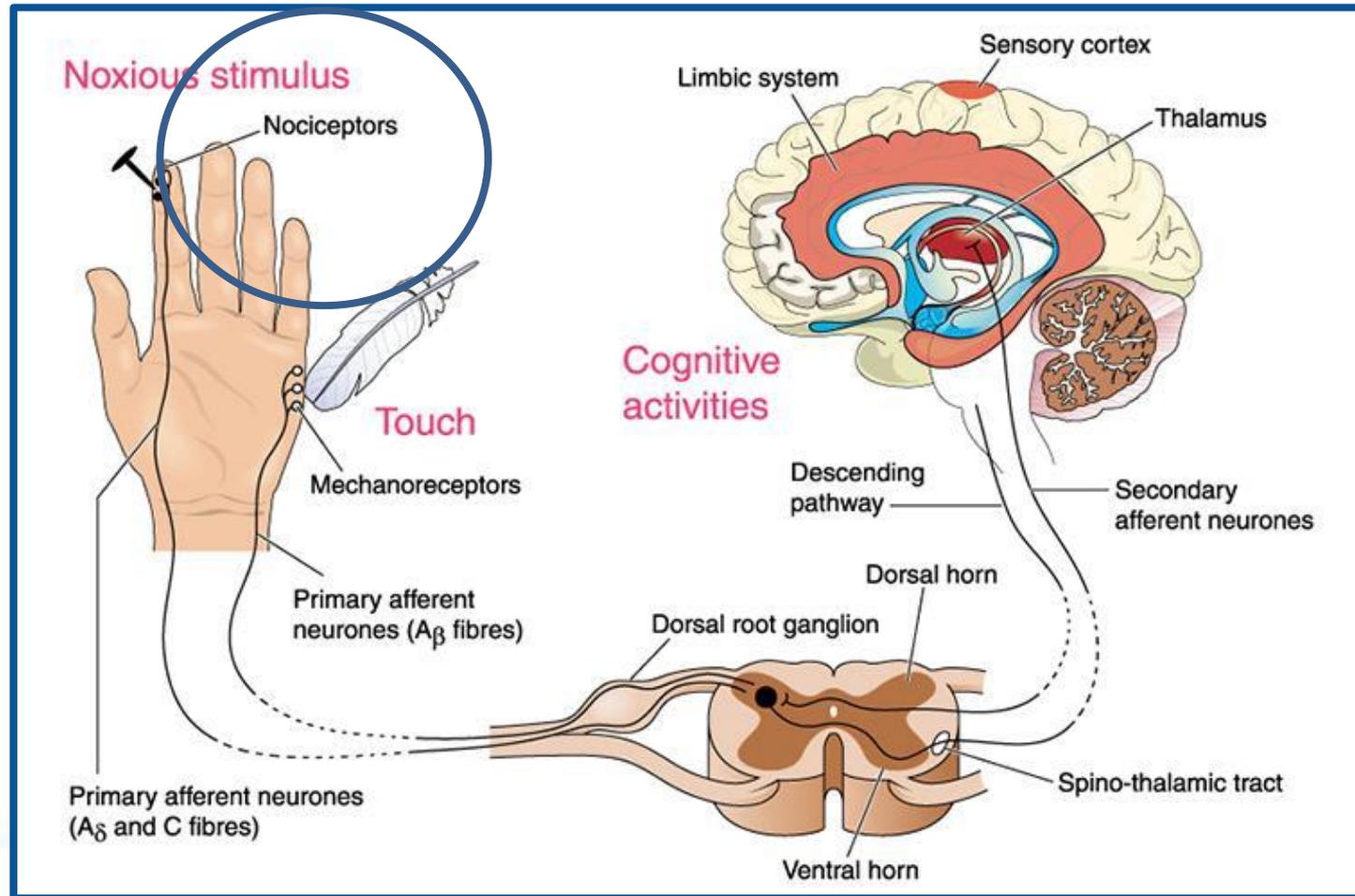
- Persists for more than 3 to 6 months or beyond the period of time that healing could have been expected to occur.
- Lingers even if you are no longer injured or ill or occurs in the absence of an apparent cause.
- Our understanding of chronic pain is more limited than our understanding of acute pain.

Chronic Pain and the Nervous System

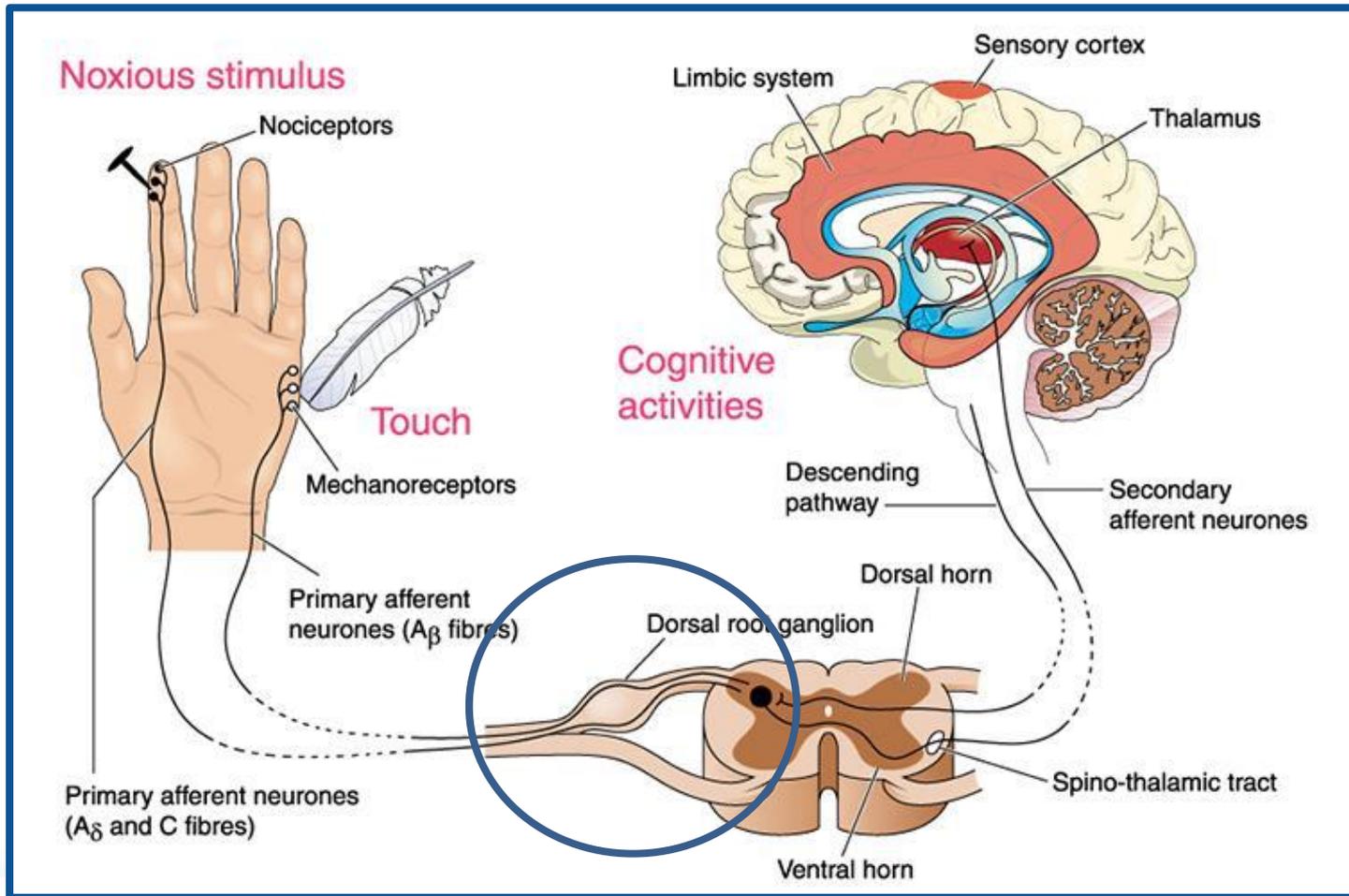
- **Neuroplasticity:** Our nervous system is adaptable and is constantly changing in response to internal and external stimuli.
- Chronic pain is associated with increased sensitivity of the nervous system.
- The alarm system becomes overly sensitive.



Chronic Pain and the Nervous System



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Chronic Pain and the Nervous System

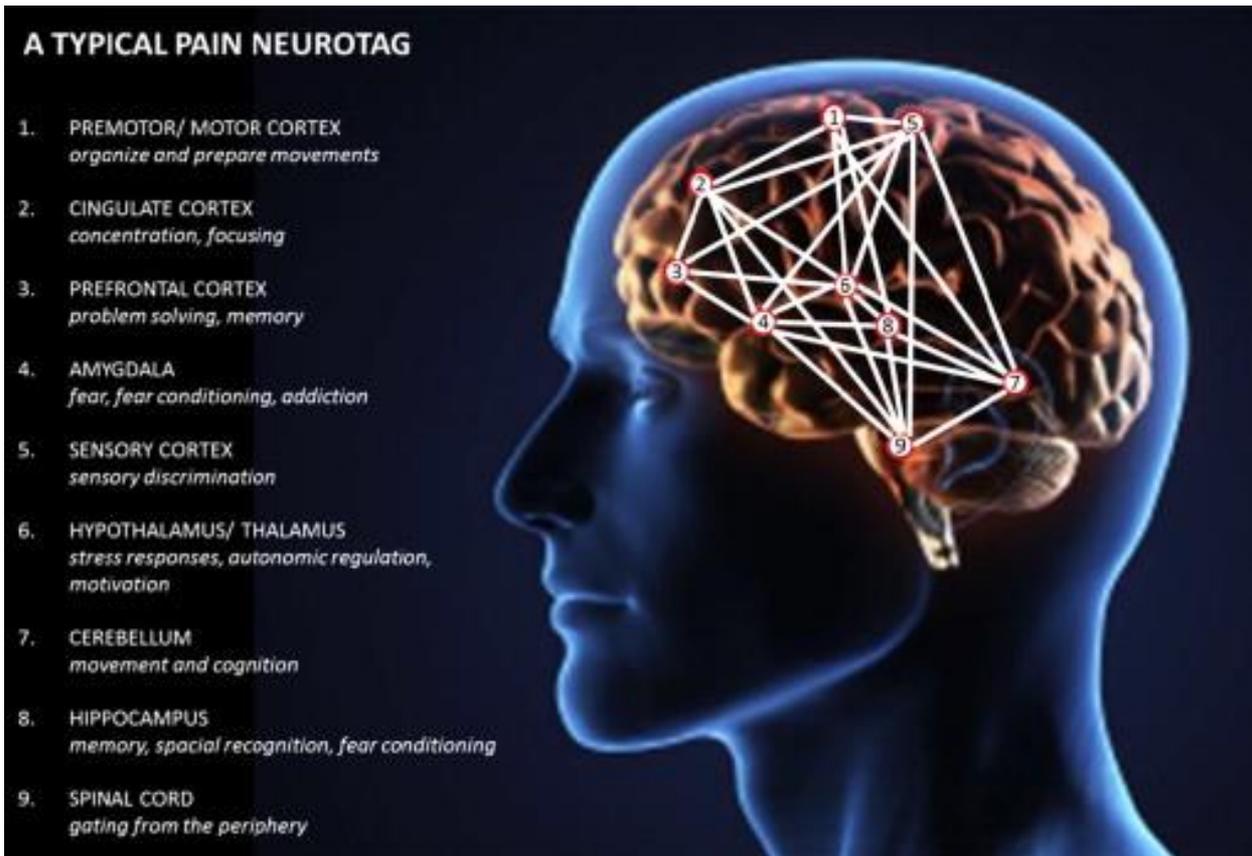
- **Key Points:**

- When your nervous system is sensitized, the brain no longer receives accurate information as to the true health and abilities of your tissues.
- The brain is being told that there is more danger in the tissues than there actually is.
- Overly-sensitive alarm system
- Inputs that are not related to tissue damage can be interpreted by the brain as dangerous and can lead to the experience of pain.

Chronic Pain and the Brain

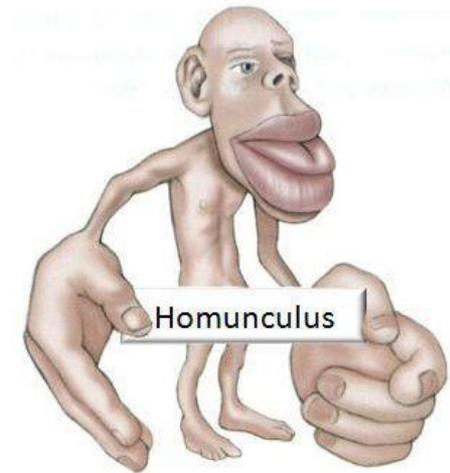
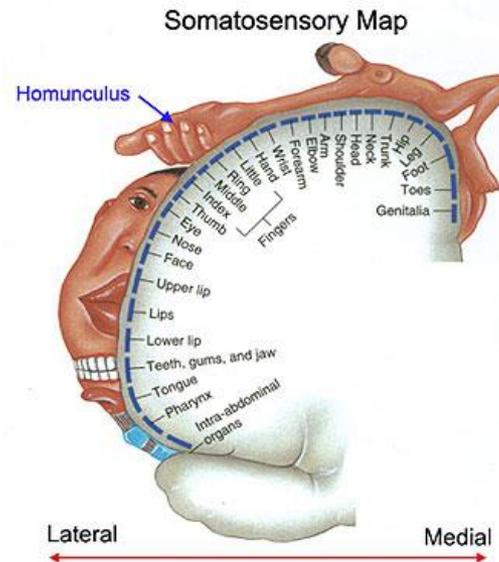
- Changes occur in the brain with chronic/persistent pain
- Increased sensitivity in the nodes of the pain matrix. This makes it easier to activate.

Chronic Pain and the Brain



Chronic Pain and the Brain

- Virtual body in the brain
- Homunculus
- The greater the representation of an area, the more sensitive the area
- Changes with experience
 - Chronic pain: smudging and increased sensitivity in specific areas occurs

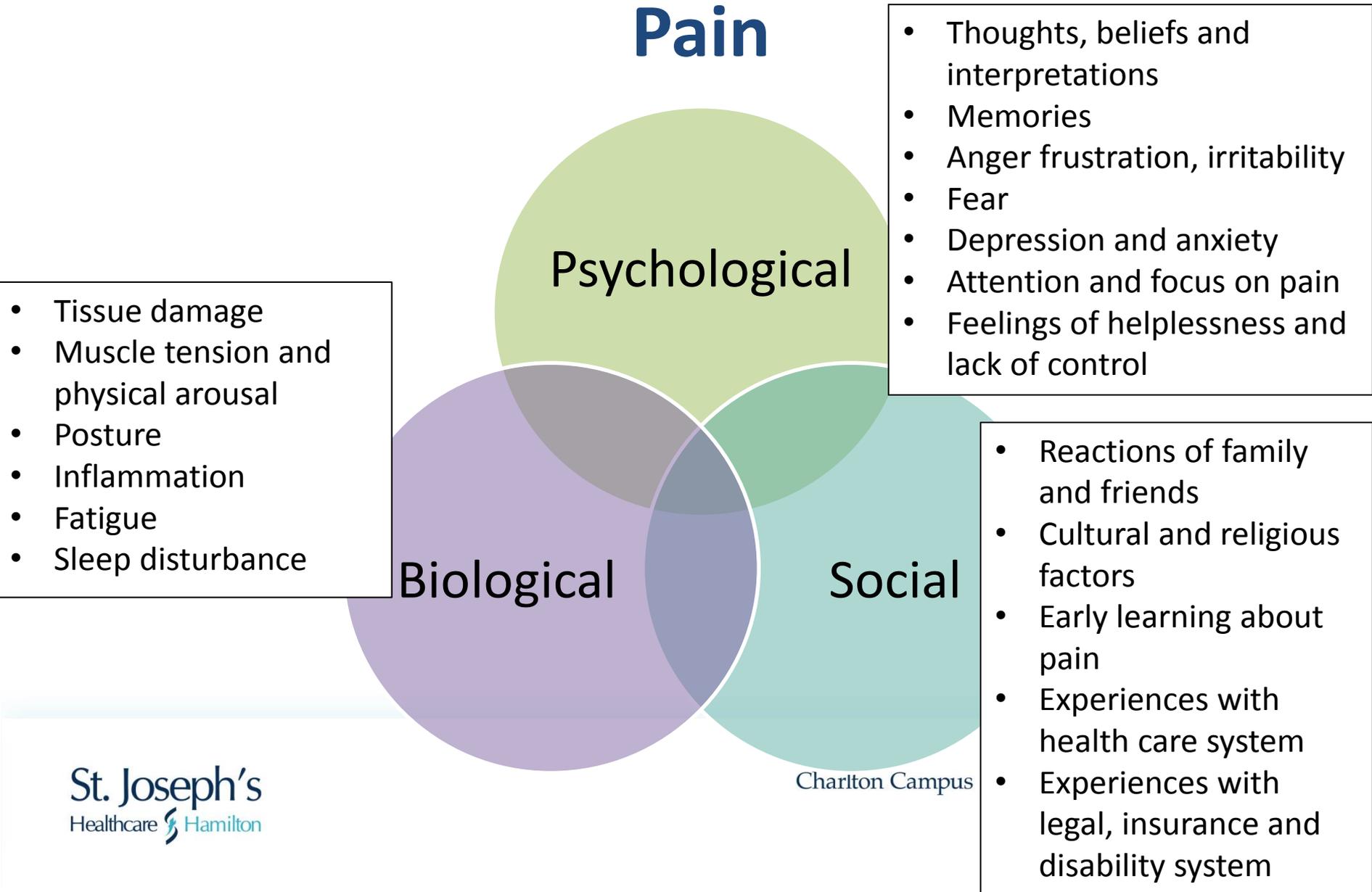


MANAGING AND COPING WITH CHRONIC PAIN



Biopsychosocial Model of Chronic

Pain



Self-management Approach to Coping with Chronic Pain

- Taking an active role in managing chronic pain
- Focus on improving quality of life and functioning



Coping Strategies

- Establishing social support/
maintaining social connections
- Establishing boundaries
- Taking a proactive approach to your healthcare
- Setting realistic goals
- Pacing
- Engaging in tasks or activities that you enjoy and value
- Problem solving



Coping Strategies

- Being aware of how you think about your pain
- Using humor
- Living in the present moment
- Relaxation strategies
- Meditation
- Regular exercise
- Maintaining a healthy diet



When to seek further support

- If you notice that:
 - Pain is getting worse
 - Feeling that you cannot cope
 - Pain is preventing you from engaging in your life
 - Low mood or lack of interest are present more days than not
 - Anxiety or sadness is making it difficult to function
 - Feelings of hopelessness

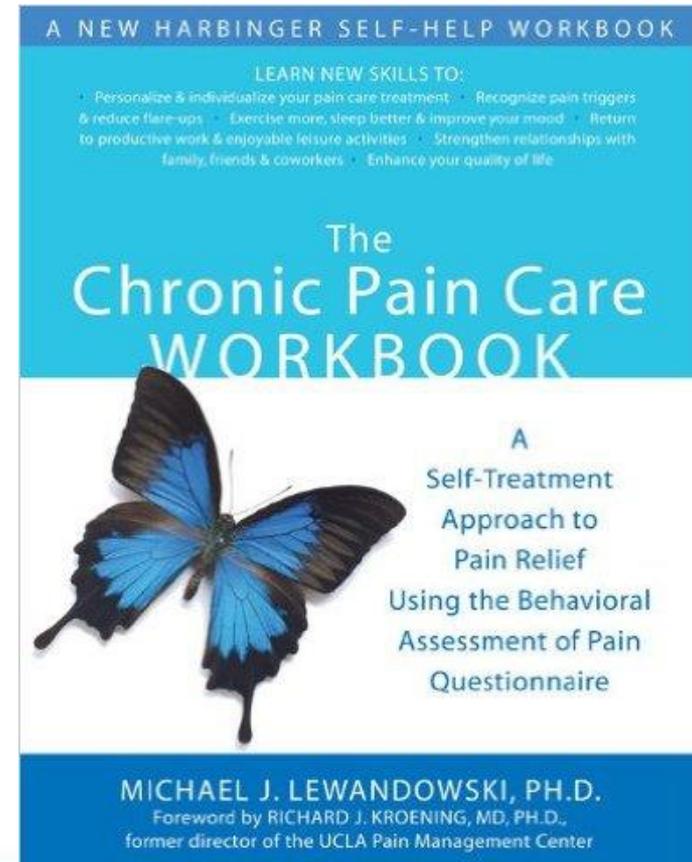
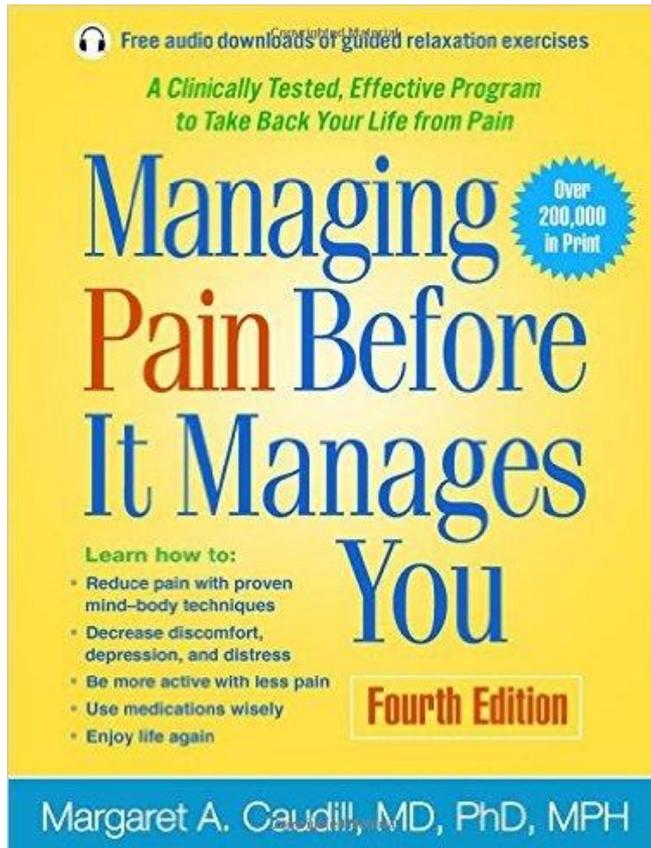
Sources of Support

- Family doctor can provide referral to a
 - Pain specialist
 - Physiotherapist/Kinesiologist
 - Social worker/psychologist/psychiatrist
 - Multidisciplinary pain program

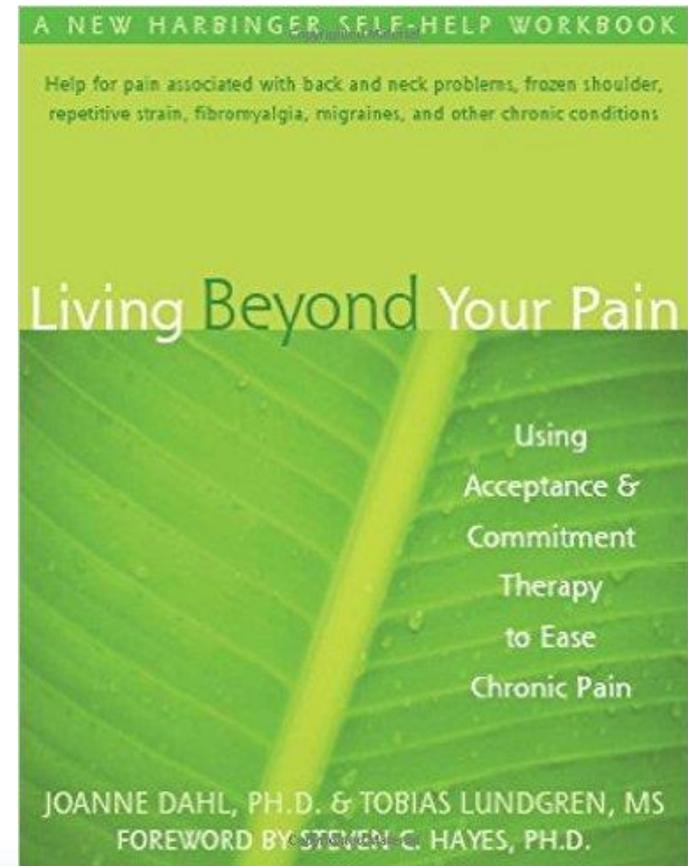
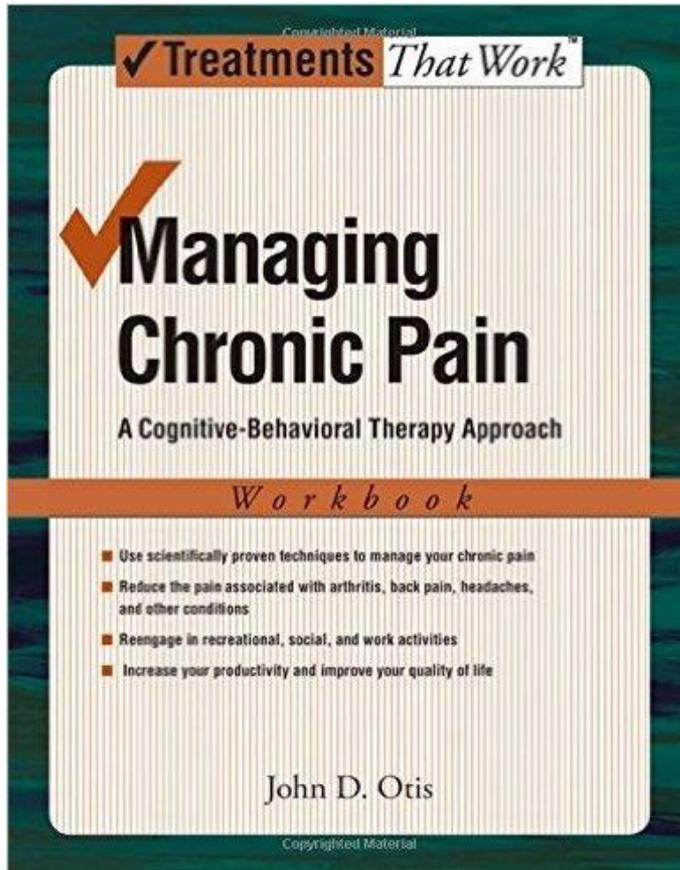
Multidisciplinary Teams

- Pain Medicine Specialists
- Nurse
- Physiotherapist/Kinesiologist
- Psychologist
- Psychiatrist
- Occupational Therapist
- Social Worker

Self-help Books



Self-help Books



Websites

- Live Plan Be
<https://www.liveplanbe.ca/>
- PainBC
<https://www.painbc.ca/>
- PainAction
<http://painaction.com/>
- Transitions: Living Well With Chronic Pain
<http://www.livewellwithpain.ca/>



QUESTIONS?





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