

# A Biopsychosocial Model for Chronic Pain & Strategies to Support the Sensory and Emotional Experience of Those Living with Pain

---

KAITLIN TOUZA, PHD

BETHANY PESTER, PHD

ELISABETH POWELSON, MSC, MD

ERIC WANZEL, MSW, LICSW

# Speaker Disclosures

---

- The presenters of this session have NOT had any relevant financial relationships.
  - The presenters of this session DO hold the following beliefs:
    - All pain is real, and all pain is a biopsychosocial experience.
    - The more people understand chronic pain the better treatment outcomes they have.
    - Hurt ≠ Harm.
    - Pain = Protection.
    - Pain is complex and everything matters when it comes to chronic pain.
    - Recovery is possible.

# UWMC Center for Pain Relief

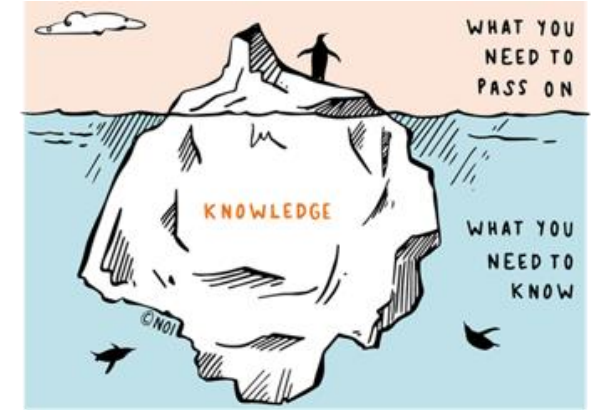
---

- A national center for clinical excellence that serves as the region's only tertiary chronic pain clinic
  - Consultative multidisciplinary approach including providers with specialization in pain management, anesthesiology, neurology, integrated holistic medicine, psychiatry, psychology, and social work
  - Interventional approaches assisted by advanced imaging techniques (3-D CT scanner, fluoroscopy and ultrasound), non-opioid medication and integrative medicine approaches, including training in relaxation and coping.

# Training Objectives

---

- Define pain and understand types of chronic pain
- Understand the biopsychosocial model as it applies to chronic pain etiology and treatment
- Build skills in delivering pain neuroscience education
- Explore diverse strategies for supporting the needs of people experiencing chronic pain
- Provide resources for further education and management of chronic pain



# A Tale of Two Nails...



Pain can happen without injury...



...and injury can happen without pain!

# What is Pain?

---

# All Pain is Real

---

- The purpose and function of pain is to protect the individual.
- Pain is an output from the brain, it is a real experience that is always unique to that individual, and is dependent on meaning, which is always context-dependent.
- When our brain decides to interpret a sensation as painful, it also sends a signal back to the body that intensifies that feeling. Pain is more like a conversation between the brain and the body.
- Pain is not “just in your head,” it involves multiple systems including the neurological, hormonal, muscular-skeletal, psychological, and digestive systems.

# Defining (Chronic) Pain

---

An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage. (International Association for the Study of Pain, 1994)

## Acute Pain

- Hurt = Harm
  - Useful warning signal
  - Avoidance often decreases damage
- Etiology
  - Often clear pathway/single cause
  - Symptoms reflect disease etiology
- Treatment course
  - Cure focused
  - Short-term
  - Biomedical focus

## Chronic pain (pain persisting longer than 3 months)

- Hurt  $\neq$  Harm
  - False alarm
  - Pain that is real, but not useful
  - Avoidance generally not beneficial
- Etiology
  - Often unknown and multifactorial
  - Symptoms are the disease
- Treatment course
  - Management focused
  - Long-term
  - Multidisciplinary/transdisciplinary focus **UW Medicine**



# Different types of pain

- Nociceptive
  - Associated with activation of nociceptors (inflammation, mechanical/irritant, injury)
  - Examples: acute injury, arthritis

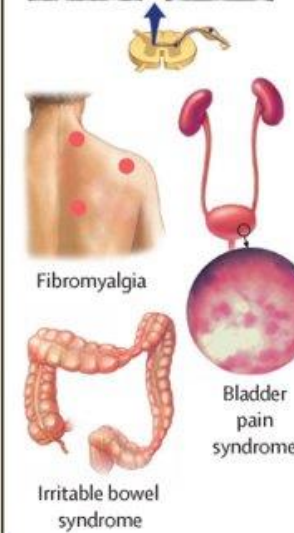
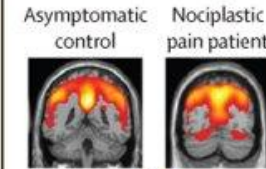
## Nociplastic

### Causes

- Diffuse sensitisation (fibromyalgia)
- Functional visceral pain (irritable bowel syndrome, bladder pain syndrome)
- Regional somatic sensitisation (complex regional pain syndrome type 1, temporomandibular disorder)

### Altered nociception

- Peripheral sensitisation (proliferation of sodium channels, sympatho-afferent coupling)
- Central sensitisation (N-methyl-D-aspartate activation, cortical reorganisation)
- Diminished descending inhibition (periaqueductal grey and rostroventromedial medulla)
- Immune system activation (glial cells, chemokines, cytokines, and other inflammatory mediators)



## Neuropathic

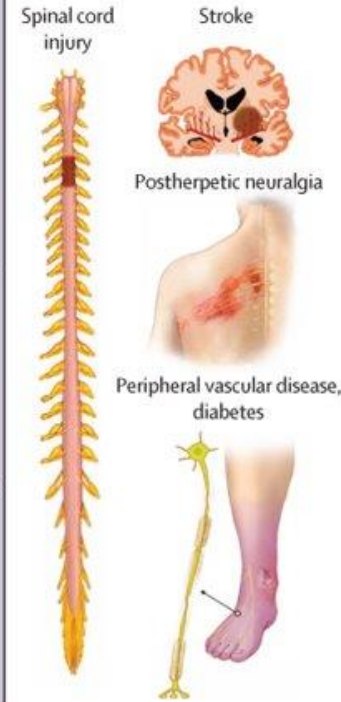
### Causes

#### Central

- Traumatic (spinal cord injury)
- Vascular (stroke)
- Neurodegenerative (Parkinson's disease)
- Autoimmune (multiple sclerosis)
- Inflammatory (transverse myelitis)

#### Peripheral

- Infections (HIV, acute herpes zoster or postherpetic neuralgia)
- Nerve compression (carpal tunnel syndrome)
- Trauma (complex regional pain syndrome type 2)
- Metabolic (amyloidosis, nutritional deficiencies)
- Ischaemic (peripheral vascular disease, diabetes)
- Toxic (chemotherapy-induced peripheral neuropathy)
- Auto-immune (Guillain-Barré syndrome)
- Genetic (inherited neuropathy)



## Nociceptive

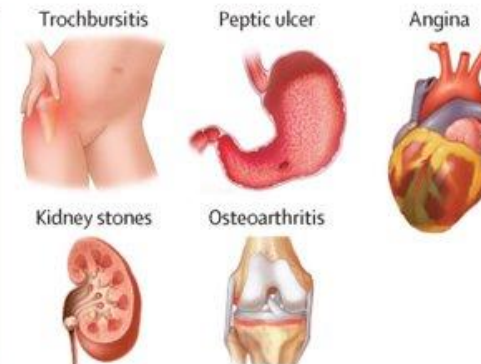
### Causes

#### Somatic

- Bones (bone fracture, metastases)
- Muscles (dystonia, muscle spasm)
- Joints (osteoarthritis)
- Skin (postoperative pain, burns)

#### Visceral

- Mucosal injury (peptic ulcer)
- Obstruction or capsular distension (gallstones, kidney stones)
- Ischaemia (angina, mesenteric ischaemia)
- Tissue injury (cancer, cirrhosis)



### Treatment considerations

- Anticonvulsants
- Analgesic antidepressants
- Image guided injections
- Behavioural interventions
- Neuromodulation
- Non-steroidal anti-inflammatory drugs
- Opioids
- Exercise

# Different types of pain

- Neuropathic
  - Due to lesion, disease, inflammation of the somatosensory system
  - Diabetic neuropathy, carpal tunnel, complex regional pain syndrome

## Nociplastic

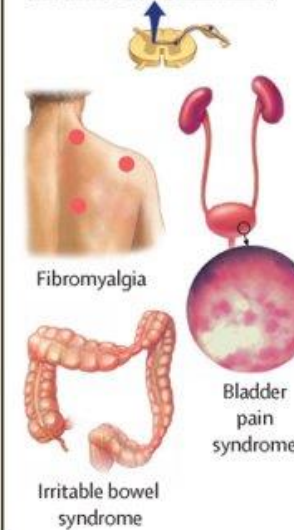
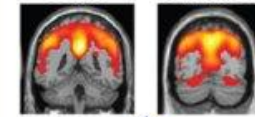
### Causes

- Diffuse sensitisation (fibromyalgia)
- Functional visceral pain (irritable bowel syndrome, bladder pain syndrome)
- Regional somatic sensitisation (complex regional pain syndrome type 1, temporomandibular disorder)

### Altered nociception

- Peripheral sensitisation (proliferation of sodium channels, sympatho-afferent coupling)
- Central sensitisation (N-methyl-D-aspartate activation, cortical reorganisation)
- Diminished descending inhibition (periaqueductal grey and rostroventromedial medulla)
- Immune system activation (glial cells, chemokines, cytokines, and other inflammatory mediators)

Asymptomatic control      Nociplastic pain patient



## Neuropathic

### Causes

#### Central

- Traumatic (spinal cord injury)
- Vascular (stroke)
- Neurodegenerative (Parkinson's disease)
- Autoimmune (multiple sclerosis)
- Inflammatory (transverse myelitis)

#### Peripheral

- Infections (HIV, acute herpes zoster or postherpetic neuralgia)
- Nerve compression (carpal tunnel syndrome)
- Trauma (complex regional pain syndrome type 2)
- Metabolic (amyloidosis, nutritional deficiencies)
- Ischaemic (peripheral vascular disease, diabetes)
- Toxic (chemotherapy-induced peripheral neuropathy)
- Auto-immune (Guillain-Barré syndrome)
- Genetic (inherited neuropathy)

Spinal cord injury



Stroke



Postherpetic neuralgia



Peripheral vascular disease, diabetes



## Nociceptive

### Causes

#### Somatic

- Bones (bone fracture, metastases)
- Muscles (dystonia, muscle spasm)
- Joints (osteoarthritis)
- Skin (postoperative pain, burns)

#### Visceral

- Mucosal injury (peptic ulcer)
- Obstruction or capsular distension (gallstones, kidney stones)
- Ischaemia (angina, mesenteric ischaemia)
- Tissue injury (cancer, cirrhosis)

Trochbursitis



Peptic ulcer



Angina



Kidney stones



Osteoarthritis



### Treatment considerations

- Anticonvulsants
- Analgesic antidepressants
- Image guided injections
- Behavioural interventions
- Neuromodulation
- Non-steroidal anti-inflammatory drugs
- Opioids
- Exercise

# Different types of pain

- Nociceptive/primary pain
  - Due to change in central processing of pain/pain-related stimuli
  - Examples: fibromyalgia, temporomandibular disorders, non-specific low back pain

## Nociplastic

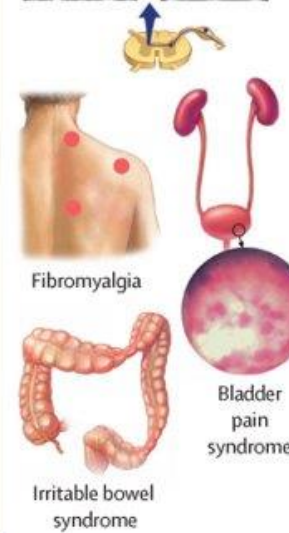
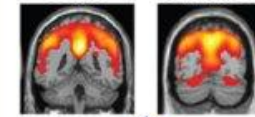
### Causes

- Diffuse sensitisation (fibromyalgia)
- Functional visceral pain (irritable bowel syndrome, bladder pain syndrome)
- Regional somatic sensitisation (complex regional pain syndrome type 1, temporomandibular disorder)

### Altered nociception

- Peripheral sensitisation (proliferation of sodium channels, sympatho-afferent coupling)
- Central sensitisation (N-methyl-D-aspartate activation, cortical reorganisation)
- Diminished descending inhibition (periaqueductal grey and rostroventromedial medulla)
- Immune system activation (glial cells, chemokines, cytokines, and other inflammatory mediators)

Asymptomatic control      Nociplastic pain patient



## Neuropathic

### Causes

#### Central

- Traumatic (spinal cord injury)
- Vascular (stroke)
- Neurodegenerative (Parkinson's disease)
- Autoimmune (multiple sclerosis)
- Inflammatory (transverse myelitis)

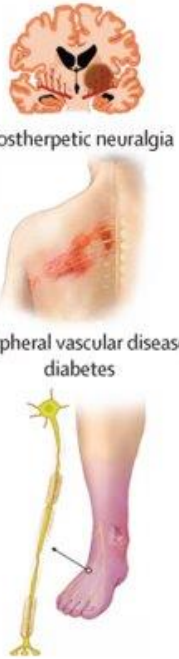
#### Peripheral

- Infections (HIV, acute herpes zoster or postherpetic neuralgia)
- Nerve compression (carpal tunnel syndrome)
- Trauma (complex regional pain syndrome type 2)
- Metabolic (amyloidosis, nutritional deficiencies)
- Ischaemic (peripheral vascular disease, diabetes)
- Toxic (chemotherapy-induced peripheral neuropathy)
- Auto-immune (Guillain-Barré syndrome)
- Genetic (inherited neuropathy)

Spinal cord injury



Stroke



## Nociceptive

### Causes

#### Somatic

- Bones (bone fracture, metastases)
- Muscles (dystonia, muscle spasm)
- Joints (osteoarthritis)
- Skin (postoperative pain, burns)

#### Visceral

- Mucosal injury (peptic ulcer)
- Obstruction or capsular distension (gallstones, kidney stones)
- Ischaemia (angina, mesenteric ischaemia)
- Tissue injury (cancer, cirrhosis)

Trochbursitis



Peptic ulcer



Angina



Kidney stones



Osteoarthritis



### Treatment considerations

- Anticonvulsants
- Analgesic antidepressants
- Image guided injections
- Behavioural interventions
- Neuromodulation
- Non-steroidal anti-inflammatory drugs
- Opioids
- Exercise

# Different types of pain

*\*Typically, people have a combination of pain types/underlying mechanisms.\**

## Nociplastic

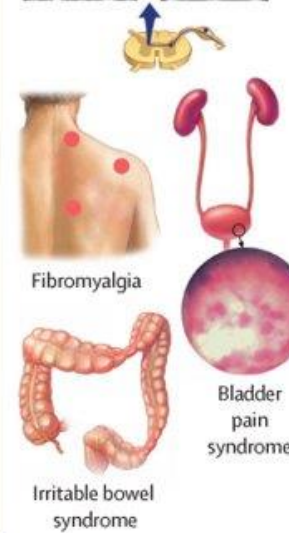
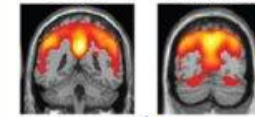
### Causes

- Diffuse sensitisation (fibromyalgia)
- Functional visceral pain (irritable bowel syndrome, bladder pain syndrome)
- Regional somatic sensitisation (complex regional pain syndrome type 1, temporomandibular disorder)

### Altered nociception

- Peripheral sensitisation (proliferation of sodium channels, sympatho-afferent coupling)
- Central sensitisation (N-methyl-D-aspartate activation, cortical reorganisation)
- Diminished descending inhibition (periaqueductal grey and rostroventromedial medulla)
- Immune system activation (glial cells, chemokines, cytokines, and other inflammatory mediators)

Asymptomatic control      Nociplastic pain patient



## Neuropathic

### Causes

#### Central

- Traumatic (spinal cord injury)
- Vascular (stroke)
- Neurodegenerative (Parkinson's disease)
- Autoimmune (multiple sclerosis)
- Inflammatory (transverse myelitis)

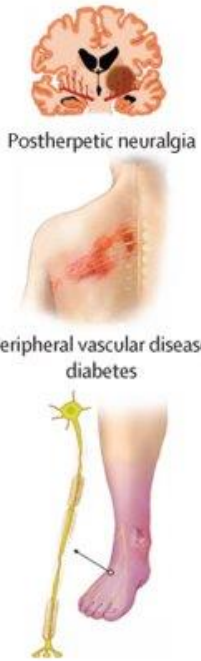
#### Peripheral

- Infections (HIV, acute herpes zoster or postherpetic neuralgia)
- Nerve compression (carpal tunnel syndrome)
- Trauma (complex regional pain syndrome type 2)
- Metabolic (amyloidosis, nutritional deficiencies)
- Ischaemic (peripheral vascular disease, diabetes)
- Toxic (chemotherapy-induced peripheral neuropathy)
- Auto-immune (Guillain-Barré syndrome)
- Genetic (inherited neuropathy)

Spinal cord injury



Stroke



## Nociceptive

### Causes

#### Somatic

- Bones (bone fracture, metastases)
- Muscles (dystonia, muscle spasm)
- Joints (osteoarthritis)
- Skin (postoperative pain, burns)

#### Visceral

- Mucosal injury (peptic ulcer)
- Obstruction or capsular distension (gallstones, kidney stones)
- Ischaemia (angina, mesenteric ischaemia)
- Tissue injury (cancer, cirrhosis)

Trochbursitis



Peptic ulcer



Angina



Kidney stones



Osteoarthritis



### Treatment considerations

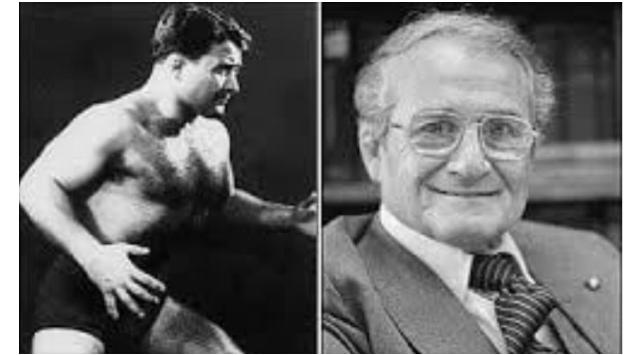
- Anticonvulsants
- Analgesic antidepressants
- Image guided injections
- Behavioural interventions
- Neuromodulation
- Non-steroidal anti-inflammatory drugs
- Opioids
- Exercise

# The Biopsychosocial Model of Pain

---

# Origins: John J. Bonica, MD

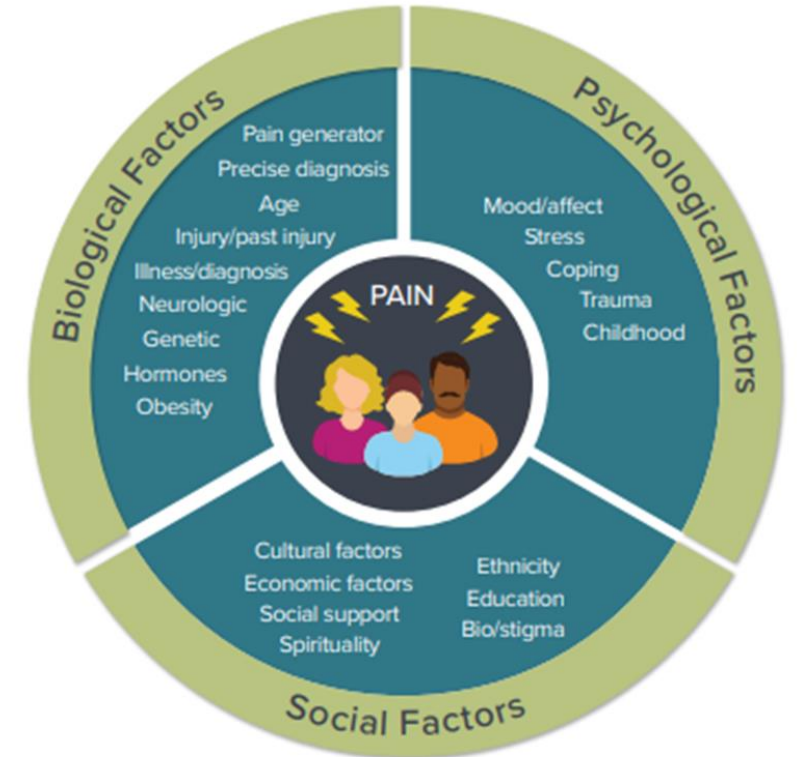
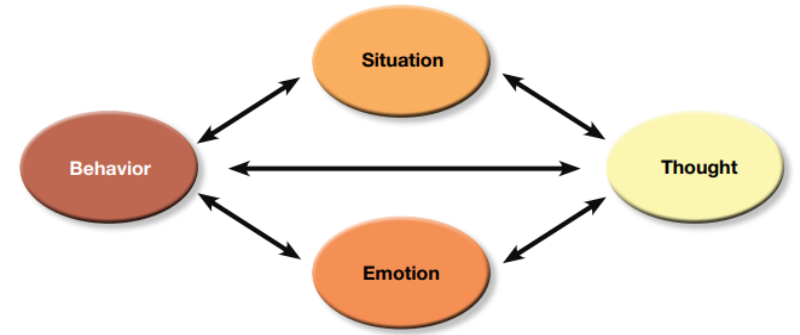
---



- A Sicilian American anesthesiologist, National Wrestling Alliance World Light Heavyweight Champion (1941), and the founding father of the discipline of pain medicine.
  - 1942: Graduated medical school, birth of daughter, devoted life to anesthesiology
  - 1944: Chief of Anesthesiology, Matigan Army Medical Center - 7,700 bed facility
    - Bonica started noticing cases that contradicted everything he had learned.
  - Multidisciplinary consultations
  - Reviewed the world's literature on pain
    - 14,000 pages of literature reviewed – pain was only mentioned on 17.5 pages
    - "The most important thing from the patient's perspective, they don't talk about."
  - 1953 published *The Management of Pain*
  - 1960 founded Department of Anesthesiology and first multidisciplinary pain clinic at the University of Washington
  - 1974 founded the International Association for the Study of Pain
    - Hundreds of multidisciplinary pain clinics throughout the world

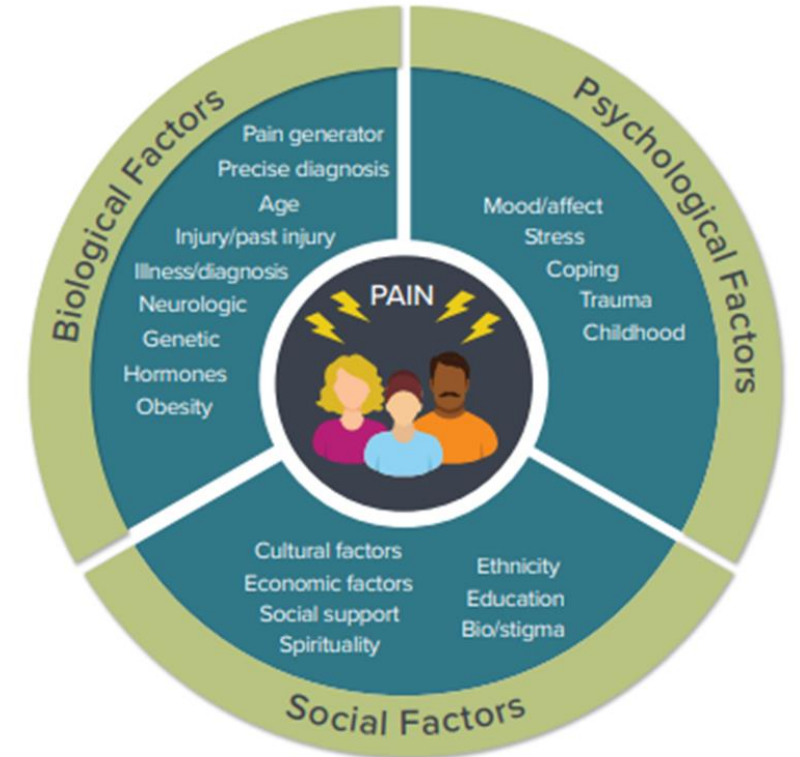
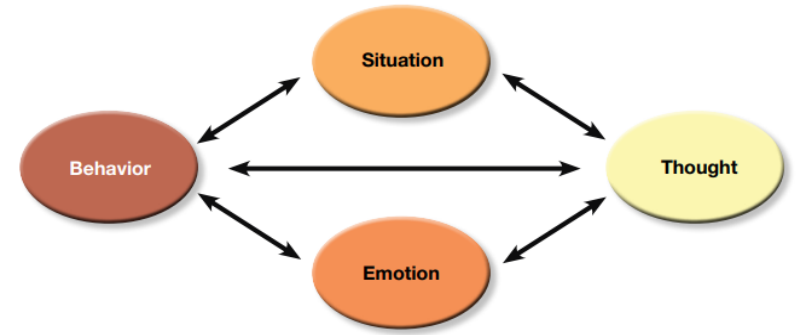
# Everything matters

- Epictetus: "Men are disturbed not by things, but by the view which they take of them."
- Disease vs. Illness (Turk & Monarch, 2002)
- Chronic pain is derived from interpretations of bodily threat and alarm.



# Everything matters

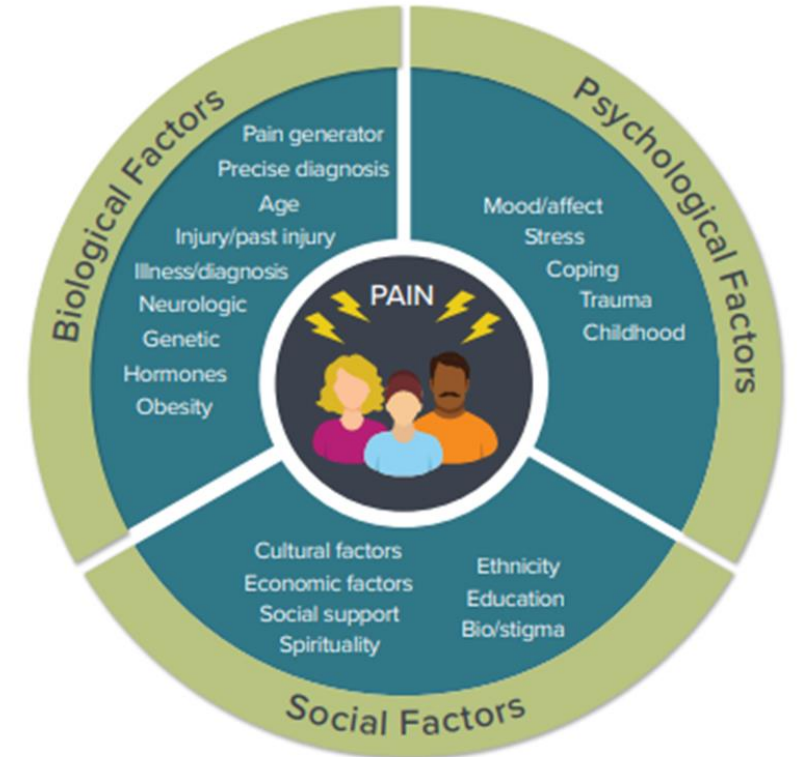
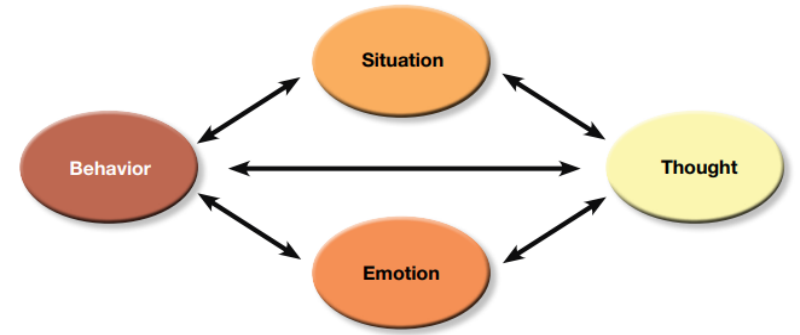
- Biological or physical factors can refer to genetics, magnitude of nociception, tissue injury, damage or disease, physical health problems, immune function, neurobiology and neurochemistry, effects of medications, sex differences, nervous system characteristics (e.g. pain threshold, pain tolerance, predisposition to peripheral, and central sensitization), hormones, effects of lifestyle factors (e.g., sleep, weight, physical activity, alcohol, smoking), age, and endogenous pain modulation systems. It can also be used to refer to biomechanics and physical fitness (endurance, strength, flexibility).





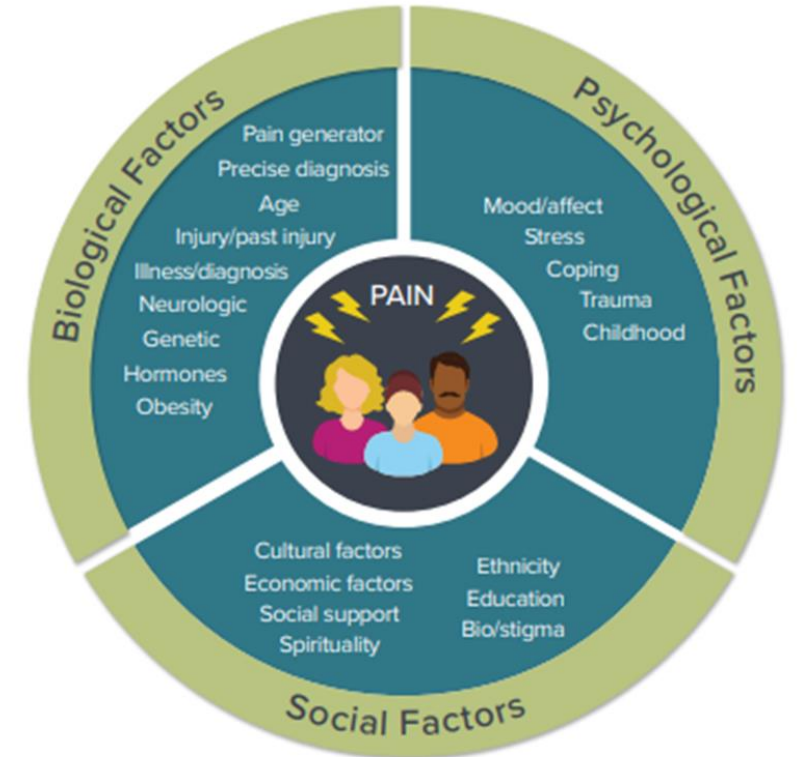
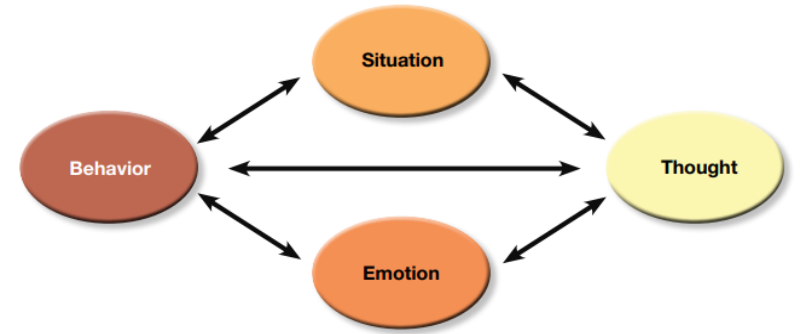
# Everything matters

- Psychological factors refer to cognitions and emotions including mood, depression, anxiety, distress, anger, perceived injustice, coping styles (e.g. avoidance, endurance), fear, self-efficacy, catastrophizing, personality, beliefs about causes and consequences of pain, attitudes, acceptance, and expectancies (e.g. about recovery).



# Everything matters

- Social or sociocultural factors refer to social expectations, social support systems (financial, instrumental, and emotional support), educational status, living status, work factors, finance or welfare issues, social deprivation or poverty, social disadvantage, exclusion, past pain experiences, health insurance, disability compensation, substance abuse, language and cultural barriers, exclusion, stigma, discrimination, and cultural factors.



# Shifting From the Medical Model of Chronic Pain

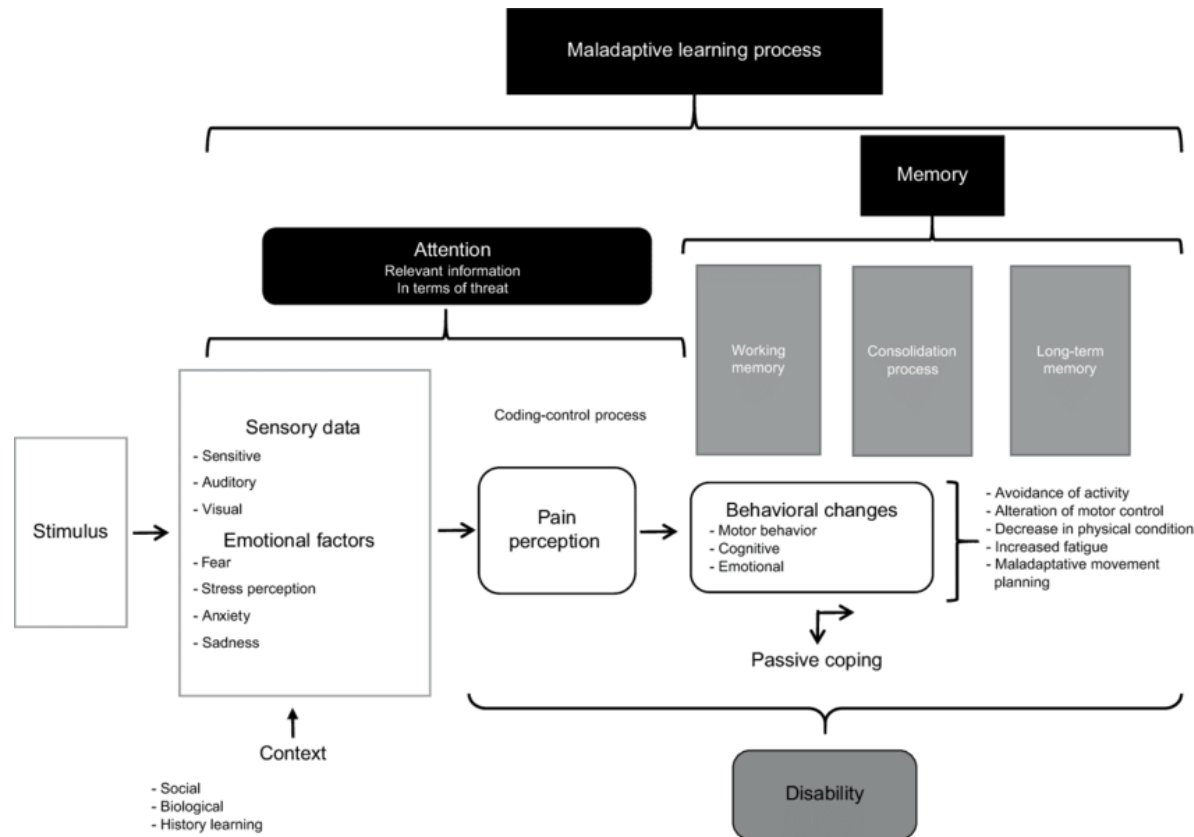
<b>A more biomedical perspective</b>	<b>A more biopsychosocial perspective</b>
Involves a search for a single cause.	Recognises multiple causes from biological, psychological and sociological domains.
A focus on the disease process.	A focus on disease and the responses to disease (illness).
Strongly focuses on anatomical and biomechanical principles.	Strongly acknowledges interactions between brain and body.
More disease focused.	More health focused.
Patient management often passive – ‘what can medicine do for you?’	Patient management more active, including self-management - ‘what can you do for yourself?’
Curative monotherapies attempted (such as surgery, injection, manipulation).	Therapies more rehabilitative/interdisciplinary.
The dominant response is to cut it out, turn it off or replace it.	The dominant response is train it.
Higher perceived harmfulness of physical activity, yet an emphasis on physical activity.	Lower perceived harmfulness of physical activity.
Research aimed more at cellular, molecular and genetic levels, some engagement with neuroscience.	Research aimed more at psychosocial contributions with increasing engagement with neuroscience.
May fail to recognise preventative medicine.	Includes psychosocial contributing factors as precursors to injury/disease.

(Moseley and Butler, 2017)

# How Does Pain Become Chronic?



# The “Chronification” of Pain



Generation of pain perception from somatosensory or emotional stimuli or the combination of both according to different contexts can influence increased or decreased pain perception. The black boxes show the cognitive processes involved in the maintenance and "chronification" of symptoms from behavioral changes, emphasizing those related to motor behavior that in turn can influence feedback and learning for the maintenance of pain perception and increase perceived disability.

(Gil Martínez, et al., 2018)

# Passive Coping

---

- Guarding. Guarding is defined as any of a set of protective behaviors such as limping, bracing, or otherwise protecting a part of the body. Guarding, similar to other pain behaviors, continues after healing has occurred and reinforces self-perceptions of disability. Guarding may lead to secondary problems with other parts of the body where compensation has affected alignment.
- Resting/Under-activity. Over-reliance on resting as a coping strategy can lead to deconditioning of muscles and general atrophy. Alternating rest periods with activity, also known as pacing, is a healthy way to incorporate rest.

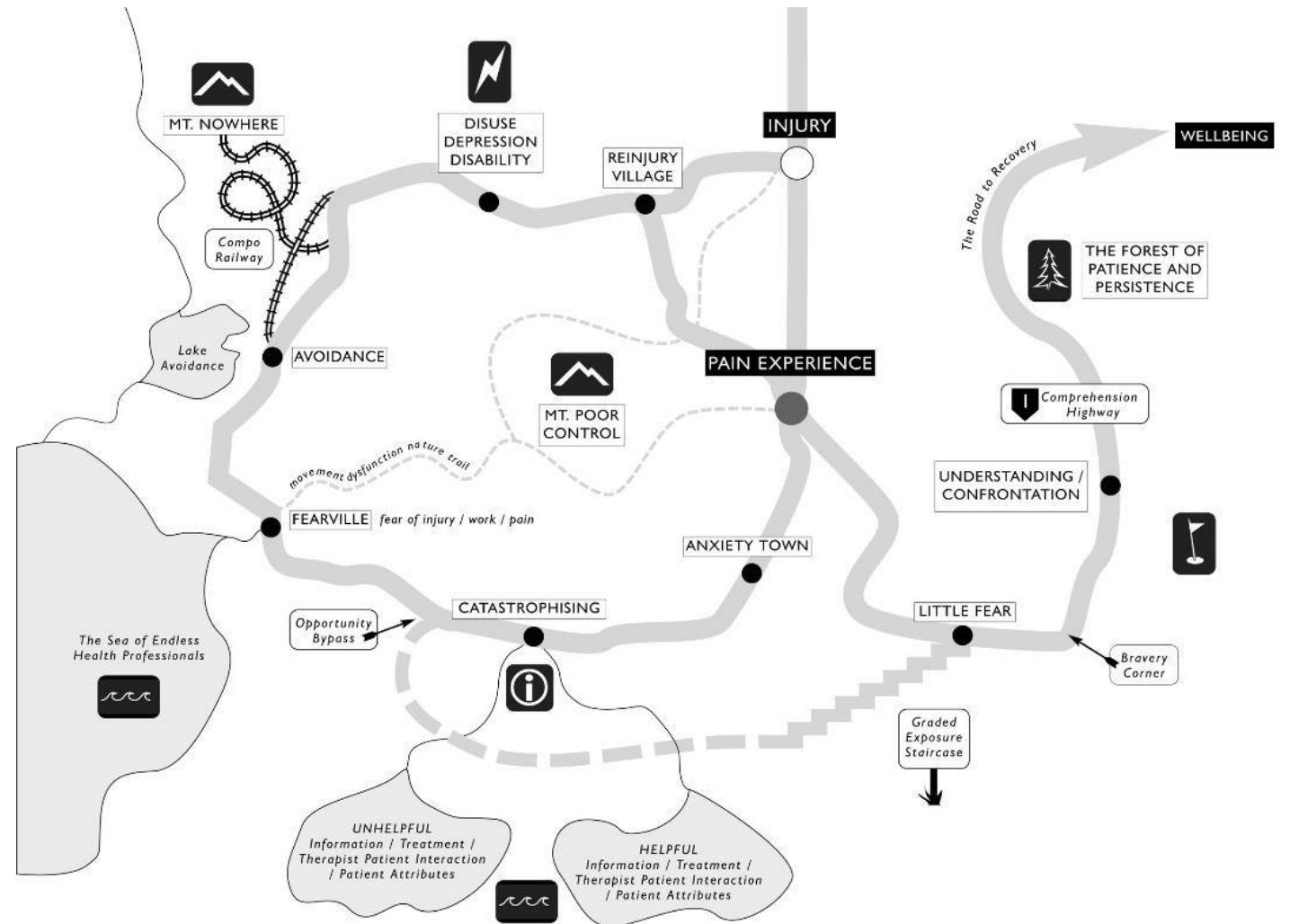
# The Fear Avoidance Model

## Anxiety sensitivity

Anxiety sensitivity is the fear of the symptoms of anxiety. An example of the fear-avoidance model, anxiety sensitivity stems from the fear that the symptoms of anxiety will lead to harmful social and physical effects. As a result, the individual delays the situation by avoiding any stimuli related to pain-inducing situations and activities, becoming restricted in normal daily function.

## Chronic pain

Chronic pain is another example that can originate from the drastic misinterpretation of pain as a catastrophe. As a result of this misinterpretation, the individual repeatedly avoids the pain-inducing activity and will likely overestimate any future pain from such activity. The excessive sensitivity to pain discourages the individual from exercise and weakens their body.



# Pain Neuroscience Education





# PNE – danger vs safety

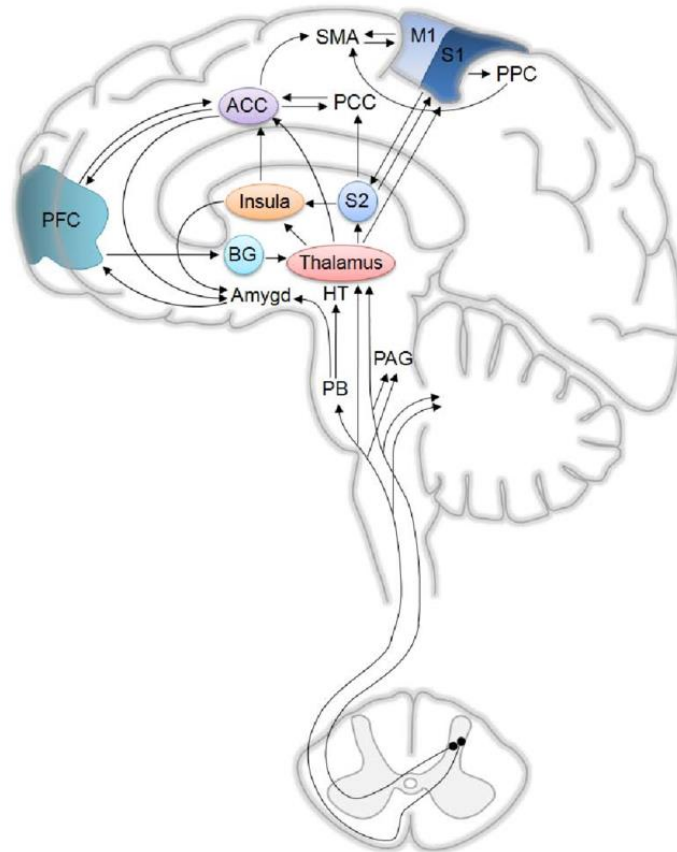
---



- CBT and PNE are associated with reduced fear avoidance (Vergeld, Martin Ginis, & Jenks, 2021).
- Pain is a sensory danger signal.
  - It is the alarm, not the fire.
  - Its purpose is to get our attention and change behavior.
- Our nervous system's job is to keep us alive.
  - Danger and error detecting machine.
  - Negative bias.
  - Pain (danger) is a powerful and immediate teacher.

# Relating neuroscience of pain to patient experience

Prefrontal cortex  
Medial prefrontal cortex  
Right lateral orbitofrontal cortex  
Nucleus accumbens  
Anterior cingulate cortex  
Somatosensory cortex  
Insular cortex  
Periaqueductal gray  
Thalamus  
Amygdala

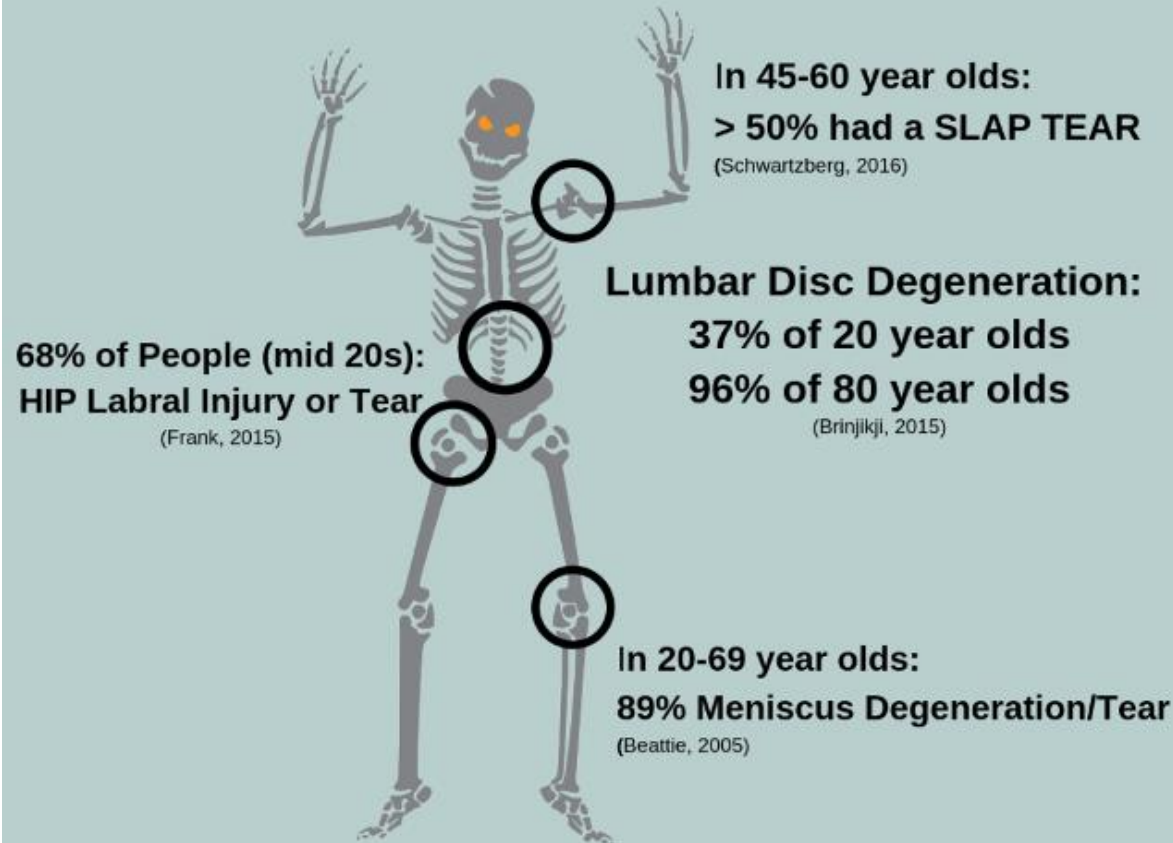


## Areas of the brain responsible for:

- Attention
- Focus
- Self-regulation
- Reasoning
- Planning
- Threat appraisal and response
- Learning/memory
- Reward/aversion
- Motivation
- Internal body map/body awareness
- Distress associated with pain
- Integration of sensory awareness with emotion and consciousness
- Endogenous opioid system

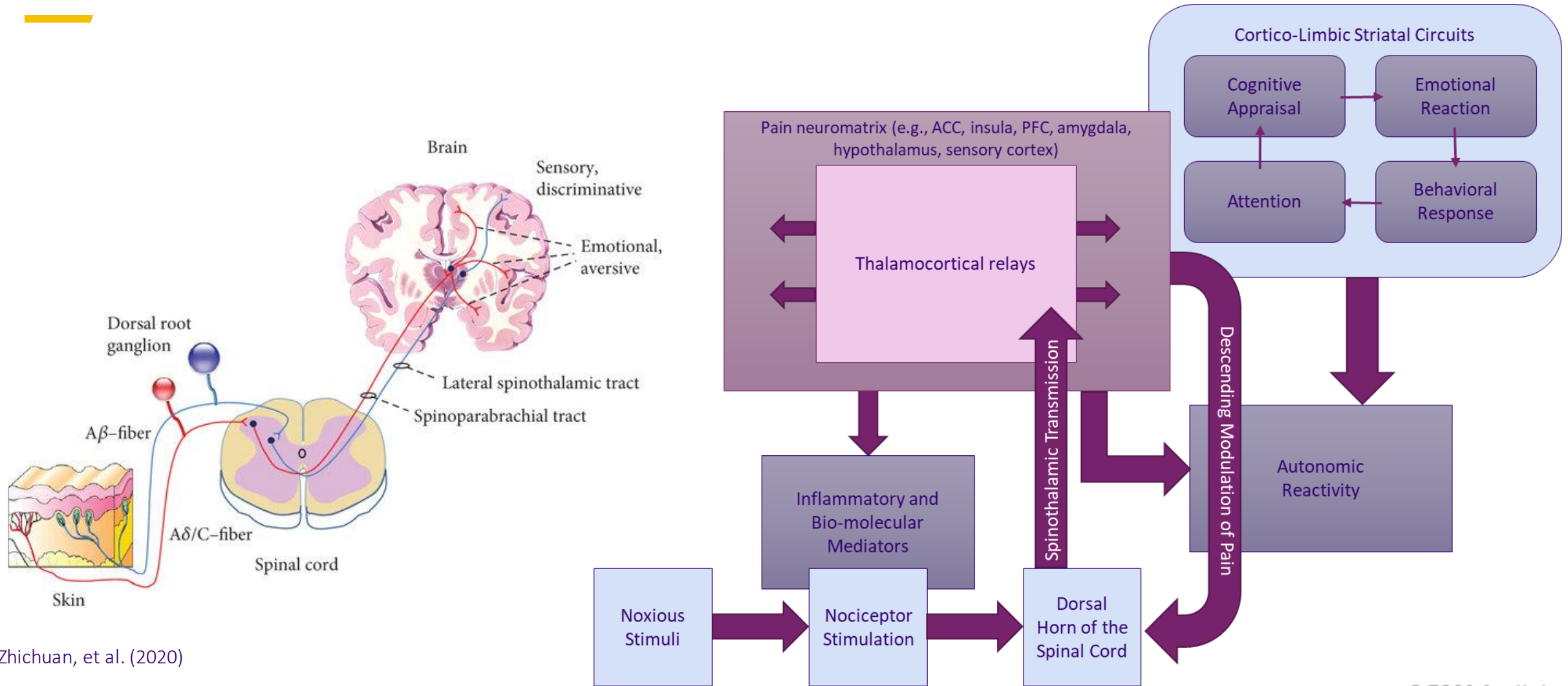
# What about imaging?

## Imaging Findings in ASYMPTOMATIC People:



@Sapiensmoves, 2019

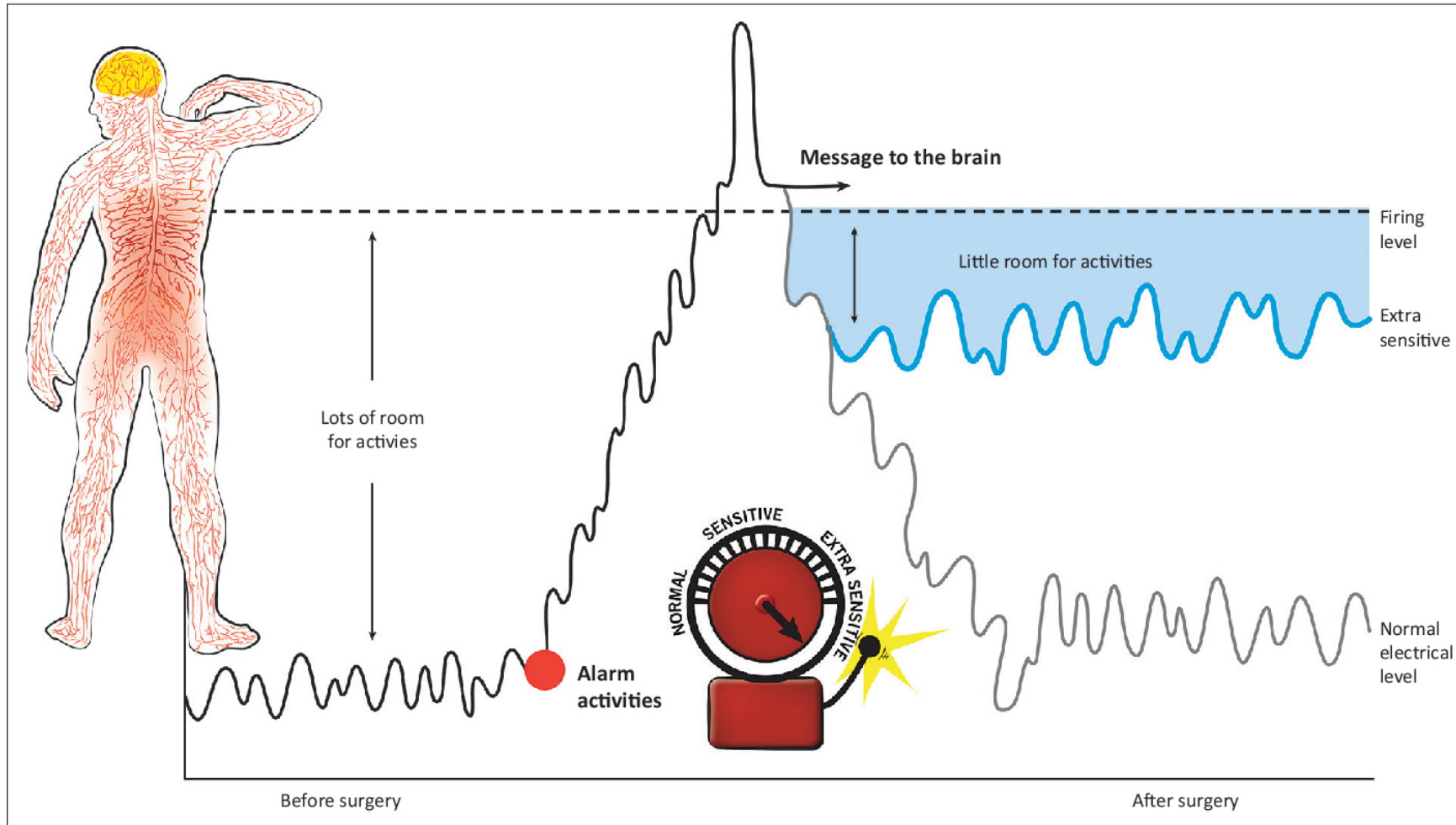
# Nociception and pain signal processing



Zhichuan, et al. (2020)

Garland, E.L., (2012)

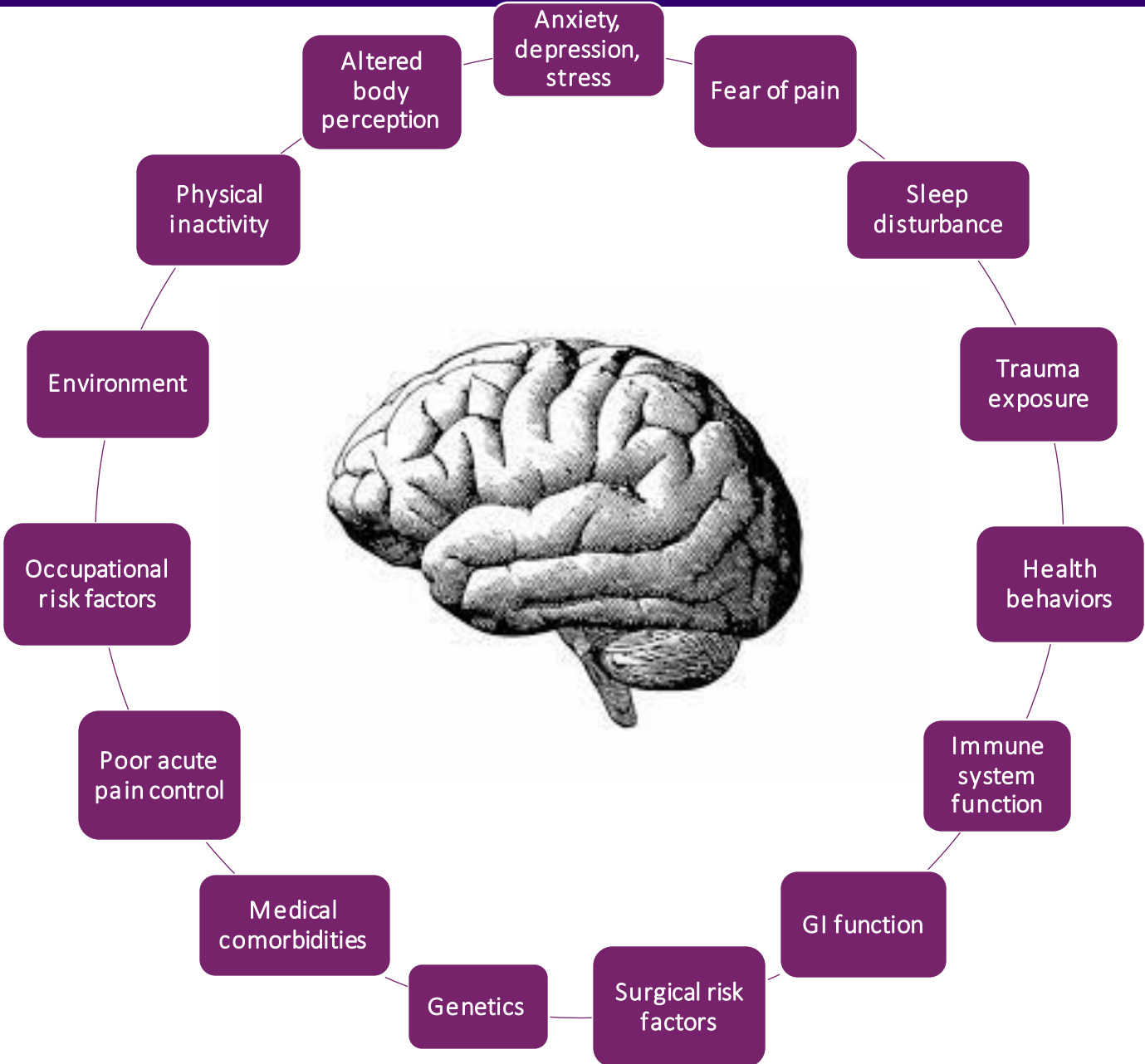
# Protect by pain threshold



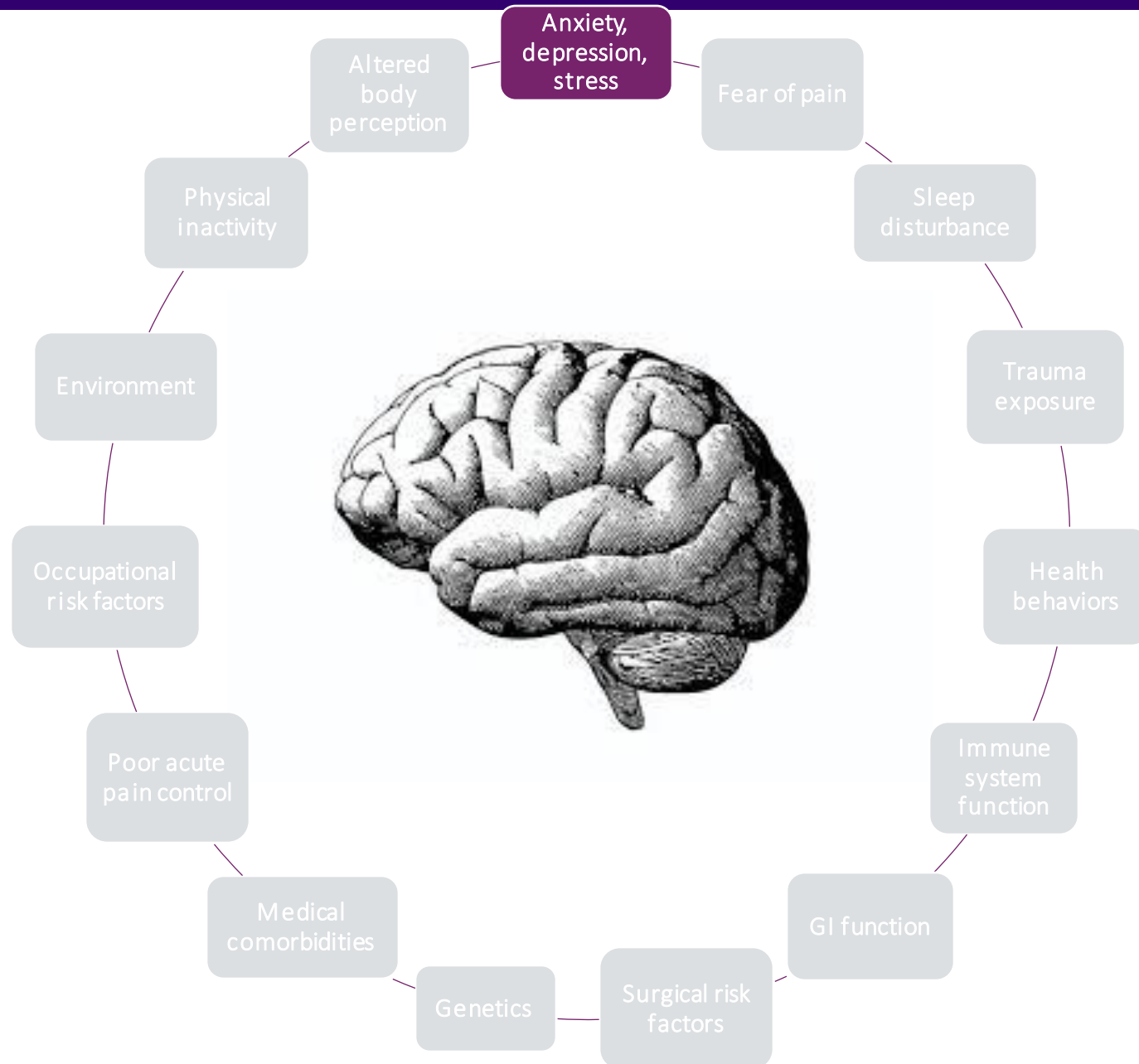
Source: Louw, A., 2012, *Your nerves are having back surgery*, OPTP, Minneapolis, MN

**FIGURE 1:** Example of picture to explain 'extra-sensitive alarm'.

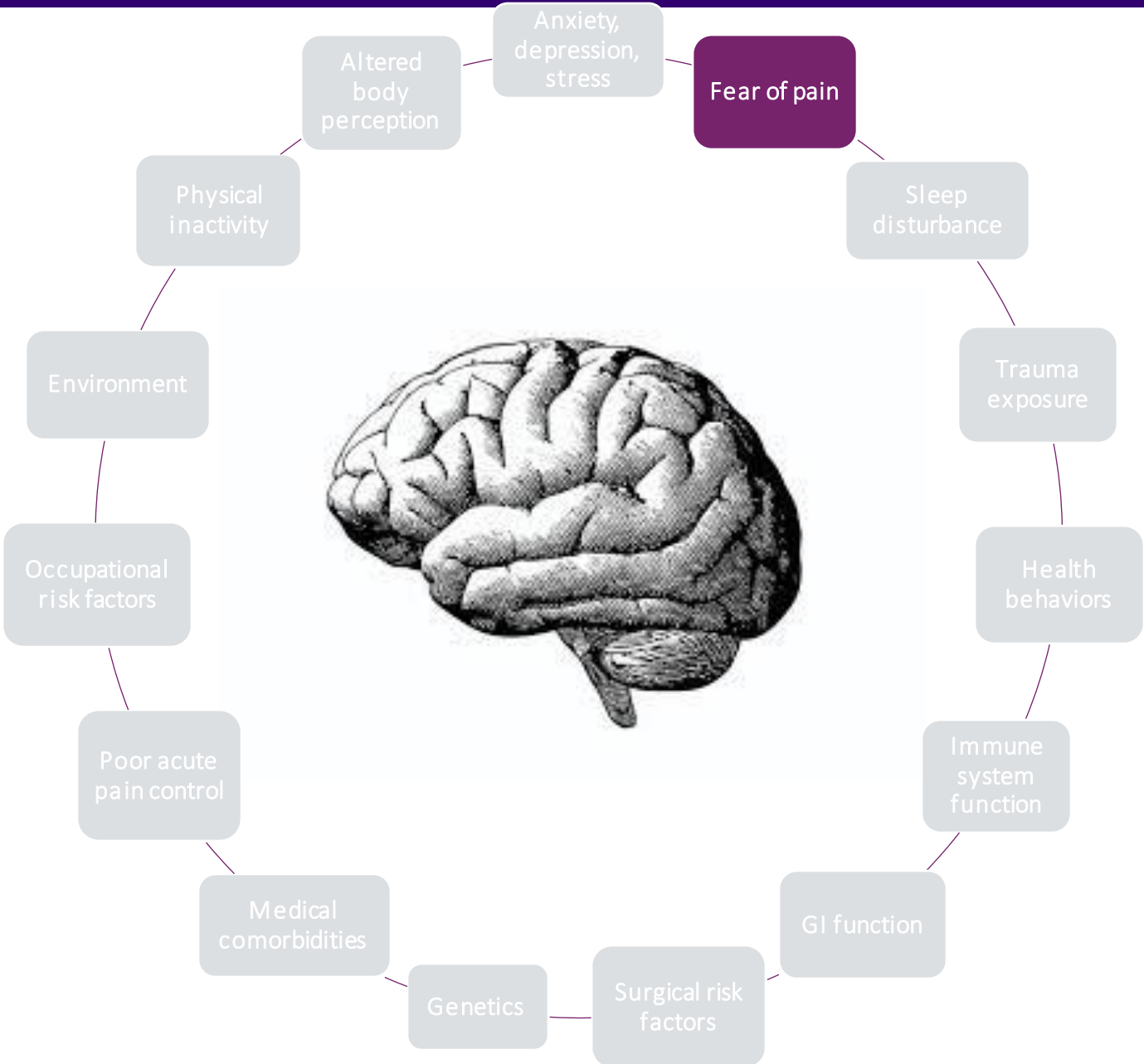
# Factors associated with chronic pain



# Factors associated with chronic pain

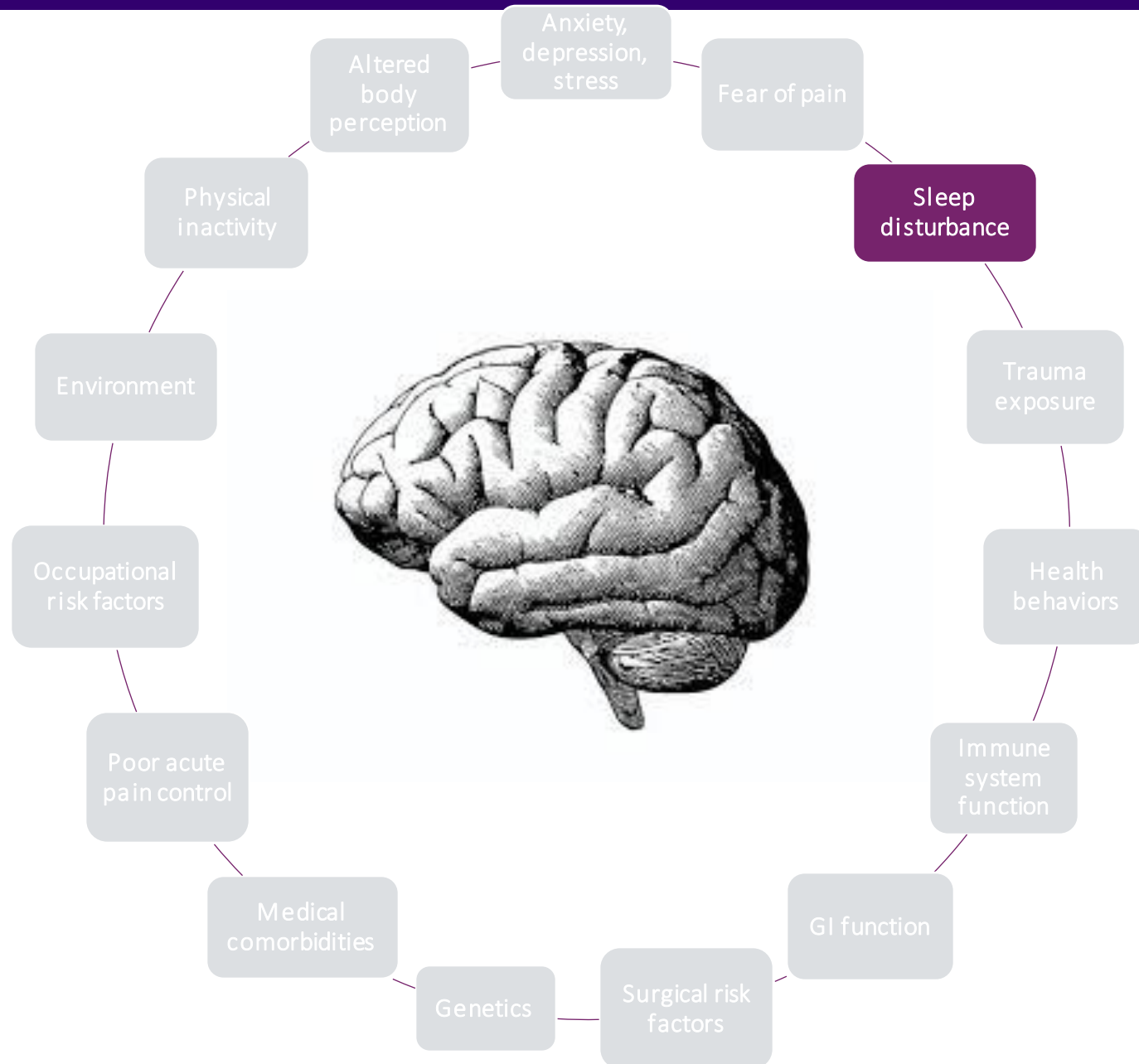


# Factors associated with chronic pain

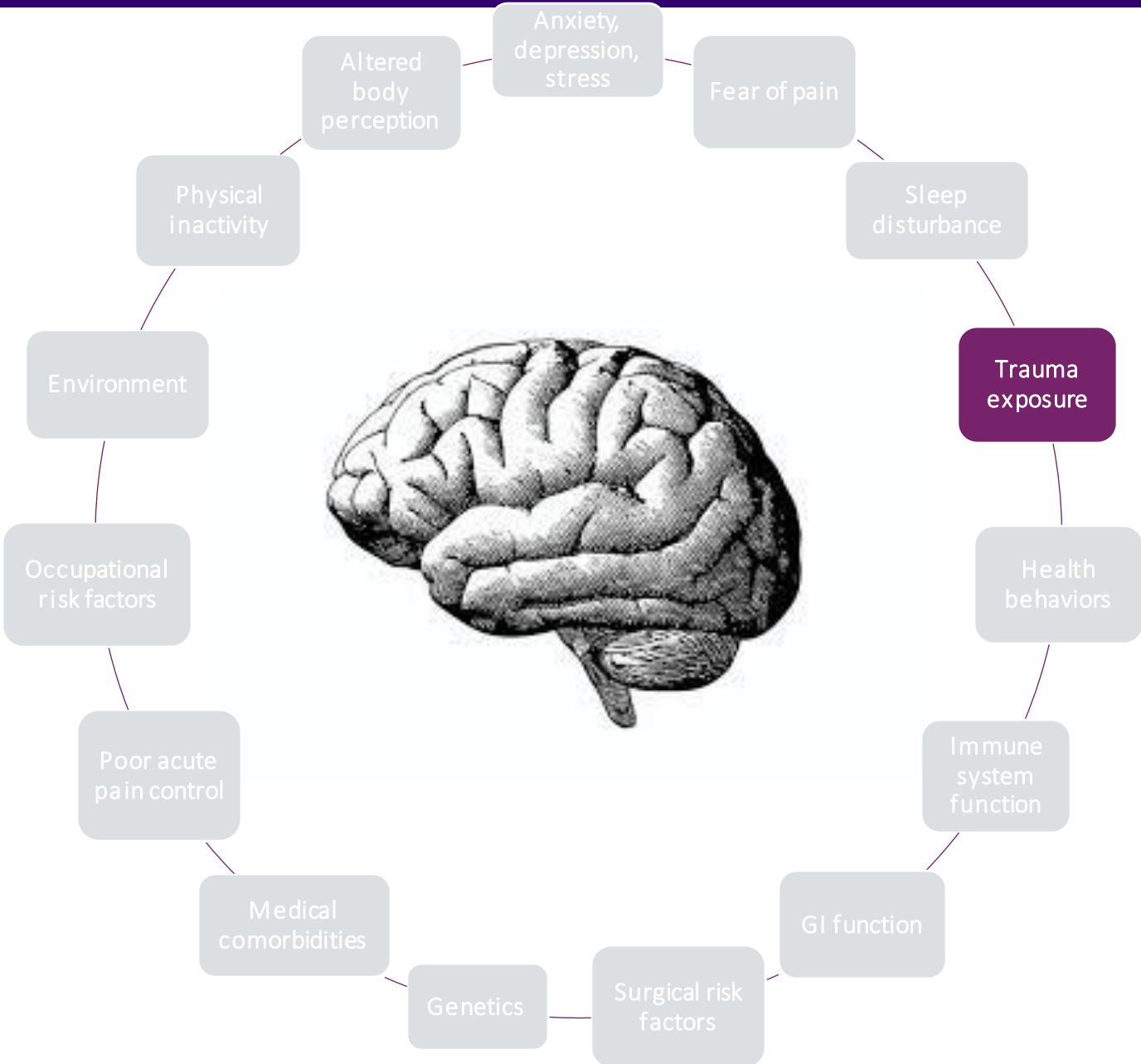




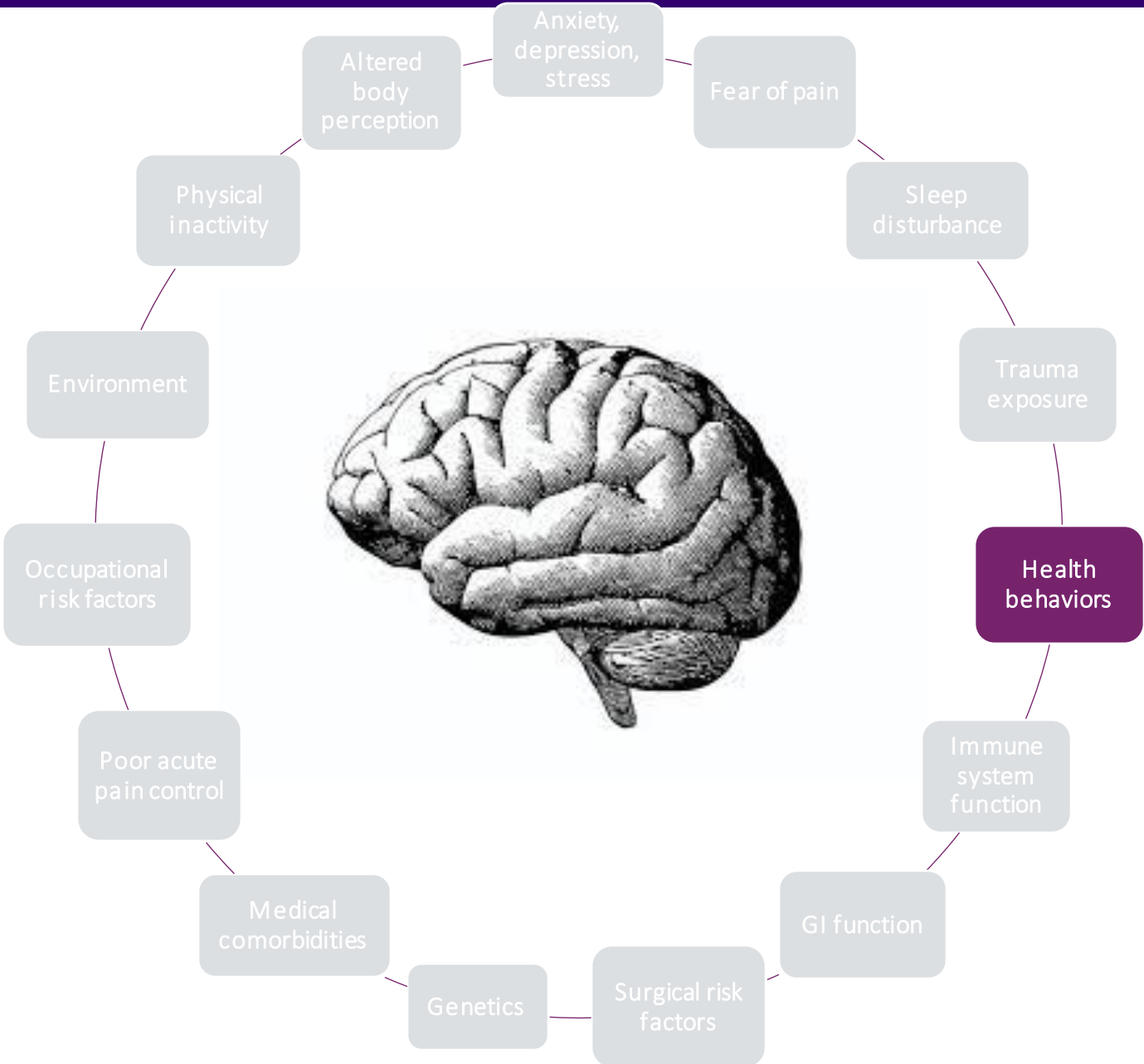
# Factors associated with chronic pain



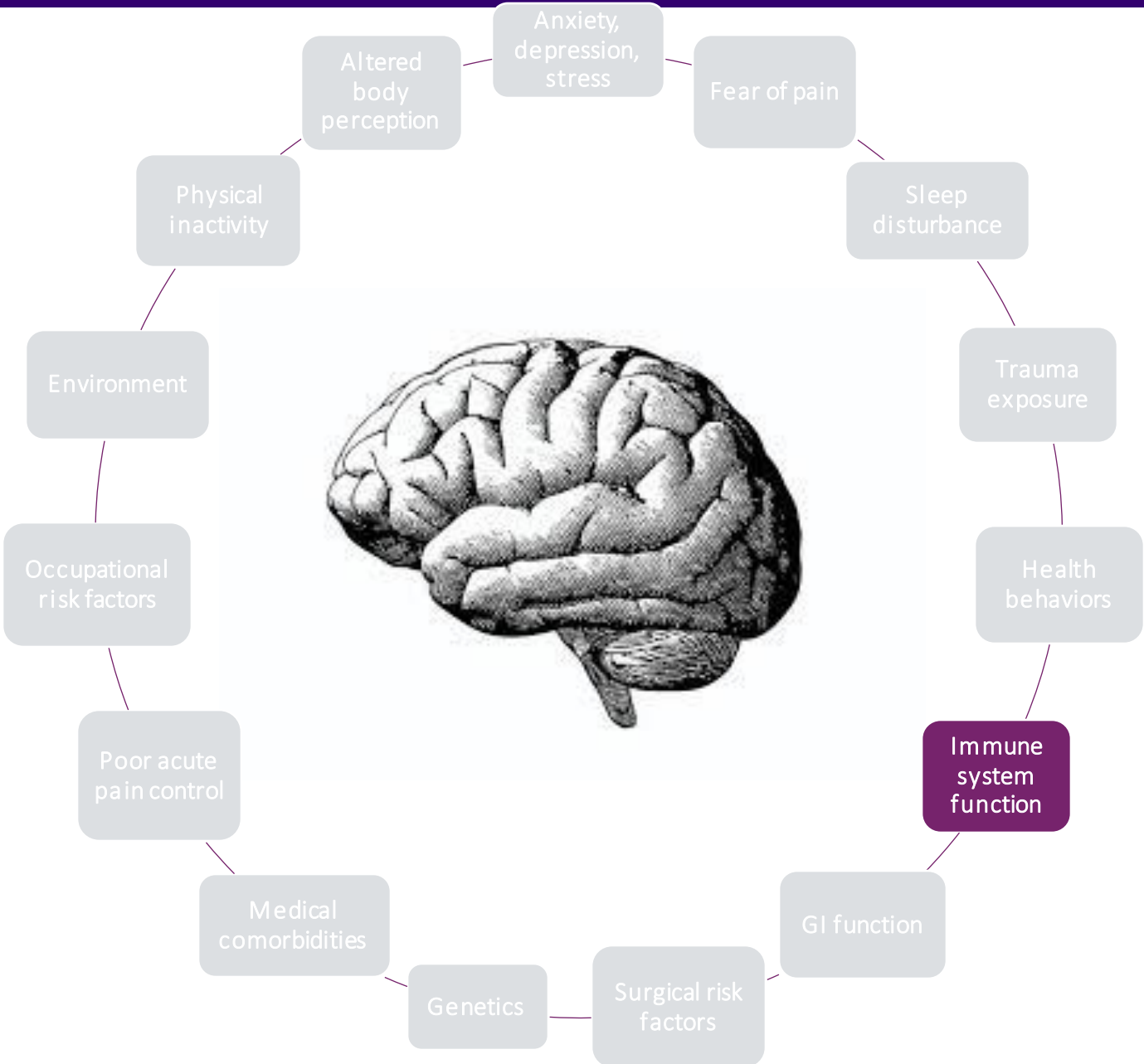
# Factors associated with chronic pain



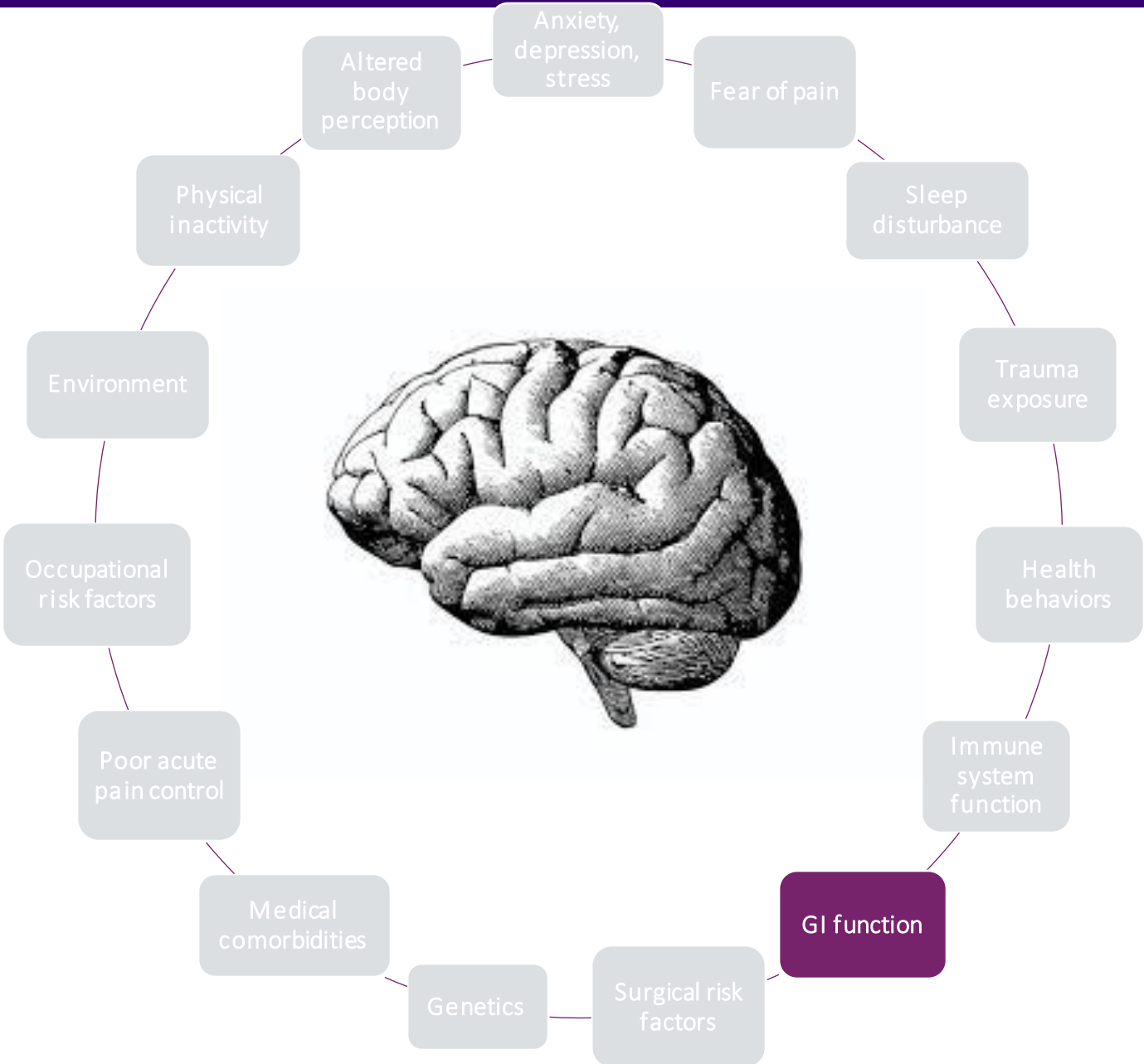
# Factors associated with chronic pain



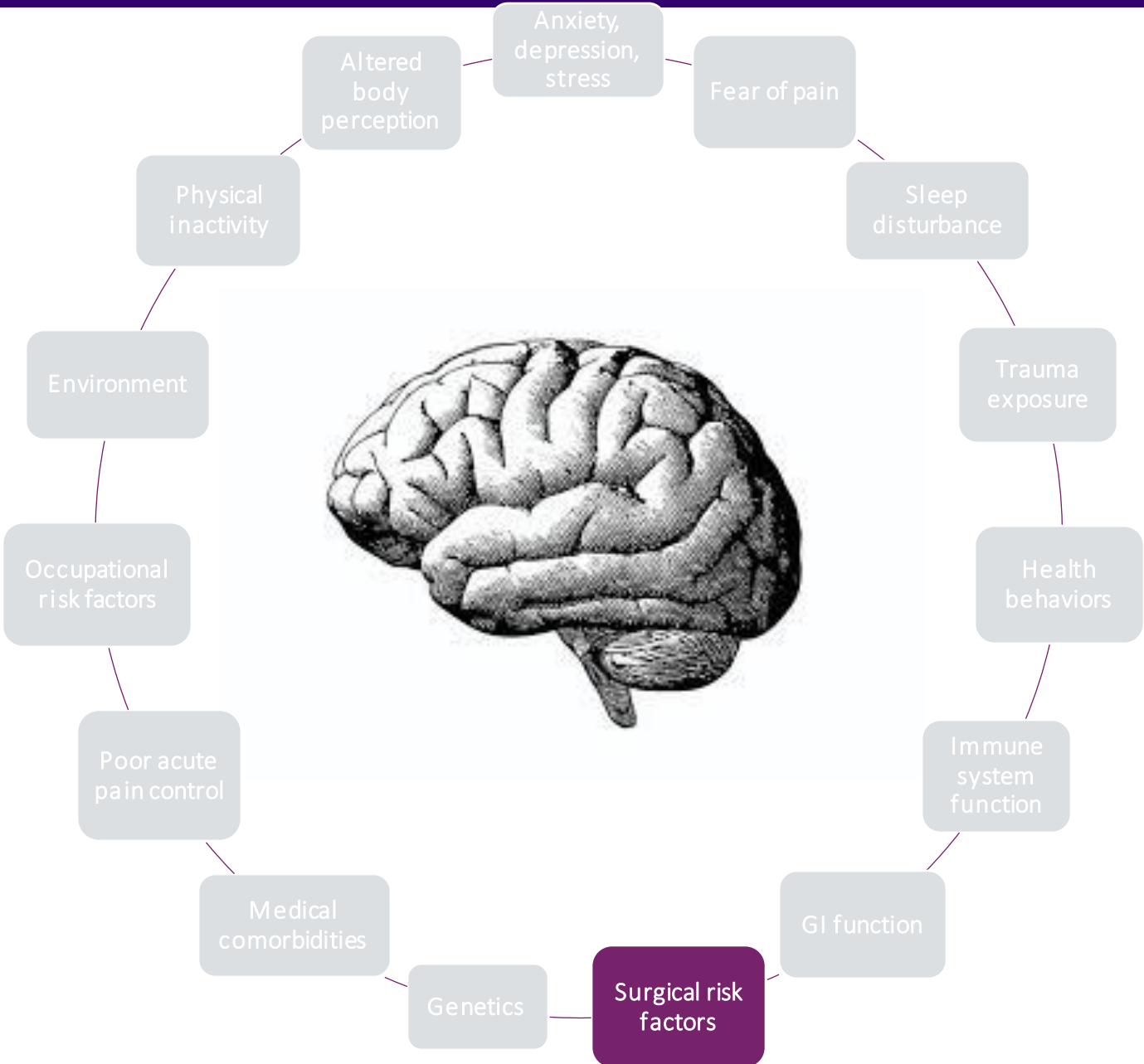
# Factors associated with chronic pain



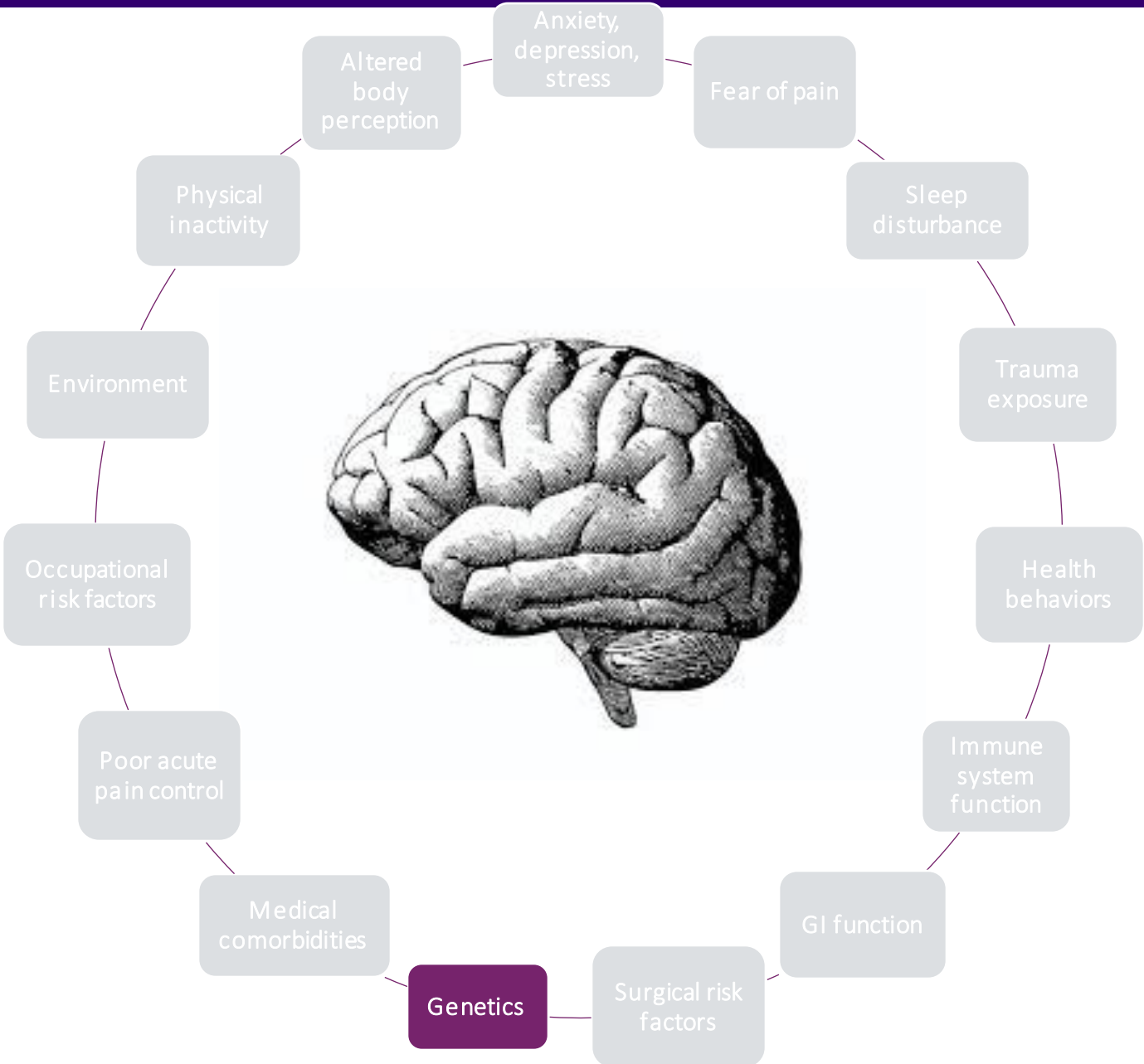
# Factors associated with chronic pain



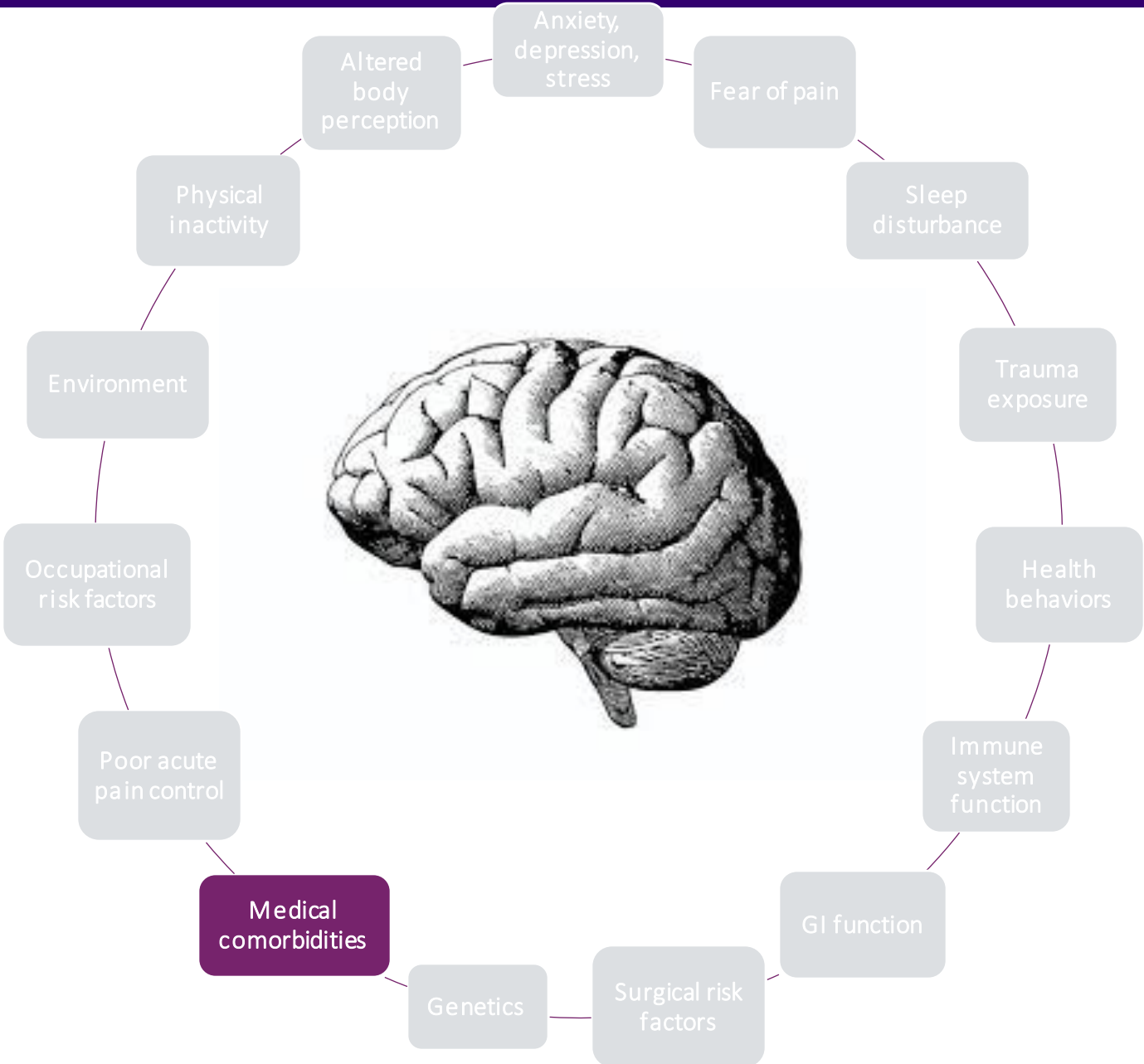
# Factors associated with chronic pain



# Factors associated with chronic pain

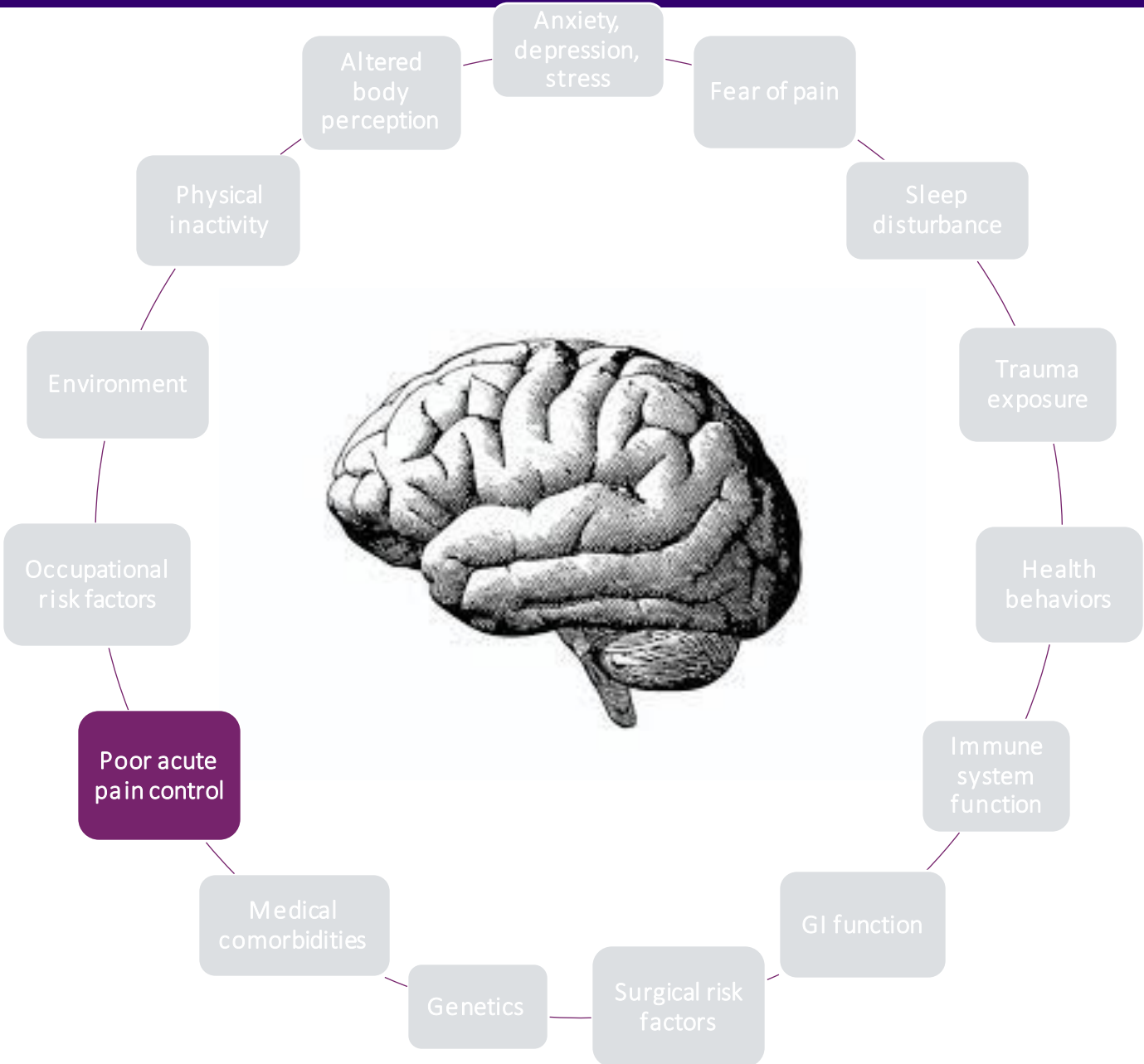


# Factors associated with chronic pain

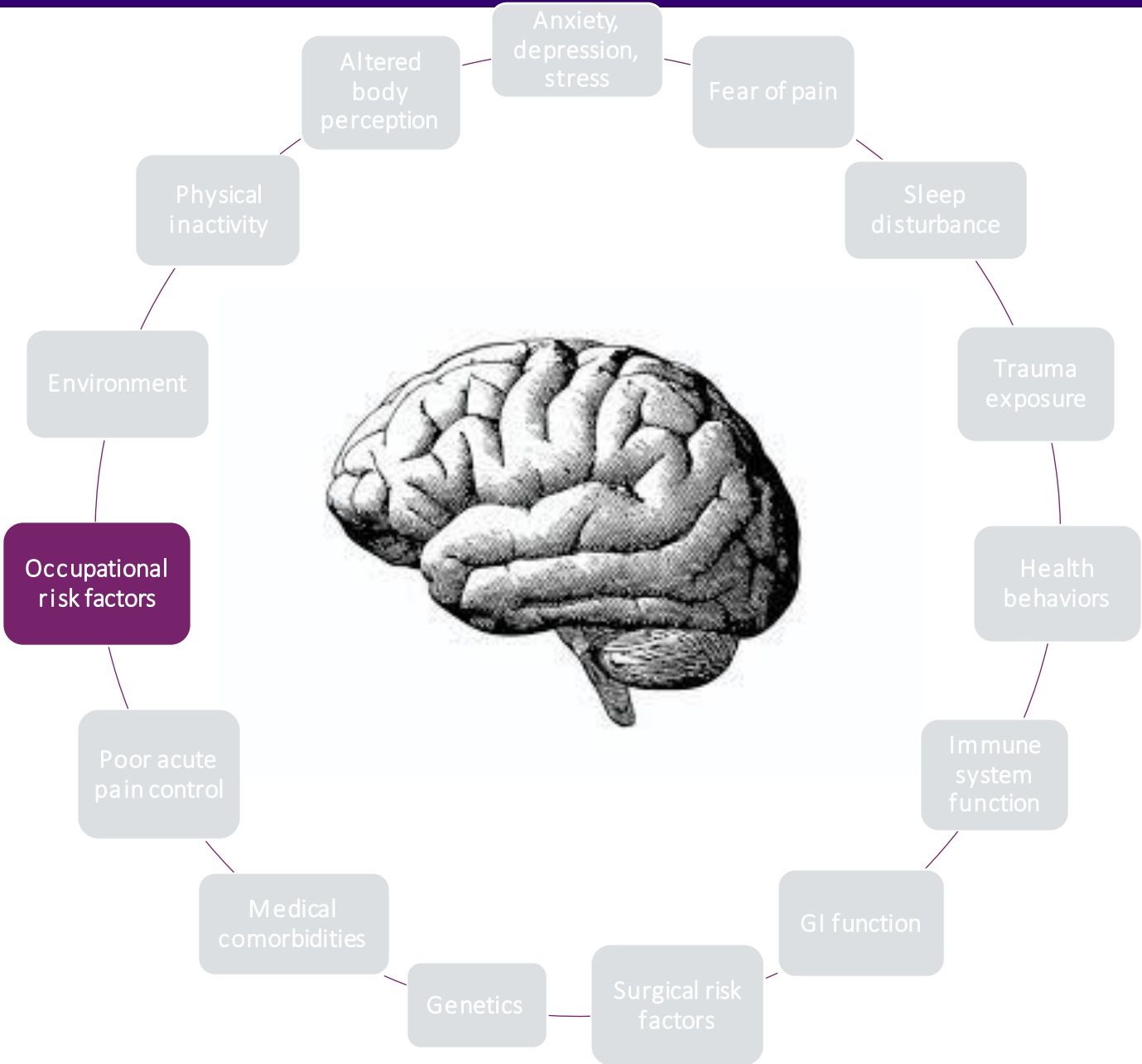




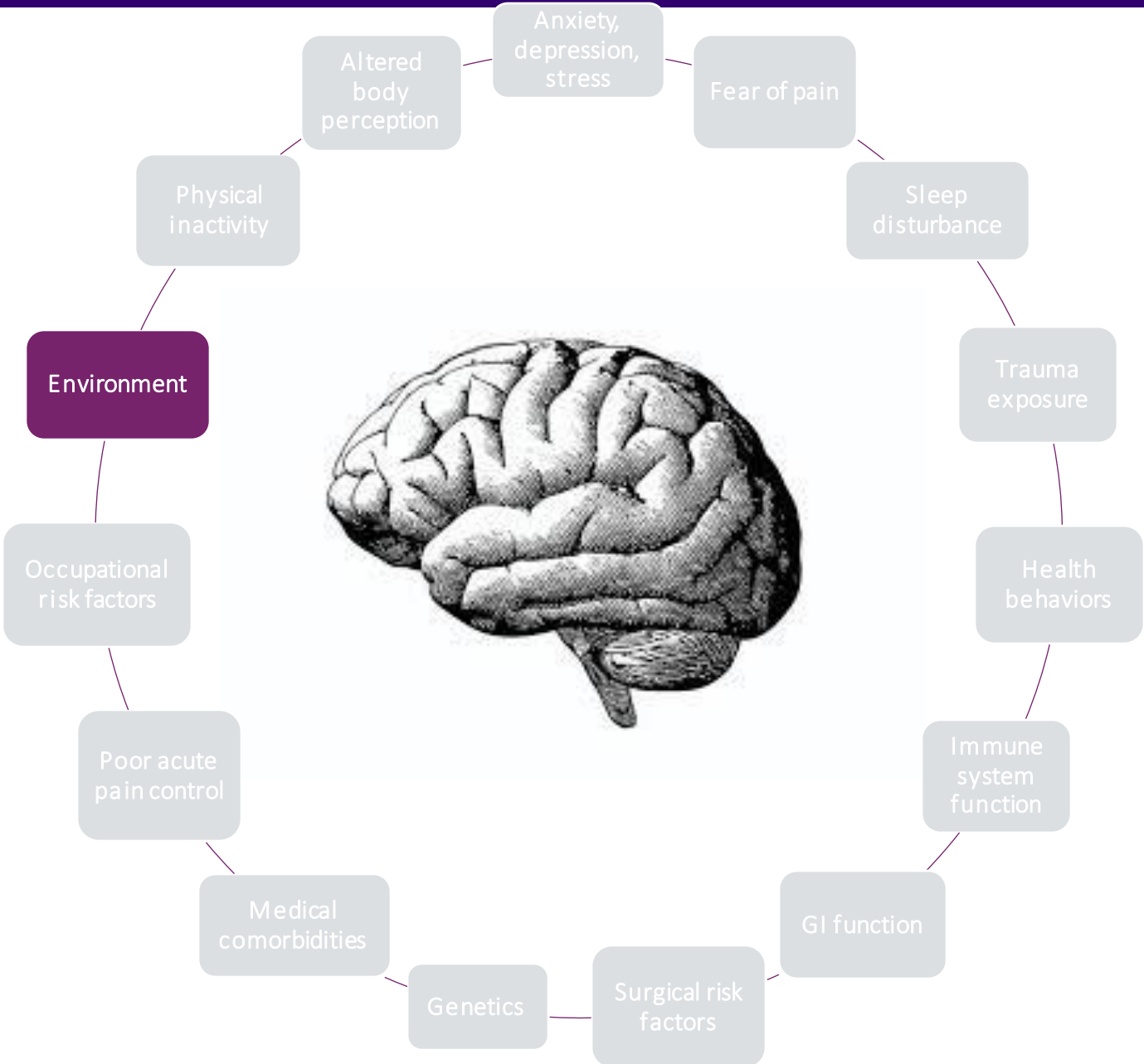
# Factors associated with chronic pain



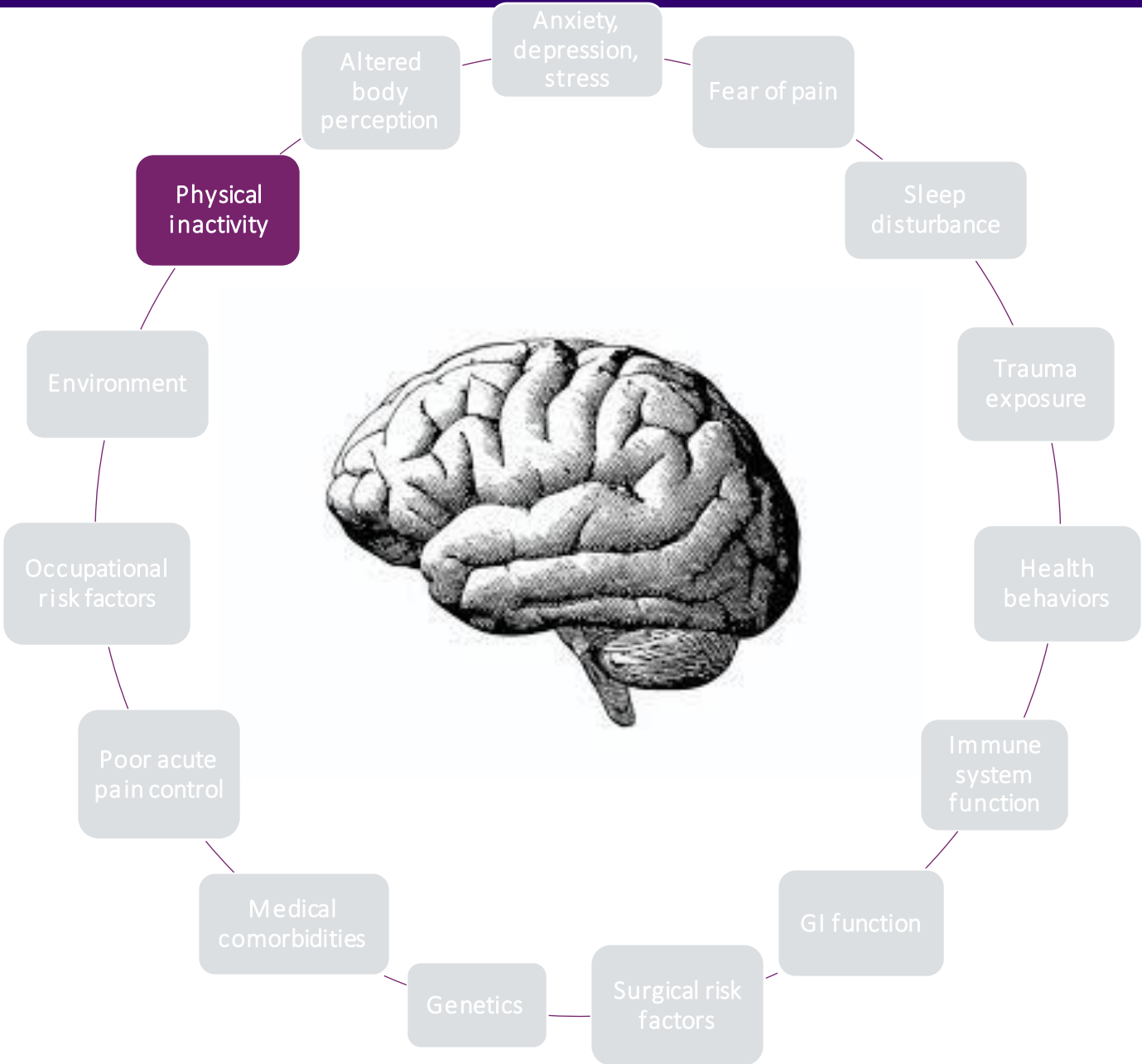
# Factors associated with chronic pain



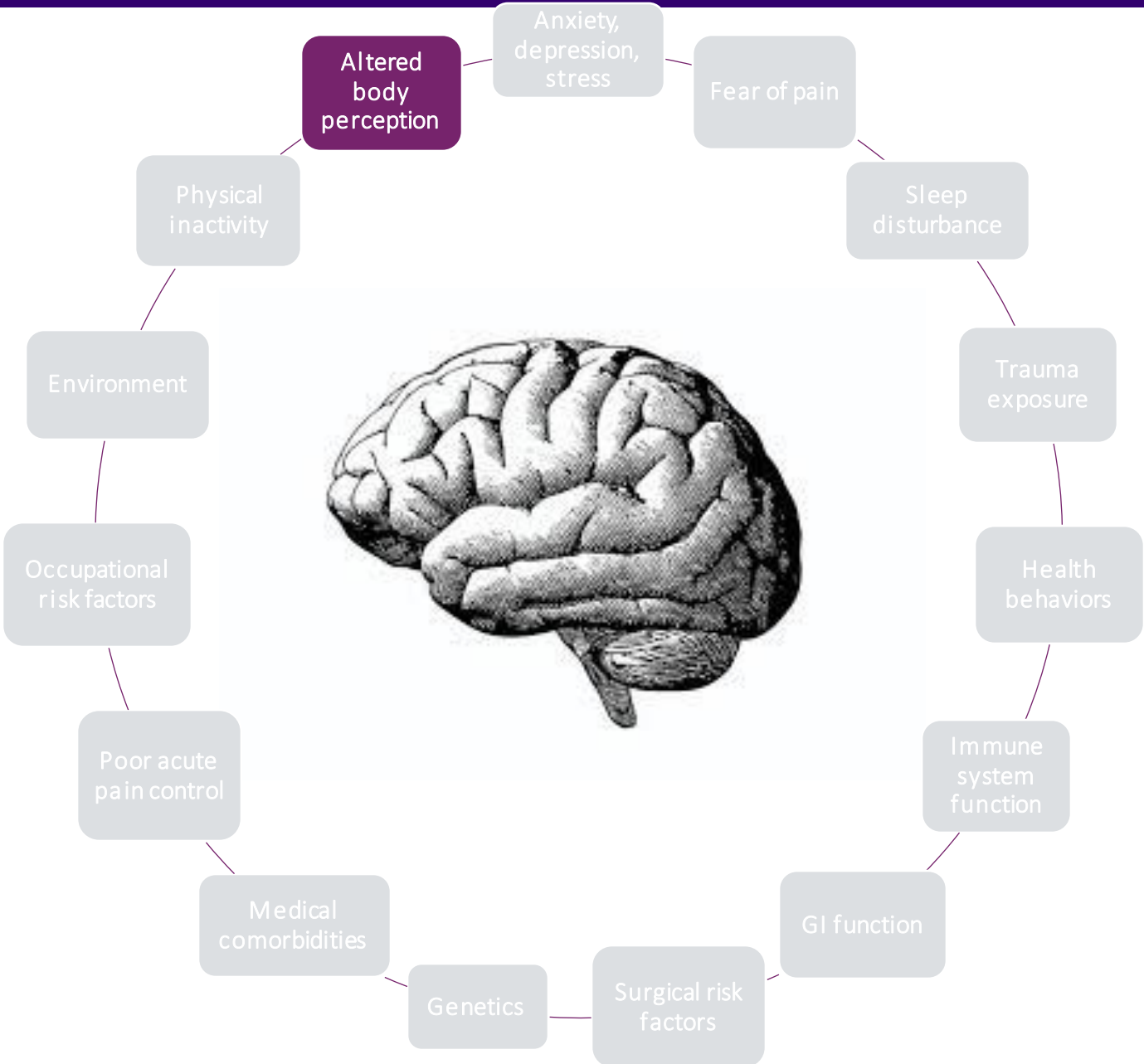
# Factors associated with chronic pain



# Factors associated with chronic pain



# Factors associated with chronic pain



# Factors associated with pain perception

## Increase pain awareness

### Physical/behavioral

- Body position (e.g., prolonged sitting)
- Overdoing/underdoing activity
- Muscle tension/stress response
- Sleep disturbance

### Cognitive/Emotional

- Attention to pain
- Distress associated with pain
- Depressive/anxiety symptoms
- Difficult emotions
- Trauma exposure

### Social/Environmental

- Isolation
- Too much/too little support
- Work environment

## Decrease pain awareness

### Physical/behavioral

- Medication
- Counter stimulation
- Paced appropriate activity level
- Exercise
- relaxation

### Cognitive/Emotional

- Understanding pain neuroscience
- Self-efficacy beliefs
- Engagement in pleasant and meaningful activities
- distraction
- Positive mood state
- Mental relaxation

### Social/Environmental

- Positive social engagement
- Empowering social support

# Supporting the dynamic needs of people living with chronic pain

---

# Working with your medical team

---

- Maintain regular contact with PCP (and remember to see your PCP on good days too)
- Make notes to prepare for your appointments
- Remember your doctor is a human too
- Be honest
- Be realistic
- Share what you are doing outside of the appointment (self-management activities)
- Feel confident rejecting treatments

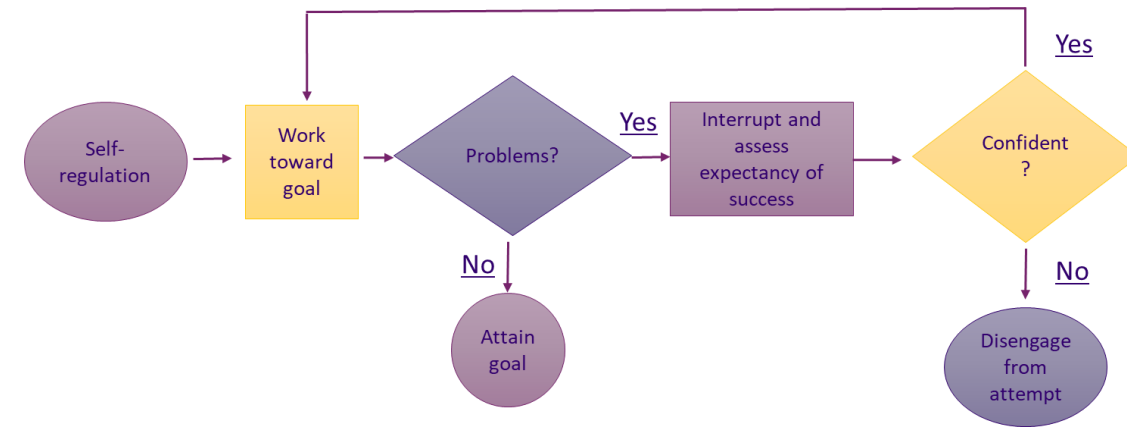


# Common Medical Treatments

---

- Medications
  - Analgesics, antidepressants, sedatives, anticonvulsants, steroids
- Surgery
  - Laminectomy, discectomy, fusion, rhizotomy
- Injections
  - Nerve blocks, steroid, trigger point
- Physical therapy
  - Active vs. passive
- Stimulation
  - Acupuncture, TENS, spinal cord stimulator
- Psychological treatment
  - Relaxation training/hypnosis, cognitive and behavioral therapies, biofeedback
- Complementary medicine
  - Osteopathy, chiropractic, homeopathy, reflexology

# Goal Setting - Self-Efficacy



- Value + Self-Efficacy = Goal Pursuit
- Self-efficacy: One's perceived ability to perform and successfully complete a task.
- In chronic pain research, higher self-efficacy is associated with *less*:
  - Functional impairment
  - Emotional distress
  - Pain severity
- Especially true for those who experienced pain the longest

# Goal Setting - Example SMART goal

---

Long-term goal: hike 5 miles	Goal for next week: start paced walking
Specific	Walk to the mailbox and back (30 ft)
Measurable	Yes, track on calendar
Attainable	80% confident
Relevant	Walking and hiking improved overall mood; spending time in nature and with family/friends; improve physical fitness and activity tolerance.
Time-bound	Monday, Wednesday, and Friday at noon

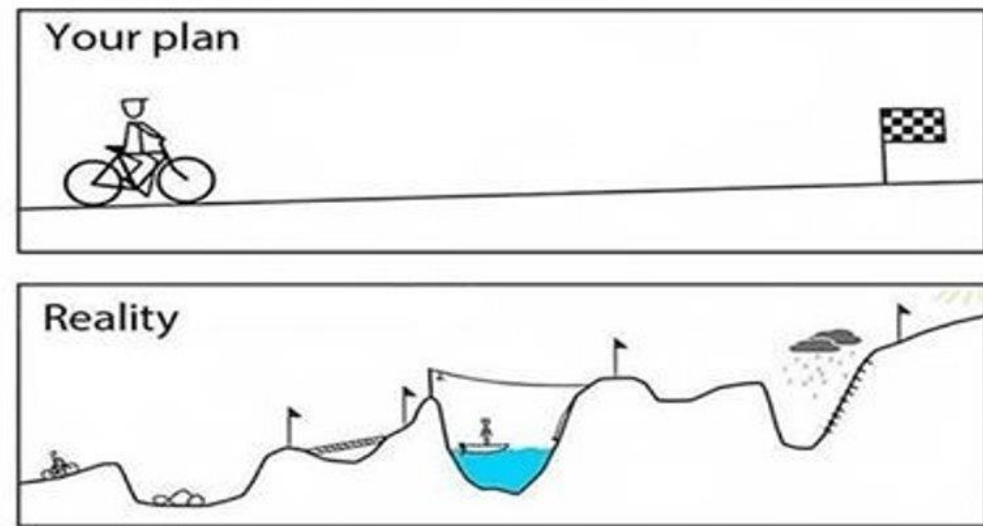
# Recognizing and Planning for Obstacles

The key is awareness of barriers that are both external *and* internal.

Take a step back and ask:

- *What happened before?*
- *Where did it happen?*
- *Who was I with?*
- *When did it happen?*

- Fear of pain and fear of doing more damage
- Time and motivation
- Conflicting advice
- Functional impairments
- Emotional distress

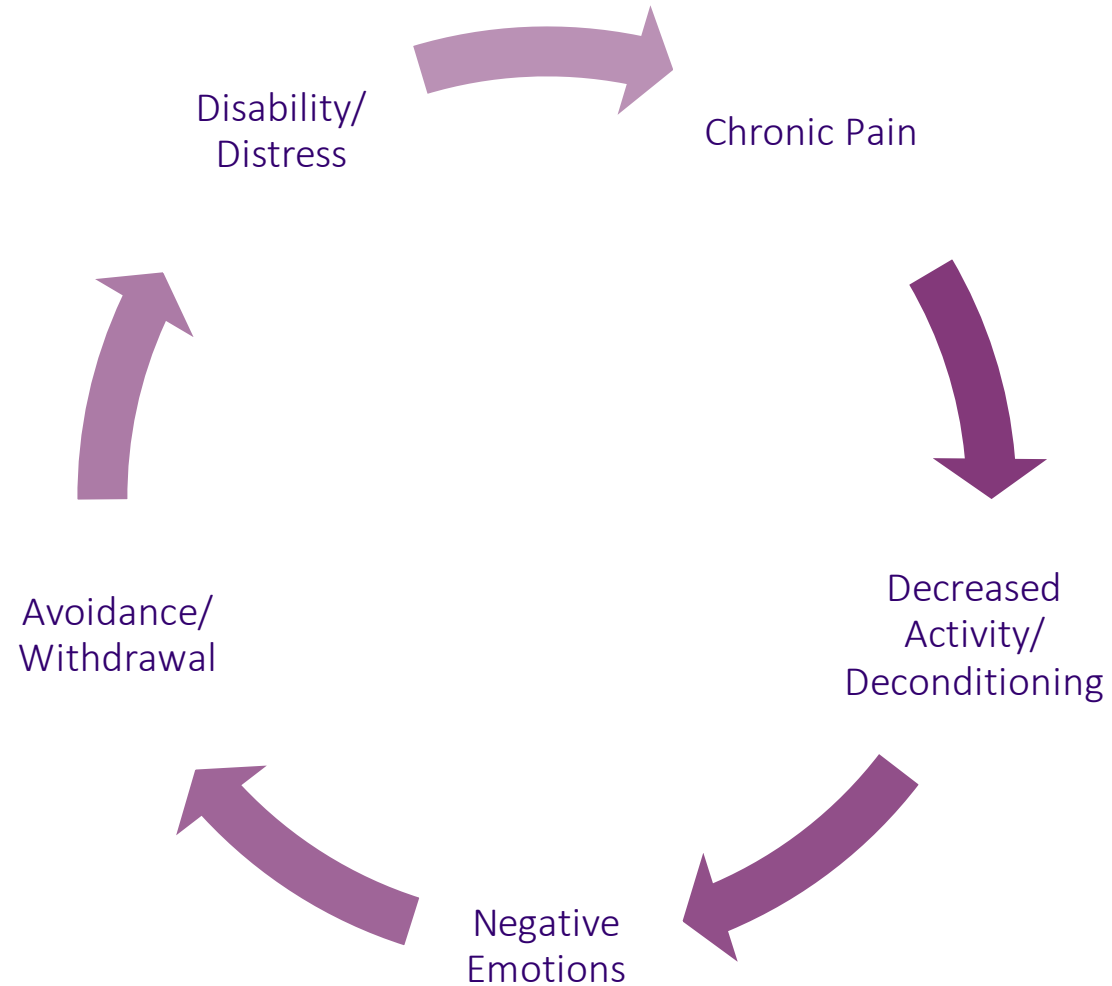


# Stretching & Movement

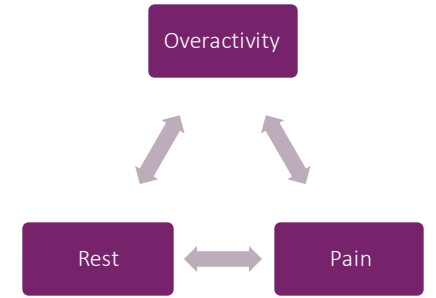
---

- Muscles and tendons are like rubber bands
- Postural muscles (levator scapulae, trapezius, erector spine, quadratus lumborum, hamstrings, gastrocnemius, soleus, pectoralis major, hand and finger flexors, iliopsoas, thigh abductors, quadriceps) tend to tighten and shorten
- Stretching helps elongate our muscles resulting in greater flexibility and decreased pain
- The American Council on Exercise (ACE) recommends at least 30 minutes of stretching three times per week for flexibility
- Basic stretches: shoulder-neck, posterior shoulder, triceps, spinal rotation, pectoral and anterior chest wall, calf, quadriceps, hamstrings, hip extensor, gluteal, latissimus dorsi, back arch, sciatic nerve.

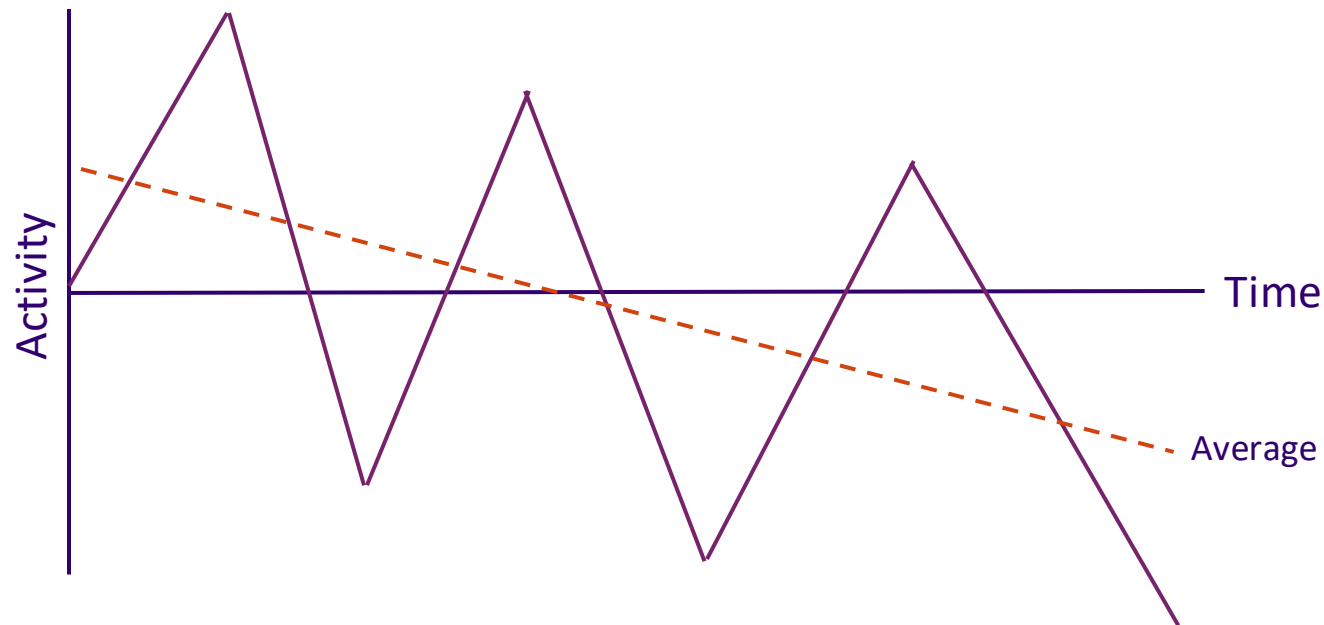
# Activity Pacing: The Chronic Pain Cycle



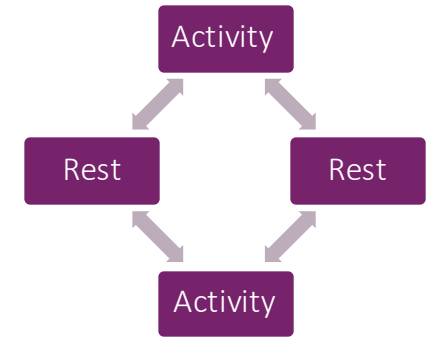
# Activity Pacing: Boom and Bust



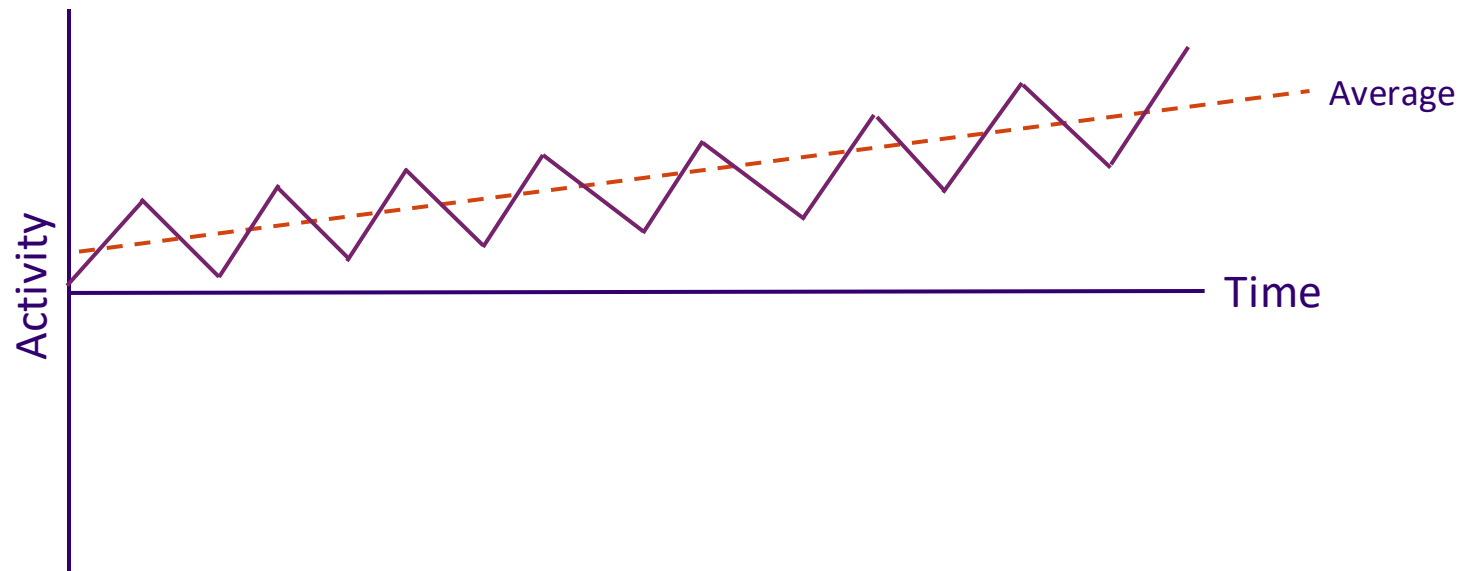
- Boom and bust cycle leads to gradual worsening over time. In this pattern, patients tend to do and tolerate less activity over time.



# Activity Pacing



- Finding the amount of activity that can be consistently tolerated over time with frequent breaks, building up to increased activity tolerance slowly, helping the nervous system learn movement is safe.





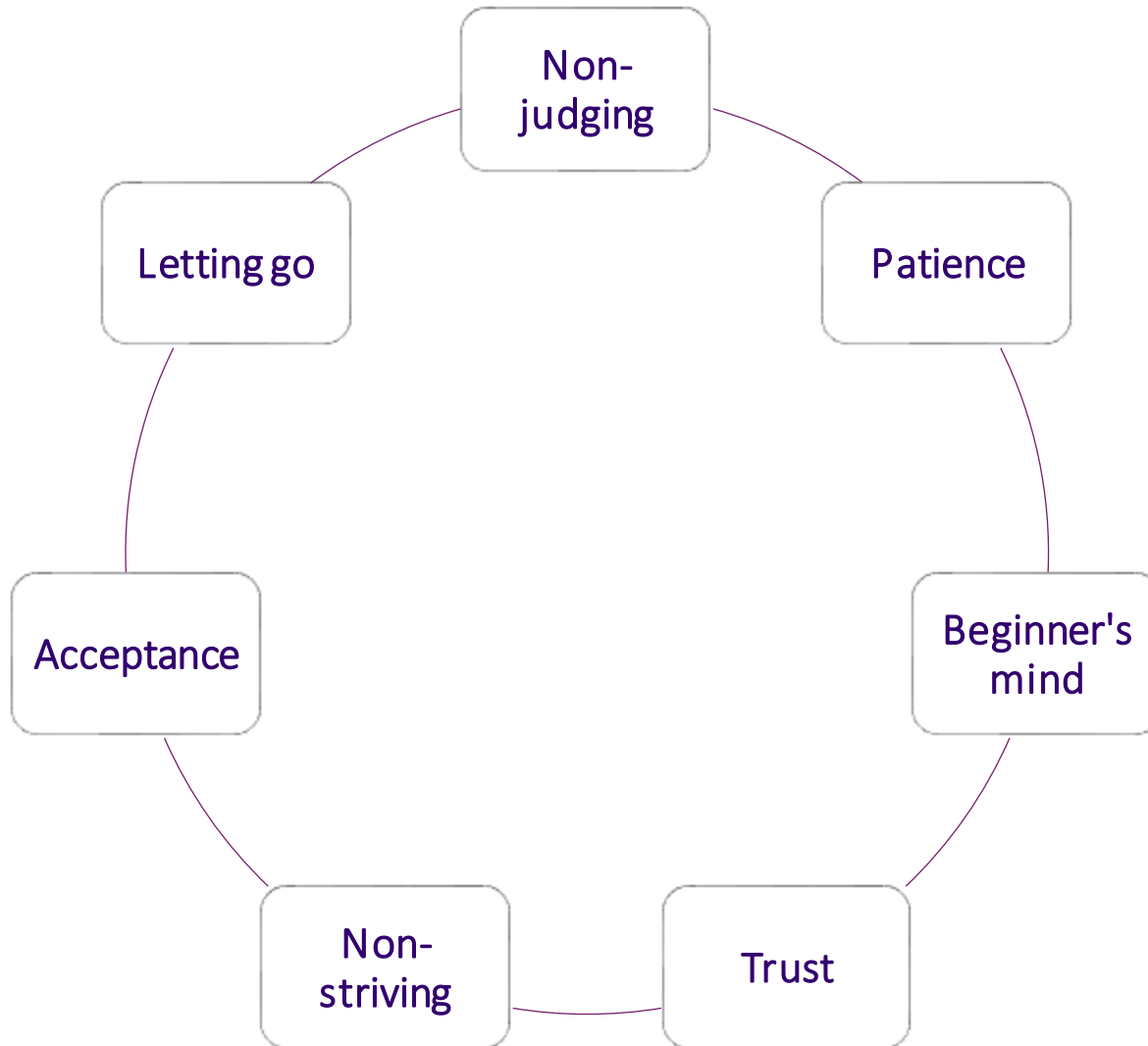
# Relaxation & Mindfulness

Mindfulness in a clinical setting (mindfulness-based interventions)

- Mindfulness-Based Stress Reduction (MBSR)
- Mindfulness-based cognitive therapy (MBCT)
- Acceptance and commitment therapy (ACT)
- Dialectical behavior therapy (DBT)



# Seven attitudinal foundations of mindfulness



# Evidence – clinical applications in pain

- Associated with improved affective pain, more so than sensory pain (Brandel et al., 2022).
- Associated with improvement in QOL, awareness, calmness, sense of well-being, but limited evidence for reductions in pain severity across multiple chronic pain conditions (Hilton et al., 2017).
- MBIs appear to be equivalent to CBT-based interventions and superior to TAU, waitlist, or health education (Brandel et al., 2022; Cherkin et al., 2017).
- Appears to have neural and behavioral effects that are distinct from opioids, placebo, and sham interventions (Wielgosz et al., 2019).





ELSEVIER

The Journal of Pain

Volume 22, Issue 3, March 2021, Pages 313-321



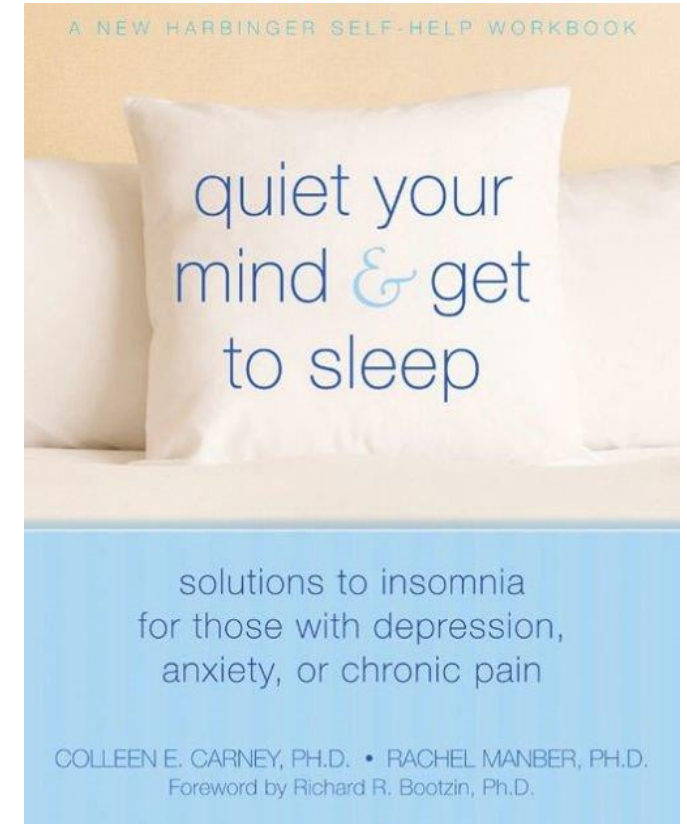
# Pain Intensity as a Lagging Indicator of Patient Improvement: Longitudinal Relationships With Sleep, Psychiatric Distress, and Function in Multidisciplinary Care

[John A. Sturgeon](#) \*  , [Dale Langford](#) \*, [David Tauben](#) \* ‡, [Mark Sullivan](#) \* †

*This study demonstrates that pain intensity scores are not robust predictors of psychosocial outcomes longitudinally. Instead, other factors such as sleep initiation, psychological distress and disability appear to be important targets for intervention that may promote effective pain reduction.*

# Improving Sleep

- Get Regular
- Only sleep when sleepy
- Get up and try again
- Avoid caffeine, nicotine, and alcohol
- No naps
- Sleep rituals
- Exercise
- Diet



# Sleep and pain

- Bidirectional relationship
  - Sleep disturbance is a risk factor for development of chronic pain
  - Chronic pain is a risk factor for development of insomnia (physical limitations and social isolation associated with chronic pain may be major contributors)
- 40% of people with chronic insomnia, have a pain condition
  - Pain-related insomnia seems to persist longer than primary insomnia and is associated with more daytime function impact.
- 80% of people with chronic pain endorse moderate to severe sleep disturbance and comorbid depressive symptoms
- Improving sleep, improves pain

# Why do CBT-I



## CLINICAL REVIEW

Cognitive behavioral therapy for insomnia in patients with chronic pain – A systematic review and meta-analysis of randomized controlled trials

Jananii Selvanathan <sup>a,b</sup>, Chi Pham <sup>a,b</sup>, Mahesh Nagappa <sup>c</sup>, Philip W.H. Peng <sup>a</sup>, Marina Englesakis <sup>d</sup>, Colin A. Espie <sup>e</sup>, Charles M. Morin <sup>f</sup>, Frances Chung <sup>a,b,\*</sup>

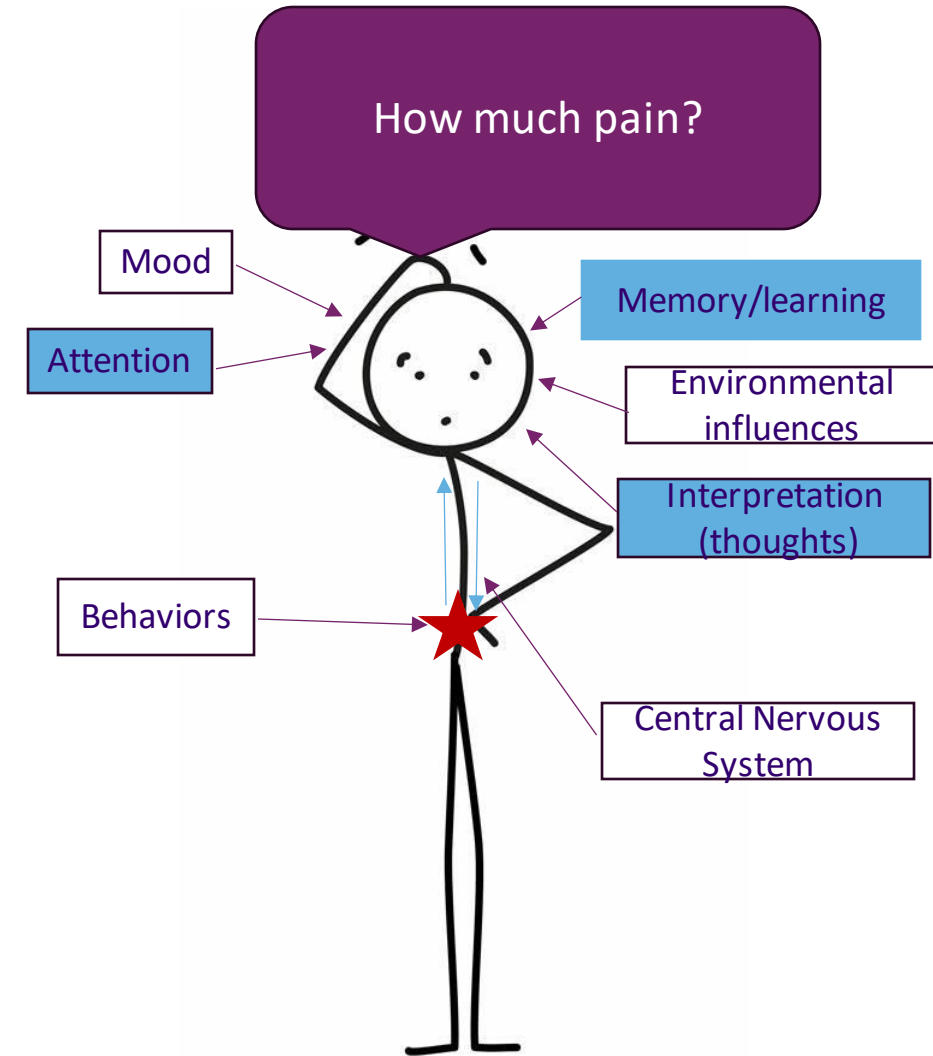
- Twelve randomized controlled trials of CBT-I with individuals experiencing chronic pain that included a total of 762 participants:

*At follow-up (up to 12 mo), CBT-I significantly improved sleep (0.56). Using global measures of sleep, we found a probability of 81% and 71% for having better sleep after CBT-I at post-treatment and final follow-up, respectively. The probability of having less pain after CBT-I at post-treatment and final follow-up was 58% and 57%, respectively.*

# Unhelpful Thoughts

Day/Situation	Automatic Negative Thought	Effect on your pain/mood	Challenge: Alternative/balanced coping statement
Tuesday: Walking and pain flares	This pain is killing me. I can't do anything anymore	Helpful or Harmful	<i>I'm hurting because I over did it but I know I will feel better soon. Then I will pace myself to get the job done.</i>
		Helpful or Harmful	

Unhelpful thinking styles: Jumping to conclusions, exaggerating/minimizing, ignoring important parts of the situation, oversimplifying, over-generalizing, mind reading, emotional reasoning





# Unhelpful Thoughts: Pain perception

- Three important processes

## 1. Attention – on purpose or involuntary

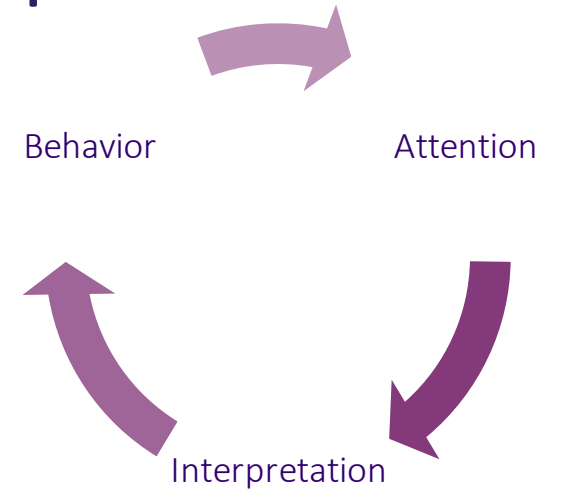
- Bend over and notice pain increase

## 2. Interpretation – appraisal/reaction

- *Something is wrong... Something is broken.... Now I will get worse....*
- Sympathetic stress response, stress hormone release, muscle tension, etc. (Body tells the mind, "Yes, there is danger, pay attention to it!")

## 3. Behavior

- Activity avoidance, increasing physical limitations/loss of function, increased attention to symptoms.



# Unhelpful Thoughts: Pain Perception

- Three important processes

1. **Attention** – on purpose or involuntary

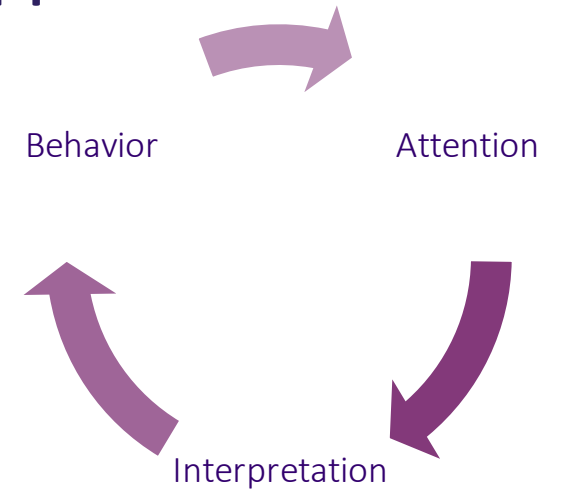
- Bend over and notice pain increase

2. **Interpretation** – appraisal/reaction

- *I know bending is safe. I know this is a sensory experience and hurt ≠ harm. I have strategies to manage this.*
- Physical stress response – use of relaxation/calming techniques. (Reduced danger signals from the body, reduced danger monitoring.)

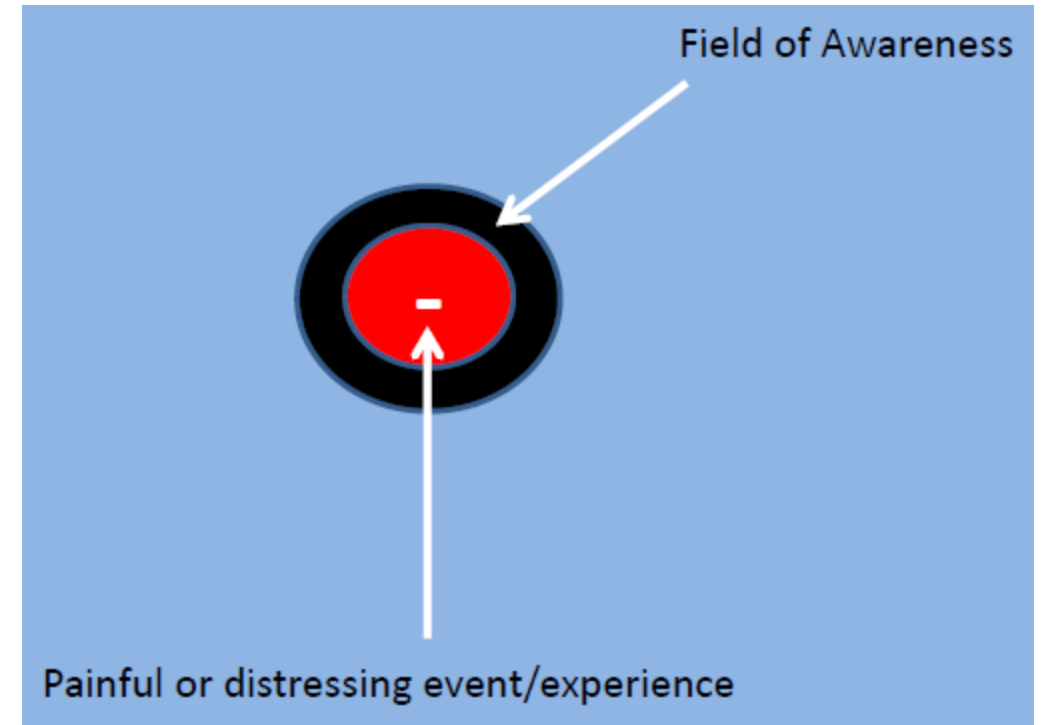
3. **Behavior**

- Using tools for pain/stress management, reduced stress response to symptoms, reduced activity avoidance, reduced attention to symptoms.



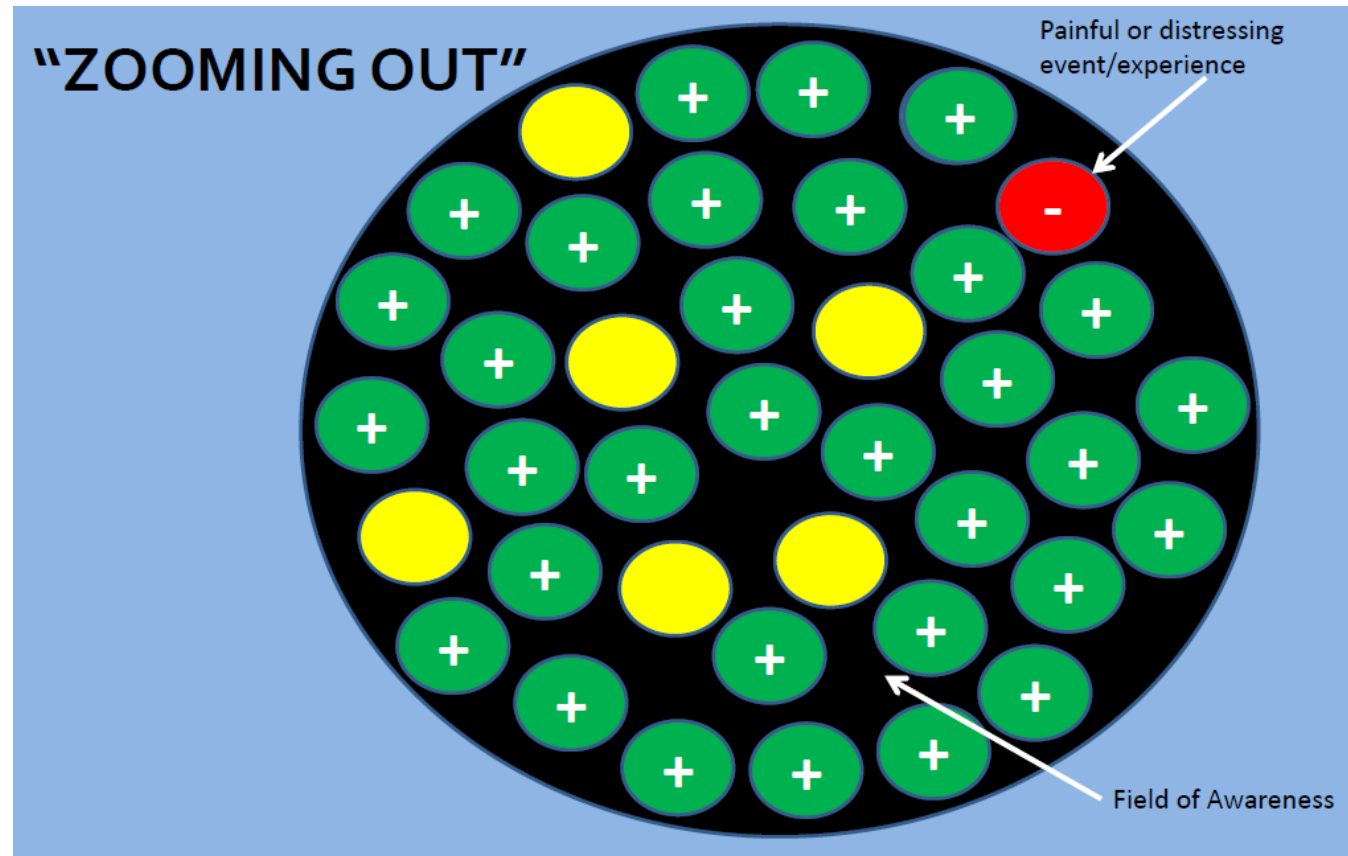
# Pains Impact on Interpersonal Relationships

- Pain can become a major source of stress on relationships and can cause people to
  - Withdraw verbally
  - Withdraw physically
  - Exhibit pain behaviors
  - Talk too much about the pain
  - Lose interest in others
  - Accept mood changes
  - Make provocative statements



# Meaningful relationships

- Help broaden people's field of awareness



# Key Takeaways

---

# Key takeaways

---

- Education about chronic pain helps to reduce distress, improve function, and improve pain self-efficacy
- Development and maintenance of chronic pain is multifactorial and necessitates multidisciplinary and collaborative approaches to treatment
- Effective management of chronic pain requires active participation of the patient
- There are many factors that influence the impact of chronic pain and many strategies for management

# Learning Community



# Pain Psychology Approaches in Therapy

---

Psychological factors play an important role in an individual's experience and response to pain and can affect treatment adherence, pain chronicity, and disability status. Patients with chronic pain are at increased risk for psychological distress, maladaptive coping, and physical inactivity related to fear of reinjury. This learning community aims to train participants on evidence modalities to treat the psychological components of chronic pain through pain neuroscience education (PNE), cognitive behavioral therapy for chronic pain (CBT-CP), acceptance and commitment therapy for chronic pain (ACT-CP), emotional awareness and expression therapy (EAET), and pain reprocessing therapy (PRT).

SESSIONS: Fridays, July 12, July 26, August 9, August 30, 2024

10:30am - 12:00 pm AK / 11:30am - 1:00pm PT / 12:30 - 2:00pm MT

[Pain Psychology Approaches in Therapy Learning Community - Mental Health Technology Transfer Center \(MHTTC\) Network \(mhttcnetwork.org\)](https://mhttcnetwork.org)



# TelePain



# TelePain and Opioid/Pain Hotline

## UW TelePain

A service for community-practice providers to increase knowledge and skills in chronic pain management

UW TelePain sessions are collegial, audio/video-based conferences that include:

1. Didactic presentations from the UW Pain Medicine curriculum for primary care providers.
2. Case presentations from community clinicians.
3. Interactive consultations for providers with a multi-disciplinary panel of specialists.
4. Education in use of guideline-recommended measurement-based clinical tools to improve diagnosis and treatment effectiveness.
5. Follow-up case presentations to track outcomes and optimize treatments for ongoing care of your patients.

UW TelePain sessions for community health care providers are held each Wednesday, noon to 1:30 p.m.

You are invited to present your difficult chronic pain cases or ask questions, even if you don't present a case.

The expertise of the UW TelePain Panel spans pain medicine, internal medicine, anesthesiology, rehabilitation medicine, psychiatry, addiction medicine, and nursing care coordination.

Learn more about these sessions on the UW TelePain website

<http://depts.washington.edu/anesth/care/pain/telepain/>

Questions?

[telepain@uw.edu](mailto:telepain@uw.edu)

To register:

Download and complete the registration form and fax it to 206-221-8259. Form location <http://depts.washington.edu/anesth/care/pain/telepain/TelePain-Participant-Reg-Form.pdf>

UW Medicine  
PAIN MEDICINE

Washington State  
Health Care Authority

Are CME credits available? Yes.

The University of Washington School of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

The University of Washington School of Medicine designates this live activity for a maximum of 73.5 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity. (Each session 1.5 credits)



Clinicians: caring for patients with complex pain medication regimens? We're behind you.

## UW Medicine Pain and Opioid Consult Hotline for Clinicians 1-844-520-PAIN (7246)

UW Medicine pain pharmacists and physicians are available Monday through Friday, 8:30 a.m. to 4:30 p.m. (excluding holidays) to provide clinical advice at no charge to you.

Consultations for clinicians treating patients with complex pain medication regimens, particularly high dose opioids:

- Interpret Washington State Prescription Monitoring Program record to guide you on dosing
- Individualized opioid taper plans
- Systematic management of withdrawal syndrome
- Evaluate/recommend non-opioid/ adjuvant analgesic treatment
- Triage and risk screening
- Individualized case consultation for client care and medication management
- Explain/review Center for Disease Control and Prevention (CDC) opioid guidelines: <https://www.cdc.gov/mmwr/volumes/65/rr/rr6501e1.htm>
- Will help identify and refer to other resources:
  - ▷ Evaluation of Substance Use Disorder; Washington Recovery Help Line 1-866-789-1511
  - ▷ Local pain clinics for patient referrals: [www.doh.wa.gov/Emergencies/PainClinicClosures/PainClinicAvailability](http://www.doh.wa.gov/Emergencies/PainClinicClosures/PainClinicAvailability)
  - ▷ UW TelePain Services: Available Wednesdays noon to 1:30 p.m. <http://depts.washington.edu/anesth/care/pain/telepain>

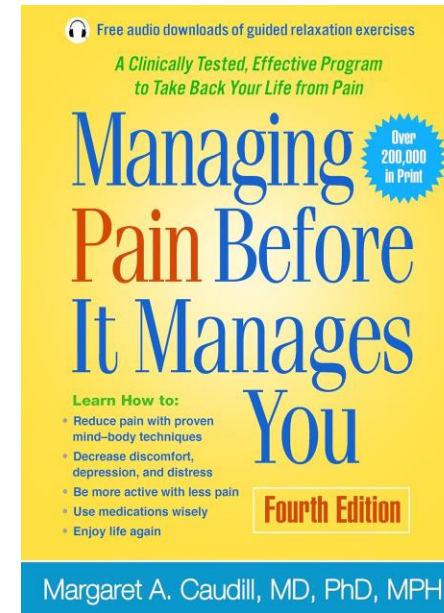
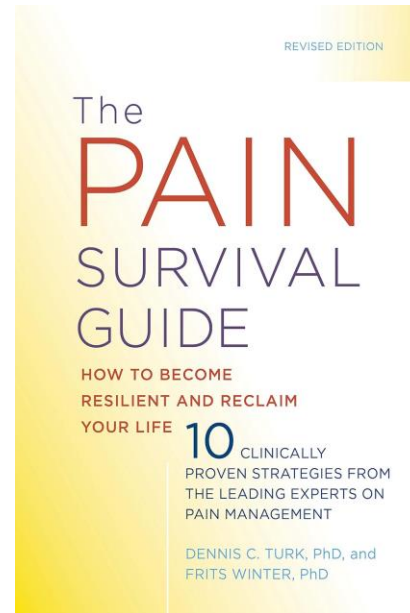
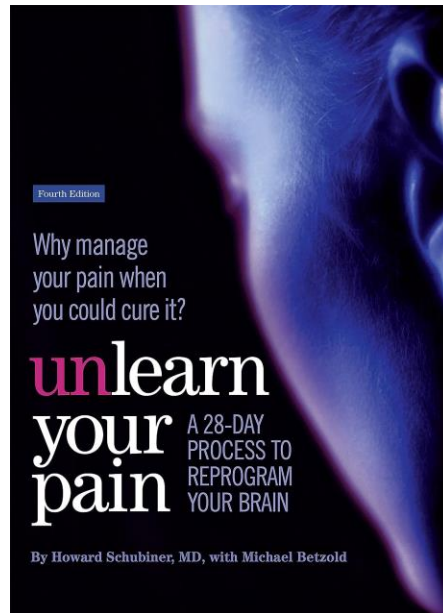
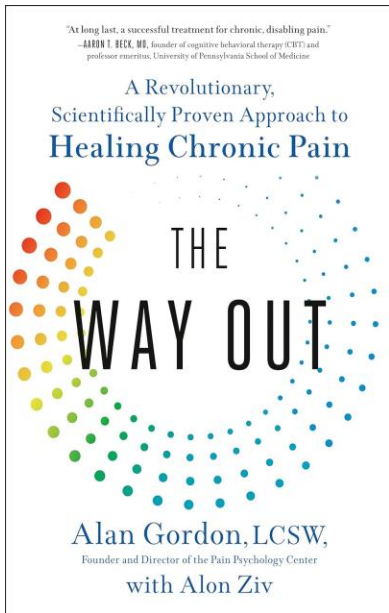
UW Medicine  
PAIN MEDICINE

Washington State  
Health Care Authority

# Resources



# Self-help manuals



# Phone Apps

---



- Meditation
- Mindfulness
- Health tracking
- Anti-inflammatory diet info

# Online resources

---

Miles for Migraines: <https://www.milesformigraine.org/>

Tame the beast (rethink persistent pain): <https://www.tamethebeast.org/>

The Institute for Chronic Pain blog: <https://www.instituteforchronicpain.org/>

Curable Health Blog: <https://www.curablehealth.com/blog>

Pain is weird (Paul Ingraham): <https://www.painscience.com/articles/pain-is-weird.php>

NPR: Pain Reexamined, a New Look at How We Manage

Pain: <https://www.npr.org/series/774347723/pain-reexamined>

Flippin' Pain: <https://www.flippinpain.co.uk/>

# Videos

---

Lorimer Mosely - Why Things Hurt: <https://youtu.be/gwd-wLdIHjs>

Understanding Pain: What to do about it in less than five minutes: <https://www.youtube.com/watch?v=5KrUL8tOaQs>

Joshua W. Pate - The mysterious science of pain: <https://youtu.be/eakyDiXX6Uc>

Lorimer Moseley and Cormac Ryan - Pain: Do You Get It? <https://youtu.be/lQ1w3qoBWLA>

Lorimer Moseley - 7 Amazing Pain Facts that Could Change Your Life: <https://www.youtube.com/watch?v=tAXXKiTpp0U>

One Thing - video series on pain: <https://onething.painsci.org/about/>

Getting a grip on pain and the brain: Lorimer Moseley: [https://www.youtube.com/watch?v=5p6sbi\\_0lLc](https://www.youtube.com/watch?v=5p6sbi_0lLc)

Dr. Howard Schubiner: The Reign of Pain Lies Mostly in the Brain: <https://www.youtube.com/watch?v=0VyH1laOd2M>

Dr. Beth Darnall: Opening the Medicine Box of the Mind: The Psychology of Pain: <https://www.youtube.com/watch?v=ftmryljU-BE>

# Thanks

