



Making Sense of Pain: Going Beyond Tissue Issues and a Passive Treatment Approach

Michael Zabala Aquino, PT, DPT, TPS
Cert. Therapeutic Pain Specialist
(he/him/his)

Today's Goals



- Quick overview of pain neuroanatomy and neurophysiology
- Understand how our thoughts and beliefs affect our pain experience
- Understand the links of stress, anxiety, PTSD and fear with pain
- Understand Active vs. Passive approaches to treating pain
- Why active treatment is necessary for people in pain
- Go over what a psychologically-informed physical therapy evaluation and personalized plan of care for pain looks like

Introductions



A photograph of a paved road with double yellow lines, curving through a dense forest of tall evergreen trees. Sunlight filters through the canopy, creating a bright path of light down the center of the road. The text is overlaid on the upper half of the image.

Learning about Pain

Understanding Pain

Reframing Beliefs
Around Pain

Recovery



“Chronic pain care is a
team sport”

Sean Mackey, MD
Stanford Pain Medicine

OUR INTERDISCIPLINARY TEAM

Pain Physician & Nurses

- Medical/Pharmacological Management
- Opioid Tapering
- Non-opioid based pharmacological treatment

Psychologists, Counselors, Therapists

CBT (Cognitive Behavioral Therapy)

- “Well established and effective treatment that works with thoughts and behaviors to calm down the nervous system and make it less sensitive, so you experience less pain”

ACT (Acceptance & Commitment Therapy)

- “Learning to be comfortable with discomfort”

Physical Therapists

Psychologically-informed PT: Apply principles of CBT, ACT, and MI with the following interventions

- Graded Exposure
- Pain Education
- Pacing
- Graded Motor Imagery
- Sensory Integration Training
- Breathe work
- Movement/Exercise

Wellness Professionals

- Yoga
- Mindfulness/Meditation

False Beliefs

- Pain is purely biomedical and “psychosomatic pain” is made up pain by the mind
- Body is separate from the Mind
- Physical pain is real pain
- Physical pain and emotional pain are different

Chronic pain - the myths



**A scan will give me
a diagnosis**

FALSE

Although an X-ray, CT or MRI scan may occasionally be helpful, findings such as disc degeneration, arthritis, disc bulges and fissures are common in the pain free population and are not necessarily the reason for your pain.



**I am causing damage
if it hurts**

FALSE

The level of pain experienced is often a poor measure of injury or tissue damage. Even if an activity is painful, it is not an accurate sign of doing harm. A physical therapist can help develop a programme for you to move safely.



**Bending and lifting
will make my low
back pain worse**
FALSE

It may be painful to bend and lift with back pain, but developing the mobility and strength to bend and lift is important.

Many types of exercise, including weight training, can bring great benefits.



**I should stay in bed
and rest**

FALSE

Returning to movement and work is better for recovery and preventing recurrence than bed rest.

Immobility and bed rest for more than two days have never been shown to be beneficial.



**Strong pain killers
(opioids) will help
manage my pain**

FALSE

Solutions that focus on opioids for managing pain at best mask people's physical problems and delay or impede recovery and at worst may prove to be dangerous and even deadly.



**Surgery is my only
chance of
improvement**

FALSE

Surgery and interventional procedures have a very limited role, if any, in the management of low back pain.

Only about 1-5% of low back pain is caused by serious disease or injury.



**My pain and limited
function mean there's
nothing I can do**

FALSE

People who catastrophise about the meaning of pain become trapped in a vicious cycle of avoidance behaviour, pain and disability. A physical therapist can help interpret pain and use exercise to break the cycle and reduce pain.

**Exercise therapy is included in all guidelines for the treatment of chronic pain
- ask your physical therapist, the exercise expert**



Movement for Health
World Physical Therapy Day



**World Confederation
for Physical Therapy**

www.wcpt.org



PAIN IS PAIN
AND
ALL PAIN IS REAL

What is 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*

“Pain is a multiple system output, activated by the brain based on perceived threat.”

– *Lorimer Moseley, PhD*

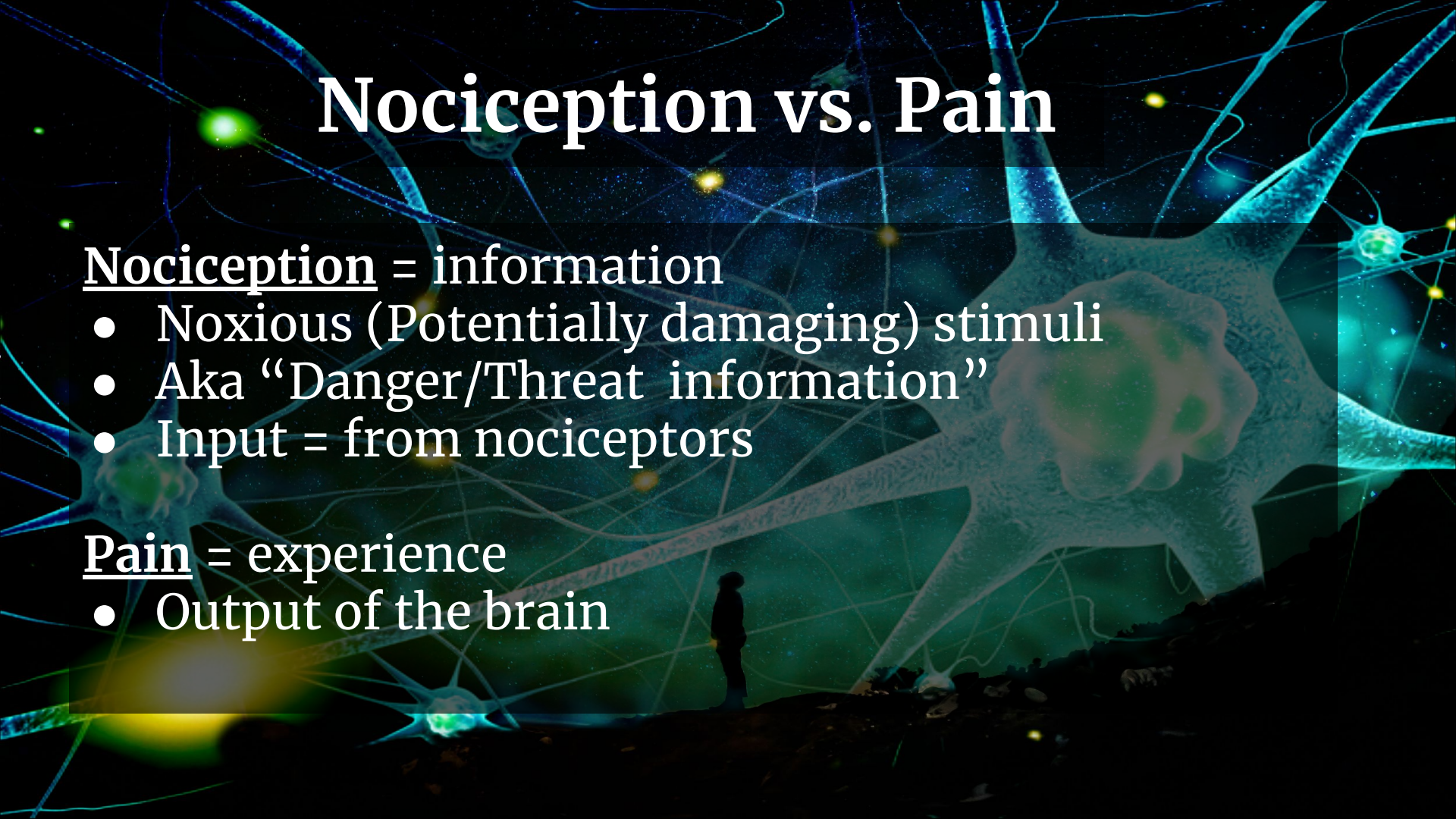
Nociception vs. Pain

Nociception = information

- Noxious (Potentially damaging) stimuli
- Aka “Danger/Threat information”
- Input = from nociceptors

Pain = experience

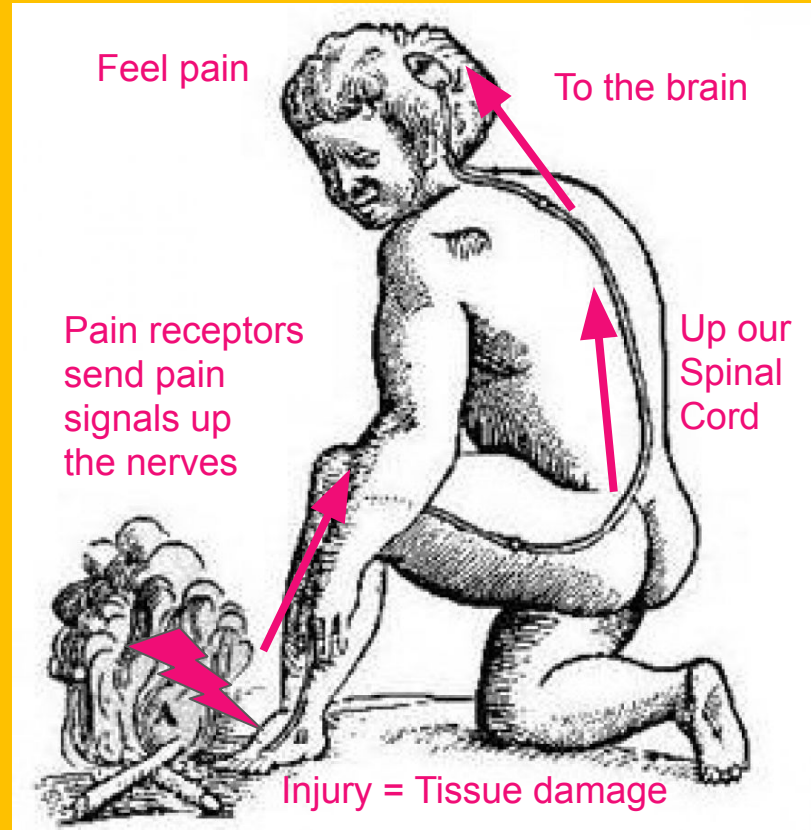
- Output of the brain



Old Understanding Pain

1664, Cartesian Model of Pain = Biomedical Point of View

**PAIN = INPUT
INTO OUR BRAIN**



Passive Treatment as a Primary Treatment



Are Invasive Procedures Effective for Chronic Pain? A Systematic Review

Pain Medicine, 20(7), 2019, 1281–1293

doi: 10.1093/pm/pny154

Advance Access Publication Date: 10 September 2018

Review Article

OXFORD

Wayne B. Jonas, MD,* Cindy Crawford,[†] Luana Colloca, MD, PhD,[‡] Levente Kriston, PhD,[§]
Klaus Linde, MD, PhD,[¶] Bruce Moseley, MD,^{||} and Karin Meissner^{||,***}

Abstract

Objective. To assess the evidence for the safety and efficacy of invasive procedures for reducing chronic pain and improving function and health-related quality of life compared with sham (placebo) procedures. **Design.** Systematic review with meta-analysis. **Methods.** Studies were identified by searching multiple electronic databases, examining reference lists, and communicating with experts. Randomized controlled trials comparing invasive procedures with identical but otherwise sham procedures for chronic pain conditions were selected. Three authors independently extracted and described study characteristics and assessed Cochrane risk of bias. Two subsets of data on back and knee pain, respectively, were pooled using random-effects meta-analysis. Overall quality of the literature was assessed through Grading of Recommendations, Assessment, Development, and Evaluation. **Results.** Twenty-five trials (2,000 participants) were included in the review assessing the effect of invasive procedures over sham. Conditions included low back (N = 7 trials), arthritis (4), angina (4), abdominal pain (3), endometriosis (3), biliary colic (2), and migraine (2). Thirteen trials (52%) reported an adequate concealment of allocation. Fourteen studies (56%) reported on adverse events. Of these, the risk of any adverse event was significantly higher for invasive procedures (12%) than sham procedures (4%; risk difference = 0.05, 95% confidence interval [CI] = 0.01 to 0.09, $P = 0.01$, $I^2 = 65\%$). In the two meta-analysis subsets, the standardized mean difference for reduction of low back pain in seven studies (N = 445) was 0.18 (95% CI = -0.14 to 0.51, $P = 0.26$, $I^2 = 62\%$), and for knee pain in three studies (N = 496) it was 0.04 (95% CI = -0.11 to 0.19, $P = 0.63$, $I^2 = 36\%$). The relative contribution of within-group improvement in sham treatments accounted for 87% of the effect compared with active treatment across all conditions. **Conclusions.** There is little evidence for the specific efficacy beyond sham for invasive procedures in chronic pain. A moderate amount of evidence does not support the use of invasive procedures as compared with sham procedures for patients with chronic back or knee pain. Given their high cost and safety concerns, more rigorous studies are required before invasive procedures are routinely used for patients with chronic pain.

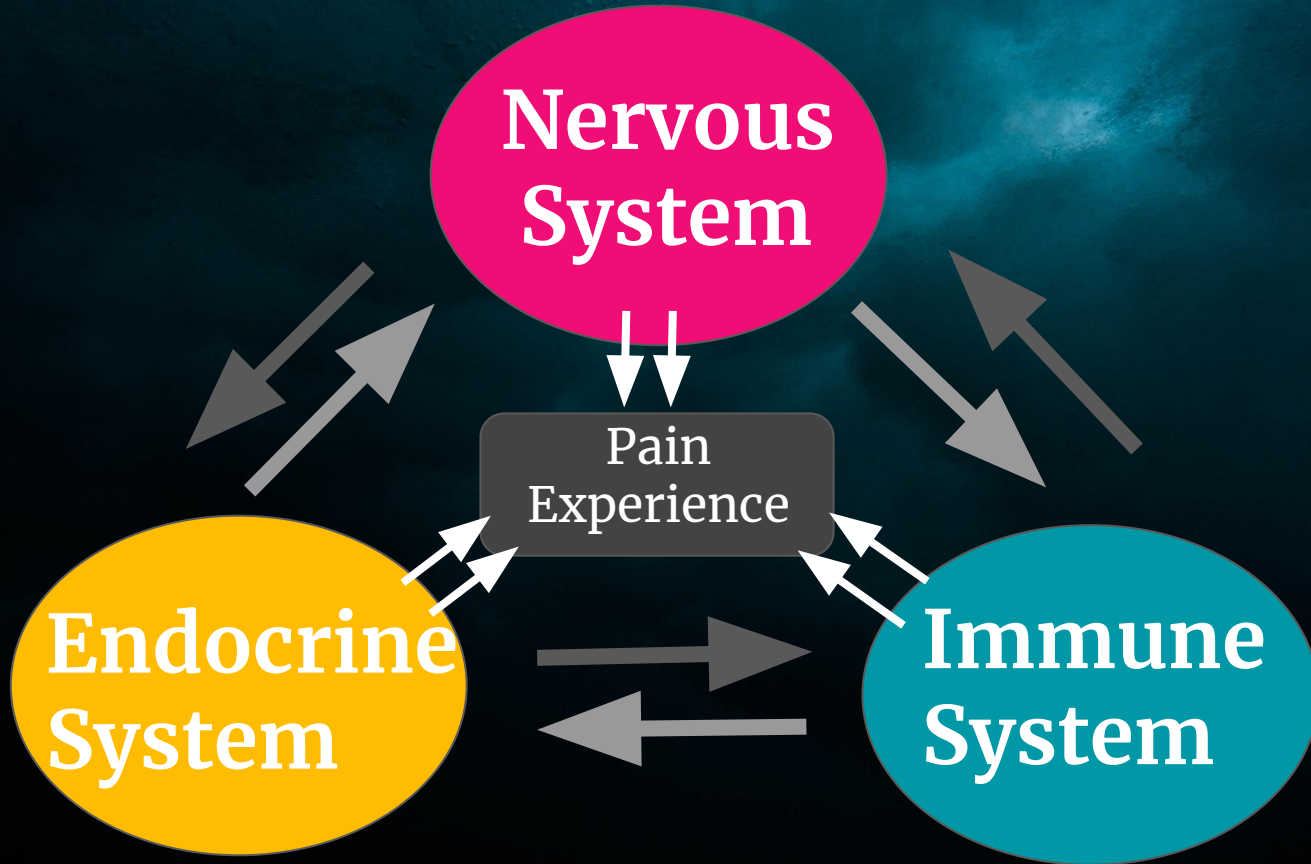
Opioids for Chronic Noncancer Pain

A Systematic Review and Meta-analysis

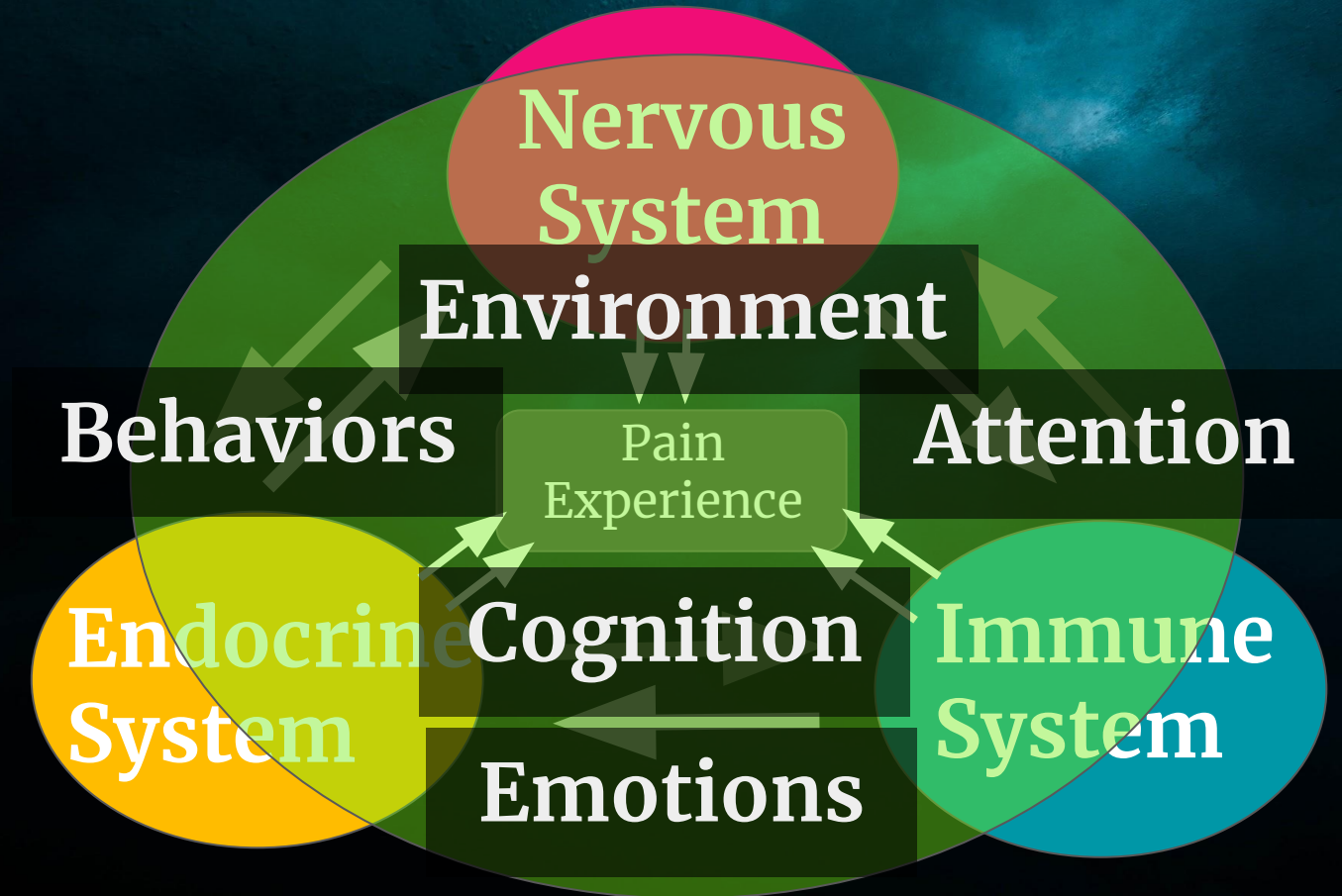
Jason W. Busse, DC, PhD; Li Wang, PhD; Mostafa Kamaleldin, MB BCh; Samantha Craigie, MSc; John J. Riva, DC, MSc; Luis Montoya, DDS, MSc; Sohail M. Mulla, PhD; Luciane C. Lopes, ScD, MSc; Nicole Vogel, PhD; Eric Chen, BHSc; Karin Kirmayr, MD; Kyle De Oliveira, MD; Lori Olivieri, MD; Alka Kaushal, MBBS, DA; Luis E. Chaparro, MD; Inna Oyberman, MD; Arnav Agarwal, MD; Rachel Couban, MA, MSt; Ludwig Tsoi, MBChB; Tommy Lam, MBBS; Per Olav Vandvik, MD, PhD; Sandy Hsu, BA; Malgorzata M. Bala, MD; Stefan Schandelmaier, MD; Anne Scheidecker, MD; Shanil Ebrahim, PhD; Vahid Ashoorion, MD, PhD; Yasir Rehman, MD, MSc; Patrick J. Hong, BMSc; Stephanie Ross, PhD; Bradley C. Johnston, PhD; Regina Kunz, MD, MSc; Xin Sun, PhD; Norman Buckley, MD; Daniel I. Sessler, MD; Gordon H. Guyatt, MD, MSc

CONCLUSIONS AND RELEVANCE In this meta-analysis of RCTs of patients with chronic noncancer pain, evidence from high-quality studies showed that opioid use was associated with statistically significant but **small improvements in pain and physical functioning, and increased risk of vomiting compared with placebo. Comparisons of opioids with nonopioid alternatives suggested that the benefit for pain and functioning may be similar, although the evidence was from studies of only low to moderate quality.**

Pain = Multisystem output



Pain = BioPsychSocial Experience



Pain and the Nervous System

- PERIPHERAL NERVOUS SYSTEM
 - OVER 400 DIFFERENT NERVES SPAN 45 MILES
 - SENSORY RECEPTORS (“SENSORS”)
 - “DANGER ALARM”
 - TEMPERATURE, STRESS, MOVEMENT, IMMUNE, BLOOD FLOW
- CENTRAL NERVOUS SYSTEM
 - SPINAL CORD
 - BRAIN

(LOUW A. WHY DO I HURT? 2013)



Alarm System

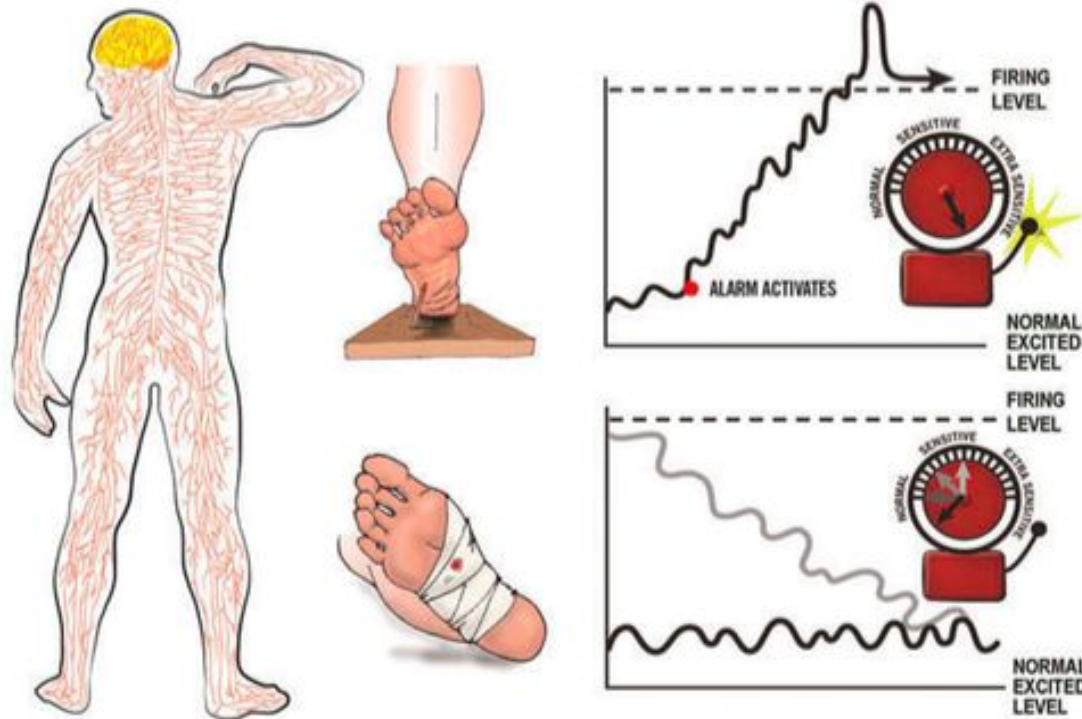


Figure 1. Metaphorical explanation of the nervous system as an alarm system during nociceptive activation (Images with permission from Louw, 2013).

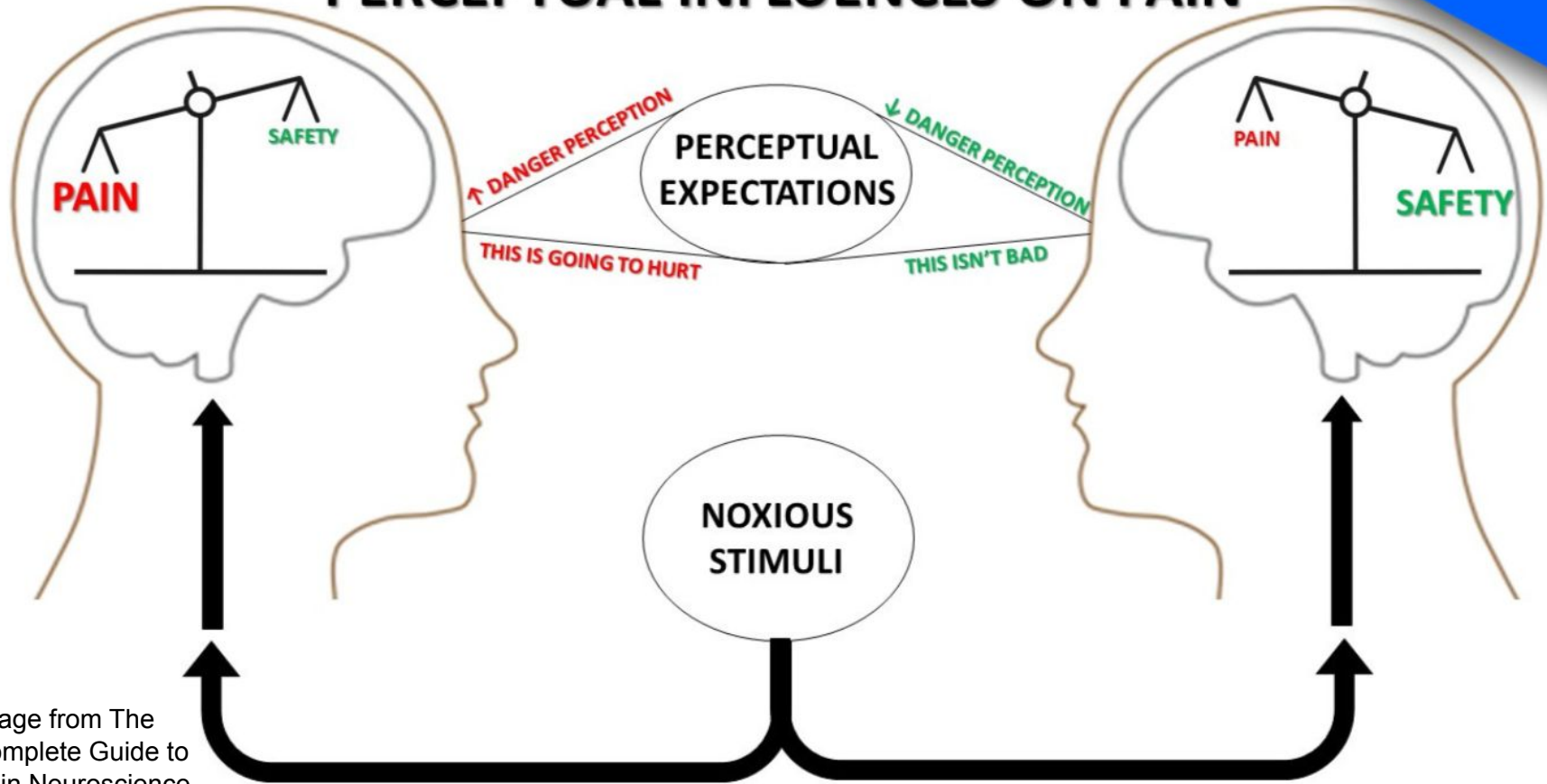
Louw A, Zimney K, O'Hotto C, Hilton S. The clinical application of teaching people about pain. *Physiotherapy Theory & Practice* [serial online]. July 2016;32(5):385-395. Available from: CINAHL Plus with Full Text, Ipswich, MA. Accessed March 22, 2017.

A photograph of a koala mother and her joey in a tree. The mother koala is curled up on a thick, brown tree branch, holding her joey in her arms. The joey is looking out towards the camera. The background is filled with green leaves and branches, creating a natural, forest-like setting.

What is pain's purpose?

Pain is a PROTECTOR

PERCEPTUAL INFLUENCES ON PAIN



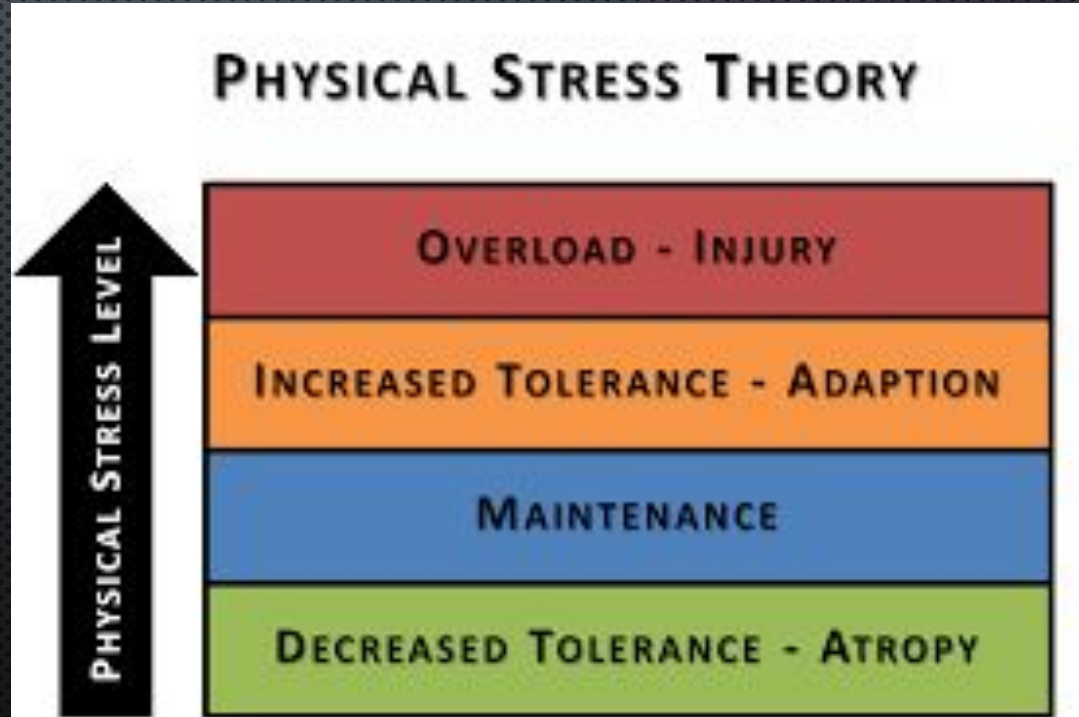
FACTORS THAT INFLUENCE THE ALARM SYSTEM

- ## • NON-PHYSICAL STRESSORS



FACTORS THAT INFLUENCE THE ALARM SYSTEM

- PHYSICAL STRESSORS

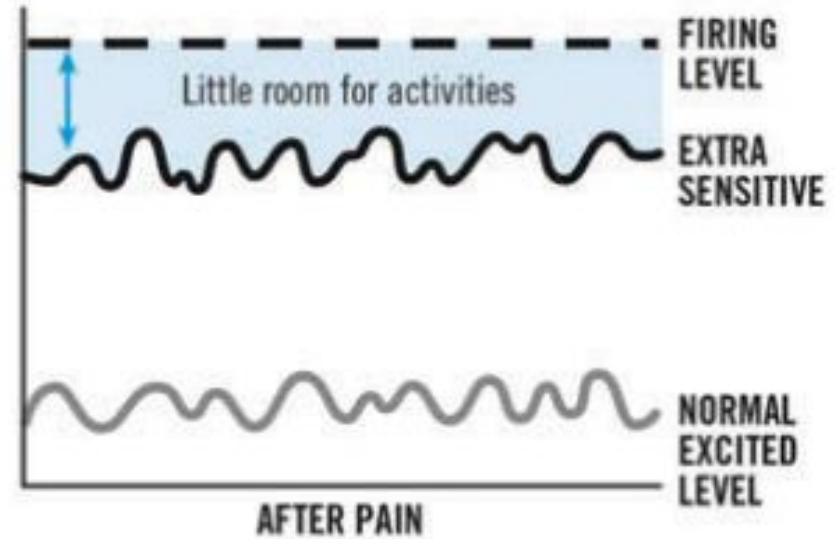
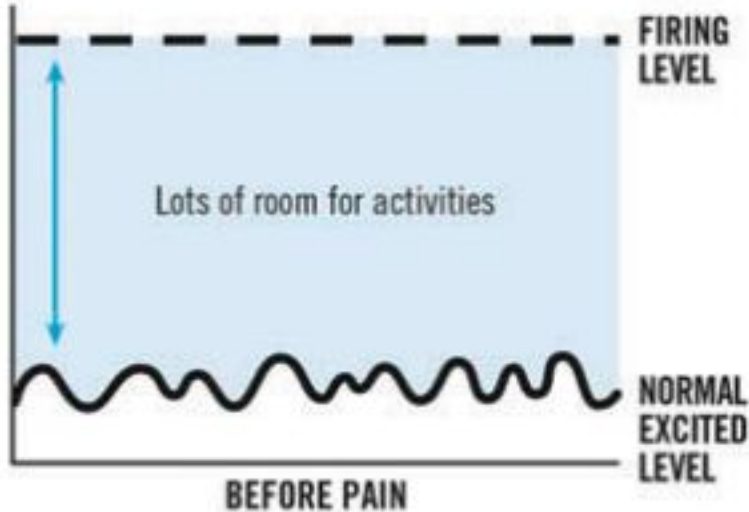




Pain becomes problematic when it lasts longer than it's supposed to and it no longer serves as a protector.



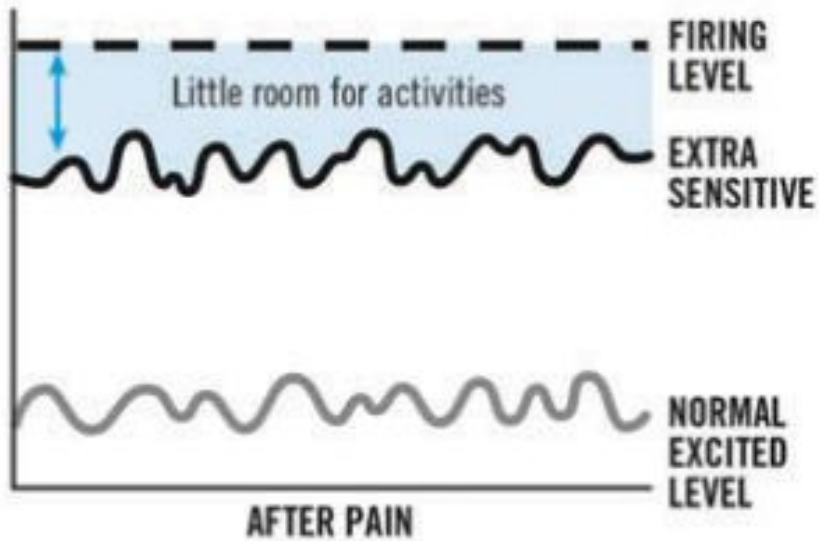
Highly Sensitive / Overactive Alarm System



Louw A, Zimney K, O'Hotto C, Hilton S. The clinical application of teaching people about pain. *Physiotherapy Theory & Practice* [serial online]. July 2016;32(5):385-395. Available from: CINAHL Plus with Full Text, Ipswich, MA. Accessed March 22, 2017.



What makes it stay so overactive/sensitive?



Yellow Flags

Belief work is harmful Unwelcoming Environment

Family Issues Different or Conflicting Explanations

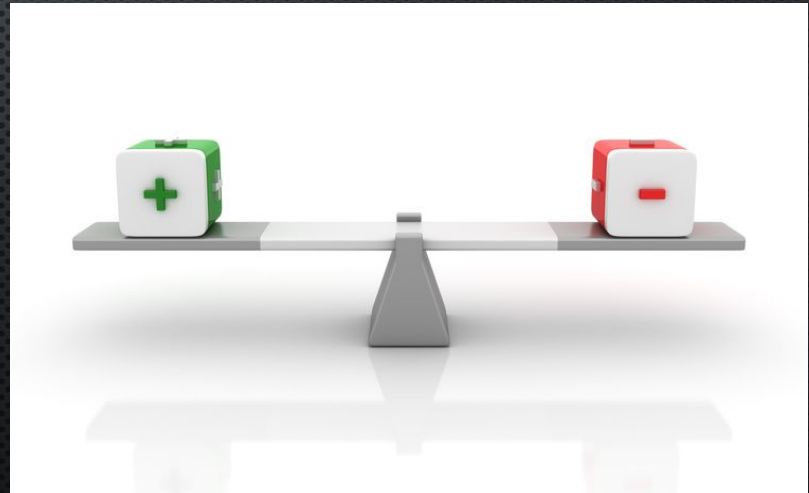
Fear & Anxiety

Failed Treatments Pain does not go away

Louw A, Zimney K, O'Hotto C, Hilton S. The clinical application of teaching people about pain. *Physiotherapy Theory & Practice* [serial online]. July 2016;32(5):385-395. Available from: CINAHL Plus with Full Text, Ipswich, MA. Accessed March 22, 2017.

THE SUSTAINED OVERACTIVE ALARM

- THREATS/DANGERS IN ME (DIMS)
 - JOINT SOUNDS, IMAGING*, FAULTY BELIEFS, FEAR, ANXIETY, ACUTE INFLAMMATION*
- SAFETY IN ME (SIMS)
 - IMAGING*, TISSUE HEALING, PAIN SCIENCE, SOCIAL SUPPORT, ACUTE INFLAMMATION*



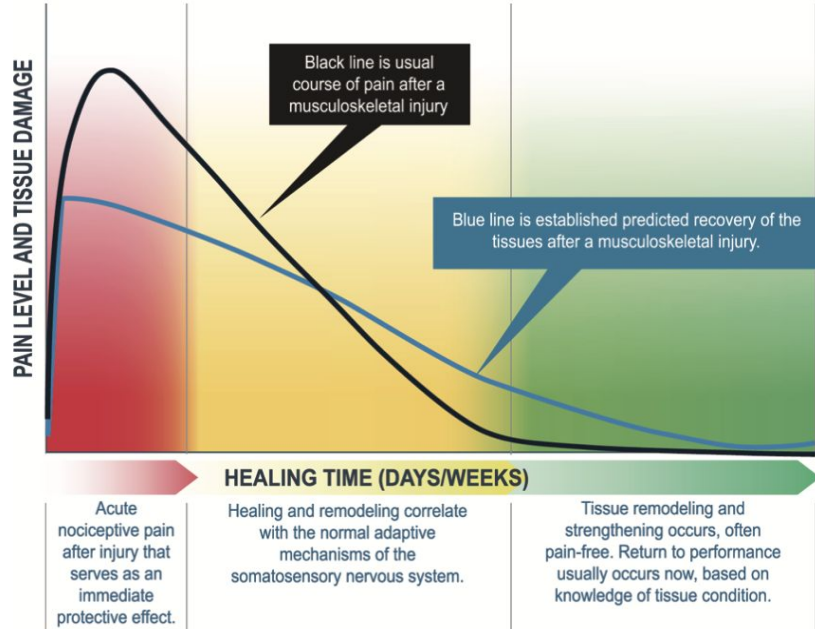
TISSUE ISSUE VS PAIN ISSUE

Pain in elite athletes—neurophysiological, biomechanical and psychosocial considerations: a narrative review

Brian Hainline,¹ Judith A Turner,² J P Caneiro,³ Mike Stewart,⁴ G Lorimer Moseley⁵

Review

Normal Injury and pain time points after injury.



Prolonged pain despite normal tissue recovery after injury.

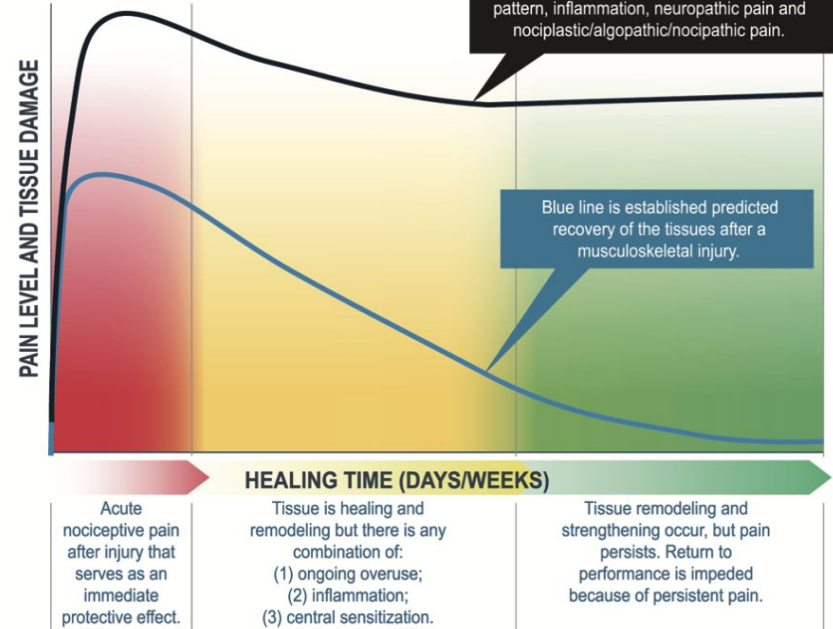


Figure 1 Schematic diagram demonstrating pain levels over time influenced by differing contributors to pain.

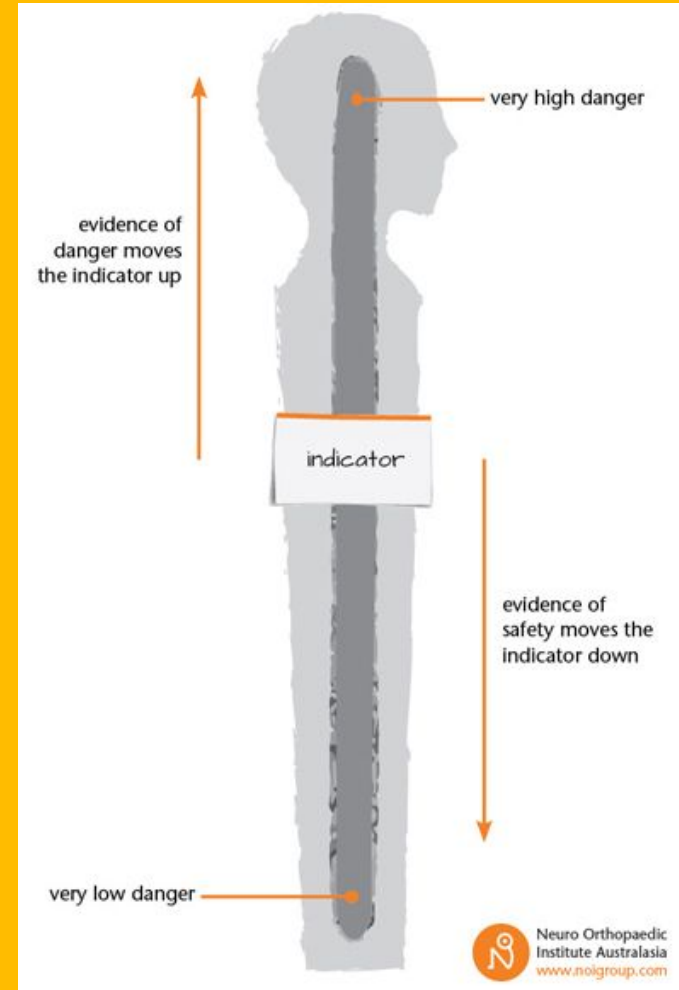
Activity: Protectometer

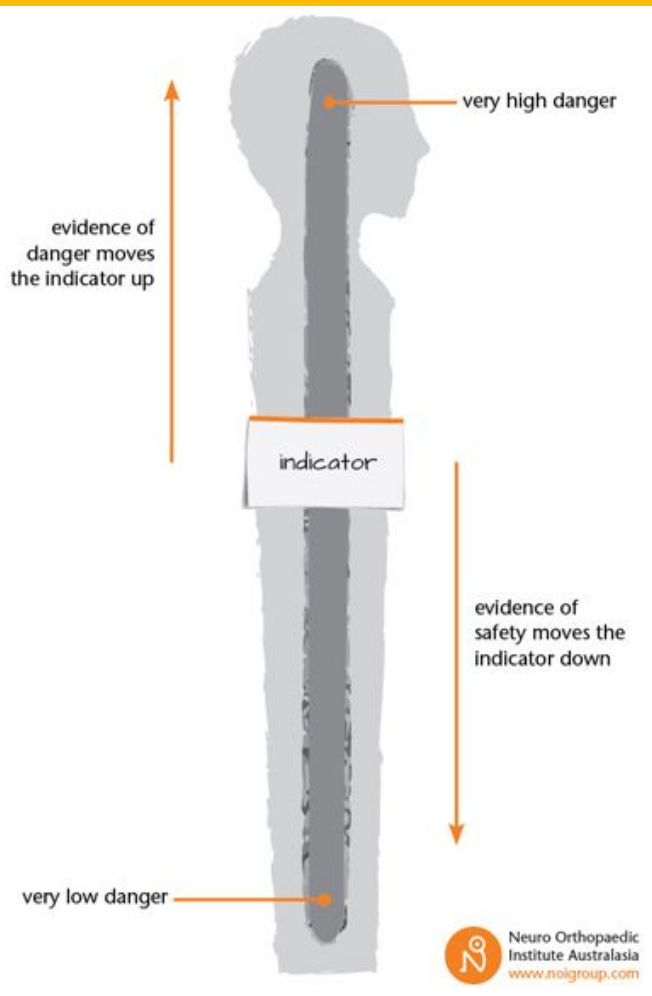
DIMs (“Danger in Me”)

- Beliefs that promote danger in our bodies

SIMs (“Safety in Me”)

- Beliefs that promote safety in our bodies

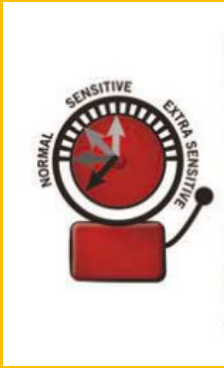




<https://noijam.com/2015/03/12/dim-sims/>

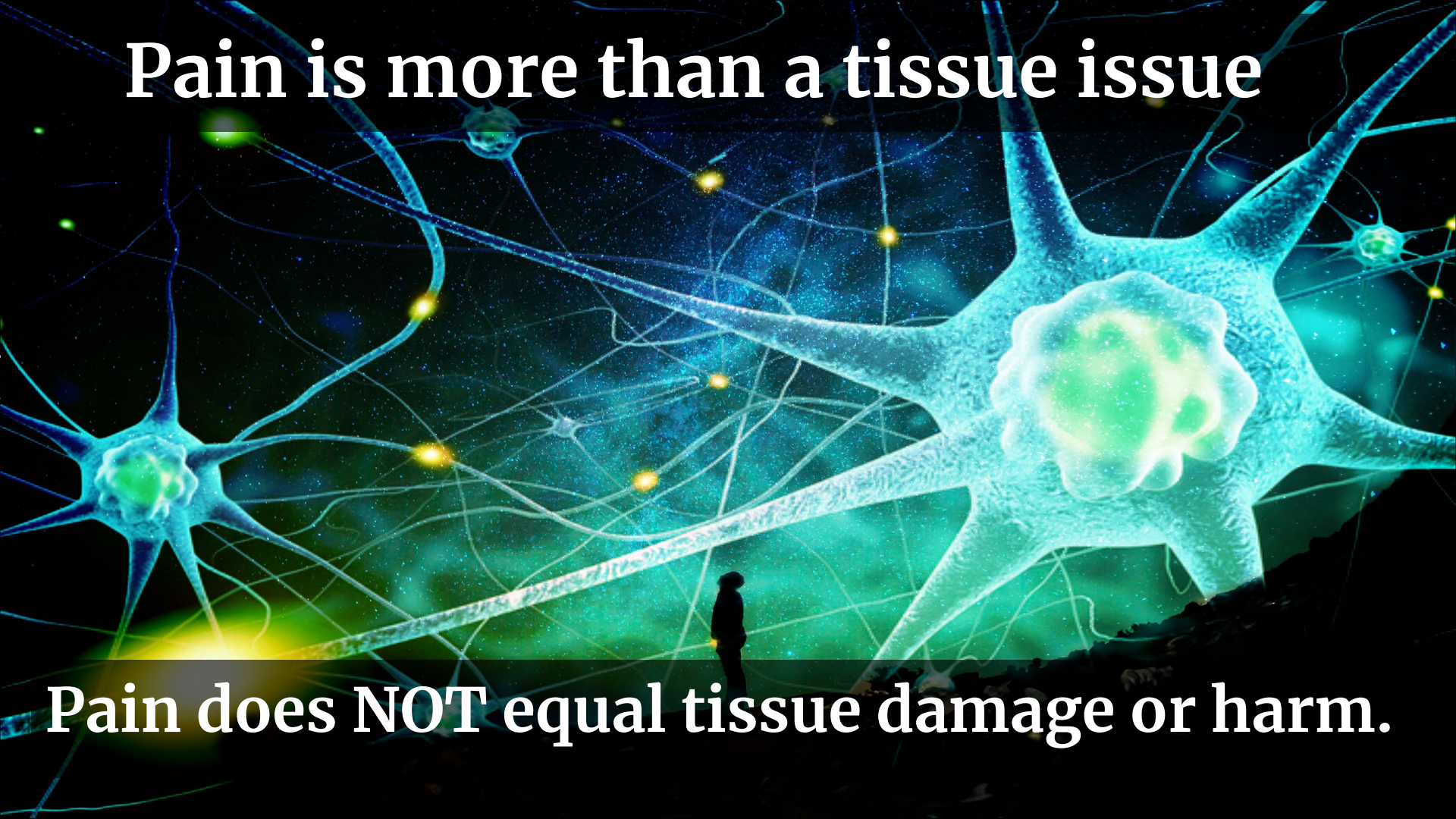






What's in your cup?



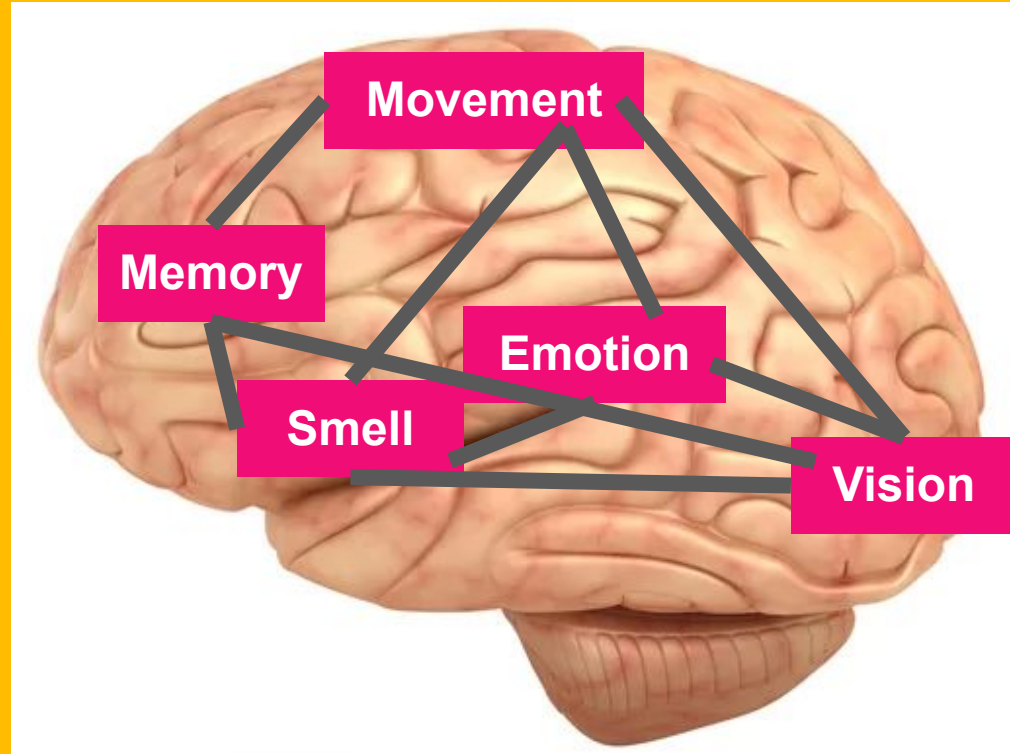


Pain is more than a tissue issue

Pain does NOT equal tissue damage or harm.

Think about a loved one....

How would you describe the sensation your feeling as you think about them?



No such thing as a pain area in our brain

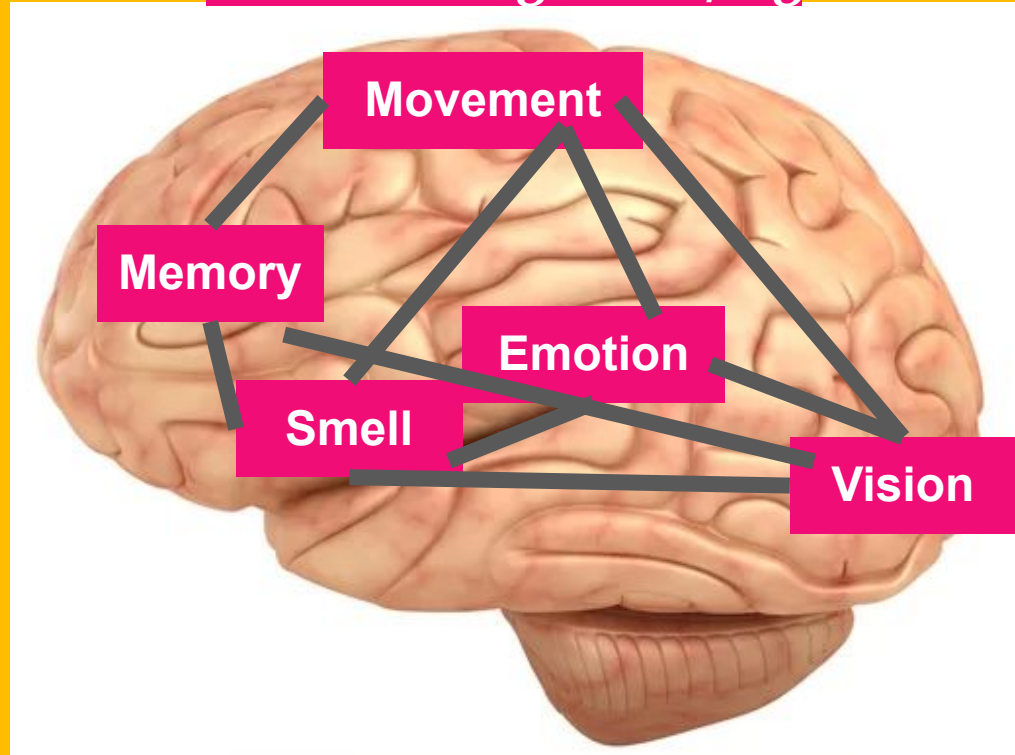
Pain takes over different areas of our brain

Different areas of our brain are responsible for different functions

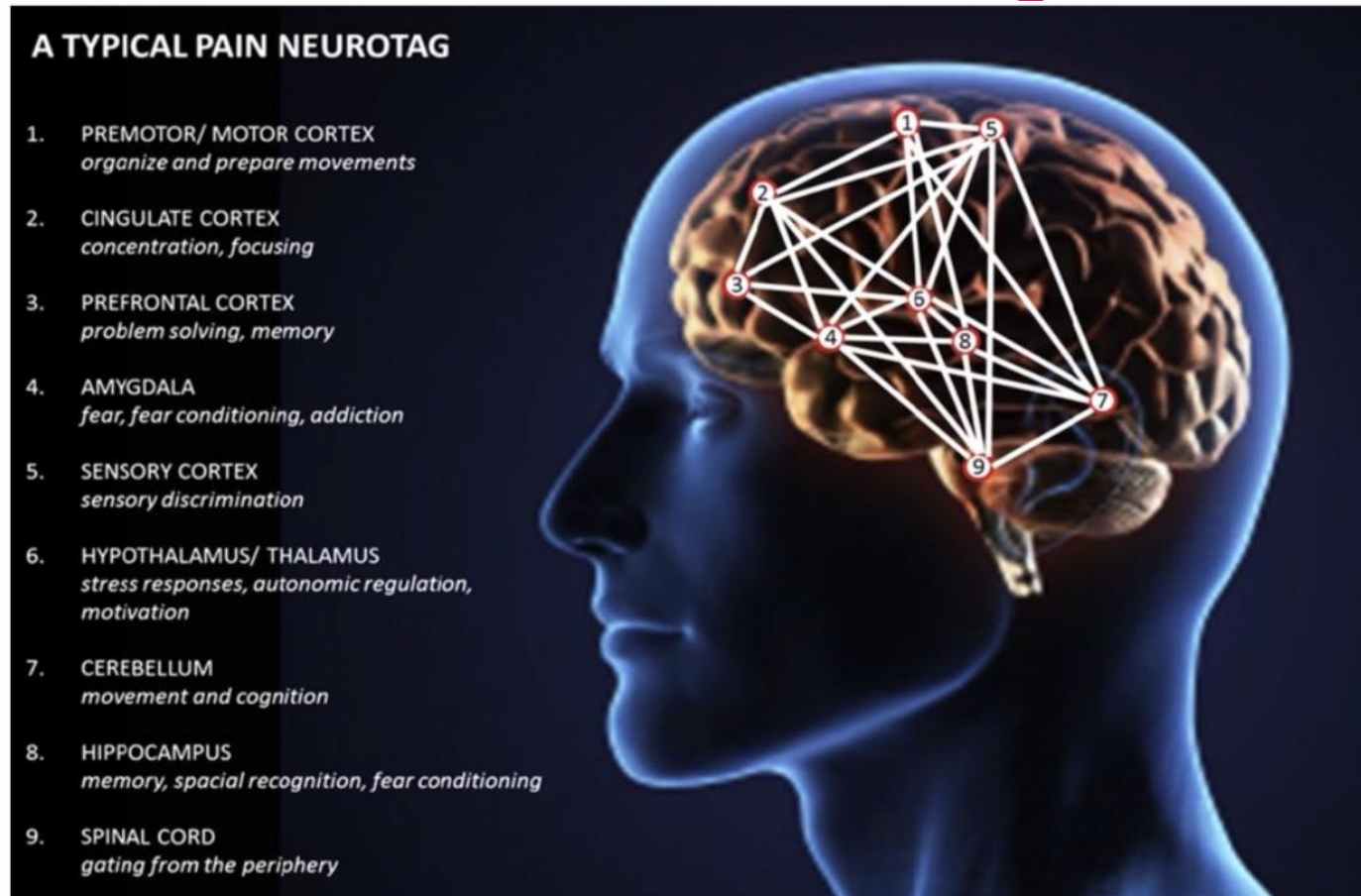
9 major areas in the brain that have been shown to light up on MRI

To what extent, varies on the person

Pain Neurosignature/tag



9 Major Areas (aka **Pain Neuro Signature/Tag**):



**Pain
Map**

Fig. 5. Various areas of the brain commonly associated with the development of a pain neural signature or 'neurotag'. Re-drawn from Butler & Moseley, 2011.

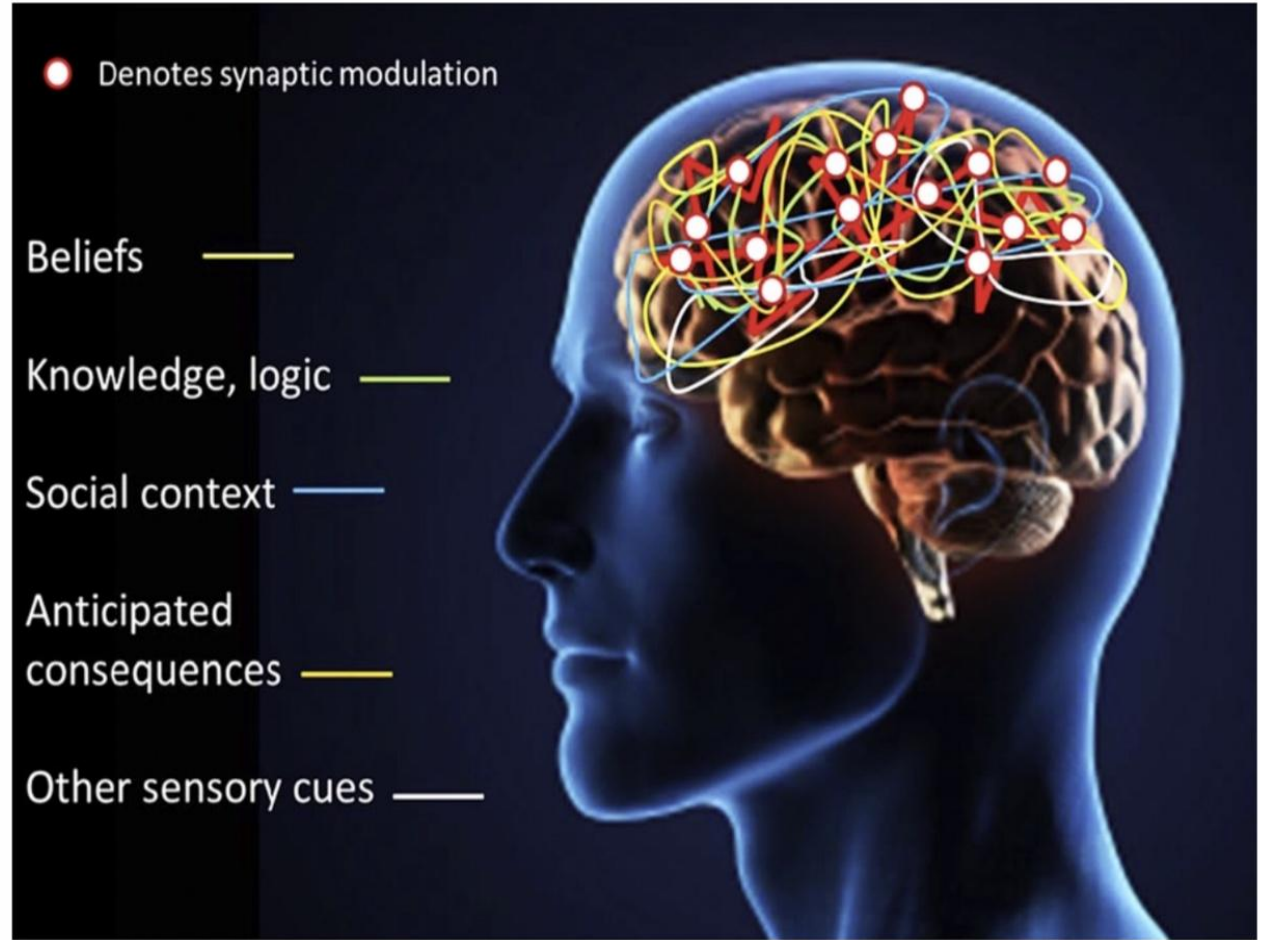


Fig. 6. Constituent maps alongside the pain neuromatrix or 'neurotag'. From Moseley, personal communication.



Your pain experience is unique to you.

No person experiences pain the exact same way you do.

Mature Organism Model

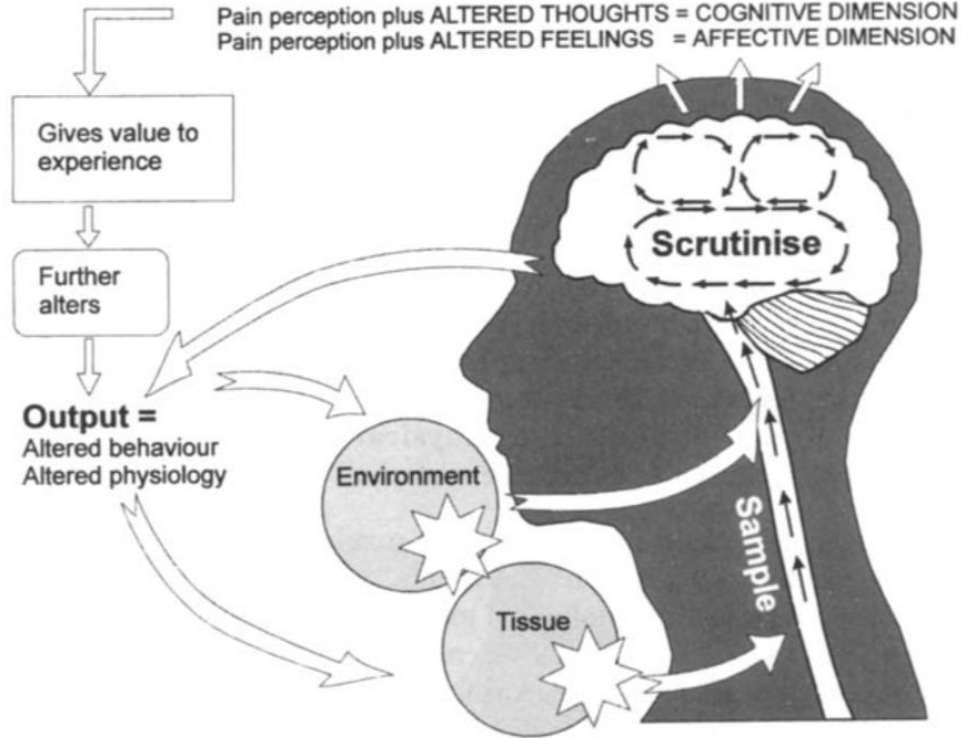


Fig 3: Injury and the mature organism model, showing the brain sampling itself and how the contents of our brains that represent such attributes as experience, beliefs and culture will influence the output system activity

Fig 3: Injury and the mature organism model, showing the brain sampling itself and how the contents of our brains that represent such attributes as experience, beliefs and culture will influence the output system activity

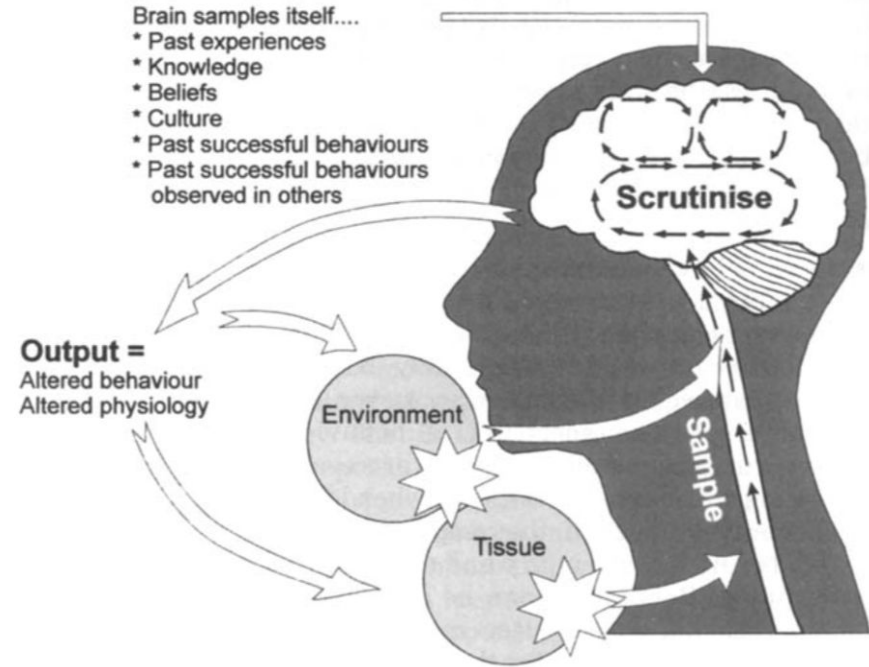
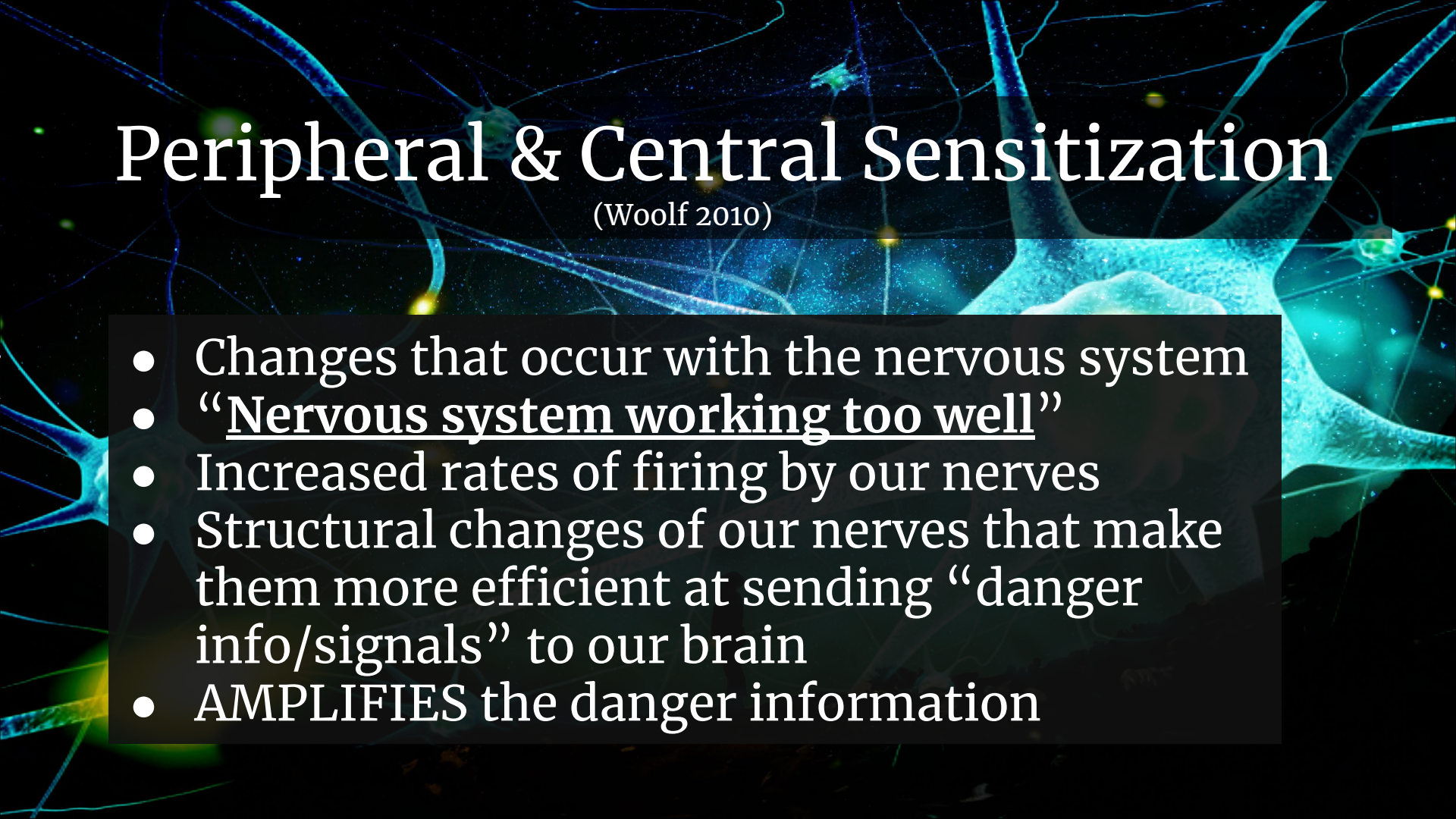


Fig 4: Injury and mature organism model: As a result of tissue sampling, environment sampling and self sampling, the brain/CNS produces appropriate thoughts and feelings. These perceptual 'outputs' of the brain give value to the injury experience and hence further influence the activity of the physiological and behaviourally related output systems involved in survival and recovery

Peripheral & Central Sensitization



(Woolf 2010)

- Changes that occur with the nervous system
- “Nervous system working too well”
- Increased rates of firing by our nerves
- Structural changes of our nerves that make them more efficient at sending “danger info/signals” to our brain
- AMPLIFIES the danger information

Mature Organism Model

Brain/CNS cont. sampling (consciously & unconsciously):

- Outside environment
- Its own body
- Relevant past experiences (samples from “itself”)

Produces Outputs/Responds based on what it finds to be most advantageous

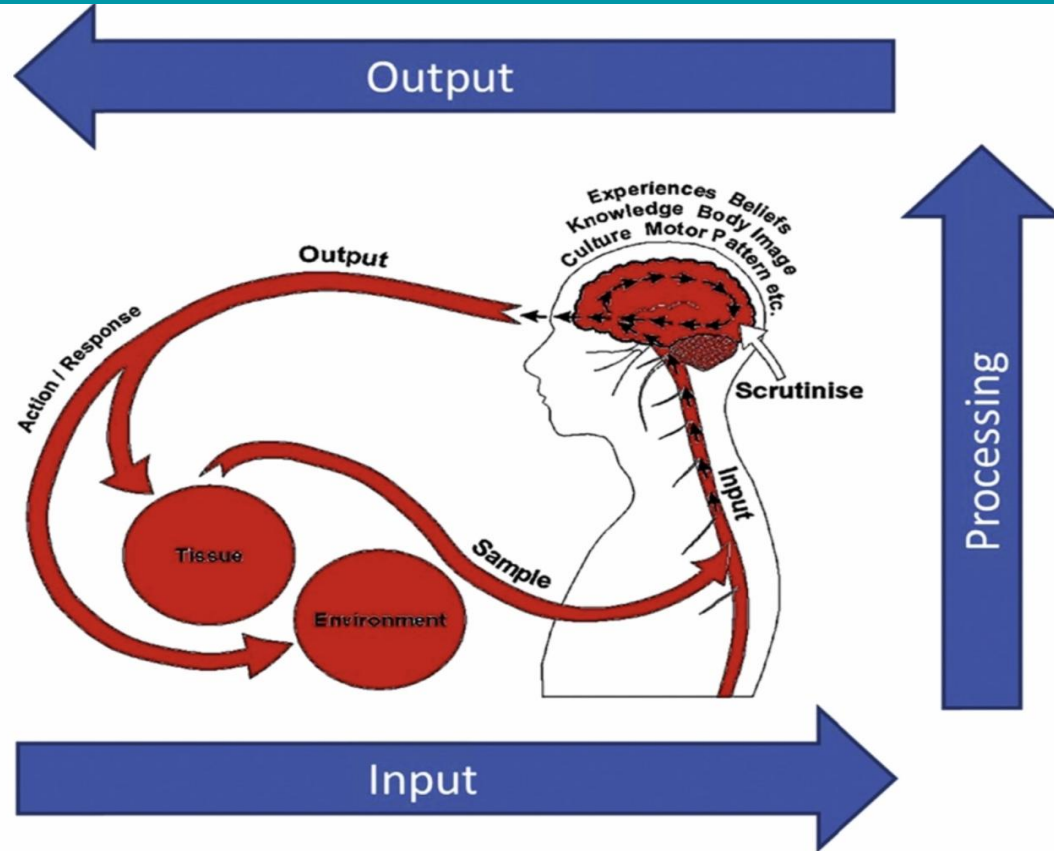
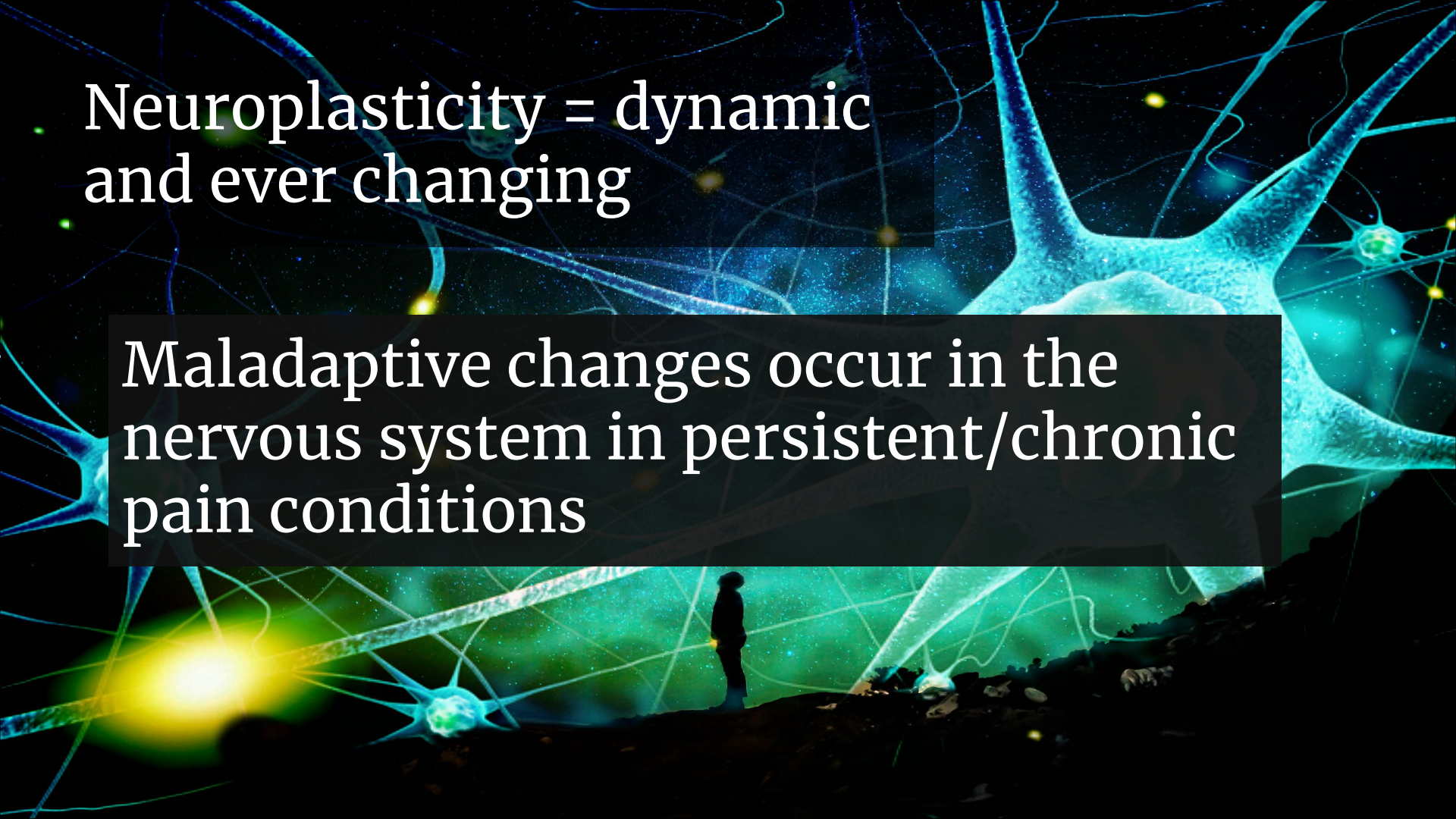


Fig. 4. A pain mechanism model. From Gifford (1998).



Neuroplasticity = dynamic
and ever changing

Maladaptive changes occur in the
nervous system in persistent/chronic
pain conditions

Smudging of the Body Map

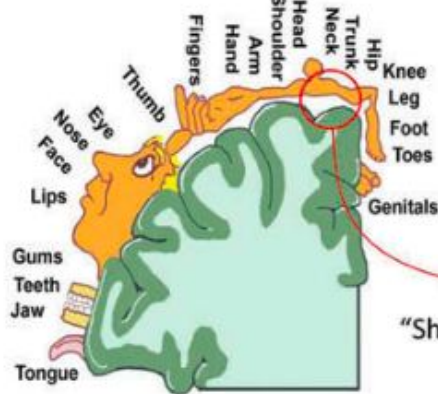
- **Body schema** = brain's dynamic representation of the body (body map), sculpted by exteroceptive and interoceptive experiences.
- **Representational body maps are dynamically maintained in the brain (e.g., neuroplasticity)** and are negatively influenced by neglect, decreased movement, and pain (Maihöfner, Handwerker, Neundörfer, and Birklein, 2003).
- **Impairments in laterality judgements** (identifying a body part as being oriented to the left or right)
 - o Considered dependent on an intact body schema in the sensorimotor areas of the cortex (Bowering, Butler, Fulton, and Moseley, 2014; Bray and Moseley, 2011; Elsig et al, 2014; Moseley, 2004b).

Smudging the Body Map



Somatosensory cortex

"Smudged" or out of focus

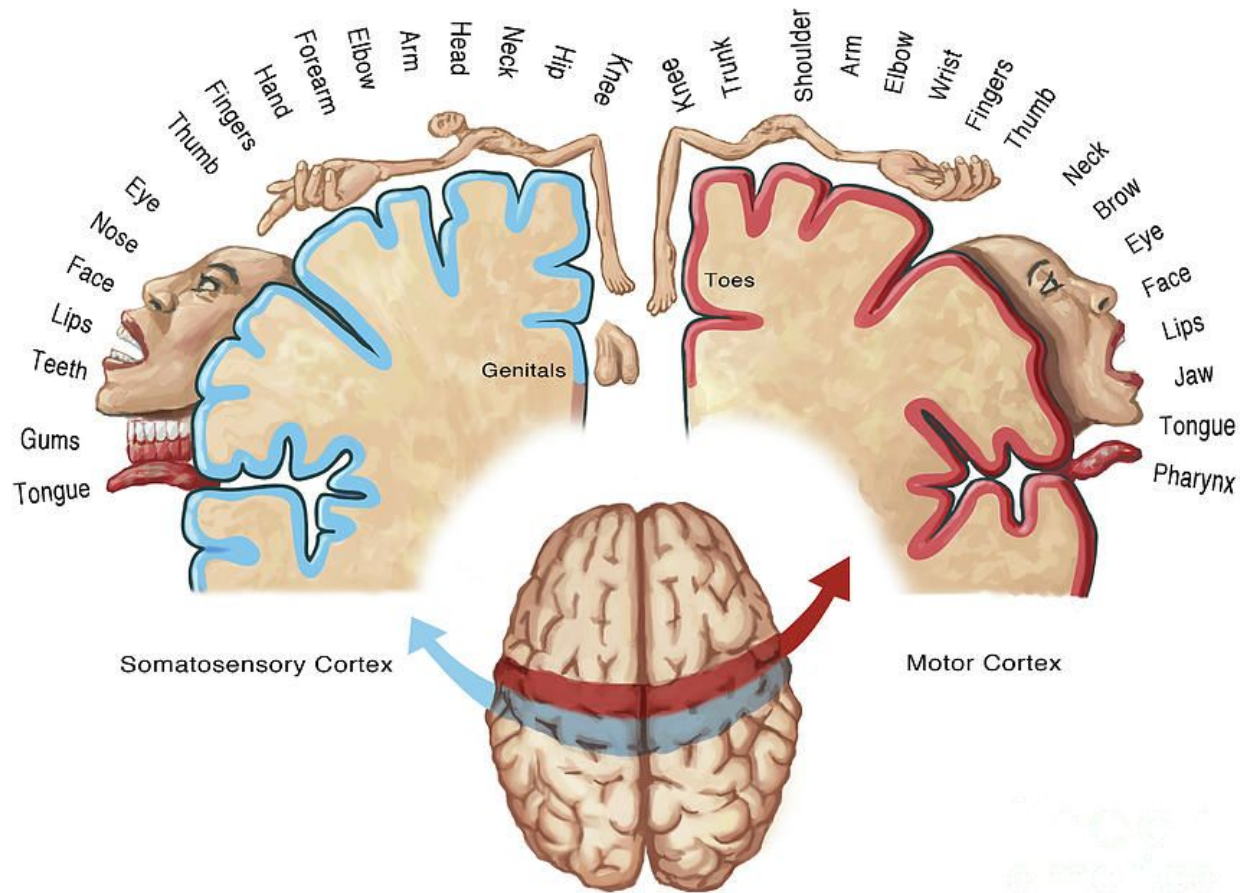


Somatosensory cortex

"Sharp" or in focus







Fear Avoidance Model

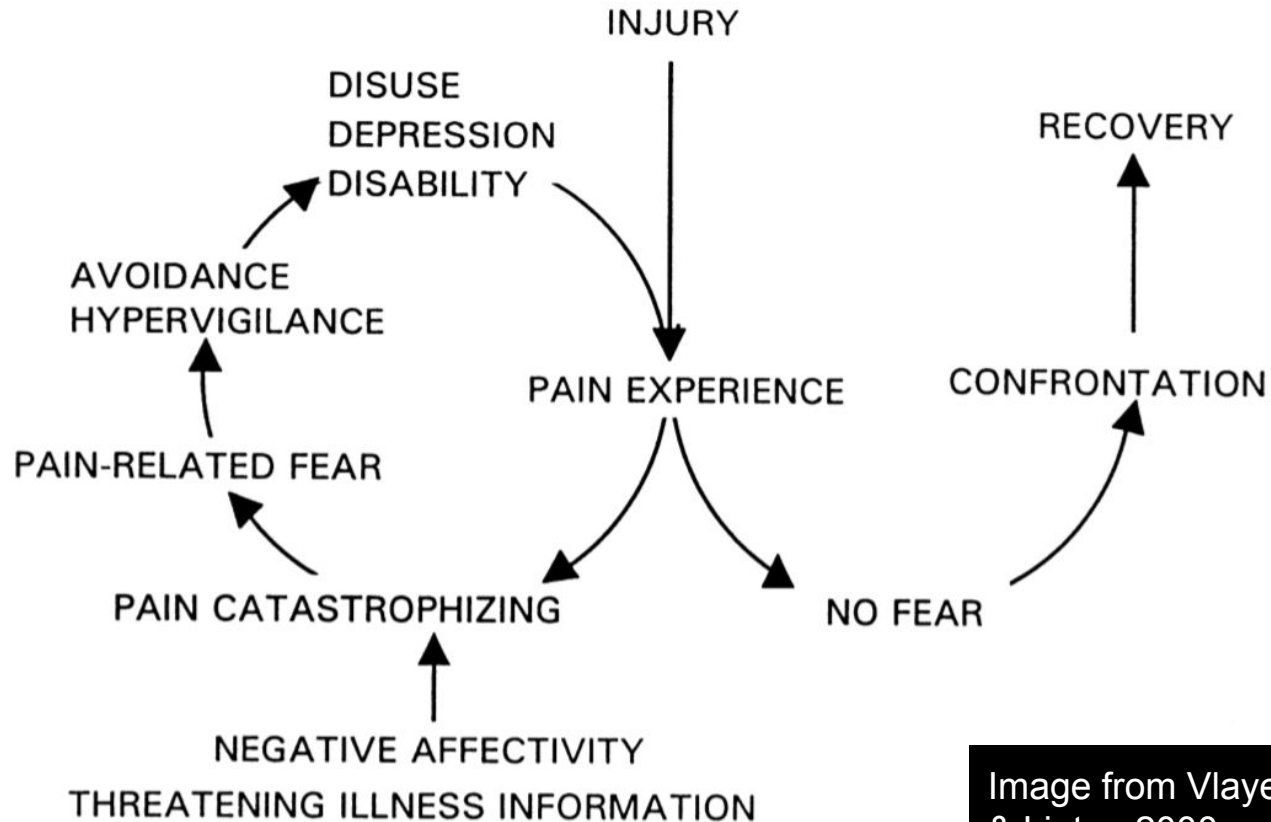


Image from Vlaeyen
& Linton 2000

Anxiety, Stress, & Pain

(Hannibal & Bishop 2014)

Long-term stress has been shown to reduce the effect the cortisol awakening response and contribute to morning fatigue, pain, and inflammation.

Cortisol promotes dendritic growth and strengthens synaptic connectivity in the amygdala to facilitate the formation of fear-based emotional memories by increasing glutamate levels, up-regulating NMDA receptors, potentiating prolonged calcium uptake, and increasing levels of brain-derived neurotrophic factor (BDNF)

Why does language matter?

(Hannibal & Bishop 2014)

Human studies have demonstrated that cortisol levels rise in anticipation of a stressful event and elevations vary by magnitude of perceived threat.

- A **verbally induced nocebo effect** (whereby negative expectation enhances the pain experience) was shown to elicit an **increase in pain intensity and cortisol secretion** during laboratory-induced ischemic pain, and nocebo-induced pain (but not ischemic pain alone)
- successfully reversed with diazepam, a common anti-anxiety medication

Anxiety, Stress, & Pain

(Hannibal & Bishop 2014)

Exaggerated psychological responses (eg, catastrophizing) following maladaptive cognitive evaluations of potential stressors as threatening

- May exacerbate cortisol secretion
- Facilitate the consolidation of fear-based memories of pain or non–pain-related stressors;
 - Coping, cognitive evaluation, or confrontation of stressors may minimize cortisol secretion and prevent chronic, recurrent pain.

Effects of Anxiety & Stress

(Hannibal & Bishop 2014)

Signs and symptoms of stress-induced cortisol dysfunction include

- bone and muscle breakdown
- fatigue, depression
- Pain
- memory impairments
- sodium-potassium dysregulation
- orthostatic hypotension
- impaired pupillary light reflex.

Depression & Pain

H. Breivik et al. / Scandinavian Journal of Pain 5 (2014) 1–3

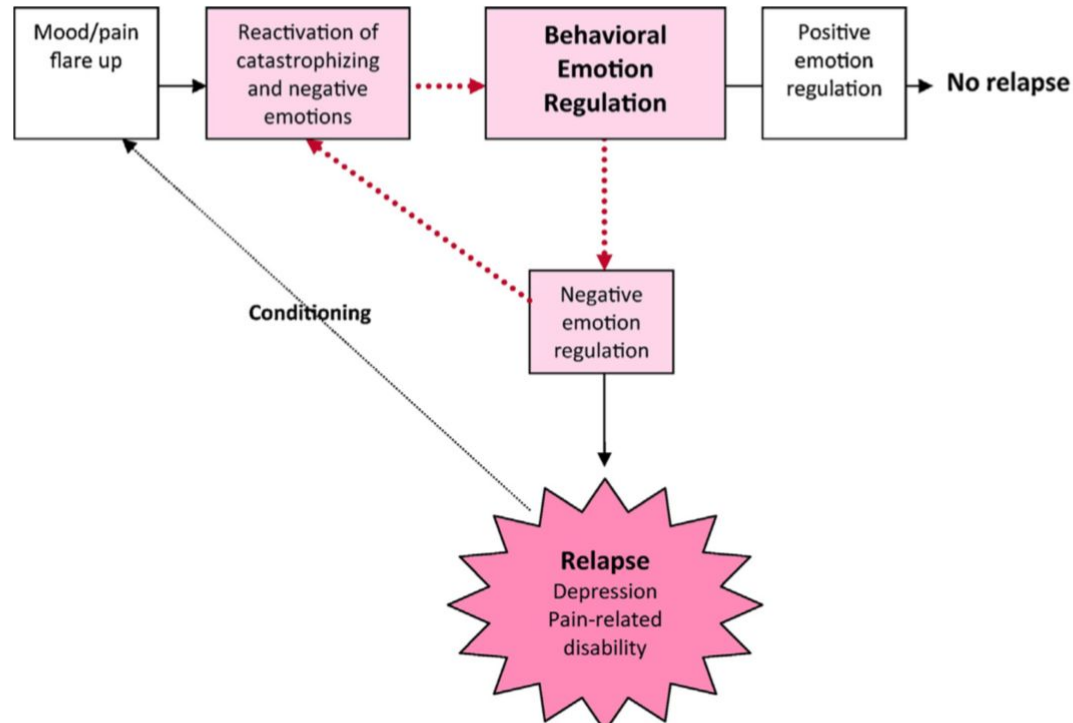


Fig. 1. The Örebro model of behavioural emotion regulation for pain highlights the role of catastrophizing, negative affect, and emotion regulation in relapse of pain and/or depression. Note that there are two vicious circles whereby catastrophizing increases negative emotion and more catastrophizing (pink dotted arrows) increasing the likelihood of relapse, and a second which underscores that a relapse is linked through learning to the trigger and in turn linked to emotion regulation making a relapse more probable in the future.

From: Linton SJ, Bergbom S. Understanding the link between depression and pain. *Scand J Pain* 2011;2:47–54 [5] with permission.

Pain does NOT equal tissue damage

Spinal degeneration in asymptomatic populations:

33 articles with a total 3110 asymptomatic individuals

○ Disc Degeneration

- 37% of 20 yo
- 96% of 80 yo

○ Disc bulge

- 30% of 20 yo
- 84% of 80 yo

○ Disc protrusion

- 29% of 20 yo
- 43% of 80 yo

○ Annular fissure

- 19% of 20 yo
- 29% of 80 yo

Review

Peripheral Nerves $\Leftrightarrow$ Spinal Cord $\Leftrightarrow$ Brain

Nociceptors = “Danger” sensing receptors

- Detect potentially damaging stimuli
- We do NOT have pain receptors in our tissues
- Carries danger information to our brain
- Brain processes info => OUTPUT of pain

Does it make sense to use passive intervention as a primary form of treatment for chronic pain?

Internal health locus of control as a predictor of pain reduction in multidisciplinary inpatient treatment for chronic pain: a retrospective study

Elia Zuercher-Huerlimann^{1,2}

Julian A Stewart^{1,3}

Niklaus Egloff¹

Roland von Känel⁴

Martina Studer^{1,3}

Martin grosse Holtforth^{1,3}

¹Division of Psychosomatic Medicine, Department of Neurology, Inselspital, Bern University Hospital, Bern, Switzerland;

²Department of Psychology, University of Zurich, Zurich, Switzerland; ³Department of Psychology, University of Bern, Bern, Switzerland; ⁴Department of Consultation-Liaison Psychiatry and Psychosomatic Medicine, University Hospital Zurich, Zurich, Switzerland

Plain language Summary

Suffering from chronic pain is a widely spread health problem, and has a large impact on physical functioning and quality of life. Multidisciplinary therapy represents an individual combination of physical therapy, medication, surgical treatment, relaxation therapy as well as psychological interventions and psychotherapy.

Some patients do not satisfyingly profit from their treatments, so that the search for outcome predictors becomes particularly important. Earlier studies have found evidence that physical and mental health can be influenced by a person's beliefs about what is affecting and controlling his or her health. These beliefs can be internal, when patients see themselves in control, or external, when they feel medical experts or luck and fate being in control.

In our study with 225 inpatients in multidisciplinary therapy for chronic pain, we were interested in how the patients' control beliefs impact their pain intensity after treatment. We found a positive effect of higher internal control beliefs on reduction in pain intensity, whereas external control beliefs did not show an association. Hence, believing in having control over health appears to be helpful when undergoing a chronic pain treatment.

For health care providers it may be important to explore, and if needed to strengthen their patients' beliefs of control over their health to optimally profit from their treatment.

Passive Treatment vs. Active Treatment

Passive

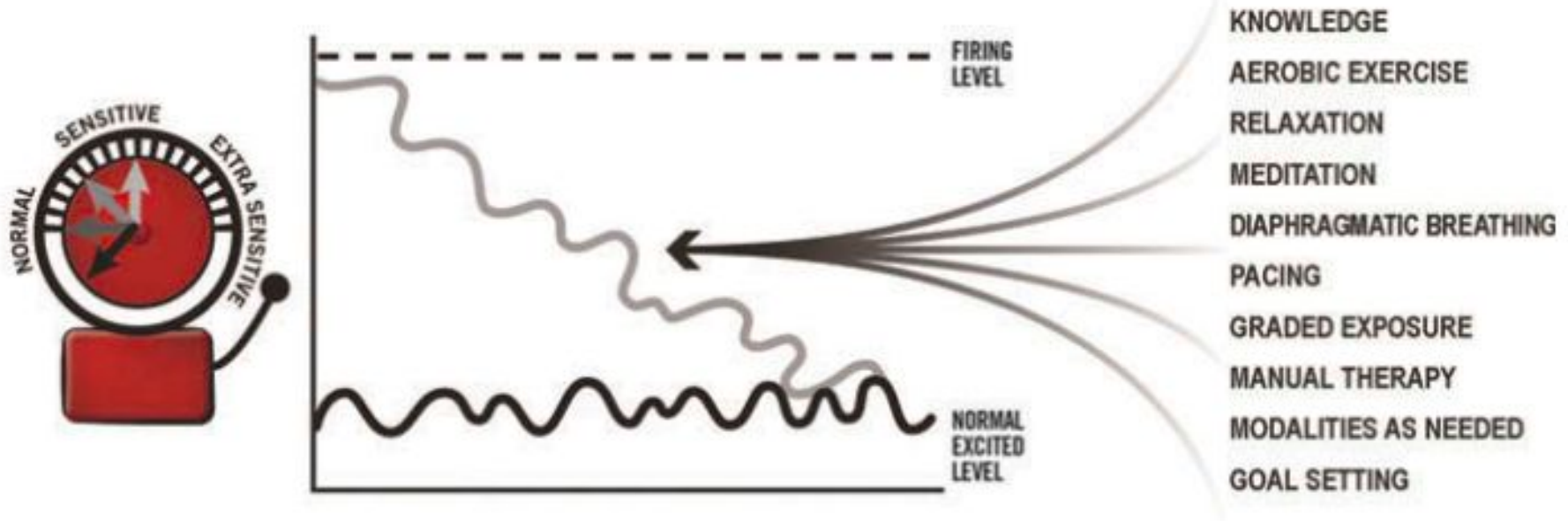
- Promotes an External Locus of Control (helplessness)
- Promotes dependence on healthcare provider or intervention
- Greater or higher-cost
- Temporary relief

Active

- Promotes an Internal Locus of Control (self-belief)
- Improves self-efficacy
- Low-cost
- Provides continual relief through development of strategies

Active Problems require Active Solutions

Treating Pain Starts with Calming Down the Alarm System



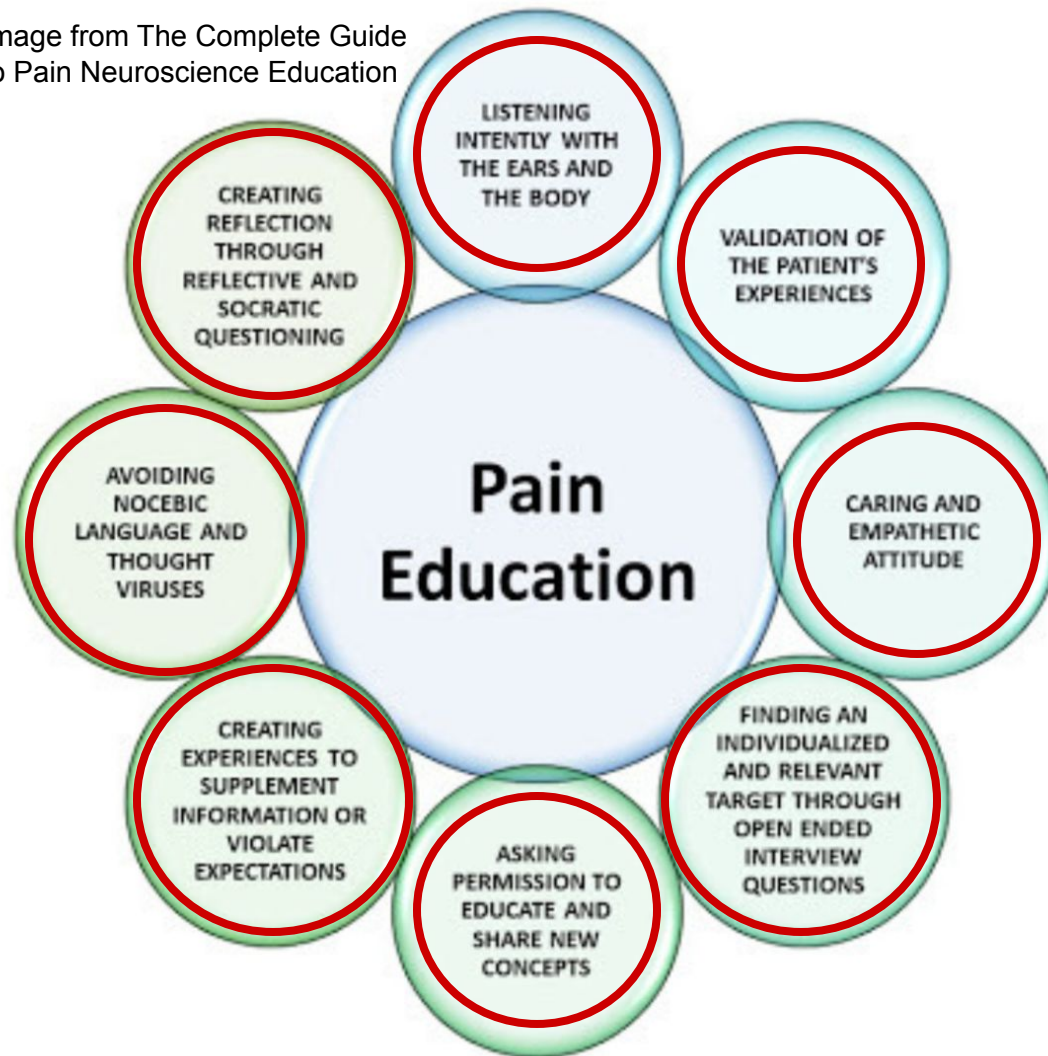
Louw A, Zimney K, O'Hotto C, Hilton S. The clinical application of teaching people about pain. *Physiotherapy Theory & Practice* [serial online]. July 2016;32(5):385-395. Available from: CINAHL Plus with Full Text, Ipswich, MA. Accessed March 22, 2017.

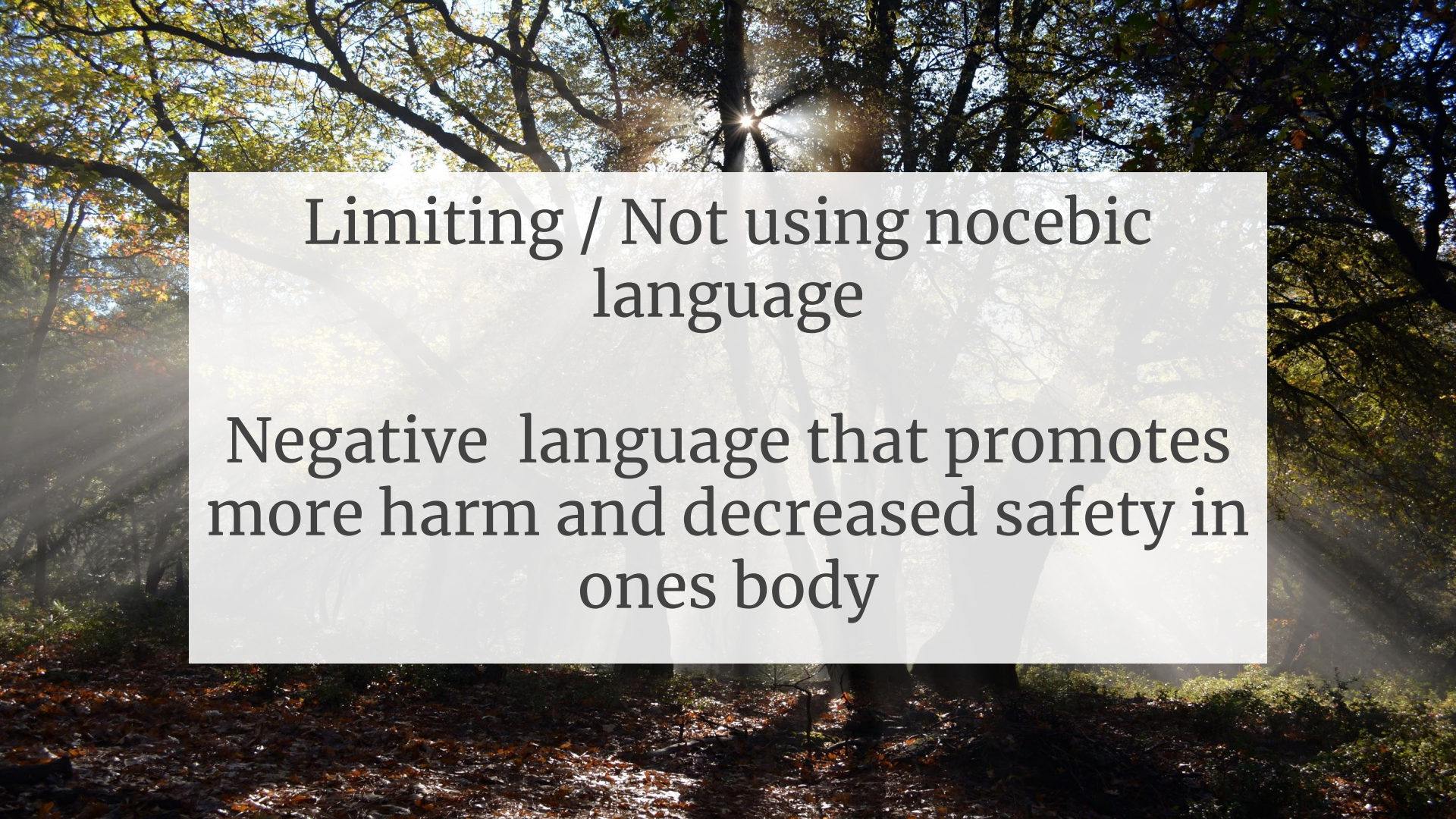
Psychologically-informed Physical Therapy

Biopsychosocial approach to physical therapy rehabilitation, emphasizing cognitive-behavioral skills in helping patients manage their pain.

- Patient-centered, narrative interview using active listening
- Comprehensive physical examination
 - Screen for Red flags
 - Validate pain experience and show possibilities of recovery
- Active-based Interventions:
 - Graded exposure
 - Pacing
 - Pain Education
 - Movement modifications
 - Shared Goal setting
 - Exercise programming
 - Cognitive restructuring (ACT and CBT principles)
 - Problem solving training
 - Relaxation training
 - Nutrition counseling

Image from The Complete Guide
to Pain Neuroscience Education





Limiting / Not using nocebic
language

Negative language that promotes
more harm and decreased safety in
ones body

Words that Harm

- Wear & Tear
- You have degeneration in your spine
- Bulging disc is like a jelly donut
- Chronic Pain

Words that Heal

- Normal adaptations to life
- You have some normal age related changes
- Your spine is strong and adaptable, discs are capable of healing
- Persistent Pain



Normalize pain so that it isn't something to be feared. It just is.

Provide compassionate and affirming care that validates the pain experience to ourselves & others



Embrace the variability of
YOUR body

I said I already
tried physical
therapy and it
didn't work!

Massage, stretches
from a sheet, and
needling is not
physical therapy.



@docmills.dpt

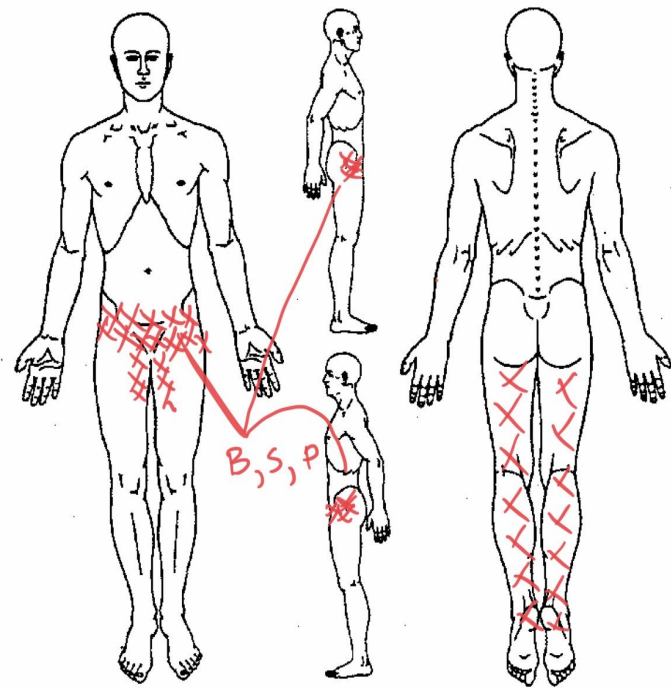
Patient 1: “Hip Pain” Case

- 44 yo, cisgender female referred for “hip pain”
- **Current pain: 8/10; Worst pain: 10/10**
- Pt began crying and stated that I seemed nice and wanted to tell me the truth about her pain. Pt had seen her primary care physician (dismissed pain as normal), ob-gyn (stated she needed a hysterectomy), orthopedist (didn't acknowledge her pain and stated it was hip pain. pt asked for a physical therapy referral and was told physical therapy was useless and he'd give her an MRI instead).
- Pt stated that she didn't realize it until now, but around the same time as her pelvic pain developed, she was undergoing a custody battle and also had an endometrial ablation for heavy periods

PAIN DIAGRAM

On the diagrams below mark where you are experiencing pain, right now. Use the letters below to indicate the type and location of your sensations.

Key: A – ACHE
P – PINS & NEEDLES
B – BURNING
S – STABBING
N – NUMBNESS
O – OTHER



Patient 1: “Hip Pain” Case

- **Primary Complaint:** Vaginal pain that radiated to her hips and progressed to radiating down her B LE.
- **Agg:** Intercourse, Walking a block, Exercise
- **Beliefs:**
 - She would never be able to be with her husband and once told him to leave her because she couldn't be a complete partner
 - Worried she'd never be able to do anything again
- **Findings:**
 - Sciatic nerve sensitivity, allodynia/hyperalgesia of the vulvar and groin area
 - Cleared lumbar spine
 - Weak glutes

PAIN DIAGRAM

On the diagrams below mark where you are experiencing pain, right now. Use the letters below to indicate the type and location of your sensations.

Key: A – ACHE

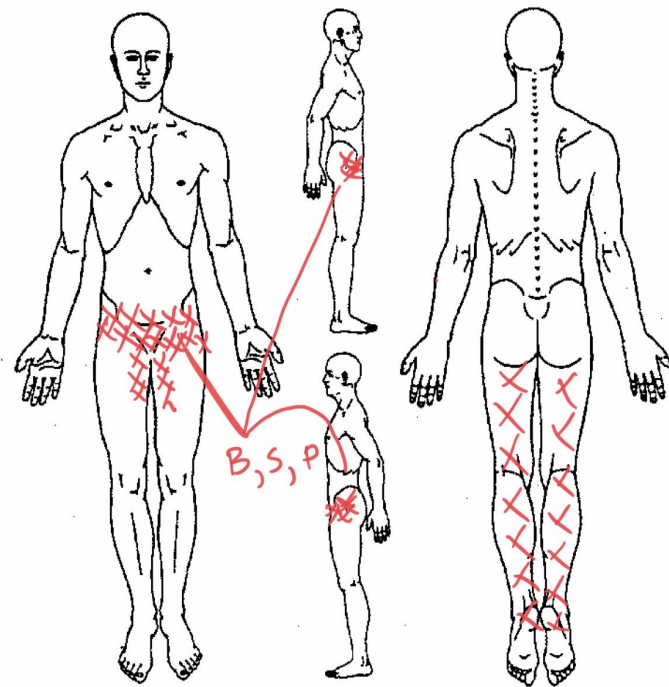
B – BURNING

N – NUMBNESS

P – PINS & NEEDLES

S – STABBING

O – OTHER



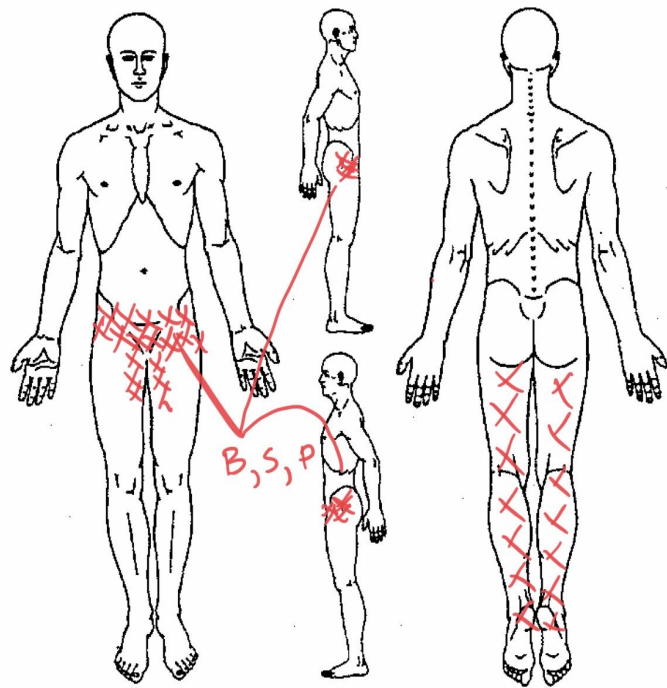
Patient 1: “Hip Pain” Case

- Treatment over the course of 3 months
 - Downtraining of the nervous system
 - Diaphragmatic
 - Localization training: pelvic clock mapping
 - Pelvic floor downtraining
 - Pelvic floor stretches for home exercise program
 - Pain education
 - Progressive strengthening program

PAIN DIAGRAM

On the diagrams below mark where you are experiencing pain, right now. Use the letters below to indicate the type and location of your sensations.

Key: A – ACHE
P – PINS & NEEDLES
B – BURNING
S – STABBING
N – NUMBNESS
O – OTHER



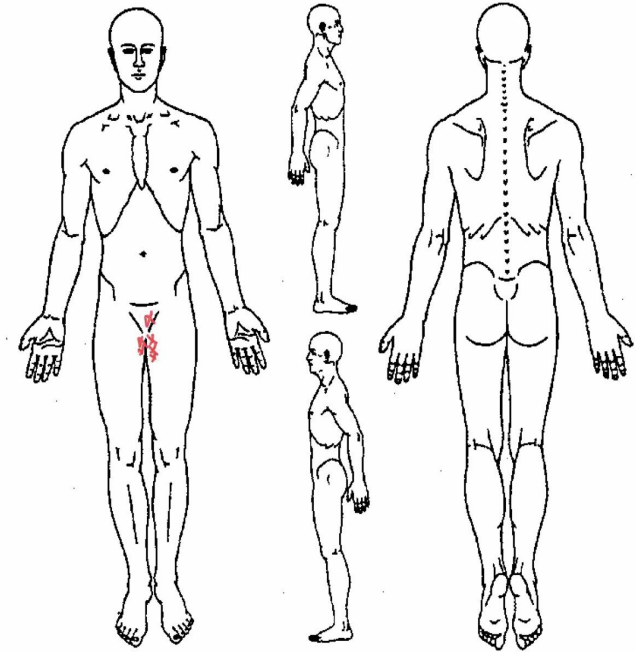
Patient 1: “Hip Pain” Case

- 44 yo, cisgender female referred for “hip pain”
- Current pain: 1-3/10 pain
- Able to walk >2 miles
- Able to engage in pleasurable intercourse with husband
- Able to perform a workout program (weight lifting, pilates)

PAIN DIAGRAM

On the diagrams below mark where you are experiencing pain, right now. Use the letters below to indicate the type and location of your sensations.

Key: A – ACHE
P – PINS & NEEDLES
B – BURNING
S – STABBING
N – NUMBNESS
O – OTHER



Patient 2: Low Back Pain Case

- 39 yo, cisgender female
- 8/10 pain
- History: >10 years of chronic low back pain. Progressively became worse in the past year. Lower back pain radiates to the front of her hips at times and intermittently down her legs. Had seen multiple providers including: an orthopedist, chiropractor, physical therapist. Chiropractor seemed to be the only thing that helped and was on a chiropractic membership where she'd get adjusted 1x/week for temporary pain relief.

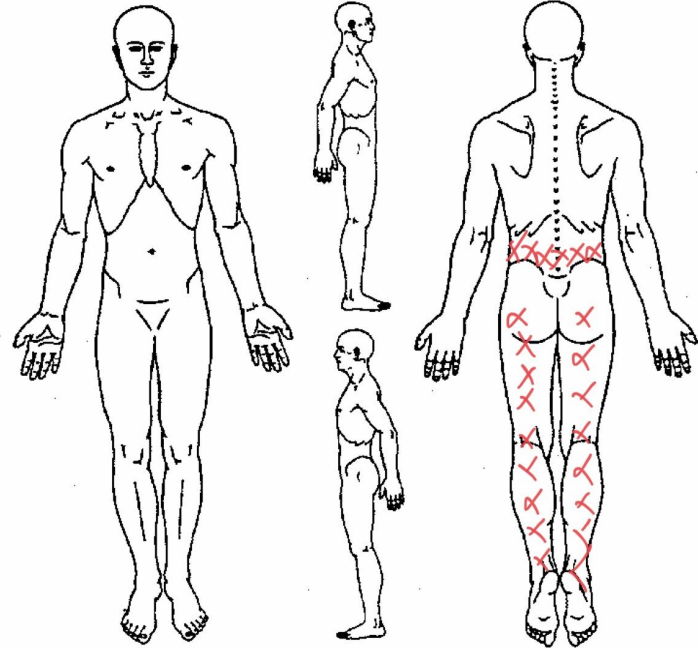
PAIN DIAGRAM

On the diagrams below mark where you are experiencing pain, right now. Use the letters below to indicate the type and location of your sensations.

Key: A – ACHE
P – PINS & NEEDLES

B – BURNING
S – STABBING

N – NUMBNESS
O – OTHER



Patient 2: Low Back Pain Case

- Experiences constant, dull pain with certain movements causes sharp pain. She is unable to stand or sit for long periods of time. She also no longer practice practices yoga or hiking. The pain has caused her to have a short temper and because she's in pain she feels like she doesn't have the bandwidth for anything else. Reluctant to do anything strenuous, even though prior to this new onset of progressive LBP she was quite active.

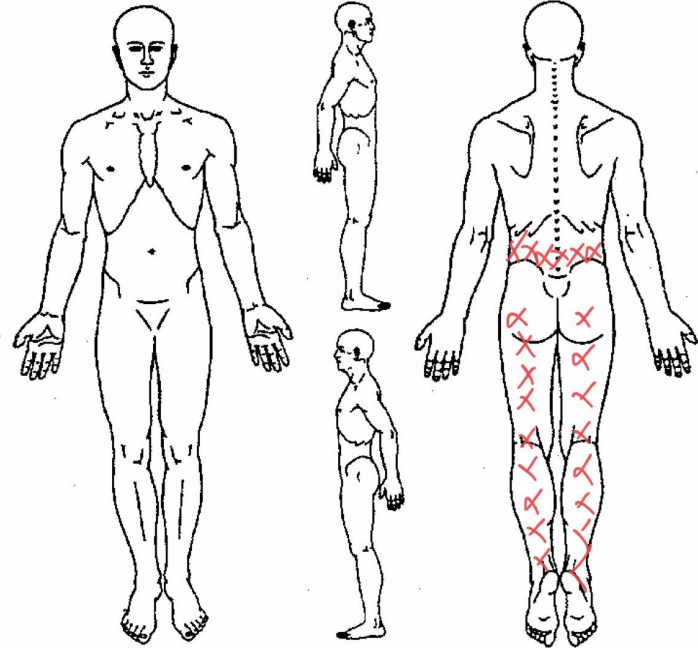
PAIN DIAGRAM

On the diagrams below mark where you are experiencing pain, right now. Use the letters below to indicate the type and location of your sensations.

Key: A – ACHE
P – PINS & NEEDLES

B – BURNING
S – STABBING

N – NUMBNESS
O – OTHER



Patient 2: Low Back Pain Case

- Thoughts and Beliefs: She fears that it won't stop or there is nothing you can do about it. Every morning she wakes up thinking about how much pain she will be in and dreads having to get out of bed and get ready because she knows she will feel tremendous amounts of pain bending over to brush her teeth and wash up.
- High levels of stress

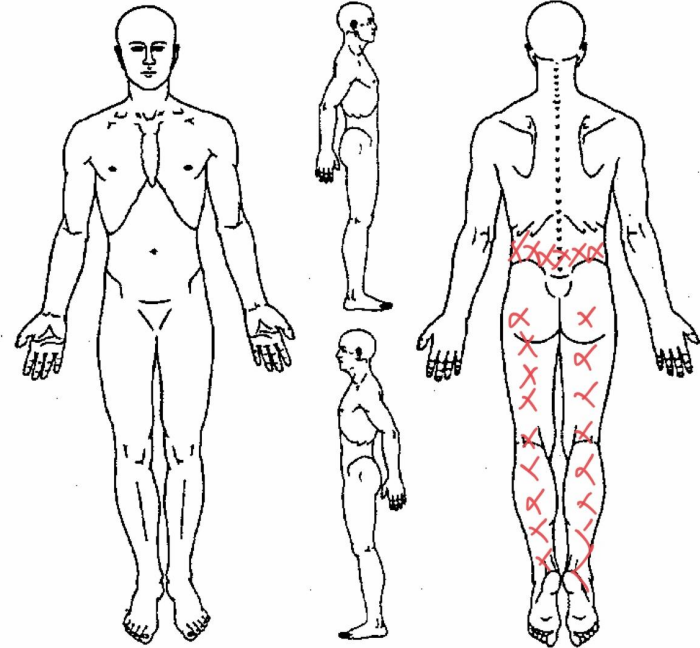
PAIN DIAGRAM

On the diagrams below mark where you are experiencing pain, right now. Use the letters below to indicate the type and location of your sensations.

Key: A – ACHE
P – PINS & NEEDLES

B – BURNING
S – STABBING

N – NUMBNESS
O – OTHER



Patient 2: Low Back Pain Case

Objective Findings:

- Decreased lumbar AROM in all directions
- Exhibited hesitancy in forward bending
- Pain with movement in all directions
- (+) Straight leg raise (adverse sciatic nerve neurodynamics)
- Explicit motor imagery: visualizing picking object from ground flared up back pain
- Watching me pick up objects flared up back pain
- Scored high on the pain catastrophization and fear avoidance beliefs Questionnaire
- Supine lumbar rotation limited

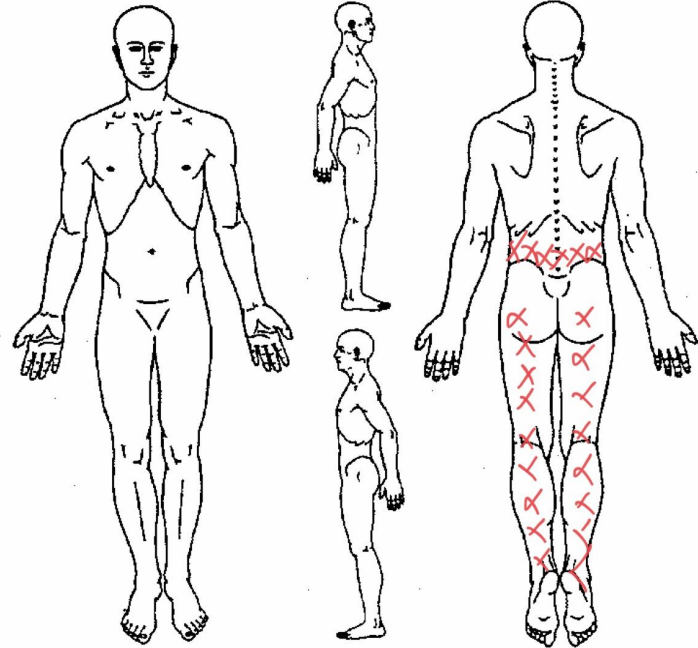
PAIN DIAGRAM

On the diagrams below mark where you are experiencing pain, right now. Use the letters below to indicate the type and location of your sensations.

Key: A – ACHE
P – PINS & NEEDLES

B – BURNING
S – STABBING

N – NUMBNESS
O – OTHER



Patient 2: Low Back Pain Case

- Treatment and progression
 - Diaphragmatic breathing for heart rate control
 - Supine lumbar rotation
 - Watch me bend over for 30 sec, as many times per day as possible until she reduced sensitivity

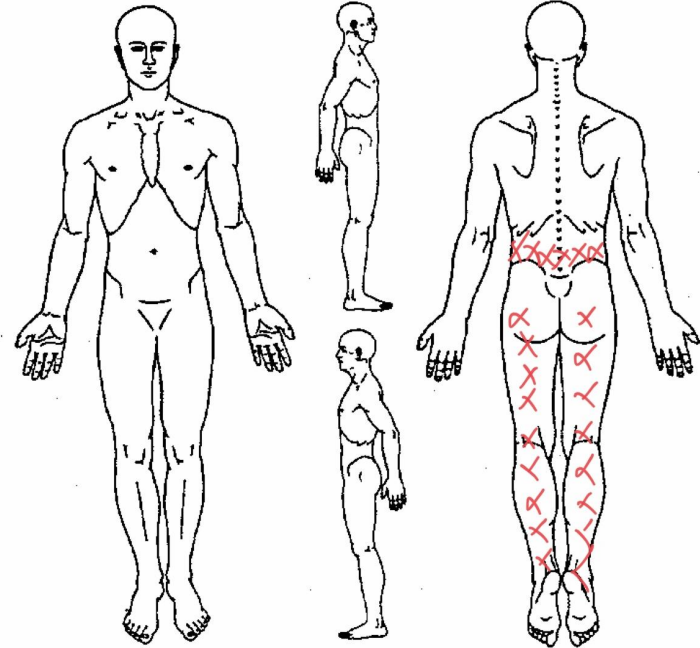
PAIN DIAGRAM

On the diagrams below mark where you are experiencing pain, right now. Use the letters below to indicate the type and location of your sensations.

Key: A – ACHE
P – PINS & NEEDLES

B – BURNING
S – STABBING

N – NUMBNESS
O – OTHER



Patient 2: Low Back Pain Case

- Treatment and progression
 - Diaphragmatic breathing for heart rate control
 - Supine lumbar rotation
 - Watch me bend over for 30 sec, as many times per day as possible until she reduced sensitivity
- Current pain: 0-2/10 pain
- Returned to gym and exercise
- Able to sleep throughout the night
- Flew on a plane with no pain

PAIN DIAGRAM

On the diagrams below mark where you are experiencing pain, right next to the letters below to indicate the type and location of your sensations.

Key: A – ACHE

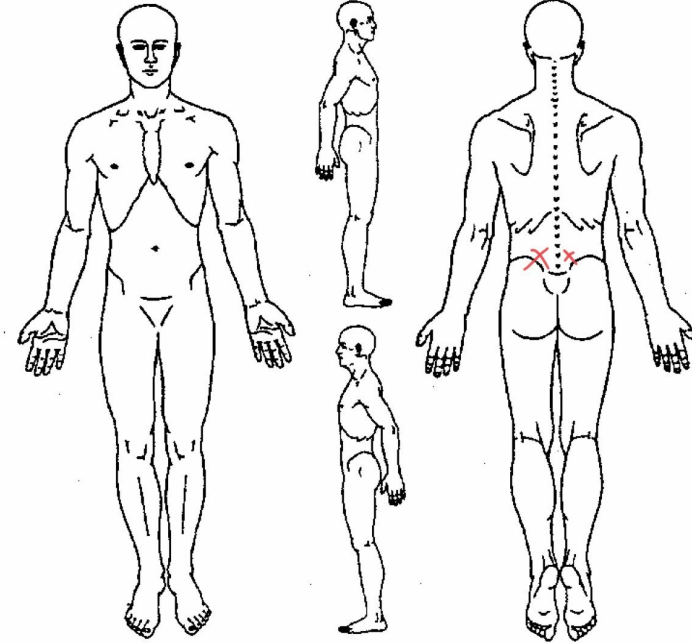
P – PINS & NEEDLES

B – BURNING

S – STABBING

N – NUMBNESS

O – OTHER



Patient 3: CRPS Case

- 43 yo cisgender female
- > 2 years of R shoulder pain, developing complex regional pain syndrome

PAIN DIAGRAM

On the diagrams below mark where you are experiencing pain, right now. Use the letters below to indicate the type and location of your sensations.

Key: A – ACHE

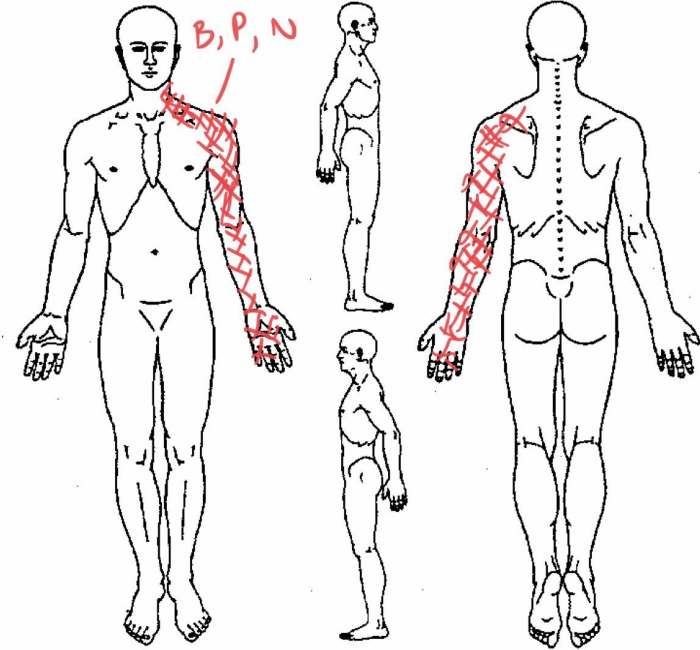
P – PINS & NEEDLES

B – BURNING

S – STABBING

N – NUMBNESS

O – OTHER



Patient 3: Chronic Knee Pain

- 28 yo, cisgender male
- Current pain: 8/10
- Worst pain: 3/10
- >5 years of chronic knee pain
- Orthopedists removed cyst from back of knee, still had pain
- Saw podiatrist, partially helped when received orthotic
- Agg: Unable to tolerate walking for long distances, hiking

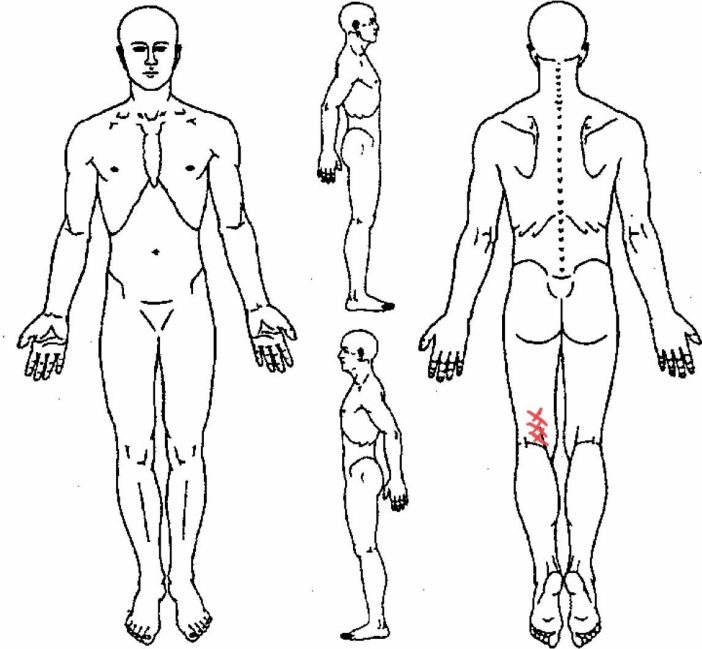
PAIN DIAGRAM

On the diagrams below mark where you are experiencing pain, right now. Use the letters below to indicate the type and location of your sensations.

Key: A – ACHE
P – PINS & NEEDLES

B – BURNING
S – STABBING

N – NUMBNESS
O – OTHER



Take home messages

Nervous system = alarm system

Pain does not equal tissue damage

Our bodies are adaptable and capable of change

All pain is real. Make sure you are working together with a health professional who listens to your story and acknowledges your pain.

Research on pain is constantly being updated, so this workshop will be forever adapting and changing based on the evidence that comes out (just like our nervous systems 😊)

A chalk drawing of a person is visible on a dark asphalt surface. The drawing is made with white chalk and shows a figure with a circular head, a rectangular torso, and limbs. The figure is positioned in the center-left of the frame. The asphalt is dark and textured, with several dry, brown leaves scattered around the drawing.

If you feel like diving in
a bit a deeper!

Websites:

Bodyinmind.org

Pain-ed.com

Noigroup.com

Instituteforchronicpain.org

tamethebeast.org

Books:

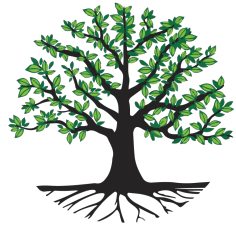
Explain Pain

Explain Pain Supercharged

Adriaan Louw Books

A laptop and a bowl of cookies on a wooden surface.

Contact information



ROOTS
CHRONIC PAIN
RECOVERY

E-mail: info@deconstructhealth.com

E-mail: dr.aquino@roots-cpr.com

Location:

Social Media:

Website: deconstructhealth.com

IG: [deconstruct.health](https://www.instagram.com/deconstruct.health)

FB: [facebook.com/deconstruct.health](https://www.facebook.com/deconstruct.health)

References

1. Nijs J, Van Houdenhove B, Oostendorp R. Recognition of central sensitization in patients with musculoskeletal pain: Application of pain neurophysiology in manual therapy practice. *Manual Therapy* [serial online]. n.d.;15(2):135-141. Available from: Science Citation Index, Ipswich, MA. Accessed March 22, 2017.
2. Woolf C. Central sensitization: Implications for the diagnosis and treatment of pain. *Pain* [serial online]. n.d.;152(3):S2-S15. Available from: Science Citation Index, Ipswich, MA. Accessed March 22, 2017.
3. Latremoliere A, Woolf C. Central sensitization: A generator of pain hypersensitivity by central neural plasticity. *The Journal Of Pain* [serial online]. September 2009;10(9):895-926. Available from: PsycINFO, Ipswich, MA. Accessed March 22, 2017.
4. Wijma A, van Wilgen C, Meeus M, Nijs J. Clinical biopsychosocial physiotherapy assessment of patients with chronic pain: The first step in pain neuroscience education. *Physiotherapy Theory & Practice* [serial online]. July 2016;32(5):368-384. Available from: CINAHL Plus with Full Text, Ipswich, MA. Accessed March 22, 2017.
5. Puente-dura E, Flynn T. Combining manual therapy with pain neuroscience education in the treatment of chronic low back pain: A narrative review of the literature. *Physiotherapy Theory & Practice* [serial online]. July 2016;32(5):408-414. Available from: Health Source: Nursing/Academic Edition, Ipswich, MA. Accessed March 22, 2017.
6. Louw A, Zimney K, O'Hott C, Hilton S. The clinical application of teaching people about pain. *Physiotherapy Theory & Practice* [serial online]. July 2016;32(5):385-395. Available from: CINAHL Plus with Full Text, Ipswich, MA. Accessed March 22, 2017.
7. Louw A, Zimney K, Puente-dura E, Diener I. The efficacy of pain neuroscience education on musculoskeletal pain: A systematic review of the literature. *Physiotherapy Theory & Practice* [serial online]. July 2016;32(5):332-355. Available from: CINAHL Plus with Full Text, Ipswich, MA. Accessed March 22, 2017.