Introduction to Pain Coaching:

Module 1 Orientation

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Chronic Pain: You are not alone

- 100 million Americans (35% of US population)
  - Annual cost $635 billion a year (Institute of Medicine)
  - More than yearly cost for cancer, heart disease, diabetes (Gaskin, Richard J. Pain, 2012)
- Traditional medical interventions for treatment of chronic pain provide only 10-30% reduction in pain
  - On par with placebo response
  - Leads to patient dissatisfaction
  - Patients frequently expect or want more treatment

AMA | AMA Morning Rounds®

in affiliation with BulletinHealthcare

Good morning. Here are today's top stories.

March 22, 2018

LEADING THE NEWS

Patients with low back pain often receive wrong treatments, research indicates

The NBC News (3/21, Fox) reports, "Low back pain is the top cause of disability globally, yet most people are getting the wrong treatments for it," researchers found. What's more, "nowhere do more people get the wrong therapy – opioids – than in the" US, the study revealed. In spite of research, recommendations, and guidelines from "top medical groups," physicians "still tend to prescribe pain pills to people with back pain instead of physical therapy and exercise, which work better, according to" a series of reports published in The Lancet.

HealthDay (3/21, Preidt) reports that investigators reviewed evidence "from around the world," suggesting that "low back pain should be managed in primary care and that the first step should be education and urging patients to stay active and working." In the US alone, "low back pain leads to 2.6 million emergency" department visits annually. A study conducted in 2009 "reported that opioids were prescribed in about 60 percent of such cases."

Chronic Pain: a problem for all of us

- Society spends more money on chronic pain treatments, but patients don't get better, usually get **worse with more treatment**
- MRI **not associated** with improved patient outcomes and frequently identifies radiographic abnormalities that correlate poorly with symptoms which lead to additional, unnecessary interventions (Roger Chou, 2007)

Doctors recognize chronic pain patients…

- And many avoid taking on ongoing care for these patients
- Or ”try” some expensive treatments, injections, $$
- Attribute pain to something they cannot “fix”
  - Discs, arthritis, scoliosis, fibromyalgia
  - “You must need surgery if nothing else we tried worked”
  - Not “bad” enough to need surgery
  - Need to see another specialist
- These are misunderstandings that need to be clarified or you will not get better

What I can offer you ?

- I can send you to physical therapy
- I can prescribe medications
- I can order injections
- I can send you to a surgeon

- I am offering you my time
- I can teach you about the human body
- I can show you proven ways to decrease pain

Topics to Discuss:

Module 1: What is pain?

Module 2: I've always done everything my doctors have told me to do…

Module 3: I didn't have this type of pain before…

Module 4 I know my pain and my body is telling me something is wrong

Module 5: Aren't you saying pain is in my head?

Module 6: Mind over matter: Getting over I can't….

Module 7: Size does matter: We all have to fight gravity

Module 8: I can't go back to work

What is pain?

Pain is an *unpleasant* sensory and emotional experience…

- Sensory
  - Taste (Sour, Bitter/Hunger)
  - Touch
  - Smell (Stinky, noxious)
  - Sound (Nails on chalkboard)
  - Sight
- Emotional
  - Sadness/Loneliness
  - Anger/Hate/Disgust
  - Fear/Anxiety/Surprise
  - Rejection/Jealousy
  - Embarrassment

Definition of Pain (continued)

- Pain is an *unpleasant* sensory and emotional experience associated with…

1) actual tissue damage,

2) potential tissue damage, or

3) described in terms of such damage.

(International Association for the Study of Pain)

Definition of Chronic Pain

- Chronic pain defined as persistent pain that:
  - Disrupts sleep and normal living
  - Degrades health and functional capability
  - Does **NOT** serve a protective function

- Unlike acute pain, chronic pain serves **no** adaptive purpose

American Pain Society, 2001

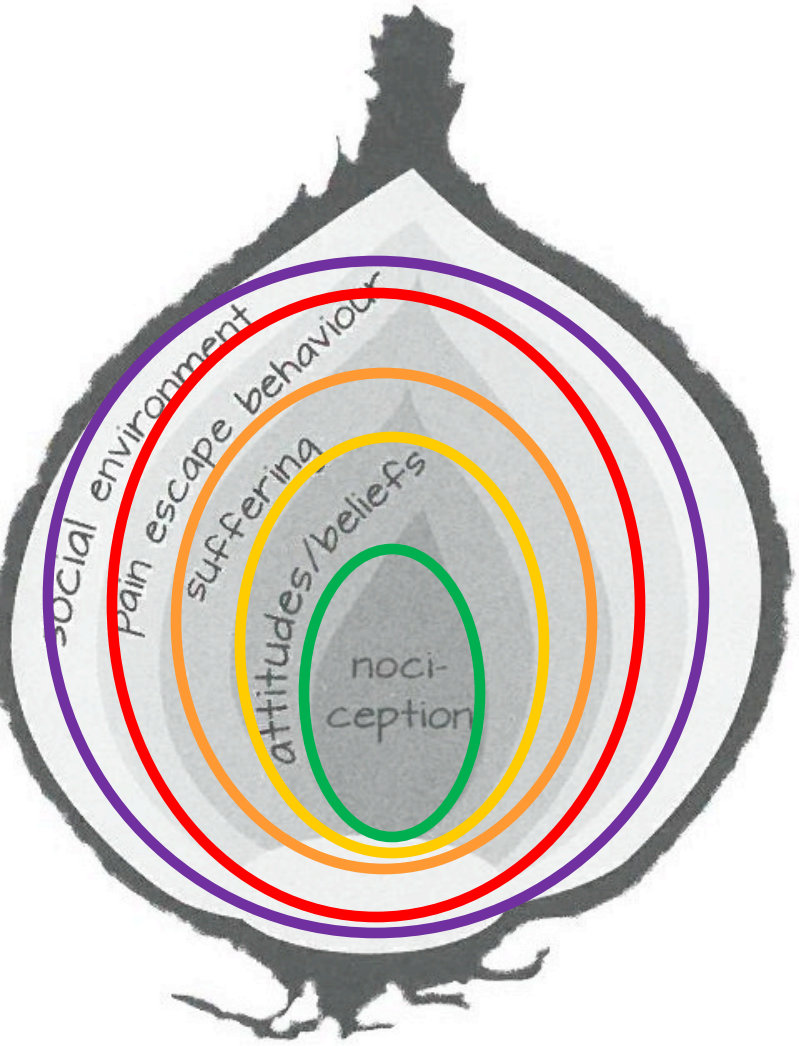
Summary #1: My pain …

- an *unpleasant* sensory and emotional experience associated with
- *Not due to actual tissue damage*,
- ?May be due to potential tissue damage
- Disruptive of sleep/normal living,
- Decreases my health and functional ability
- Does NOT serve a protective function
- *It's really loud!*

Working Through Pain: Module 2

"I've always done everything that my doctors have told me to do: That's the problem!"

How Doctors Should Think: "The Biopsychosocial Model of Health"

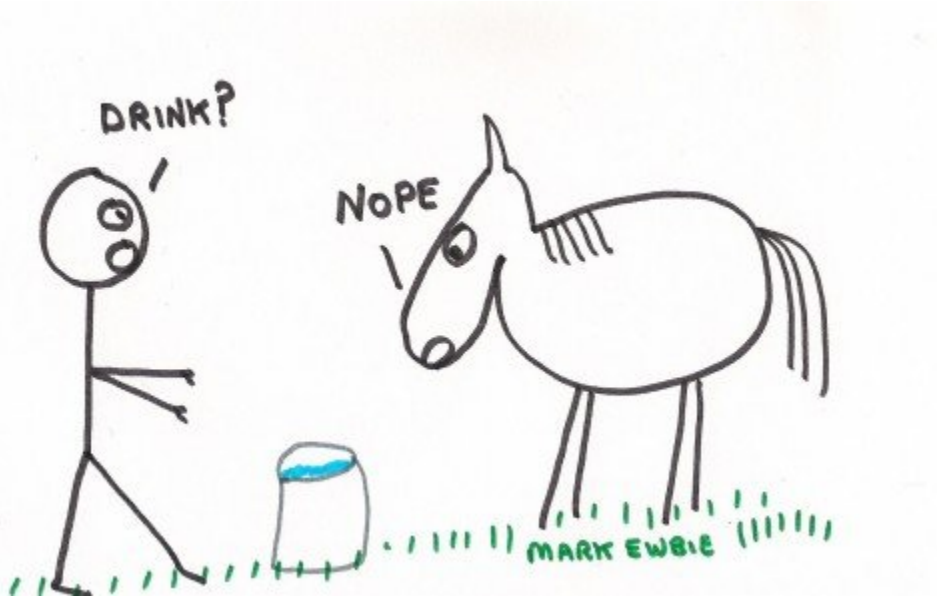


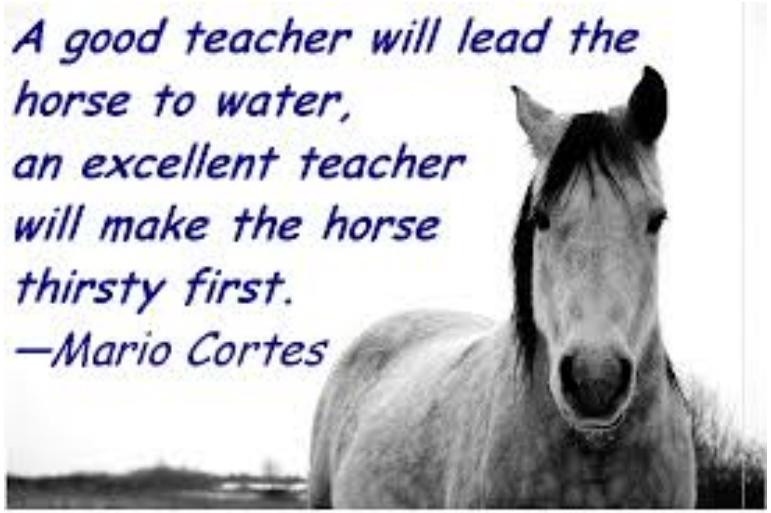
- **Social environment**: How you fit in society because of it (personal, social, work roles)
- **Pain behaviors**: How you respond
- **Suffering**: What it means to you
- **Attitudes/Beliefs**: Good or bad?
- **Nociception**: signal/sensor to start it

A different way to think about pain:

	Bad	Neutral	Good
Social Environment (Your role/character, self-esteem)	No one will hire me I can't support my family I'm a bad parent/spouse	I feel like I'm an athlete	I'm the best ….. No one else can do this….. I'm grateful that I can… I'm valuable because ….
Pain Avoidance Behaviors (How you respond)	I don't work, I need restrictions I don't play with my kids I need help with chores	I'll make time to stretch every day	Look what I just accomplished
Suffering (Feelings, What it means to you)	I can't stand it ! I'm being punished ! It's too much !	I'll just stretch and it feels good	I'm lucky to feel this way I'm being rewarded How can I get more?
Attitudes/Beliefs (Your thoughts)	This feels bad! There must be damage This needs to be fixed, Too much is bad for me	I haven't stretched recently	That feels good… That's so cute
Nociception (signal or sensor)	Burning, stabbing, aching, pins/needles	Stiffness	Warm, soft, fuzzy, tickle

Patient Engagement





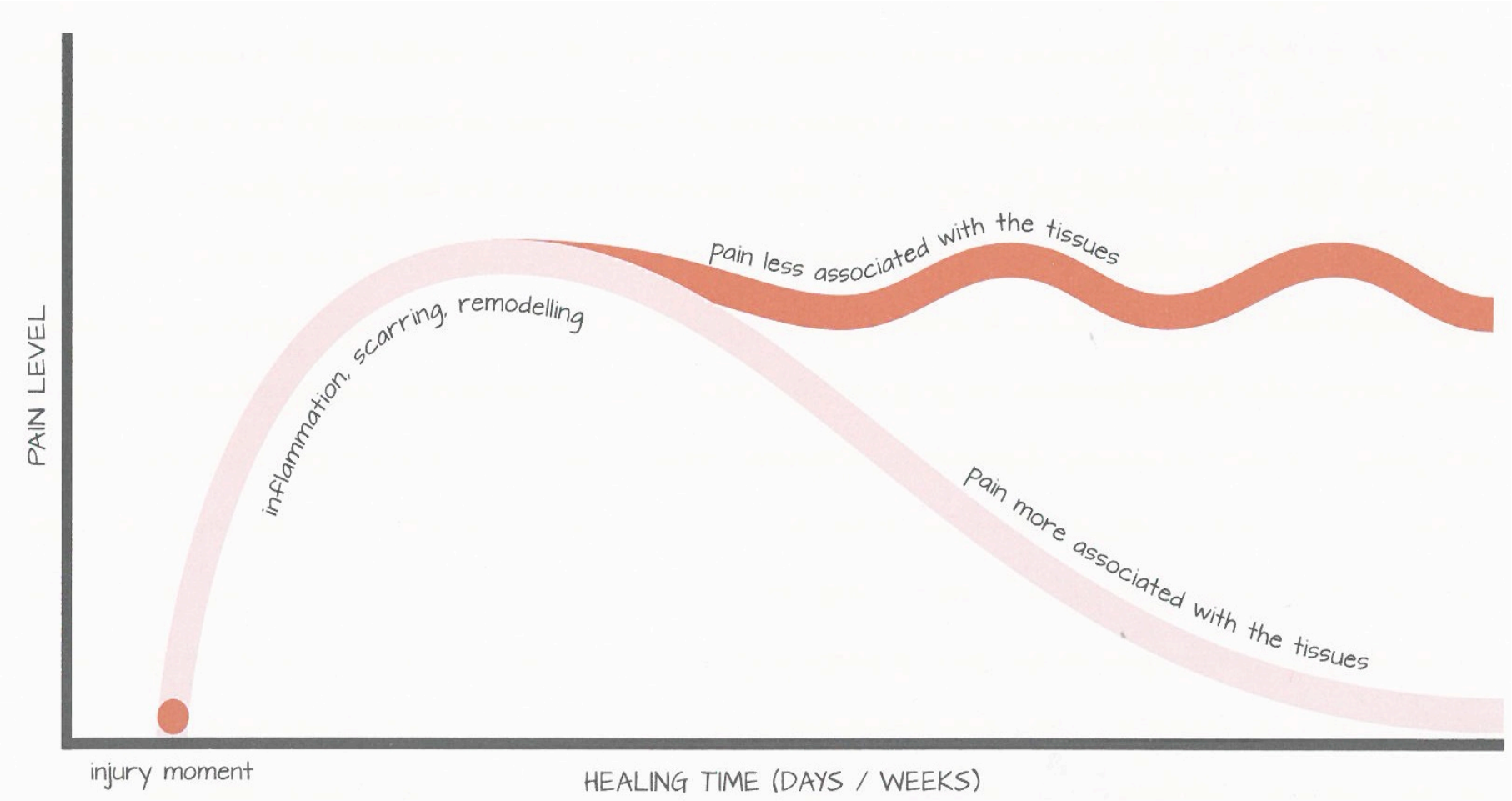
Summary #2: My pain is…

- Unpleasant, really loud, sensory/emotional signal
- Not indicating actual or potential tissue damage,
- Disruptive of sleep/health and functional capacity,
- Not serving a protective function
- Not to be treated passively
- Not ”fixable” by doctors or their medications and procedures

Working Through Pain: Module 3

“But I’ve never had this type of pain before my injury”

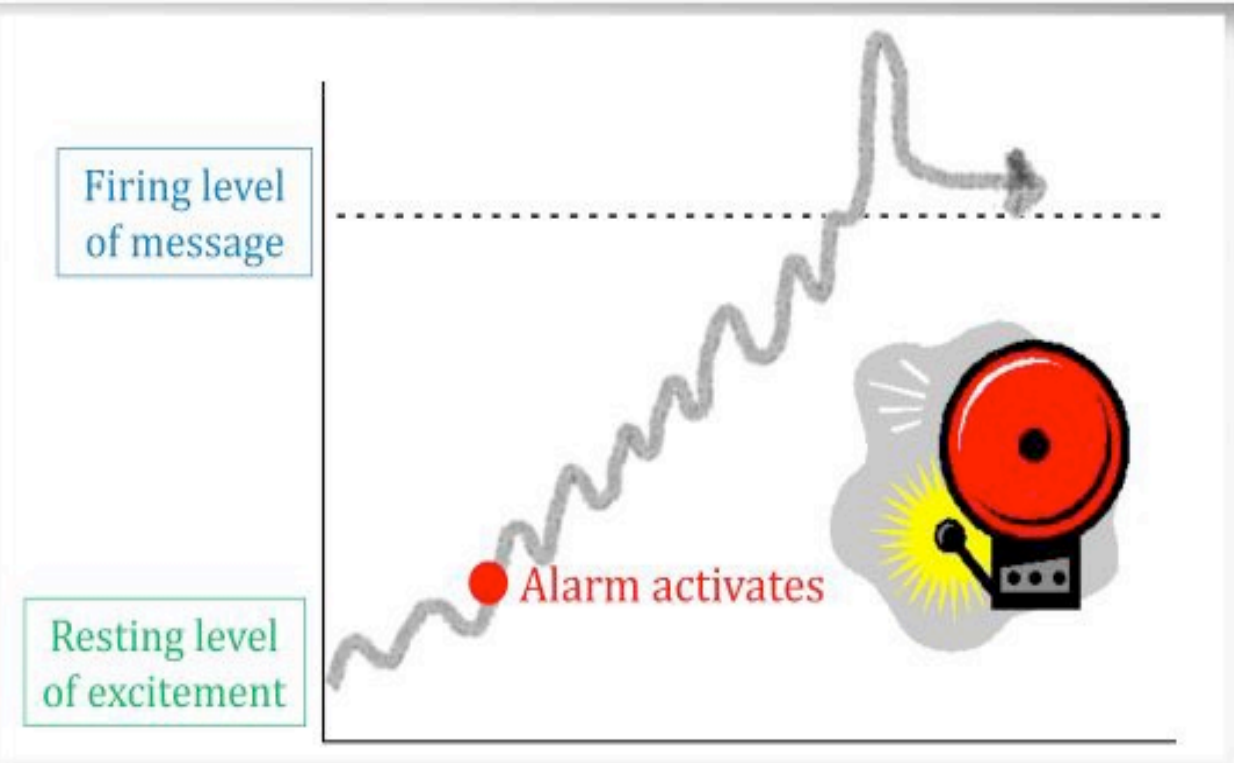
What happens with an injury?



Explain Pain Section 4, page 71, www.noigroup.com

Central Nervous System Changes

Waking up the Alarm System: Resting Membrane Potentials Increase[1]



Adapted from Louw A and Puentedura E, 2013

Pain and tissue tolerance before and after injury

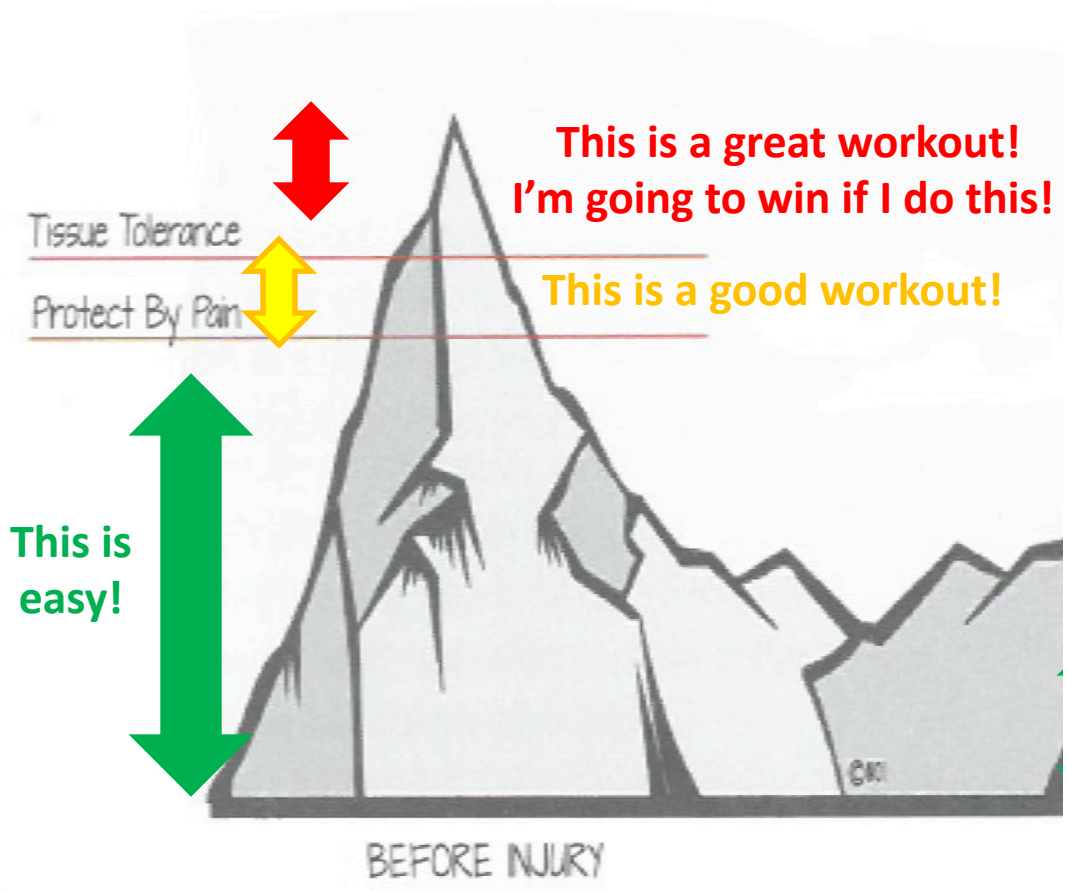


Figure 8.7 The Twin Peaks Model from Explain Pain [7]

Adapted from Explain Pain Supercharged Section61, page 192, www.noigroup.com

Pain and tissue tolerance before and after injury

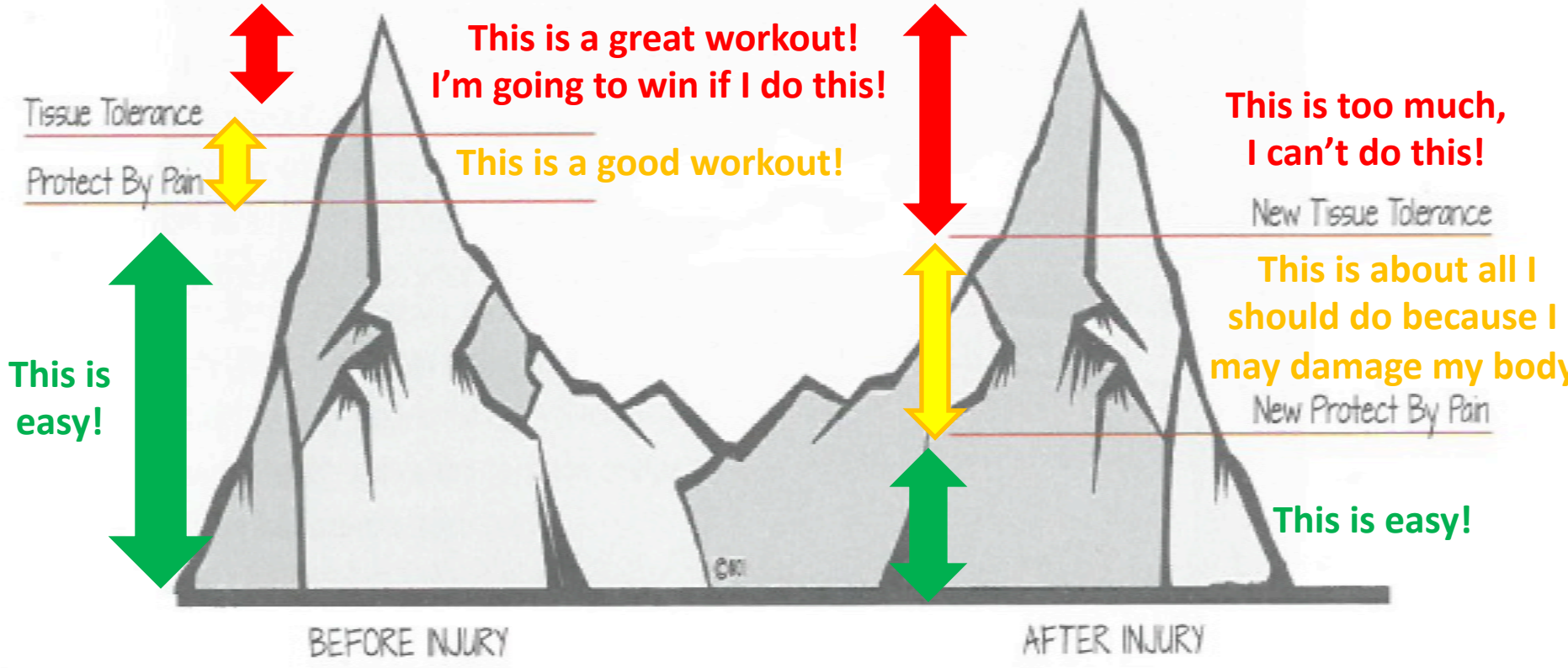


Figure 8.7 The Twin Peaks Model from Explain Pain [7]

Adapted from Explain Pain Supercharged Section61, page 192, www.noigroup.com

Summary #3: My pain is…

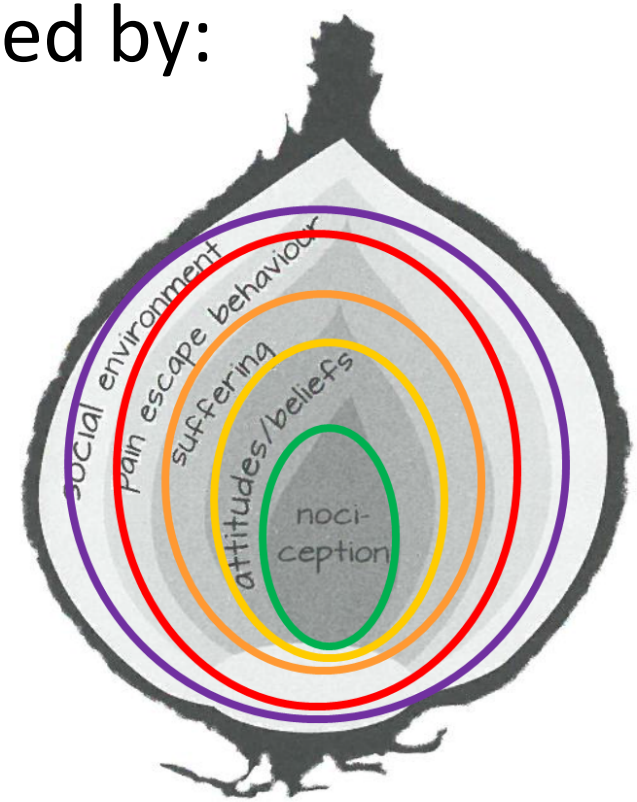
- Unpleasant, neurological signal
- It's really loud, but only I can hear it
- Persistent even after tissues have healed
- Disruptive of sleep/health and functional ability
- Not serving to protect my body
- Leading to more and more inactivity

Working Through Pain:
Module 4

“Aren’t you just saying my pain is all in my head?”

What are your beliefs about pain and injury?

- Constructively confront any misunderstandings, replacing them with realistic understanding of problem and prognosis
- My headache/pain is being caused by:
  - Aliens
  - Gray hair
  - Disc degeneration
  - Muscles?



Altered body perception
[EP76]

- ○ Body part feeling bigger/smaller
- ○ Loss of left/right perception
- ○ Hating a body part
- ○ Feeling a body part doesn't belong
- ○ Sensitive space around the body

Immune system
[EP88]

- ○ Depressed and antisocial
- ○ More aches and pains
- ○ Tired all the time
- ○ More infections, colds and flu

Respiratory system

- ○ Shallow breathing
- ○ Light headedness
- ○ Change in voice
- ○ Shortness of breath

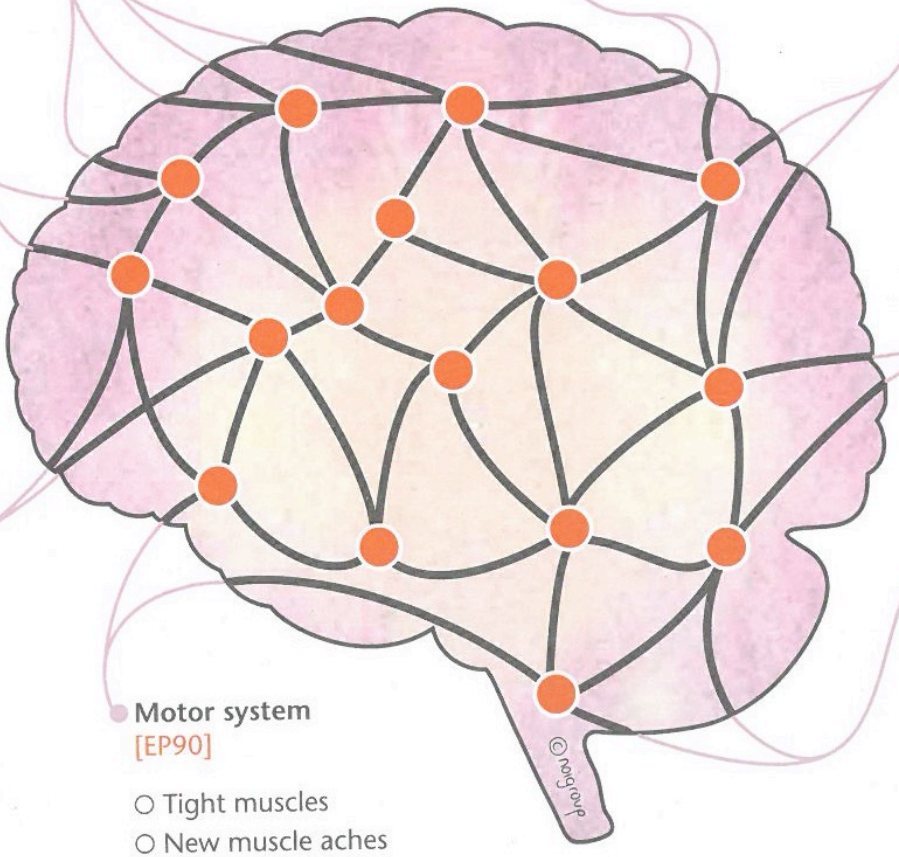
Language
[EP83]

- ○ Silence
- ○ Swearing
- ○ Repeating yourself
- ○ Unable to express your pain

Tick anything that you have experienced and feel free to add to the list.

Anxiety and fear
[EP100]

- ○ Often anxious and frightened
- ○ Reduced confidence
- ○ Avoiding activity
- ○ Avoiding other people
- ○ Retracting from life



Your thoughts
[EP80]

- ○ Frequent worrying
- ○ Always being negative
- ○ Hopelessness
- ○ Loss of creative thinking
- ○ Focusing on just scraping through

Endocrine system
[EP86]

- ○ Slow tissue healing
- ○ Poor digestion
- ○ Weight gain
- ○ Increased flatulence
- ○ Constipation
- ○ Loss of libido
- ○ Affected memory
- ○ Depression
- ○ Unable to learn

Motor system
[EP90]

- ○ Tight muscles
- ○ New muscle aches
- ○ Rigid or jerky movements
- ○ Groaning, grimacing, tensing up
- ○ Difficulty learning new movements

Sympathetic nervous system
[EP84]

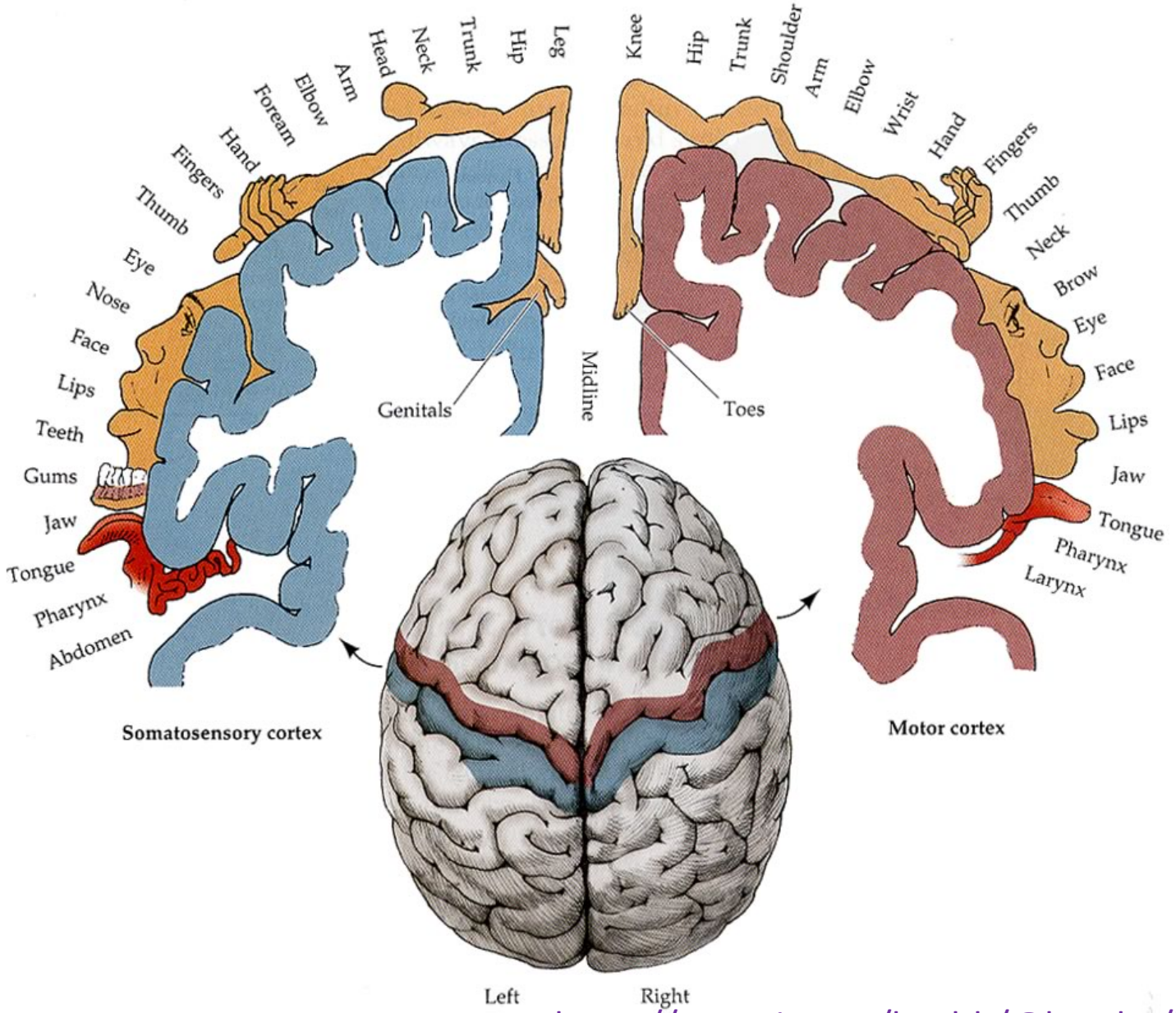
- ○ Sweating changes
- ○ Blood flow changes
- ○ Weight loss
- ○ Feeling anxious and edgy
- ○ Difficulty sleeping
- ○ Restlessness
- ○ Increased blood pressure
- ○ Skin and fingernail changes
- ○ Panic attacks

Summary #4: My pain is …

- Unpleasant, loud, familiar, neurological signal
- Persists after tissues have healed
- Gives me inaccurate information
- May change if I can learn to process these signals differently by increasing my understanding about how the brain and body work

Working Through Pain:
Module 5
What do we need to teach you?

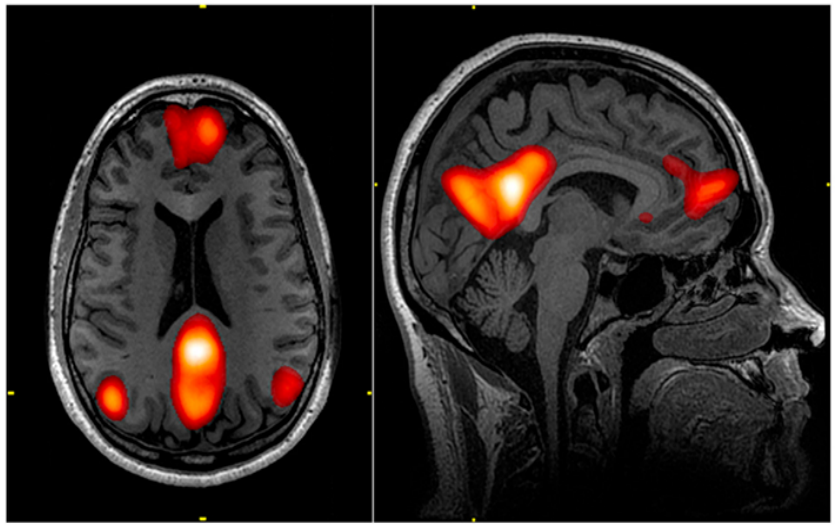
Sensory Map in the Brain (Homunculus)



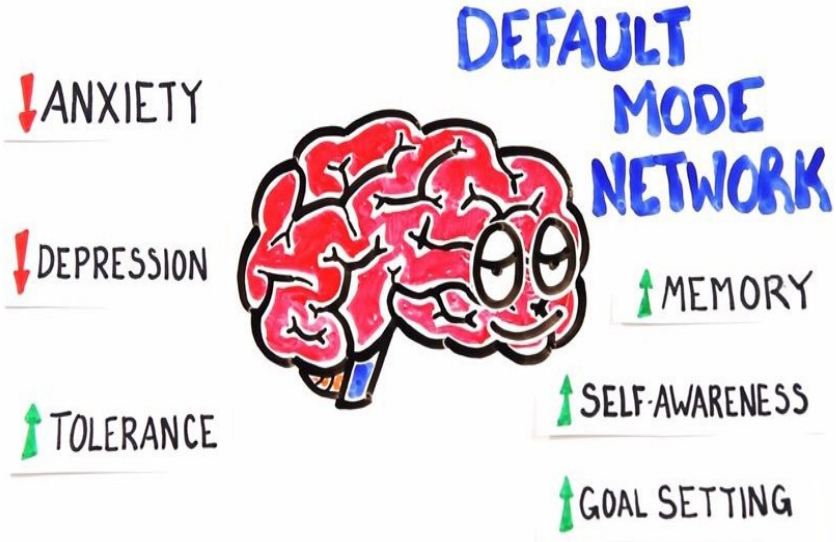
https://steemit.com/health/@kyusho/homunculus

Default Mode Network

- Pattern of brain activity that includes your usual day to day routine
- What's "easy" for you to do



- Are you willing to change your default mode network?
- Out of your "comfort zone"
- "Rewiring your brain"



https://www.listenlightly.com/benefits-of-meditation/

Summary #5: I can …

- Recognize that my pain is an unpleasant, familiar, inaccurate, persistent, neurological signal
- Understand pain processing occurs in the brain
- Avoid misunderstandings about how the brain and body respond to pain
- Recognize my own default mode network of brain activity
- Learn to turn down the intensity/loudness

Working Through Pain: Module 6

“Mind over matter: Getting over I can’t do ….”

Pain Catastrophizing

- **When I'm in pain…**
- On a scale of
  - 0 (not at all)
  - 1 (to a slight degree)
  - 2 (to a moderate degree)
  - 3 (to a great degree)
  - 4 (all the time)

- I worry all the time whether pain will end
- I feel I can't go on
- It's terrible & never going to get better
- It's awful and overwhelming
- I can't stand it anymore
- There's nothing I can do to reduce the intensity of the pain
- Helplessness Score: (24 points)
- 8 is average, 13+ severe

- I'm afraid the pain will get worse
- I keep thinking of other painful events
- I wonder whether something serious may happen
- Magnification Score (12 points)
- 3 is average, 5+ is severe

- I anxiously want the pain to go away
- I can't seem to keep it out of my mind
- I keep thinking about how much it hurts
- I keep thinking about how badly I want the pain to stop
- Rumination Score (16 points)
- 8 is average, 11+ is severe

Total Score out of 52 points

Concerning 20; Very worrisome 30+

Pain Catastrophization

- Shapes neural functioning/patterns
  - Seminowicz and Davis. Cortical responses to pain in healthy individuals depends on pain catastrophizing. 2014.
- Shapes the brain at rest
  - Kucyi et al. Enhanced medial prefrontal DMN functional connectivity in chronic pain and its association with pain rumination. 2014
  - Jiang, Oathes, Hush, Darnall, Charvat, Mackey, Etkin. Perturbed amygdalar connectivity with the Central Executive and Default Mode Networks in Chronic Pain, (Pain. May 2016)
- Primes the nervous system for pain
  - Taub, Darnall, Johnson, Mackey. Effects of a pain catastrophizing induction on quantitatively measured pain perception in women with chronic low back pain (J. Pain, May 2016).
- Sets the stage for prolonged symptoms, chronic pain and progression.
  - Seminowicz and Davis. Cortical responses to pain in healthy individuals depends on pain catastrophizing. 2014.
  - Kucyi et al. Enhanced medial prefrontal DMN functional connectivity in chronic pain and its association with pain rumination. 2014
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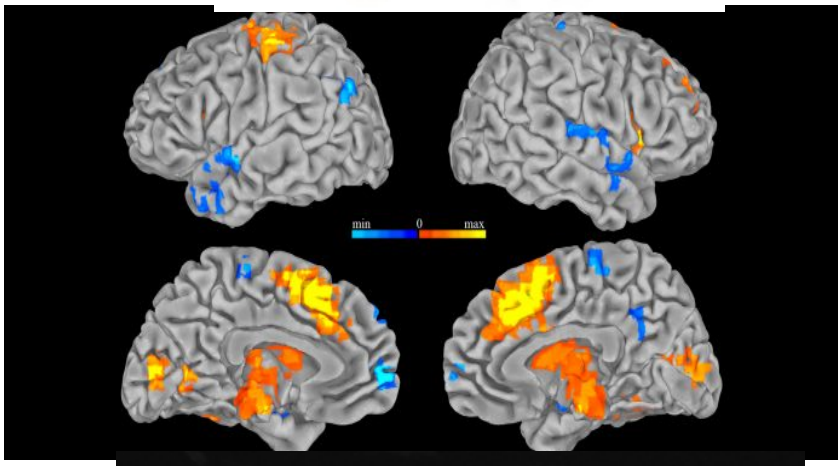
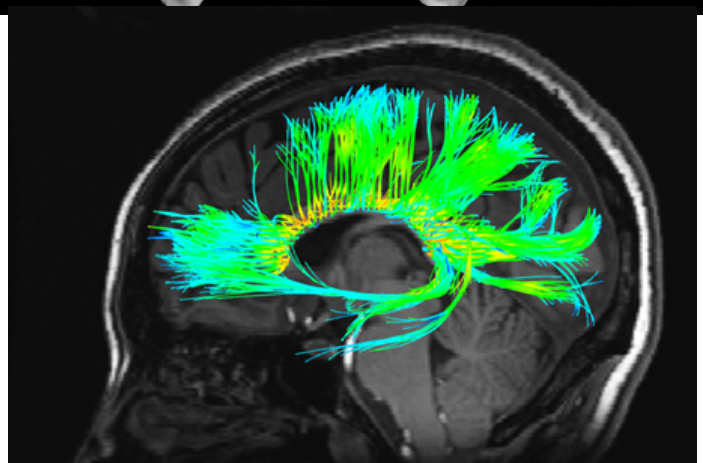
  - Taub, Darnall, Johnson, Mackey. Effects of a pain catastrophizing induction on quantitatively measured pain perception in women with chronic low back pain (J. Pain, May 2016).
  - Picavet et al. Pain Catastrophizing and kinesiophobia: predictors of chronic low back pain. 2002

Psychology:

- Pain Catastrophization
  - "Pouring gasoline on fire"
  - Identify irrational beliefs and change to realistic beliefs
- Relaxation training
  - Decrease "Fight or Flight" system
- Apply skills to daily activities to create new connections in brain





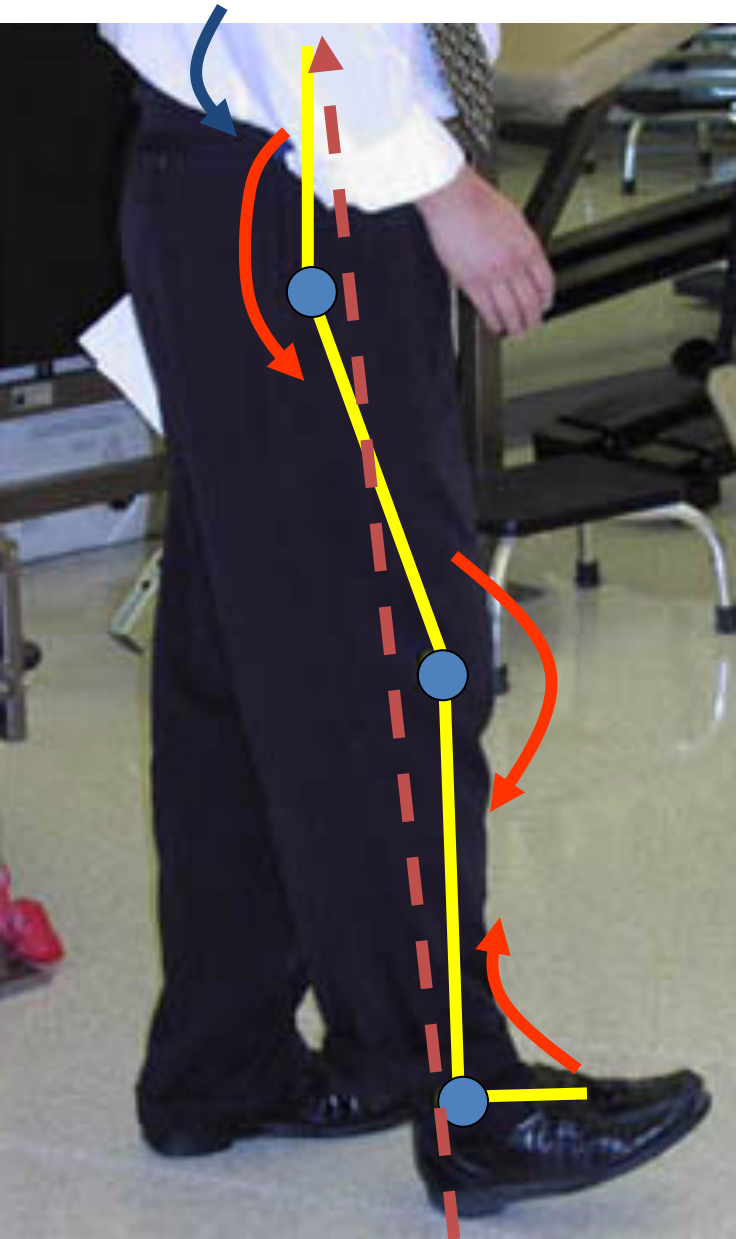
Summary #6: I can …

- Recognize my pain is an unpleasant, familiar, inaccurate, persistent, neurological signal,
- Avoid misunderstandings about how my brain processes pain and how the body works
- Change my own “default mode network” of brain activity
- Avoid “engaging” in pain catastrophization

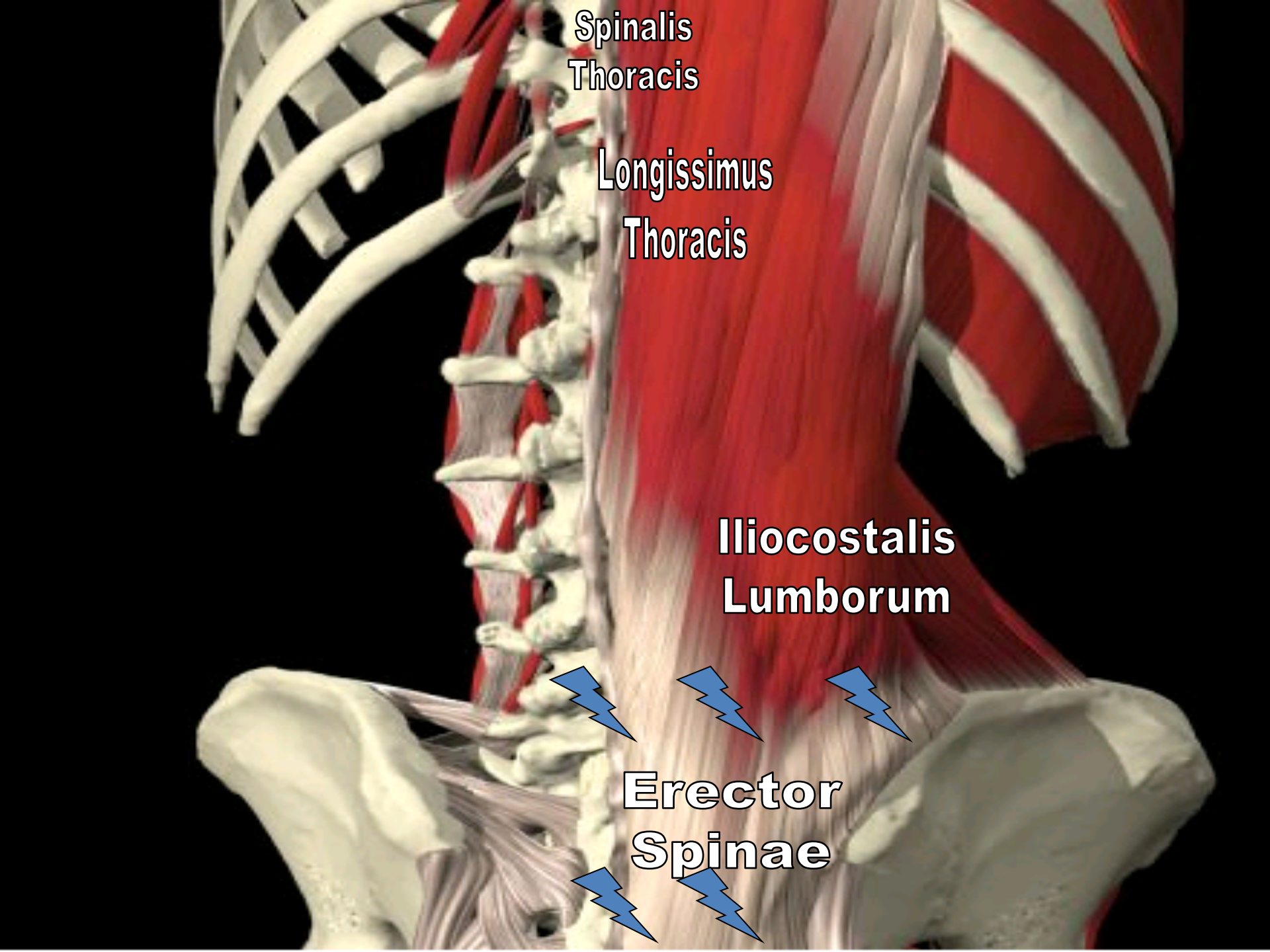
Working Through Pain: Module 7

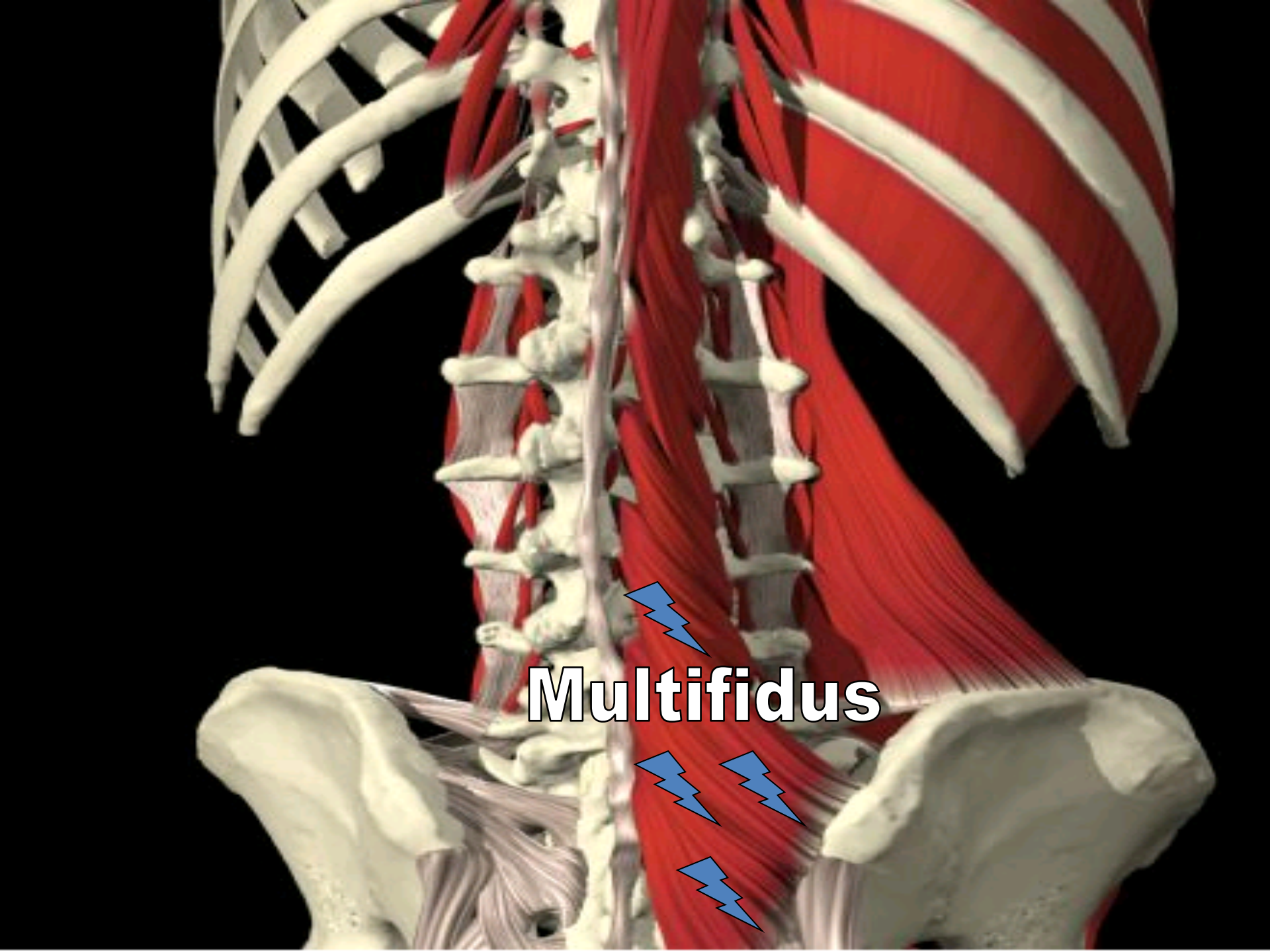
"Avoiding fear of movement or using our muscles to fight gravity"

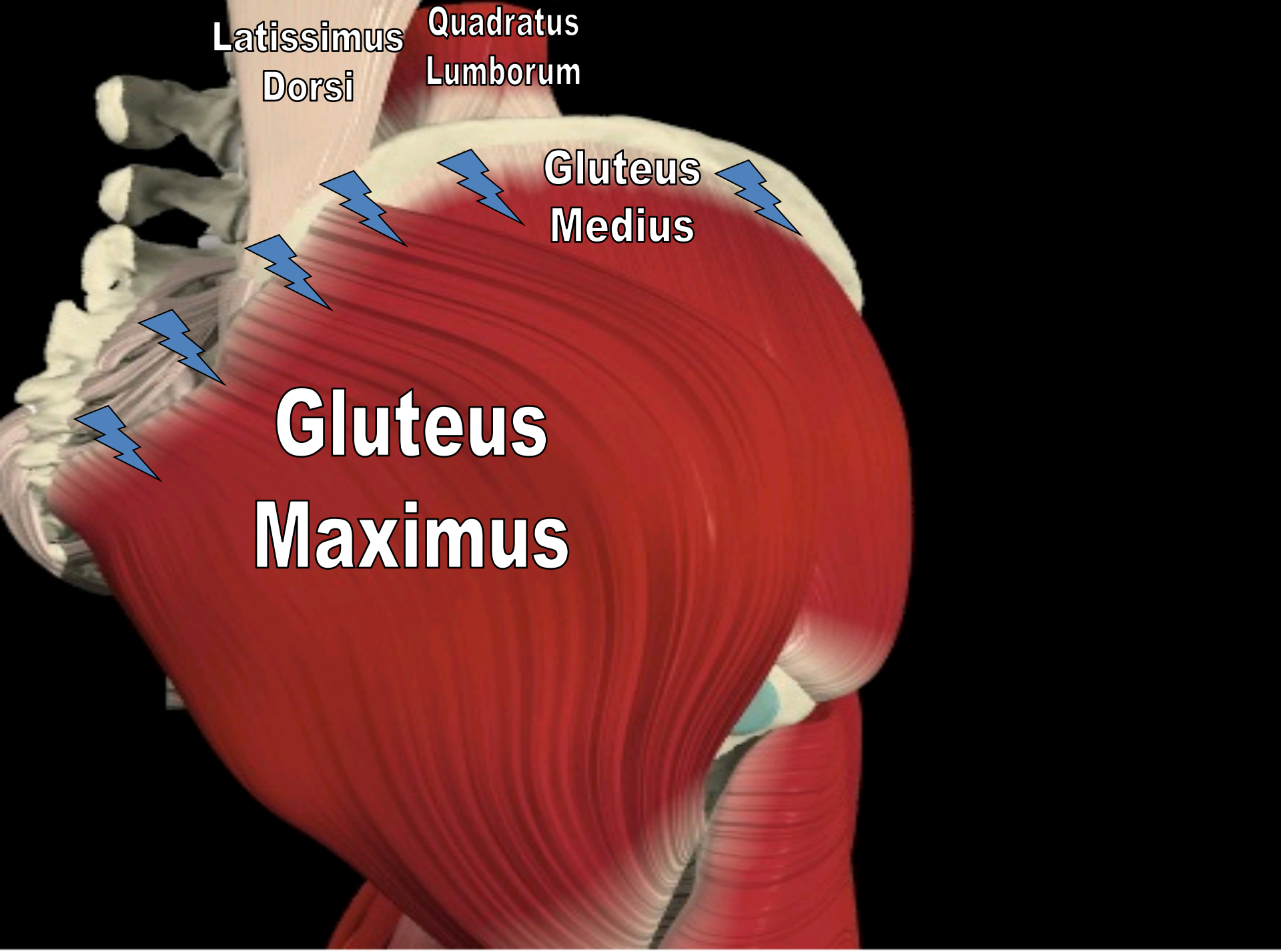
Why do we have muscles?

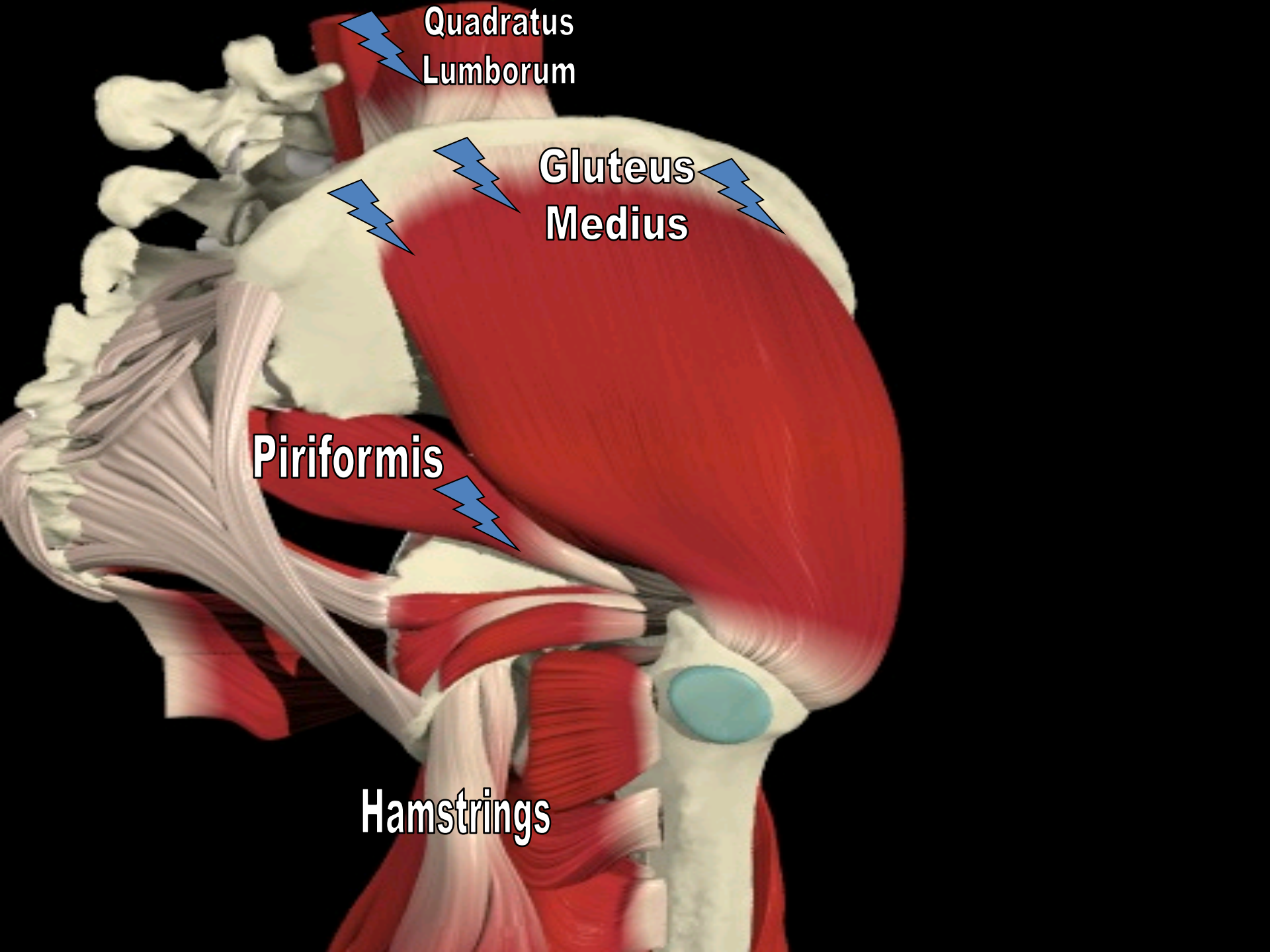


- Erector Spinae:
  - Resists lumbar flexion
- Gluteus Max/HS:
  - Resist hip flexion
  - Keep trunk from flexing on thigh
- Quadriceps:
  - Prevent knee buckling
- Ankle Dorsiflexion:
  - Lengthening contraction
  - To control plantarflexion to prevent slapping


Spinalis
Thoracis
Longissimus
Thoracis
Iliocostalis
Lumborum
Erector
Spinae


Multifidus


Latissimus Dorsi
Quadratus Lumborum
Gluteus Medius
Gluteus Maximus


Quadratus
Lumborum
Gluteus
Medius
Piriformis
Hamstrings

Physiology

Horsepower

Improved Physical Activity

Improved Flexibility

Improved Strength

Improved Endurance

Unchanged Physical Activity

Weight

Diseases of the nerves, muscles, or joints

Fear avoidance behaviors or beliefs

Obesity, Stiffness, Weakness

Gluteus Medius Pain &Weakness

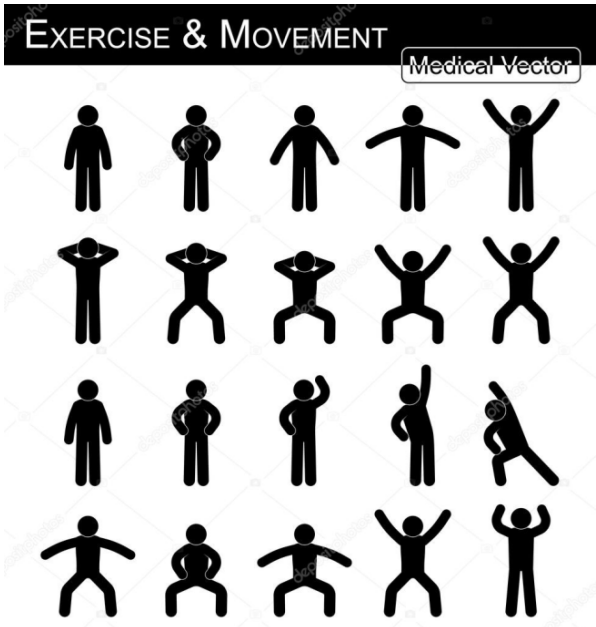
- **Very common cause of back, buttock pain**
- Tender along gluteal attachment areas
- Tight Tensor Fascia Lata
- Weaker Gluteus Medius
  - Propensity for tight Hamstrings, inflexibility
- Pain reproduced with Gluteus Medius activation (abduction with hip extended)
- These muscles are relatively inactive with sitting; more active with lunges

Fear Avoidance Beliefs or Behaviors

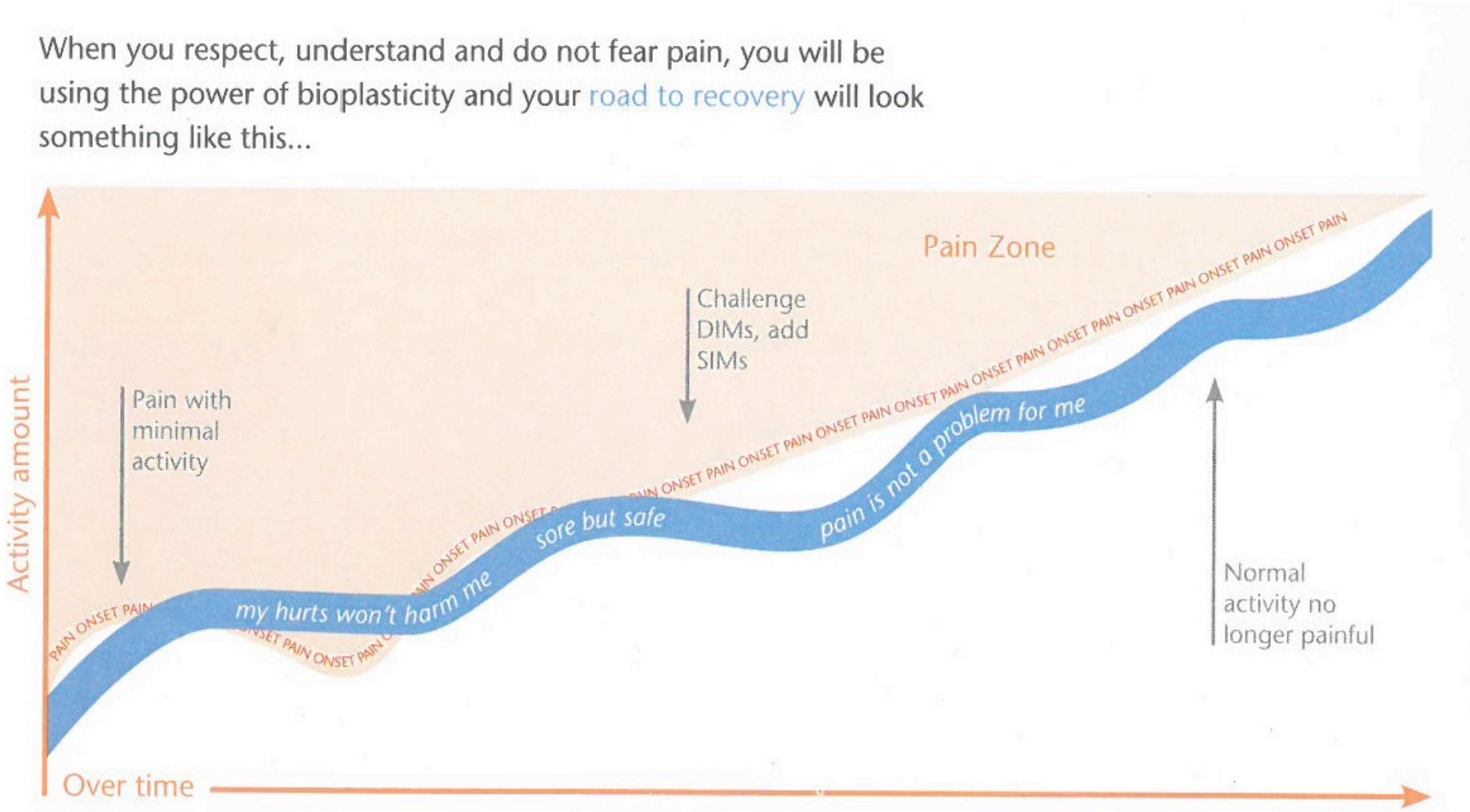
- Combine graded activity or exposure to fearful physical movements
- Everyone has to “Fight gravity”
- Focus on function, flexibility, strength, endurance
- Improving tolerance for activities
- Return to work or recreational activities
- Symptom intensity does not limit progression
- Symptom reduction is NOT the goal

Fear Avoidance Beliefs and Behaviors

- Misinformed avoiders:
  - Provide proper information,
  - Education with MD
- Learned pain avoiders
  - Provide Desensitization treatments
  - Practice moving with PT
- Affective avoiders
  - Fear Desensitization
  - Counseling for anxiety, depression
  - Need MD, PT and psychology



Pacing and Graded Exposure



"Sore but safe" or "Know Pain. Know Gain"

Explain Pain Handbook, page 36, www.noigroup.com

Summary #7: I can …

- Recognize pain is an unpleasant, familiar, inaccurate, persistent, neurological signal
- Avoid misunderstandings about how my brain processes pain and how my body works
- Avoid pain catastrophization
- Avoid being afraid of pain that occurs with movement or “fighting gravity”

Working Through Pain:
Module 8:

“I can’t go back to work?”

I can’t go back to work…

- Employment is the most important means of obtaining adequate economic resources
- Central to individual identity, social roles
- Biopsychosocial Model of Health

Return To Work

- Risk: Possibility of reinjury or worsening
- Capacity: Physical ability based upon injury
  Will the tissues hold up to activity?
- Tolerance: Your decision to endure pain in exchange for benefits of returning to work
- Patient: Tolerance > Risk > Capacity
- MD: Capacity > Risk > Tolerance

Imagine a drug called: “KROW”

- Strong association with:
  - Higher mortality (death)
    - Heart and Stroke
  - Longstanding illness
    - Prevents brain from functioning after injury
    - Higher use of healthcare services
    - High use of medications
  - Poor mental health, psychological distress
    - Increased rate of child abuse
    - Increased rate of spousal death
- If off work 20 days, return to work is 70%
- If off work 70 days, return to work is 35%

Summary #8

- My pain is unpleasant, familiar, inaccurate, persistent, neurological signal
- The benefits of work far outweigh the **risk** of reinjury and the many complications of not working
- The **capacity** of my bodily tissues to continue to perform my essential work duties has/has not changed following my injury, fracture, surgery.
- Work may increase these signals but it is ultimately my decision to **tolerate** these signals or not.

Working Through Pain: Module 9:

Putting it all together

Chronic Pain – The Solution

- National Pain Strategy:

  "Chronic pain is a biopsychosocial condition that often requires integrated, multimodal and interdisciplinary treatment"

- People with chronic pain should have access to educational materials and learn effective approaches for pain self-management

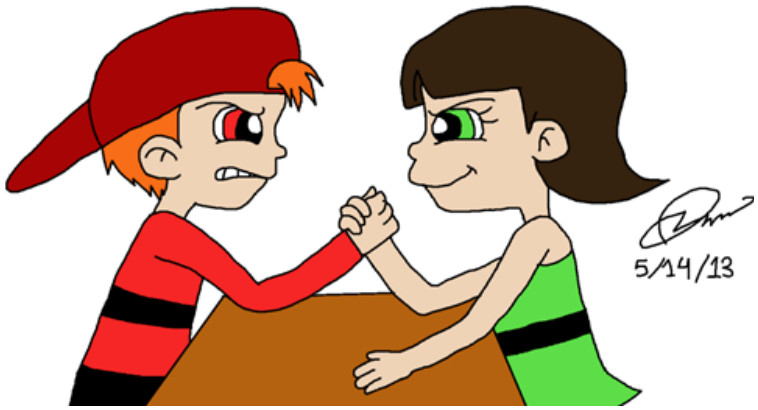
What can you do?

- Understand pain
- Develop self-discipline
- Desire self-control

- Lack of belief in one's own ability to manage pain is a significant predictor of the extent to which individuals with chronic pain become disabled or depressed
    - Arnstein et al, Pain 80:1999:483-91

Effectiveness of Pain Rehabilitation

- Enhances physical function, self-control
- Cost savings for health care expenditures for Pain Rehab program completers yielded $8772 per treated patient per year (Turk , 2002)
- Rehabilitation for chronic pain is more like dancing rather than wrestling



Summary #9: I can …

- Recognize my pain is an unpleasant, familiar, inaccurate, persistent, neurological signal
- Believe that I can change the way my brain processes pain and how my body works