DOES UNDERSTANDING = ANALGESIA?

Explaining Pain Neuroscience & Physiology

Kate Schopmeyer, DPT, CPE, CSCS
kschopmeyer@paineducator.com
San Francisco Safety Net Pain Day Conference
September 20, 2017
No financial conflicts of interest to disclose.

The opinions expressed in this presentation do not represent the official position of the US Department of Veterans Affairs.

I might challenge your beliefs about pain. I’m okay with that.
LEARNING OBJECTIVES

- Participants will review research supporting the use of neuroscience education in rehabilitation of people living with pain.

- Learners will demonstrate use of one metaphor or story to explain pain to a patient or family member.

- Learners will be able to restate the benefits of framing pain from a nervous system perspective, rather than an anatomical one.
What we all want to know when we hurt

Why do I have pain?

How long will it take?

What can I do for it?

What can [my healthcare provider] do for it?


Kate Schopmeyer DPT CPE
Things you need to know about pain but probably didn’t
Which one hurts more?

INJURY DOESN’T MATCH PAIN MUCH OF THE TIME.
PAIN AND TISSUE DAMAGE DON’T MATCH

Tissue damage without pain?

Pain without tissue damage?

PAIN IS LIKE VISION

Our brains take all the information at hand and make the most sensible story to generate a sensory experience.
PAIN IS LIKE TASTE

Your brain produces a taste experience with more than just your tongue.

WHAT IS PAIN?

- Pain is a multisystem output of the brain that is part of a suite of protective mechanisms. 
  - Muscle spasms 
  - Muscle weakness 
  - Immune response 
  - Inflammation 
  - Behaviors (running, fighting, freezing)

- Pain is felt somewhere in the body (or a representation).

- Pain is a conscious experience produced whenever the evidence of danger to our body outweighs the evidence of safety. (Moseley & Butler 2014)
EXPLAINING PAIN
PNE: KEY MESSAGES

- Pain is not just about the “tissue issues”.
- The central nervous system plays a big role (in all pain states).
- Pain is an output of the brain, which influences inputs.
- Pain is modulated by meaning, context, expectations and experience.
- Nociception is neither sufficient nor necessary for pain production.
- Sensitization is a natural adaptive feature of the nervous system, which can become unhelpful.
- Neuroplasticity or bio-plasticity principles are used to reverse some unhelpful adaptations in the nervous system.
Explaining pain for chronic MSK disorders is effective for:
- reducing pain
- improving knowledge of pain
- improving function
- lowering pain-related disability
- reducing psychosocial factors
- enhancing movement
- minimizing healthcare utilization


• Nociception and nociceptive pathways (neurons, synapses, action potentials)

• Spinal inhibition and facilitation

• Peripheral and central sensitization

• Plasticity of the brain and nervous system

Kate Schopmeyer DPT CPE

Moseley, Hodges, et al., 2004;
Van Oosterwijck, Nijs et al., 2011
No reference to anatomical models

No discussion of emotional or behavioral aspects of pain

Use prepared examples and metaphors

Include illustrations (hand drawings or other visual aides)


MAKE THE COMPLEX SIMPLE
PAIN IS AN ALARM.

IT IS A MULTI-SYSTEM OUTPUT USED BY OUR BODY TO WARN US ABOUT ACTUAL OR POTENTIAL DANGER.

PAIN IS USUALLY USEFUL, BECAUSE IT’S DESIGNED TO PROTECT US.
Sometimes our body’s alarm system becomes too sensitive, meaning it is not a helpful alarm and goes off for no reason. Kind of like a smoke alarm alerting you when a single candle is lit.
How does our brain get messages of danger from the body?
NOCICEPTOR CELL =
THE DANGER SENSOR
Ion channels are replaced every 48-72 hrs.
Descending Control = actions from the brain to control nerve impulses
DESCENDING INHIBITION: THE HELPFUL KIND

Stubbing your toe
DESCENDING FACILITATION: HELPFUL?

Soccer drama?
TWIN PEAKS: PATIENT EDUCATION

Tissue Tolerance

Protect by Pain

Protect by Pain
(flares up)

Baseline pain

Adapted from: Explain Pain (2003)

Kate Schopmeyer DPT CPE
Things you need to know about pain but probably didn’t

Kate Schopmeyer DPT CPE
YOUR BRAIN PRODUCES A PAIN EXPERIENCE WITH MORE THAN JUST NOCICEPTORS.

Moseley & Arntz (2007), *Pain* 133; 64-71
NON-PHYSICAL PAIN MODULATORS

Ooh, that’s very sore

Thank you doctor, that feels much better.

Context
Experience
Expectations
Meaning
Beliefs
Many signals are considered at once.

The brain must make the most sensible story given all the data.

OUR BRAIN WORKS ON A PRIORITY BASIS.

How dangerous is this?
Is this an “issue with the tissues” or an overactive alarm?

Is action required? Will pain help motivate action?

“Pain is a call to action, not a damage meter.”

~Todd Hargrove
OUR BRAINS ARE NOT EMPTY

“Thoughts and beliefs are nerve impulses in your brain!”

Kate Schopmeyer DPT CPE
HOW POWERFUL ARE THOUGHTS?
What you think, say and do as a clinician will influence your patient’s pain experience.

“The two placebo groups differed only in the clinicians’ knowledge of the range of possible double-blind treatments.”

100% chance of receiving no analgesia

50% chance of receiving analgesia
BELIEFS ABOUT BACKS (AND HIPS, AND KNEES, AND SHOULDERS....)
BONES ADAPT IN RESPONSE TO THE LOADS THEY ABSORB DURING SPECIFIC ACTIVITIES OVER A LIFETIME.

- “Our skin shows signs of age with wrinkles and spots. Our spine show signs of age in other ways. Osteophytes and degenerative changes are like wrinkles on the inside.”

-Protectometer (Moseley, Butler 2015)
THE HUMAN BODY IS MORE LIKE A TREE THAN A CAR.

Resilient.

Robust.

Adaptable.
WHAT A HEALTHCARE PROVIDER CAN DO

1. Check our own beliefs about pain
2. Learn to explain pain, not (just) anatomy
3. Rule out the Scary-Nasties
Ask your provider new questions:

• How do I know if my pain system is being overprotective?
• How can I retrain my pain system to be less protective?
• How do I know if I’m safe to move?

Learn about pain:

• Our bodies are wonderfully adaptable
• Movement is Medicine
• You can be sore, but safe
• Start low, go slow
• “Challenge the flare line, don’t push through it, doing this can help you move it.”

www.tamethebeast.org

Kate Schopmeyer DPT CPE

WHAT YOU CAN DO
PAIN EDUCATION RESOURCES


Kate Schopmeyer DPT CPE
YOUTUBE VIDEOS

- Pain Explained by Central London Community Healthcare NHS Trust
- Understanding Pain and What To Do About It in 5 Minutes
- Brainman Chooses
- Why Things Hurt (Moseley)
HELPFUL WEBSITES FOR PATIENTS AND PROVIDERS

- tamethebeast.org
- retrainpain.org
- bettermovement.org
- lifeisnow.ca
- gradedmotorimagery.com
- painscience.com
- bodyinmind.org
- healthskills.wordpress.com
- mycuppajo.com
- aptei.ca
QUESTIONS?
REFERENCES


REFERENCES


