# Exploring Pain: A Mind-Body Approach

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### "the problems the country faces right now are so big that it is not possible to actually 'know' how to fix them."

-Nora Bateson, Small Arcs of Larger Circles

### "If we could read the secret history of our enemies, we would find in each person's story enough suffering and sorrow there to disarm all hostilities."

-Henry Wadsworth Longfellow

- Pain is normal... and has benefits\*
  - Bastian, Leknes, et al. 2014
- Pain is protective, defensive, and adaptive...
- "Pain is a decision by the (unconscious\*) brain." (Lorimer Moseley) (\*added)
- "The fear of pain is often worse than the pain itself." (James Gordon)
- "Pain is less painful when we are confident that we are safe..." (Unknown)

### Chronic Pain Epidemic? Yes, we have a problem...



**Opioid Epidemic?** 

Yes, we have a problem... but it is not just what the media is conveying...

Thompson et al. 2018, Pain

### ????

- Why would 40% of the people (alert, rational & coherent and "not in shock") admitted to an emergency room with horrific wounds feel no pain or pain of low intensity even after long delays (Melzak 1982) and why do 70% of limb amputees continue to have pain? (Jensen 1985)
- Why do studies repeatedly show gross abnormalities, like disc bulges, spinal stenosis, herniations, meniscus tears, and so on in 40-70% of people who have no history of pain? (Boden 1990, Kleinstuck 2006, Battacharyya 2003, Jensen 1994, Borenstein 2001, Boos 2000, others...)

### Pain Definitions

- IASP Original Definition: "An unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage."
- Some pain researchers are proposing expanded definitions, example compiled definition: *Pain is an unpleasant, aversive, and/or distressing experience associated with actual or potential tissue damage with sensory, emotional, cognitive and social components* (C de C Williams & Craig, Bronnie Thompson, OTR).
- Pain is a mutually recognizable somatic experience that reflects a person's apprehension of threat to their bodily or existential integrity (Cohen, Quinter & Rysewyk, 2018)
- Contextually, "pain" is best used through the integrative lens of not just physical pain, but also emotional pain, mental pain, spiritual pain... PAIN...





#### Nature Reviews | Neuroscience



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Emotional modulation



ACC S2 Insula BG Thalamus PAG Cerebellum PB RVM

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### More on pain... did you know?

- Pain is not an accurate indicator of:
  - What's happening in the body and the senses
    - What you perceive through your senses is not accurate information
  - Where the problem is located
  - Type of problem
  - Presence of tissue health/damage
- Posture, symmetry/asymmetry, rate/quality of tissue healing, abnormal movement, and findings on scans are not sufficient for pain
- Severity of damage does not lead to ongoing pain nor correlate to severity of pain and in fact is sometimes inverse (Malik and Lovell, 2004; Uomoto and Esselman, 1993)
- Pain is linked to personality (Marras et al., 2000; Conrad et al. 2007, Fishbain et al. 1986, Polatin et al. 1993, Sansone & Sansone, 2012, Weisberg 2000, Kinney et al. 1993)
- Pain is inextricably linked to emotional biology (Eisenberger, Kross, Lumley)
  - See <a href="http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3152687/">http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3152687/</a>

"We think [the presence of the active biology of] fear is the highest predictor of developing chronic pain."

– Lorimer Moseley, PT, PhD

And this is also not a weakness!

This world - absolutely pure As is. Behind the fear, Vulnerability. Behind that, Sadness, then compassion. And behind that the vast sky.

-Rick Fields

### Autonomic Nervous System and Pain

- Autonomic dysregulation can mean: excessive or insufficient sympathetic or parasympathetic dominance—meaning any state of relative imbalance, especially if prolonged.
- Imbalance between the SNS and PNS is considered to play a role in chronic pain conditions as it represents a dysregulated system with loss of adaptive function (Tracy 2016, Streeter 2012, Koenig 2016)
- ANS dysregulation has been suggested to play a role in central sensitization- thereby affecting pain intensity (Barakat 2012; Kolacz & Porges, in press)
- Chronic pain conditions such as Fibromyalgia, Rheumatoid Arthritis, Headache, Irritable Bowel Syndrome include various expressions of autonomic dysregulation (Tracy 2016, Streeter 2012, Barakat 2012, Azam 2016, Meeus 2013, Staud 2008, Kolacz & Porges, in press)
  - For example, fibromyalgia patients have demonstrated persistent ANS hyperactivity at rest and hyperactivity during stress (Staud 2008)



# Adverse Childhood Experiences & Pain?

- Mathur et al. (2018). Recalled early life adversity and pain: the role of mood, sleep, optimism, and control. Journal of Behavioral Medicine.
- Nelson, S., Simons, L., & Logan, D. (2017). The incidence of adverse childhood experiences (ACEs) and their association with pain-related and psychosocial impairment in youth with chronic pain. *Clin J Pain*. Epub ahead of print.
- Numerous papers online and in pain journals: Anda et al., 2011, Jones et al. 2009, Felitti 2009, Sachs-Ericcson et al. 2007, Kopec & Sayre 2005, Davis et al. 2005, Green et al. 2001, Imbierowicz & Egle 2003, Lampe et al. 2003, McBeth et al. 2001, Martinez UTHSCSA.edu, ...
- Intergenerational effects, transmission... Lê-Scherban et al, 2018



The *perception of safety* determines whether behavior will be prosocial or defensive...

-Stephen Porges

"Regardless of the model of attachment or its dependence on cognitive, affective, behavioral biological constructs, the critical features that determine the valence of *the interaction* are related to perceived safety."

-Stephen Porges

# What's love got to do with it?

"I would love to find out the best way that we could convince everyone that they are both loved, and loving; we would drastically reduce stuff like chronic pain...

To love and be love, I reckon, is probably the strongest biological driver...

...I would imagine any human who is absolutely convinced that they are physically safe from everything would not experience the pain."

-Lorimer Moseley, PT, PhD

Martire et al., 2018: https://doi.org/10.1093/abm/kax062

#### Conclusions

Negative marital interactions may exacerbate physical symptoms. Effects of daily marital tension likely accumulate over time and have long-term implications for health.

### BioPsychoSocialSpiritual Approach

(Engel, 1977, 1980; Frankel et al. 2003; Borrell-Carrió et al. 2004; Sulmasy 2002)

Explore multidimensional education and "entry points", interdependence, and relationships to assist cultivating improved balance among environmental, sensory, physical, nutritional, chemical, mental, emotional, social/relational, historical and/or spiritual levels within a living system paradigm...



University of Rochester Medical Center

"Degrees = techniques = outcomes = predictability = control = linear biomedical paradigm. You are then the fixer of the broken. That's not yoga."

– Matthew Taylor, PhD, PT

# **Embrace** Complexity



# Mind-Body Medicine

"It regards as fundamental an approach that respects and enhances each person's capacity for *self-knowledge and self-care*."

(NCCAM, 2005)

Whether or not CAM is used, clinical trials show that outcomes are improved and costs are reduced when self-care is used for a variety of chronic illnesses (Lipchik 2006)



### Mind-Body Medicine includes...

- Mental Imagery
- Meditation & Mindfulness
- Biofeedback & Autogenics
- Body awareness
- Drawing, Art
- Writing, Journaling
- Movement (Yoga, QiGong...)
- Nutrition & Mindful Eating
- Posture & Body Language
- Cognitive Skills
- Family History/Personal History

- Breathing, breath awareness, breath control
- Spirituality, spiritual emotions and practices (forgiveness, gratitude, compassion, loving kindness, etc.)
- Placebo/Nocebo
- Group Support, Prosocial Engagement
- Emotional Awareness & Expression
- And more...



#### Self-Awareness $\leftrightarrow$ Self-Regulation $\leftrightarrow$ Self-Expression

 $\bigcirc$ 

Self-Care



### Integrative/Mind-Body Approach to Pain

- How might the integrative model approach pain?
  - 1. Pain is not personal, it is universal
  - 2. Pain as a teacher and motivator
  - 3. Choice how to deal with the experience of pain
  - 4. Not, "why is this happening"; rather, "how am I going to be in relationship to this experience of pain?"
  - 5. Avoidance/resistance = tension (vs. acceptance, commitment, non-judgment)
  - 6. Suffering is equally inherent to attachment to feeling good as it is aversion/resistance to discomfort (\*)
  - 7. Specific mind-body skills and tools
    - 1. Experiential skills building facilitate capacity to shift physiological state if in hyperarousal  $\rightarrow$  "rest & digest"  $\rightarrow$  if in hypoarousal  $\rightarrow$  "modulated activation"
  - 8. There is not always (often not) going to be a "physical fix", and even when physical change is needed/useful/sustainable, adopt non-dual thinking: BOTH/AND
  - 9. What entry/access points will assist transformation— physical, environmental, nutritional, chemical, mental, emotional, social, spiritual, energetic?



### Mind-Body Approach to Pain-Additional Concepts

- Facilitate self-discovery and see what arises...
  - For the clinician, "explore before teach..."
- Active (Empowerment) / Passive (Nurturance) → Active > Passive (Cosio & Lin, 2018)
- Look back but don't stare... stay in the present moment, even to discover and transform the past
- Relational attunement... embodied compassion, deep listening, cultivate relationships – self/other
- Work with psychosocial content... ACEs, history, conditioning, beliefs (enhance placebo/ diminish nocebo), cognitions, pain education, CBT, acceptance and commitment. and "relationship to..." (personal and interpersonal ethics)
  - These are most often bypassed...
- Encourage contemplation of needs what would support the biology of safety, nurturance and empowerment in my body, mind, and the experience of pain?
- Explain pain...

# **Pain Education?** Functional Neuroscience Education

Research is increasingly showing that understanding the neurophysiological/biological basis of pain is a critical component of healing and recovery. (Moseley, Louw, Oliveira, numerous others...)







Moseley GL (2004): Widespread brain activity during an abdominal task markedly reduced after pain physiology education: *f*MRI evaluation of a single patient with chronic low back pain. *Australian Journal of Physiotherapy* 51: 49–52

# Mindfulness for Persistent Pain: "Different Sensations"?

"There's nothing that does not grow light with habit and familiarity... Putting up with little cares, I'll train myself to bear with great adversity." -Shanti Deva

- May change the neuromatrix and assist the brain in reinterpreting sensations as less threatening via top-down, neurocognitive mechanisms, activating inhibitory pathways
- Example approach three "parts":
  - 1. reduce resistance/aversion and attempt neutral labeling
  - 2. simple somatoemotional awareness affect labeling (Lieberman 2007, 2011; Creswell et al. 2007; Torrisi et al. 2013)
  - 3. movement retraining/response

### Training Central Modulation During Movement and Exercise

- Find safety and control at the cognitive/behavioral/affective levels
- Cultivate an intention...
  - What do I need? How do I want to feel? What qualities do I wish to deepen? How can I embody these intentions into my experience?
- Regulate the breath and whole bodymind (biofield) pattern of tension
  - Move slowly to increase awareness, monitor sensations and emotions
    - Remember: pain is not always an accurate indicator of what is going on
  - Is my breathing controlled?
  - Is the overall tension remaining as low as possible as I move?

(Contributions: Neil Pearson, Pain Care Yoga; Matthew Taylor, Smart Safe Yoga)

### Guided Imagery & Pain

- Study of 69 hospitalized patients used Guided Imagery tape with analgesic imagery that offered suggestions to increase comfort, provided pleasant nature imagery, including walking along a river among wildflowers. Average pain-intensity score was lower than baseline for 90% of participants (Kwekkeboom, 2003)
- Baird et. al. 2010, GI for OA treatment, significant reduction in pain levels, improvements in mobility, as well as decreased over-the-counter, prescribed, and total medication use.
- Chen and Francis 2010, Chronic Pain, clinically, but not statistically, significant trends of improvement in pain ratings, mental health measures, sleep, and all domains of healthrelated quality of life. The lack of statistical significance is likely due to a high dropout rate and inadequate power due to a small sample size.
- Also see: Posadzki, P et al. (2012). Guided imagery for non- musculoskeletal pain: A systematic review of randomized clinical trials, J Pain Symptom Management, Jul; 44(1): 95-104.

FREE RESOURCE: search the internet for: Kaiser Permanente Guided Imagery

# Considerations for Working With Chronic Pain in Mind-Body Skills Groups





Professional Training Program In Mind-Body Medicine

October 11-15, 2018

Ellicott City, Maryland (between Baltimore & DC)

cmbm.org/mbm



# The Neuroscience of Mind-Body Skills Groups

- Healthy nurturance, attachment, tribal/community support, safety, prosocial engagement
- "Exercise" for the entire integrated cranial nerve, social engagement, and central/autonomic nervous systems
  - Self-regulation correlates foundations of resiliency
    - Deactivates defense circuits, promotes higher self-referential processes
  - Organizing principle for emotion and self-expression (including in supportive relationship to others)
    - Expressive and receptive domains of communication

# Considerations Working with Mind-Body Skills Groups

- Apply the model and see what emerges
  - May need to connect some dots due to common blind spots
- Consider developing and including a mini-talk based on functional pain neuroscience education
  - Provide education on chronic pain, headache/migraine, ANS, sensitization, etc. and how this relates to self-care and mind-body connection
  - Improve understanding of the link between fear, stress/trauma/ANS response, and pain, and thus importance of regular practice of stress management techniques
  - In the group exploring emotion (dialogue with a symptom), consider discussing the scientific links between emotional and physical pain processing

- Recommend applying skills specific to pain condition
  - Dialogue/expressive writing activity
    - Also encourage expressive writing around the pain condition journaling, emotional expression (Niles et al. 2013; Smith & Pennebaker 2008; Kircanski et al. 2012)
  - Wise guide imagery
  - Drawings specific to pain\*
  - Genograms\*\*
- Consider practicing short sessions of movement based on principles of central modulation ("mindful movement" retraining) using yoga, qi gong, etc.
  - Breath control, full body awareness (regulation of tension and reaction to discomfort), setting of intention, cognitive-behavioral component, choice/autonomy
- Consider including a mindfulness meditation experiential applied specifically towards unpleasant sensations in the body
- Be sure to use the CMBM version of body scan... it may or may not take you to the painful part...

- Increase overall body awareness, e.g., regular facilitation of "what is happening in your body right now?" and more specifically facilitate noticing changes in pain/symptoms after experientials, after emotional expressions, and while sharing/talking about stressful events during check-in, etc. (Van der Maas, 2015)
- Consider discussing the link between inflammation and pain and link this to mindful eating and nutrition session
- Facilitate improved sleep patterns, consider including the importance of sleep hygiene in the mini-talk... plus use of guided imagery, dark environment, white noise, nutrition and neutraceutical support
- Consider recommending additional supportive/concurrent mind-body oriented learning programs/ resources such as "Unlearn Your Pain" or "Back in Control" programs

"Go back and take care of yourself. Your body needs you, your feelings need you, your perceptions need you. Your suffering needs you to acknowledge it. Go home and be there for all these things."

-Thich Nhat Hanh

### Podcasts on Pain Neuroscience

Lorimer Moseley, four part series:

- https://www.youtube.com/watch?v=60\_pB2AVuMI
- <u>https://www.youtube.com/watch?v=XY3ezQW1FUs&feature=related</u>
- https://www.youtube.com/watch?v=o\_nBvt35BHM&feature=related
- <u>https://www.youtube.com/watch?v=CW2s-wRzEKs&feature=related</u>
- Neil Pearson, three part series:
  - <u>http://www.canadianpaincoalition.ca/media/video/overcome\_pain/part\_1/</u>
  - <u>http://www.canadianpaincoalition.ca/media/video/overcome\_pain/part\_2/</u>
  - <u>http://www.canadianpaincoalition.ca/media/video/overcome\_pain/part\_2/</u>
- Sean Mackey, Stanford, via Scientific American:
  - <a href="https://www.scientificamerican.com/podcast/episode/the-science-of-pain-08-12-03/">https://www.scientificamerican.com/podcast/episode/the-science-of-pain-08-12-03/</a>

### Additional Citations

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### Thank you! Questions?

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