

Therapeutic Neuroscience Education in the treatment of Chronic Pelvic Pain  
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**Classifications of pain** (Hilton 2011, Smart 2011, Wolff 2011)

- There is no direct measure or single assessment tool
- Predictive rules are about 90% to 96% accurate
- Can have combinations of various classifications - 50/50 or 40/60 etc

Nociceptive pain

- Strongest predictor - symptoms localized to area of injury or dysfunction, some referred pain is possible.
- Second most important criterion - absence of dysesthesias (abnormal sense of touch)
- Other qualities predictive of Nociceptive pain (Smart 2012)
  - Pain is not constant
  - Aggravating and easing factors follow common pattern
  - Absence of burning, shooting, electrical shock pain
  - Absence of night pain
  - Responds easily to direct treatment

Peripheral neuropathic pain or peripheral sensitization (ie pudendal neuralgia)

- Strongest predictor - pain referred in a dermatomal or cutaneous pattern
- Logistical regression - cluster of 2 symptoms and 1 sign predictive of Peripheral neuropathic pain (Smart 2012)
  - Pain referred in a dermatome or cutaneous pattern
  - History of nerve injury, pathology or mechanical injury to nerve - neuropathy
  - Adverse neural tension signs – parasthesia, itching, dysesthesia
- History of trauma with poor healing

Central sensitization (CS)

- Strongest predictor - disproportionate, non-mechanical pain, and unpredictable pattern of pain provocation
- Logistical regression - cluster of 3 symptoms and 1 sign predictive of CS (Smart 2012)
  - Disproportionate, non-mechanical pain, and unpredictable pattern of pain provocation
  - Pain disproportionate to type of injury or pathology - low pain tolerance
  - Strong association with maladaptive psychosocial factors (negative emotions, poor self efficacy, pain behaviors) - Pain responds to stress and anxiety
  - Defuse / non-anatomic areas of pain and tenderness on palpation, "spread" of pain
- Pain longer than 12 weeks
- Pain increased by small movement or no movement,
- Burning, shooting, crushing, allodynia or hyperalgesia
- Multiple systems involved – sleep, bladder, bowel, muscles, joints, immune system
- Depression, fear avoidance, catastrophization
- Previous treatment failure - treatment adherence for active treatments is low

## Application to Pelvic Pain and dysfunction

- Somatovisceral convergence - neural cross talk in the pelvis (organs, muscles, skin)
- Overlap of several disorders evidence of centralized mechanism (Kaya 2013)
  - Chronic pelvic pain
  - Interstitial cystitis / bladder pain syndrome
  - Chronic prostatitis
  - Vulvodynia
  - Fibromyalgia
  - Irritable bowel syndrome
- PFM contracts with activation of sympathetic nervous system (van der Velde 2001)
- Many pelvic physical therapy specialists are successfully using TNE to treat chronic pelvic pain in clinical practice (Hilton 2011, Locke 2019, Nijs 2010)
- Recent abstract at IUGA meeting (September 2019) "There is less favorable outcome for pelvic organ prolapse surgery in women with central sensitization syndrome especially in terms of persistence of symptoms, pain and overall satisfaction compared to those without." (Vij 2019)
- OAB with moderate to severe urgency / frequency
  - Does the sensation of urgency behave like the sensation of pain?
  - Can it be sensitized?
  - Can it be changed with education, information?

Traditional biomechanical explanations of pain mechanism ("pinched nerve", "leaky bladder lining") can affect pain perception. (Blasini 2017)

- "If my pain is from a pinched nerve then I will not have less pain until my nerve is unpinched". However research does not support (patients with a pinched nerve can have less pain without surgical opening of the foramen).

Orthopedic sham surgery - a systematic review of 6 RCT showed sham surgery to be as effective as real surgery on decreasing pain a disability (Louw 2017)

## Therapeutic Neuroscience Education (TNE)

International Spine and Pain Institute - Therapeutic Neuroscience education teaching patients about pain - Louw and Puentedura. 2013.

Neuro Orthopaedic Institute (NOI) - Explain Pain Supercharged - Butler and Mosley 2017

## Therapeutic Neuroscience Education (TNE)

- Education to help patients reconceptualize their pain
- Leading to decreased experience of pain, decreased catastrophization and fear
  - and ultimately improved function.
- Simply said - the more you learn about your pain the less pain you have.
- We do not teach biomechanics of the body - we teach about pain
- Using metaphors and stories individualized to the patient (Louw 2019) - phantom limb pain

Systematic review - 13 RCT on pain education (Louw 2011, 2016)

- Average pain reduction of 3.1 points on visual analog scale after a single one on one session
- After 4 week combined physical therapy and TNE - significant treatment effect in 86% of patients with chronic low back pain
- Decreased fear of movement
- Less catastrophizing
- Better pain coping, pain attitudes, pain self efficacy
- Better movement on objective tests
  - Neurodynamic test - straight leg raise
  - Spinal movement
  - Motor control
  - Physical performance

Which patients can benefit from Therapeutic Neuroscience Education

- All patients can benefit from carefully worded explanation of pain mechanism
  - Avoid explanations that elicit fear
  - Allow the possibility of change
  - Pain is a provocative word
    - Asking for pain rating is not reliable in patient with chronic pain
    - Use their words if possible - ache, pressure, urge, sensation
    - Rate your ----- sensation - 0 to 10
- Patient with symptoms of central sensitization benefit most from the full treatment (along with a multimodal approach)

Strongest predictor and logistical regression

Central sensitization questionnaire (Mayer 2012)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3248986/>

**Treatments to decrease the sensitivity and/or activity of the nervous system**

<p>Exercise and teaching</p> <ul style="list-style-type: none"> <li>• Therapeutic Neuroscience Education</li> <li>• Cognitive Behavioral Therapy (CBT)</li> <li>• Affirmations and positive thinking, joy and laughter</li> <li>• Diaphragm Breathing</li> <li>• Relaxation training</li> <li>• Yoga (Hatha)</li> <li>• Aerobic exercise - release of endorphins</li> <li>• Graded Motor exposure / imagery</li> </ul>	<p>Manual therapy and modalities</p> <ul style="list-style-type: none"> <li>• Connective tissue mobilization</li> <li>• Massage for relaxation</li> <li>• Heat / cold</li> <li>• Transcutaneous electrical nerve stimulation (TENS)</li> </ul>
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### Incorrect assumptions

- More pain equals more damage - There is not a direct link between amount of tissue damage and level of pain experienced
- If there is still pain there must still be damage, "sore but safe"
- Pain only occurs when you are injured - emotional overload and thinking about movement hurts (Mosley 2008)
- The environment you are in when you are injured will not affect the amount of pain
- It is possible to have pain and not know about it - brain symphony
- Changing the way I think will not make it go away - the pain is not in my head - functional MRI studies
- When I feel a strong urge - the bladder must be full

### Three type of patients

- No way
  - Not ready to hear
  - Become upset and challenge you, might not come back
  - 5 to 10% of patients
- I get it
  - Say they understand but do not integrate information
  - Superficial learning
  - Majority of patients
- YES! I get it
  - Deep learning
  - Internalizes messages
  - Applies principles

## Therapeutic Pain Neuroscience Education in the treatment of Chronic Pelvic Pain - **Resources**

Neuro Orthopaedic Institute (NOI) - Butler and Mosley <https://www.noigroup.com/>

International Spine and Pain Institute - Adrian Louw <https://www.ispinstitute.com/>

### Patient Books

- Why do I hurt? - Louw
- Why Pelvic Pain Hurts? - Louw
- Painful yarns - Mosley
- Explain pain - Butler and Mosley

### Workbooks

- Why do I hurt? workbook - Louw
- Your fibromyalgia workbook - Louw
- The Explain Pain Handbook: Protectometer - Mosley and Butler

### Other

- Pain education posters - NOI Group
- Explain Pain Supercharged for Health professionals - NOI Group
- The Graded motor imagery handbook - Mosely, Butler, Beames, Giles - NOI
- Pain Neuroscience posters - OPTP
- Why do you hurt Therapeutic Neuroscience Education System - Louw - OPTP
- Understanding pain - what to do about it in less than 5 minutes - You Tube

### Relaxation and meditation for pelvic pain

- Patricia Neumann PT - Pelvic Floor Muscle Relaxation for women (and Men) with Chronic Pelvic Pain <http://www.thepelvicfloorclinic.com.au/buy-cd-or-download>
- Jan Hulm - Physiological quieting – Phoenix Enterprises (pedi and Spanish versions) <http://www.phoenixcoresolutions.com>
- Donna J. Carrico and Gail Elliott Evo - Beaumont Hospital (Michigan) - Guided Imagery for Relaxation in Women with IC and Pelvic Pain, Guided Imagery to Enhance Healing for Women with Pelvic Pain, Interstitial Cystitis or Vulodynia, Guided Imagery to Enhance Healing for Men with Chronic Pelvic Pain or Prostatitis - available on Amazon

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