Managing primary pain disorders in children with underlying chronic-on-acute conditions

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What is PT?

Why move?

"pain is best seen as a need state, like hunger and thirst, which are terminated by a consummatory act" - Patrick Wall

analgesic effects

correct motor control
alter features of muscle activation, postural alignment, and movement patterns that abnormally load tissues

Why move?

modify self efficacy, catastrophizing, and fear
graded physical activity and graded exposure
lower the threat value and reduce perception of harm of movement

reverse or prevent disuse and deconditioning
association between a less active lifestyle and pain and disability is strong

What is the patient thinking?

I know that something is still wrong with me...
I know I am not crazy...
They won't believe me either...
I wish they would just find it and fix it...
Is he going to hurt me as much as the last PT?
This dude is just like the rest... he won't know what is going on either...

Fear

fear of movement and (re)-injury best predictor of self reported disability
pain-related fear and concerns about harm avoidance all appear to exacerbate symptoms
may contribute to persistent pain via
creating lack of movement/avoidance behaviours
maintaining inflammatory mediators which contribute to promotion of pain mechanisms such as peripheral and central sensitization
So where does a Physical Terrorist begin?

Know pain and know gain

Reconceptualizing pain

What is pain?


Reconceptualizing pain

pain does not provide a measure of the state of the tissues

pain is modulated by many factors from across somatic, psychological, and social domains

relationship between pain and the state of the tissues becomes less predictable as pain persists

pain can be conceptualized as a conscious correlate of the implicit perception that tissue is in danger.


Reconceptualizing pain

pain seems relatively straightforward – hitting one’s thumb with a hammer hurts one’s thumb

structural-pathology model

supposes pain provides an accurate indication of the state of the tissues
Social context?

Stress

Adapted from Moseley GL and Butler D, Explain Pain, 2003

http://web.mit.edu/persci/people/adelson/checkershadow_illusion.html
**Pain neurophysiology education practice guidelines**

**PNE is indicated when**

- The clinical picture is characterized and dominated by central sensitization; and maladaptive pain cognitions, illness perceptions or coping strategies are present

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**PNE practice guidelines**

**patients should understand their presenting pain mechanism**

- Aim at altering patients’ knowledge about their pain states and reconceptualizing pain

- When solely cognitive and behavioural responses are encouraged, without reconceptualizing pain, these responses may be counter-intuitive for chronic pain patients, because pain is still a sign of harm to them

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**PNE practice guidelines**

**content?**

- Characteristics of acute versus chronic pain
- The purpose of acute pain
- How acute pain originates in the nervous system
- Role of the brain
- How pain becomes chronic
- Potential sustaining factors of pain

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**PNE practice guidelines**

**patients should receive written information about the neurophysiology of pain**

- Patients may have neurocognitive impairments, including concentration difficulties and impairments in short-term memory which implies that they can forget a number of aspects of the verbal education

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**Pain neurophysiology education**

**may decrease pain ratings, increase physical performance, decrease perceived disability, decrease catastrophization, and improve movement**

- Focuses on a detailed description of the biology and physiology of the nervous system and brain’s processing of pain and nociceptive input
- Anatomy- and pathoanatomy-based models have shown limited efficacy in decreasing pain and disability

Louw, A. et. al., Arch Phys Med Rehabil Vol 92, December 2011

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**Improved endogenous pain inhibition?**

**Improved knowledge of pain neurophysiology**

- Less worry about pain in the short term
- Long term improvements in physical functioning, vitality, mental health, and general health perceptions
- Lower pain scores and improved endogenous pain inhibition

Dysfunctional endogenous analgesia?

dysfunctioning of endogenous analgesia in response to exercise in patients with chronic pain
decreased pain threshold following exercise
vulnerability for new nociceptive input
exercise therapy should be individually tailored with emphasis on prevention of symptom flares

How to move in the face of pain

when exercising at the edge of the pain
instruct the patient to ask the following questions
is this really dangerous?
will I regret this later?
then instruct the patient to
keep breathing calm
keep your body tension calm
monitor the pain
the patient now has 4 alarms, calm mind, calm breath, calm body and the pain

Cognition targeted exercise therapy

Preparing patients for cognition-targeted exercise therapy using therapeutic pain neuroscience education
Cognition-targeted = time-contingent exercises using goal setting
Cognition-targeted = addressing patients' perceptions about exercises
Cognition-targeted = tackling the feared movements & activities
Using stress for altering movement-related pain memories

Cognition targeted exercise therapy

“...goal of cognition-targeted exercise therapy is systematic desensitization, or graded, repeated exposure to generate a new memory of safety in the brain, replacing or bypassing the old and maladaptive movement-related pain memories”

Video links

understanding pain in 5 minutes or less
http://www.youtube.com/watch?v=RWMKucuqJs
why things hurt – Lormier Moseley
http://www.youtube.com/watch?v=gwd-wLdhJJs
the mystery of chronic pain – Elliot Krane
http://www.youtube.com/watch?v=J6-CMyCfIQ

Summary

patient is probably focused on the white team
help them understand the moonwalking bear
pain is like hunger and thirst
know pain and know gain
alter movement related pain memory
Mike is not a physical terrorist
Questions