Back health - Pain management: Getting the most out of yourself & medicine.

Themes

- You're an expert witness
- Pinning down pain
- Mythbusting spinal imaging
- Mythbusting sitting and back injury
- The Grizzly Bear of Mind, Body & Behaviour
- Two successful cases
- Pinning down pain revisited.
You're an expert witness to your own condition.

- Simple task
- Relatively heavy or sustained task tolerated well

Pain should be represented by processes in the tissues and the nervous system combined, not just glowing red joints.

Expected pain path if tissue degeneration was the cause

More common pain experiences

Pinning down pain.

Sensory and Motor

Feelings

Morphine, endorphins
Cold swimming pool - pain to not
Stubbed toe
In-grown toenail
Phantom pain
Tissue injury without pain
Combat injuries
Spinal degeneration
Sporting injuries
Delayed onset muscle soreness

http://www.ipmc.cnrs.fr/~duprat/neurophysiology/brain.htm

Mythbusting spinal imaging:

What does imaging tell us about symptoms and function?
Explain Pain, Butler & Mosley, 2003


For patients > 50 years of age or whose findings suggest systemic disease, plain x-rays and laboratory tests almost completely rule out systemic diseases.

Advanced imaging should be reserved for patients considering surgery or where systemic disease is strongly suspected.


A total of 725 lumbar fusion cases were compared to 725 controls who were randomly selected from a pool of WC subjects with chronic low back pain.

Conservative management achieved far better outcomes for days off, return to work, permanent disability.

Mythbusting spinal imaging:


Mythbusting sitting and back injury:

- Claus et al. *J EMG Kines*, 2008

In *vitro* research papers:

- Compress + bend & torque

<table>
<thead>
<tr>
<th>Year</th>
<th>Authors</th>
<th>n</th>
<th>Pressure (MPa)</th>
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<tr>
<td>1964/1965</td>
<td>Nachemson</td>
<td>7</td>
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<td>1970</td>
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<td>10</td>
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<td>Schultz</td>
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<td>Sasso</td>
<td>6</td>
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<td>1990</td>
<td>Ranu</td>
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In *vivo* research papers:

- Stand
- Sit

- Intradiscal pressure (MPa)

- 0.2
  - n = 6
- 0.4
  - n = 7
- 0.6
  - n = 10
- 0.8
  - n = 4
- 1.0
  - n = 4
- 1.2
  - n = 1
Brain and muscles and pain

Longissimus T11

41.2 (24.6) % MVC

% sitting posture peak EMG

0 20 40 60 80 100

Slump Flat TxLx Lumbar lordosis

Claus et al. 2009 Spine, Claus et al. submitted

Brain and muscles and pain

Physiological Effects
- ↑ Heart Rate & BP
- ↑ Adrenalin
- ↑ Muscle Tension
- ↑ Stress at joints
- ↑ Fatigue

Grizzly Bear

Thoughts
- There’s nothing I can do.
- I won’t survive this.
- Somebody save me.
- Why me?
- If I ignore it, it won’t be a problem
- I always wanted to see a bear.
- This is a chance to prove I’m tuff enuff.

Feelings
- Panic
- Anxiety
- Hopelessness
- Fear/Anger
- Denial
- Curiosity
- Foolish bravado

Behaviours
- • Wear Bear bells
- • Be quiet
- • Back away slowly
- • Make yourself large
- • Run at it screaming
- • Shoot fire crackers
- • Shoot firearms
- • Cover neck in foetal position

Prof Francis Keefe, Duke University
Explain Pain, Butler & Mosley, 2003

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Physiological Effects
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- ↑ Physical condition
- Depression

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There’s nothing I can do.
I won’t survive this.
Somebody save me.
Why me?
If I ignore it, it won’t be a problem.
Pain shows that I’m pushing hard enough.
This is a chance to prove I’m tuff enuff.

Prof Francis Keefe, Duke University

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Two successful cases

Graded activity
Physiological:
- 5 goal-oriented exercises for cardiovasc, strength, ROM, balance etc
- Challenging but achievable with pain (though not flare-up)

Psychological:
- Facilitation of the patient to progressively shape their own psychological barriers, using physical activity.
- Reflection on how passive and external pain management approaches affect quality of life.
- Develop patient self-efficacy to lead their own behavioural change through planning exercise quotas, pacing and self-reward / reinforcement.

Motor control
Physiological:
- Aims to optimise movement through awareness of posture and muscle activation
- Focusing on paraspinal muscles, abdominals, diaphragm and pelvic floor with therapist – patient feedback progressing to patient self-feedback.

Psychological:
- Clinician leads patient rehab initially, guiding the patient in what exercises to do and detailing how to do them.
- The patient gradually takes responsibility for application of exercises/movement in daily activities.
Two successful cases

Common to both graded activity and motor control:

- An enthusiastic, caring therapist who demonstrated belief in the approach that they were undertaking

- Contemporary understanding of pain and distinguishing this from tissue pathology processes, incl. undermining beliefs about degeneration (scans) predicting lifestyle and symptoms.

- Pain education could occur by facilitation of reflection on the patient’s own pain experiences and functional capacity, or by expert instruction.
Outcomes for treatment groups

Pain

Graded activity group
Motor control group
Graded activity subject
Motor control subject

Spinal stiffness

Forwards perturbation (extensor muscles respond)

Graded activity subject
Motor control subject

(Physiology)
Outcomes for treatment groups

Roland Morris Disability Questionnaire - 24

Graded activity group
Motor control group
Graded activity subject
Motor control subject

Avoid pain and movement
Limit lifestyle and activity
Social isolation
Continue aggravating
New injuries associated
Investigations +/- relevant
Interventions +/- relevant
Rest and passive treatment
↓ Coping for other events
↓ Self care and esteem

Pain Interventions

Physiology
↑ Heart Rate & BP
↑ Adrenalin
↑ Muscle Tension
↑ Stress at joints
↑ Fatigue
↓ Physical condition
Depression

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Pain Interventions

Prof Francis Keefe, Duke University
Pinning down pain.

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- Feelings
  - Morphine, endorphins
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Pain

Disability

Time

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Questions

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