Persistent Musculoskeletal Pain

What can you do about it?

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Physiotherapist & Founder of SIRPA

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Severe, multi-level spinal degeneration

MRI report:

"Widespread degeneration throughout the lumbar spine confirming … sub total spinal block"

Pain for just 10 weeks in total!

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'Effect sizes of non-surgical treatments on non-specific low-back pain'

Conclusions:

The effect of treatments for LBP is only small to moderate.

Therefore, there is a dire need for developing more effective interventions.

Keller A (2007)

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Evidence-base of currently accepted approaches to chronic pain management

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UK National Regulations

Display Screen Equipment

EEC Manual Handling

Research review

- 18 trials (21,381 employees)
- Reviewed impact of proper manual handling techniques

Conclusion: *No evidence that training and provision of assistive devices prevented LBP (Low Back Pain) when compared to no intervention, or another intervention.*

Verbeek JH (2012)

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Are we getting better?

4,500 union safety representatives were surveyed in an Occupational Health Survey.

Over the previous 2 years:

- RSI up by 3%
- Back Strain up by 4%
- Stress had also risen by 2%

Henderson M et al (2005)

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What we see is not always what we get!

- Studies show there is no correlation between radiological findings and symptoms
- Distorted perception – health professionals only see those people in pain
- The tendency is to focus on finding a physical cause – but what is being missed?

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Degenerative findings on MRI scans in people with NO pain

IMAGING FINDINGS	Age in Years						
	20	30	40	50	60	70	80
Disk degeneration	37%	52%	68%	80%	88%	93%	96%
Disk signal loss			54%	73%	86%	94%	97%
Disk height loss			45%	56%	67%	76%	84%
Disk bulge	30%	40%	50%	60%	69%	77%	84%
Disk protrusion	29%	31%	33%	36%	38%	40%	42%
Annular fissure	19%					27%	29%
Facet degeneration	04%		18%		50%	69%	83%
Spondylolisthesis	03%	05%	08%	14%	23%	35%	50%

Brinjikji et al (2015)

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Posture – Structure – Biomechanics in back pain

- PSB asymmetries and imperfections are normal variations—not a pathology.
- Pathomechanics do not determine symptomatology.
- There is no relationship between the pre-existing PSB factors and back pain.

Lederman E (2011)

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Wear and tear - but no pain

Findings:
47.5% of professional basketball players had articular cartilage lesions in their knees

Kaplan LD (2005)

Findings:
77% of ice hockey players had MRI findings of hip or groin pathologic abnormalities

Silvis ML (2011)

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Demolition Derby Drivers

Findings:
40% of the baseball team had partial or full thickness tears in their dominant shoulders but had no pain

Connor PM (2003)

Findings:
38 of the 40 drivers had neck pain lasting < 21 days after an average 156 collisions

Castro WH (2001)

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Severe degeneration - no pain!

(Surgery recommended)

'Massive disc protrusion at L5/S1, compressing both S1 nerve roots and causing marked central canal stenosis (narrowing)'

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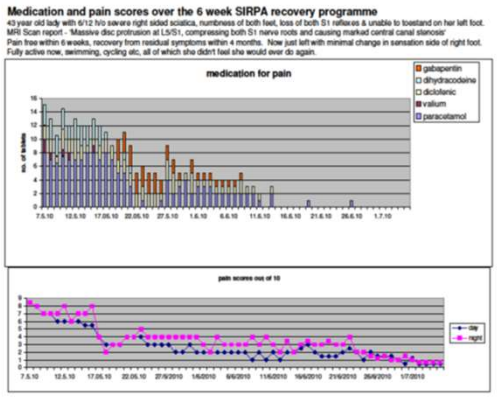

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Workplace

- **2,808 employees from 28 organisations, were tracked for 2 years.**
  'the most consistent predictors of back pain were lack of ….decision control, empowering leadership and fair leadership.'
- **Nursing students were studied every 6 months during their 3 year training and a year later.**
  'Other than a history of LBP, pre-existing psychological distress was the only factor found to have a pre-existing influence on new episodes of LBP.'
- **Work stress and incidence of newly diagnosed fibromyalgia:**
  'Stress seems to be a contributing factor in the development of fibromyalgia.'

Christensen JO (2012) Feyer AM (2000) Kivimäki M (2004)

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79 year old lady

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PAIN

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Facts about pain

- All pain is real – there is no such thing as imaginary pain!
- All pain is activated by the brain
- Pain can be triggered or generated by tissue damage and also by neural pathways
- These are potentially reversible without medical treatment

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Red flags to rule out first

Any tissue-damaging condition – such as:

- Cancer
- Infection
- Fractures
- Auto-immune disorder
- Cauda Equina Syndrome

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UK construction worker - 1995

Fisher et al (1995)

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UK construction worker - 2016

Pain is not related to tissue damage

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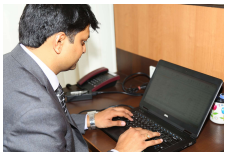
Why do we have pain?



- Pain is a warning
- Pain protects
- Neural pain pathways can become conditioned

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Pain is a protective response




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Deer – flees, dies or injured

Graceley RH (2015)

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Factors involved in why pain persists

- **Anxiety**
- Higher levels of **depressed mood**
- Loss of hope for the future
- Early **beliefs** that pain may be permanent
- Greater exposure to **past trauma**

Young Casey C et al (2008)

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Whiplash predicted!

In 2001 a study was carried out with a placebo, low-velocity, rear-end collision. They found:

- Approximately 20% of subjects had whiplash symptoms, even though no potential for injury existed
- An initial psychological profile test predicted which individuals were most likely to have whiplash symptoms
- 4 weeks after the placebo collision, 10% of the volunteers had symptoms
- **They had been predicted with 90% accuracy by their initial psychological profiles**

Castro WH (2001)

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Adverse Childhood Experiences Study (ACE)

The relationship between exposure to childhood dysfunction and health risk behaviour and disease in adulthood

- Abuse: Physical, sexual or emotional
- Neglect: Physical or emotional
- Household Challenges:
  - Substance abuse in the family
  - Mental illness in the family
  - Incarceration of family member
  - Witnessed abuse of the Mother
  - Parental separation or divorce

Felitti VJ (1998)

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ACE Studies - Conclusions

- The categories of ACEs were strongly interrelated and people with a higher ACE score were likely to have multiple health risk factors later in life.
- The number of categories of ACEs showed a graded relationship to the presence of adult diseases including:
  - **heart disease**
  - **autoimmune disease**
  - **cancer**
  - **chronic pain**
  - **migraines etc.**

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Additional potential Chronic Unpredictable (Toxic) Stress in childhood

- abuse by a sibling
- poverty
- community violence
- Racism
- Early medical trauma
- Family tension or a secret
- bullying at school
- Pandemics!

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Chronic/Persistent pain and ACEs

Conclusion:

History of abuse in each group:

- fibromyalgia, 64.7%
- myofascial, 61.9%
- facial, 50%
- other pain, 48.3%

Goldberg RT (1999)

Conclusions:

*"Children who had experienced hospitalisation, institutional care, maternal death or familial financial hardship were **more likely to be suffering from chronic widespread pain** as an adult"*

7571 subjects provided pain data at age 45 years

Jones G (2009

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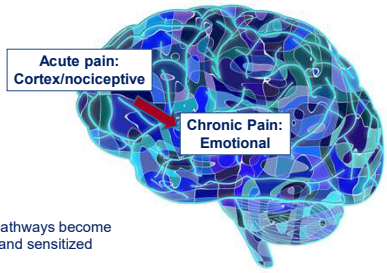
Changes in the Brain when pain becomes persistent



Neural pathways become learned and sensitized

Hashmi (2013)

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Rejection hurts!

Eisenberger NI (2003)

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Pain is the brain's interpretation

Factors that can excite pain pathways
e.g. fears, anxiety, beliefs, past experiences/trauma memory, ruminating, anticipation

Signals to the brain
can amplify pain more

Factors that can inhibit pain pathways
Using the rational, logical part of the brain to calm the primal brain

Dorsal Horn
Mini computer

Central sensitization can occur

Signals from the periphery
e.g. muscles, joints etc

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Central sensitisation

Is linked with:

- Chronic neck & back pain
- Fibromyalgia
- Irritable bowel syndrome
- Temperomandibular Joint disorder
- Functional syndromes
- Interstitial cystitis
- Chronic headaches

Kindler (2011)

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Current life stressors

Childhood trauma/stressors

Causes

Self-induced stress

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Unresolved Emotions

past, repressed + current, avoided

Emotion

↓

Neurochemicals flood the body and brain

↓

Physiological changes occur

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Triggers

Can be due to associations, such as:

- Anniversaries
- Places
- Times
- Person
- Reactivating a memory of a sense – smell, sound etc
- Belief – e.g. sitting for long periods will injure my back, repetitive typing will cause pain
- An activity – while stressed

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Treatment Principles

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Some simple self-empowering practices

- Learn to calm the fight or flight response – e.g. slow, rhythmical breathing, being self-compassionate
- Pain Reappraisal
- Develop your emotional awareness/FELT sense
  - https://www.sirpa.org/alexithymia-and-chronic-pain/
- Acknowledge and express emotions
  e.g. Therapeutic journaling/Expressive writing
- Mindfulness and meditation
- Working on the mindset: e.g. Positive Psychology + Gratitude

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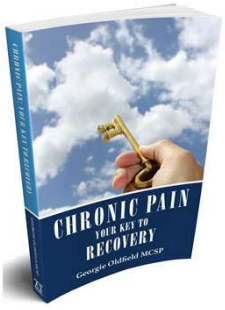

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