Paradigm shift in pain management

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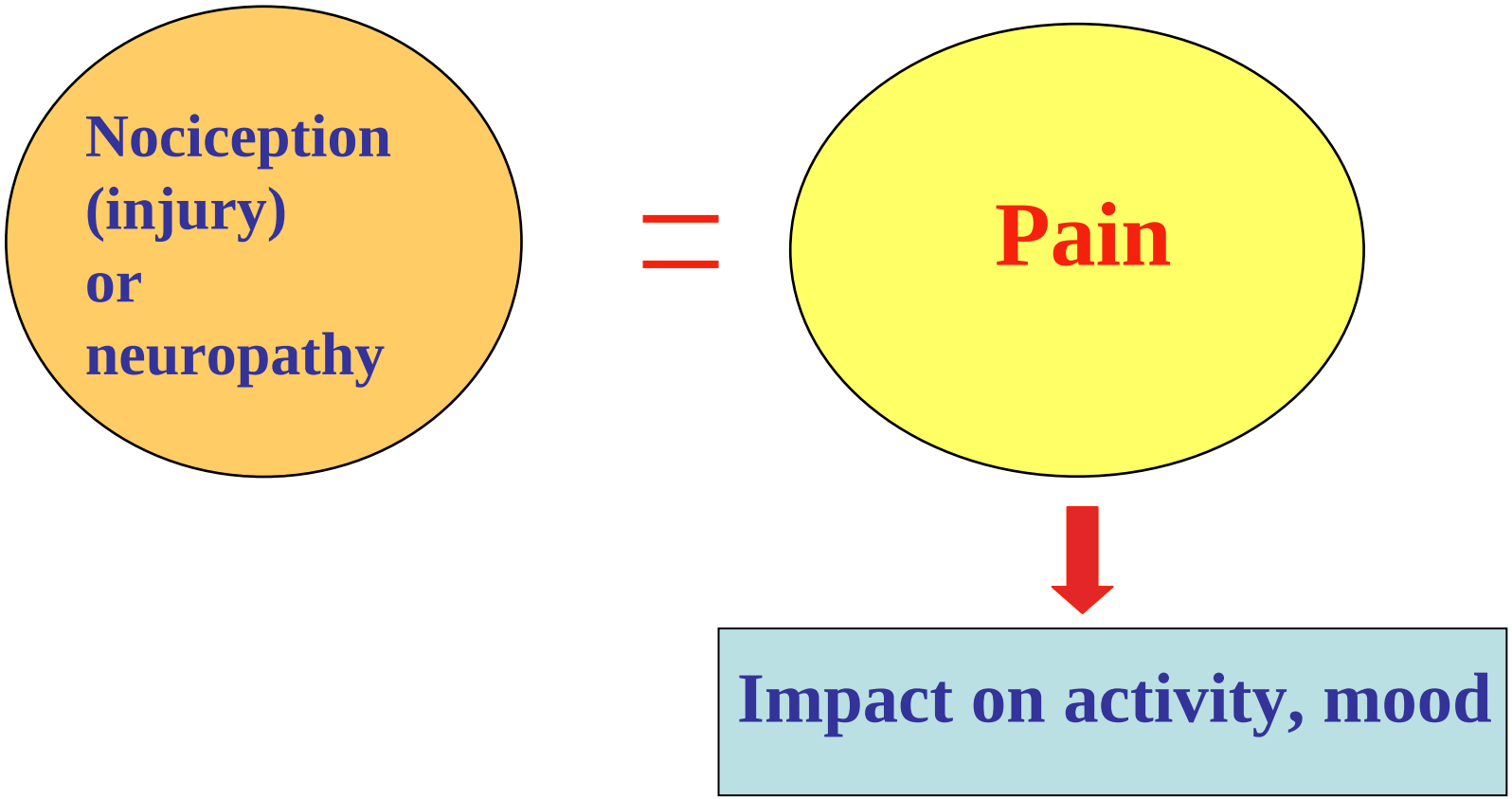
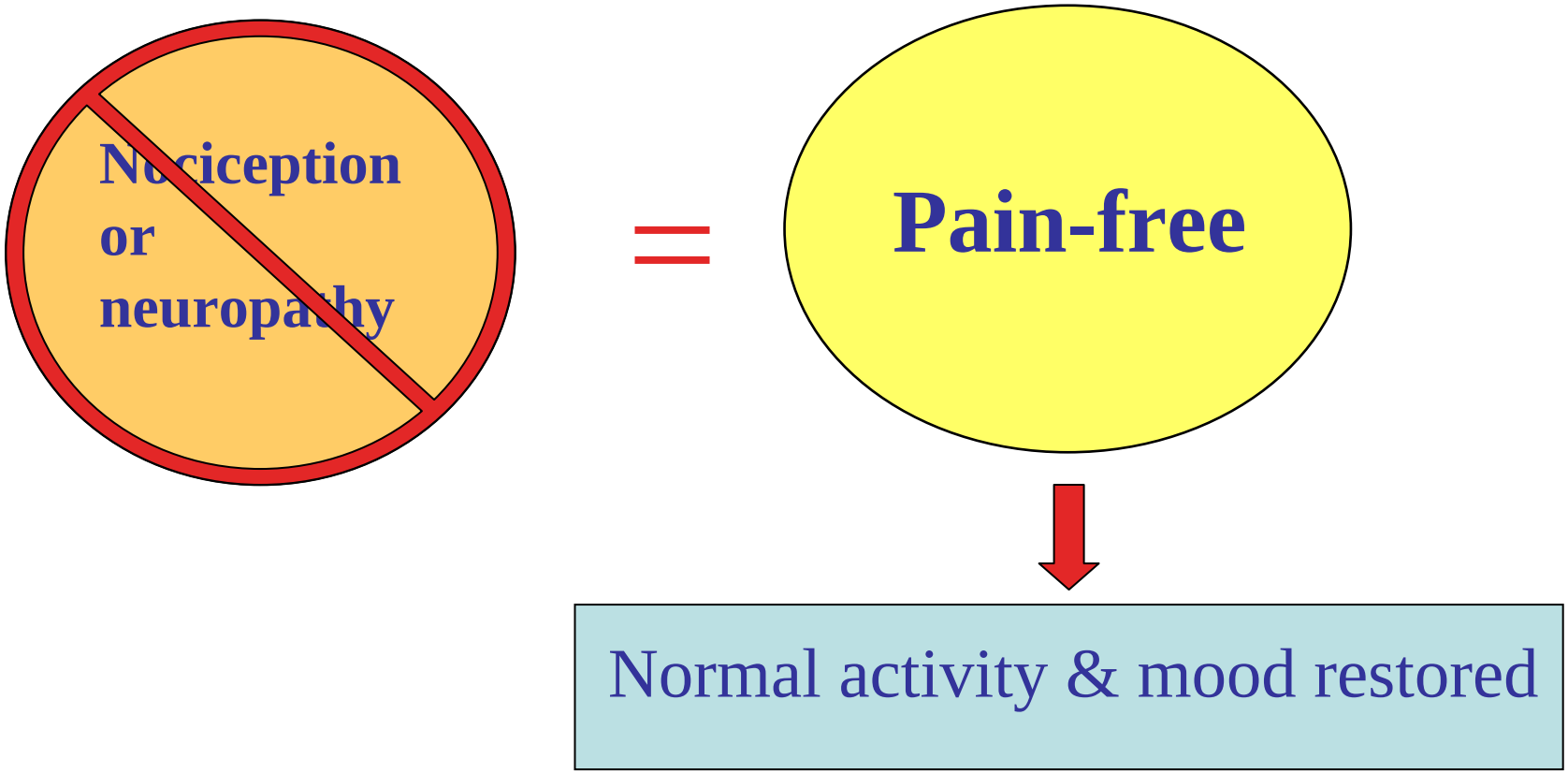
Main points

1. The ‘traditional’ biological paradigm of pain has been generally effective in achieving good outcomes in acute pain.
2. But in more complex cases, especially when pain persists, this paradigm has been found wanting.
3. A biopsychosocial paradigm has offered a way forward with these cases.
4. Recognising this is not difficult; applying it represents a challenge to existing services.

“Traditional” Biological model of pain



Treatment implications?



e.g. Bogduk N. Management of chronic low back pain. Med J Aust 2004; 180 (2): 79-83

This model works...

- (Usually) in acute pain states
- (Usually) in some chronic pain cases with orthopaedic procedures (eg. hip replacements)
- **But not always: Compensation status is associated with poor outcomes after surgery**
  (Meta-analysis by Harris et al.. JAMA, April 6, 2005; 293: 1644-52).
- (Temporarily) in some (highly selected) chronic cervical and low back pain cases (with RFLs)
- But for the rest? (**Average of 30% reduction in pain**.
  (See Turk *Clin J Pain* 2002; 18: 355-65).

The problem of chronic pain – in Australia

- Blyth et al. (2001) **Pain**, 89, 127-134.
- 17,000 interviewed (across NSW)
- Chronic pain (>3/12) prevalence (NSW):
  - 17.1% Males
  - 20.1% Females
- Interference in activities: reported by ~ 60% of cases

The current reality

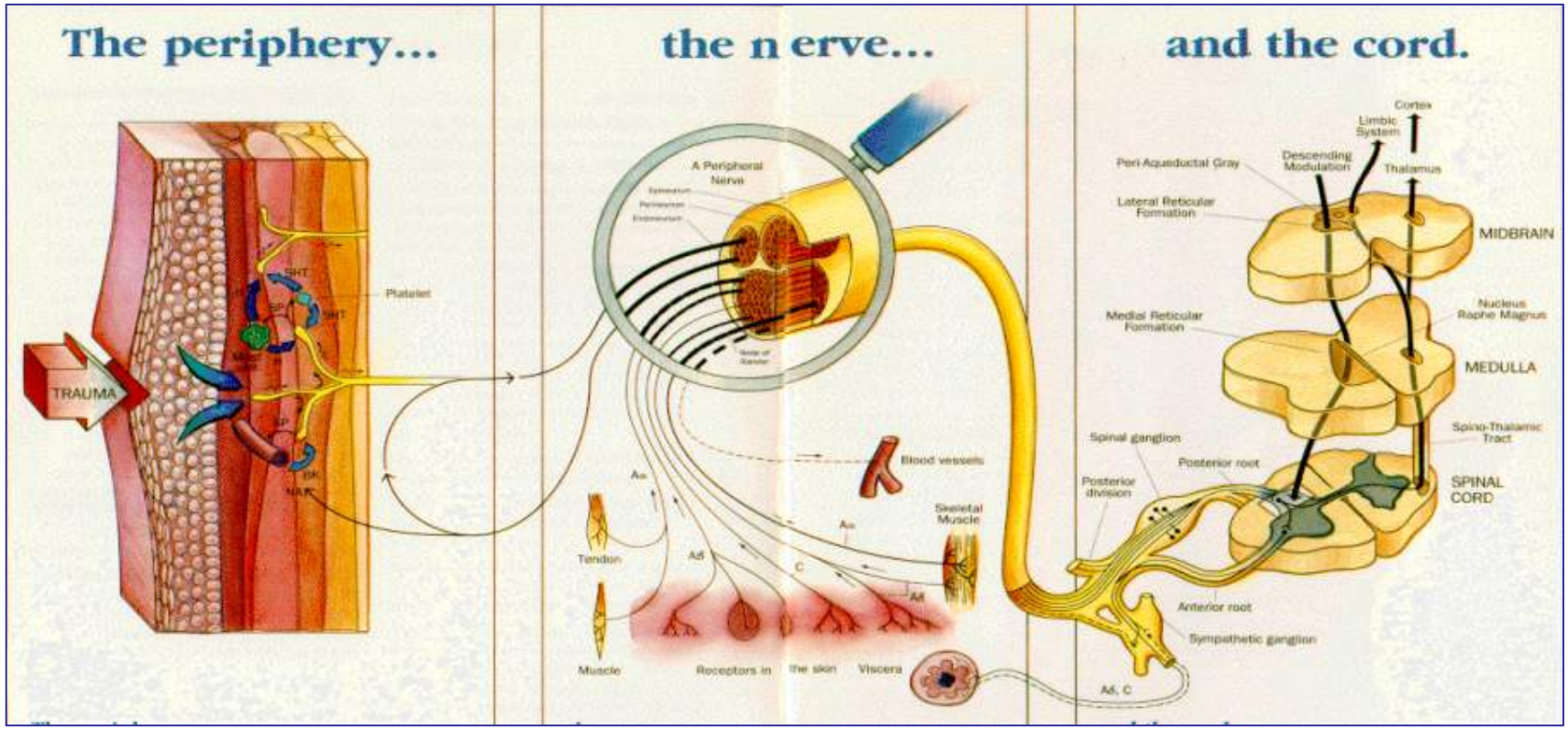
The vast majority of people with chronic pain have to accept there is no curative treatment available

Goucke CR. The management of persistent pain. Med J Aust 2003; 178(9): 444-447.

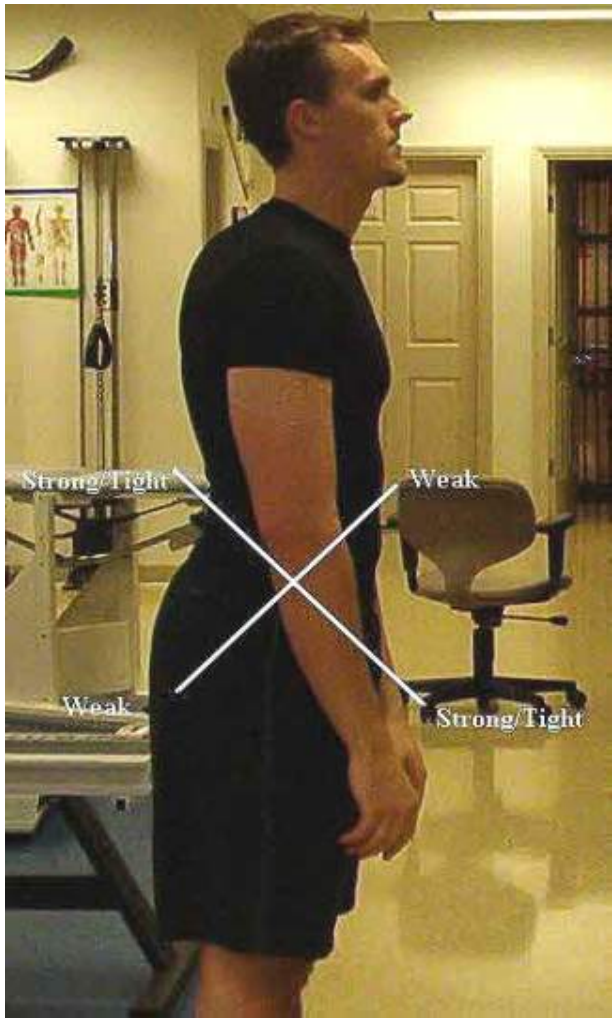
Bogduk N. Management of chronic low back pain. Med J Aust 2004; 180 (2): 79-83

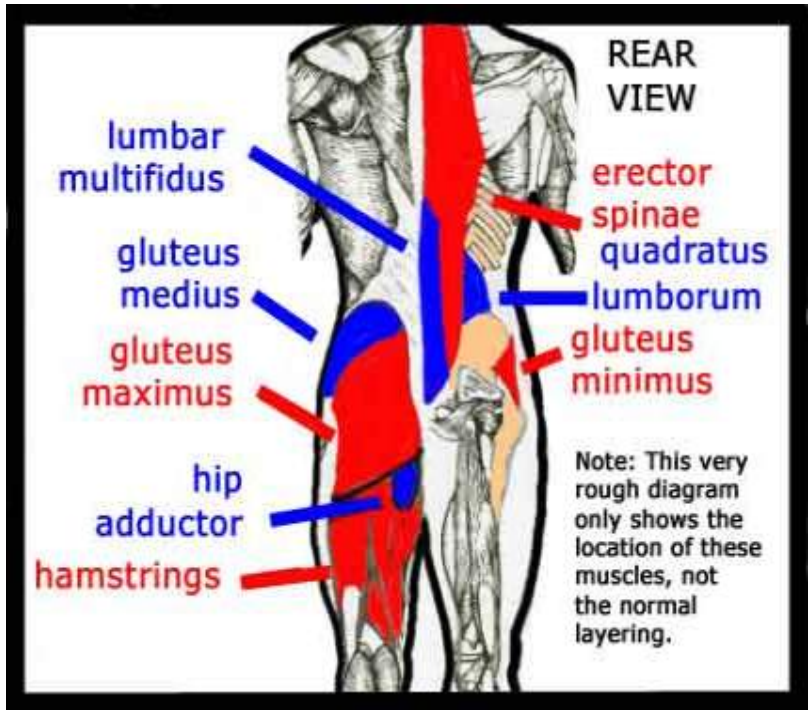
Loeser JD. Mitigating the dangers of pursuing cure. In: Cohen MJM, Campbell JN, eds. Pain Treatment Centers at a Crossroads: A Practical and Conceptual Reappraisal. Seattle, IASP Press, 1996:101-108.

Diagrams of nervous system often seem to explain pain very clearly

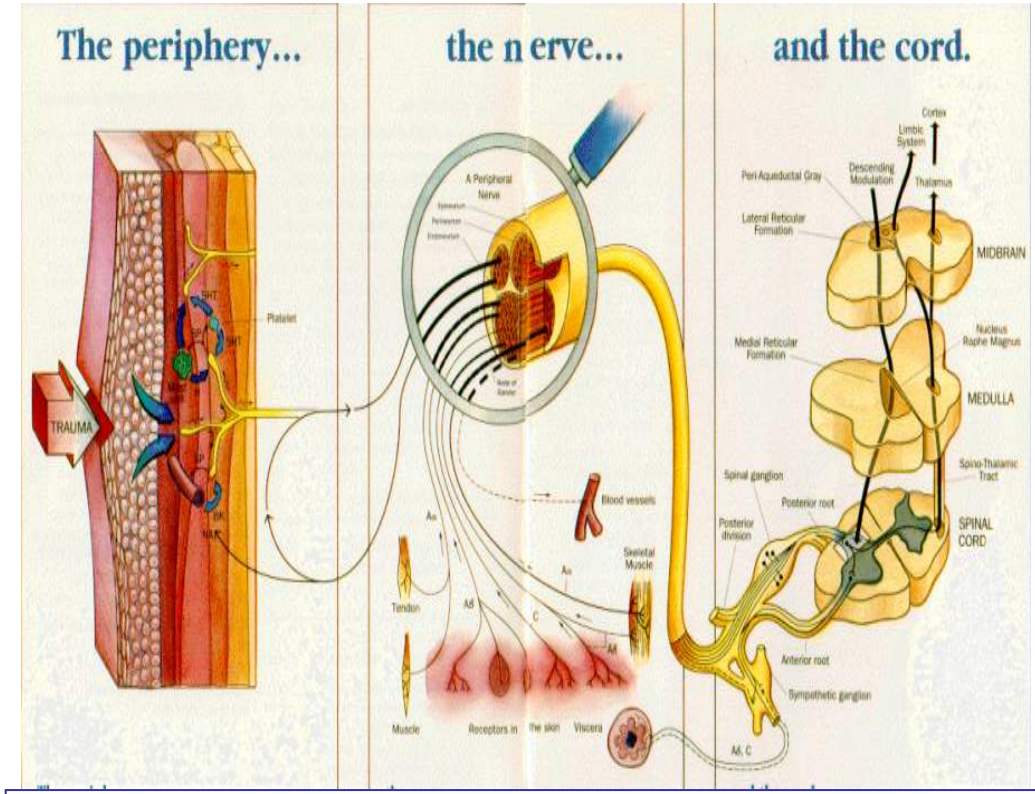


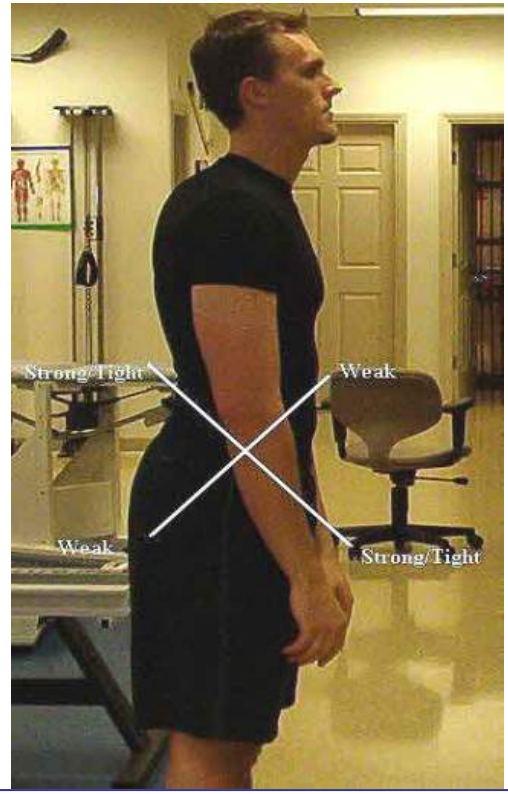
And pictures of posture and muscles can seem quite clear too





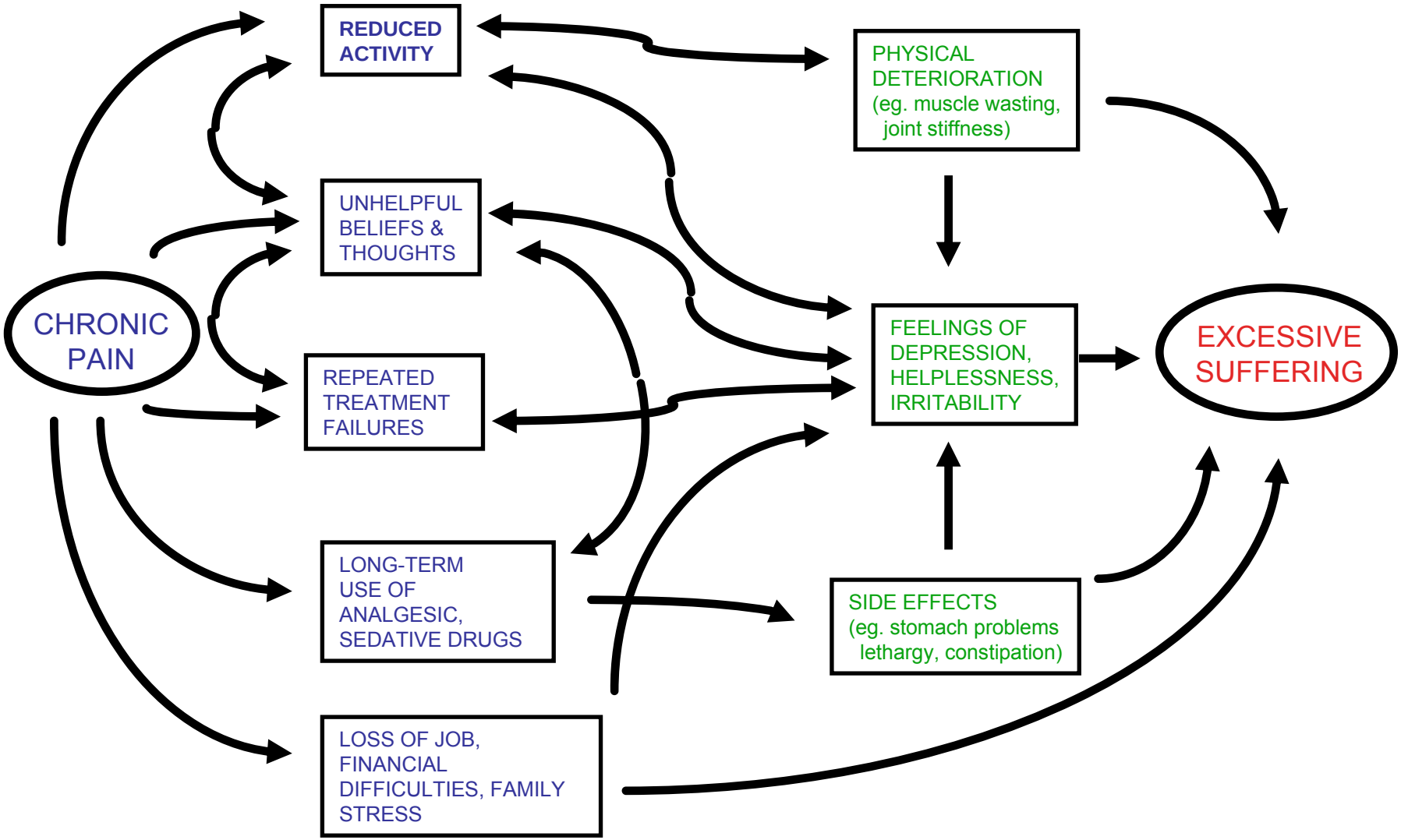
But do they tell the whole story?



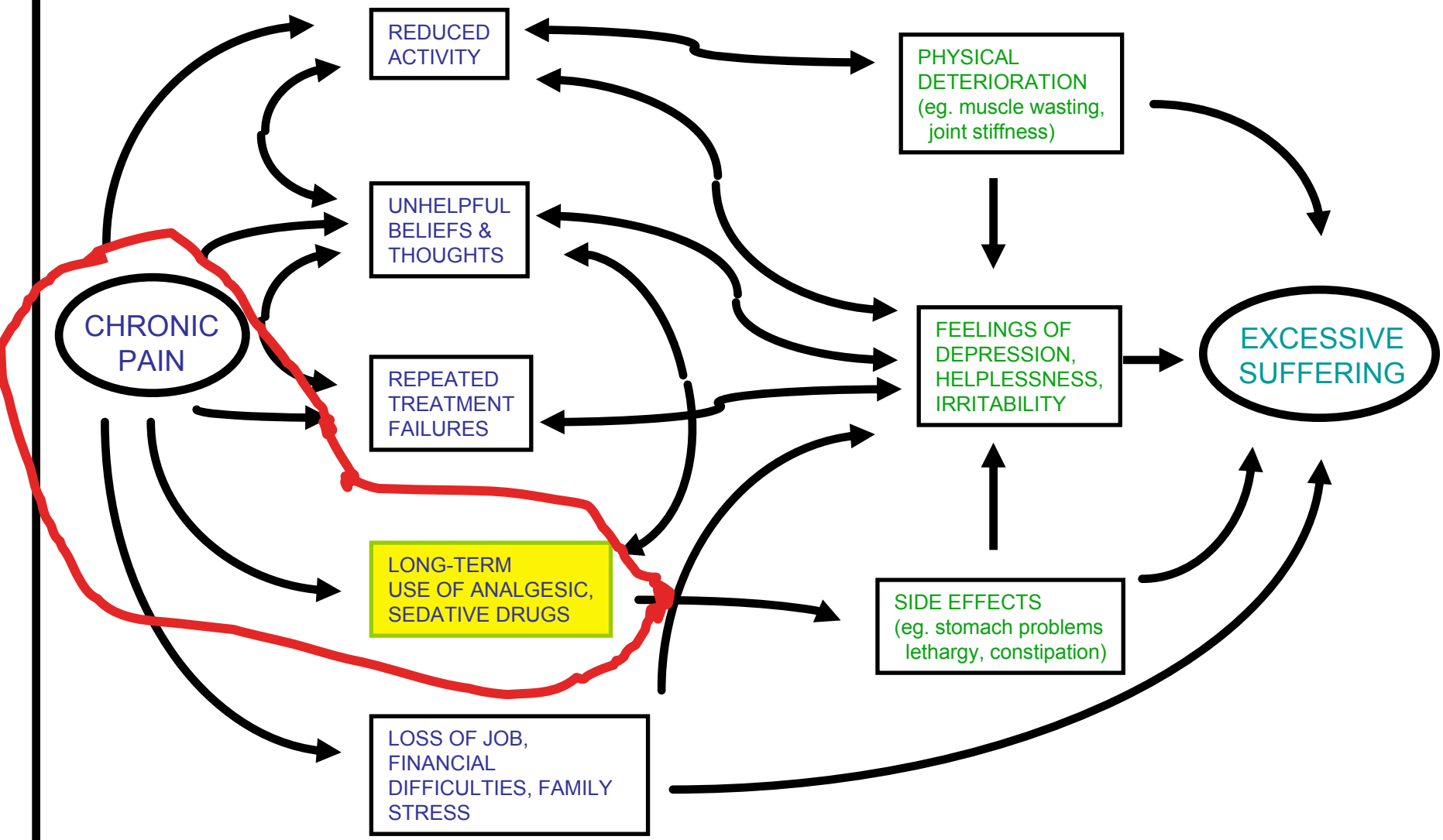


Who is this person? (education/culture/work status/compensation?)
What are his/her beliefs about their pain?
How is pain interfering in his/her life?
What is he/she doing about it?
What does he/she want from us?

How chronic pain can become a problem for some



If you treat only part of the problem?



This perspective has wide support

Simpson, Br J Anaesth (2004) wrote:

"An improvement in physical, psychological, and social function and sleep may occur secondary to analgesia"

- But, what is the evidence for this effect in chronic pain patients?

Moulin, et al. *The Lancet 1996;* 347.

- Randomised, double blind, placebo-controlled, cross-over design (slow release morphine, up to 60mg bd) with patients suffering chronic pain (excluding neuropathic cases)

- Authors: “9 weeks of oral morphine in doses up to 120 mg daily may be of analgesic benefit, but is unlikely to confer psychological or functional benefit”

Others have reported similar findings

- Sator-Katzenschlager et al. Anesth Analg 2003; 97

- 477 chronic pain patients followed over first year of treatment at university pain centre.
- Treatments: pharmacotherapy, acupuncture, TENS, Physiotherapy, invasive procedures.

- Pain VAS: 7.35 reduced to 1.03 at 12 mths
- But, mood and psychological well-being did not improve.

Good results have been reported after some mono-treatments, but which patients?

- Dreyfuss et al. Efficacy and validity of radiofrequency neurotomy for chronic lumbar zygapophysial joint pain. Spine 2000;25:1270–1277.
- Roland Morris Disability Scale: Mean: 7/24 (Better than 85% pain clinic sample – before treatment started)
- Beck Depression score: Mean: 6/63 (better than 85% pain clinic sample)
- **When disability and depression low, pain-focussed therapy may work better**
- **Less confidence when they are high**

For example

- Higher levels of depression have been shown to be predictive of poorer treatment outcomes with chronic pain patients

  (eg. Cherkin et al. Spine 1996; 21: 2900-2907)

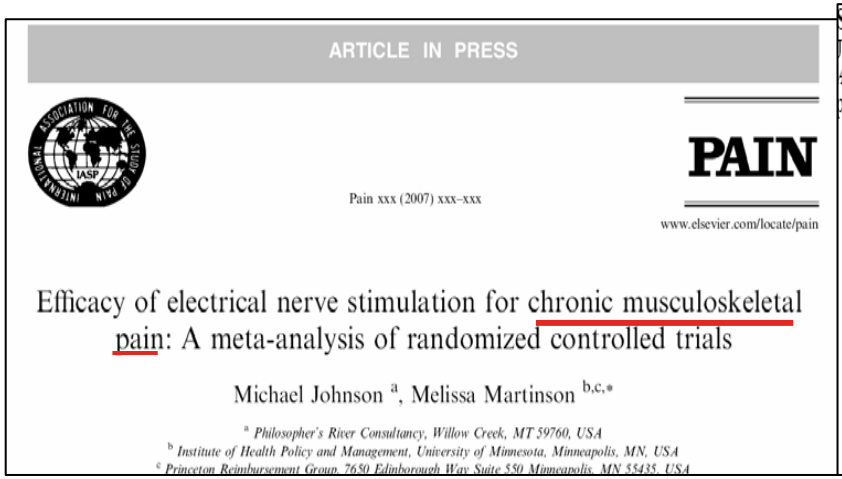
- The presence of pain in those who are being treated for mood disturbance has predicted delayed responses to the mood interventions

  (eg. Karp et al. J Clin Psychiat 2005; 66(5):591-7).

Implications?

- People with chronic pain conditions are not homogeneous
- The site, diagnosis, chronicity of pain are not all that we need to know for treatment
- Factors such as level of disability, mood state, compensation and work status also need to be considered

Yet, most reviews/studies refer to site and chronicity as selection criteria



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PAIN

Pain xxx (2007) xxx–xxx

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Efficacy of electrical nerve stimulation for chronic musculoskeletal pain: A meta-analysis of randomized controlled trials

Michael Johnson [a], Melissa Martinson [b,c,*]

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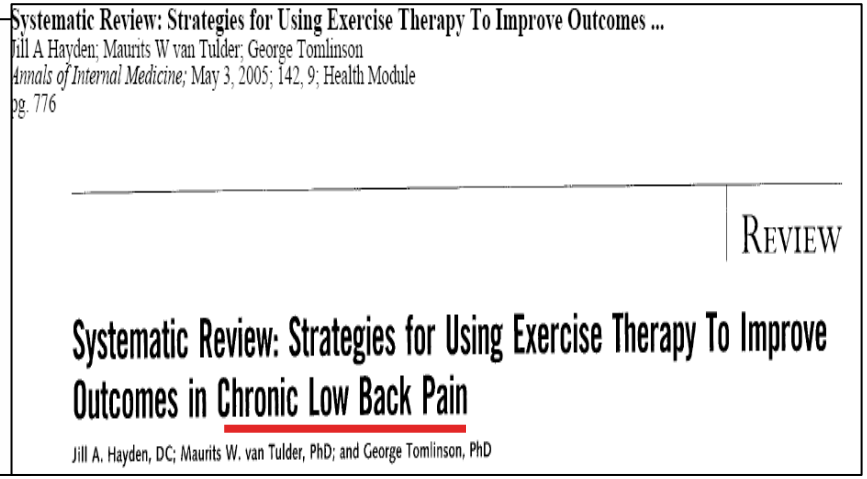
[b] Institute of Health Policy and Management, University of Minnesota, Minneapolis, MN, USA
[c] Princeton Reimbursement Group, 7650 Edinborough Way Suite 550 Minneapolis, MN 55435, USA



Systematic Review: Strategies for Using Exercise Therapy To Improve Outcomes ...
Jill A Hayden; Maurits W van Tulder; George Tomlinson
Annals of Internal Medicine; May 3, 2005; 142, 9; Health Module
pg. 776

REVIEW

Systematic Review: Strategies for Using Exercise Therapy To Improve Outcomes in Chronic Low Back Pain

Jill A. Hayden, DC; Maurits W. van Tulder, PhD; and George Tomlinson, PhD

Cochrane Database Syst Rev. 2005 Jul 20;(3):CD003008.

Transcutaneous electrical nerve stimulation (TENS) for chronic low-back pain.
Khadilkar A, Milne S, Brosseau L, Robinson V, Saginur M, Shea B, Tugwell P, Wells G.

Clin J Pain. 2005 Sep-Oct;21(5):462.
Radiofrequency denervation of lumbar facet joints in the treatment of chronic low back pain: a randomized, double-blind, sham lesion-controlled trial.
van Wijk RM, Geurts JW, Wynne HJ, Hammink E, Buskens E, Lousberg R, Knape JT, Groen GJ.

Ask yourself, are all patients with chronic low back pain the same?

Pain experience and pain behaviour

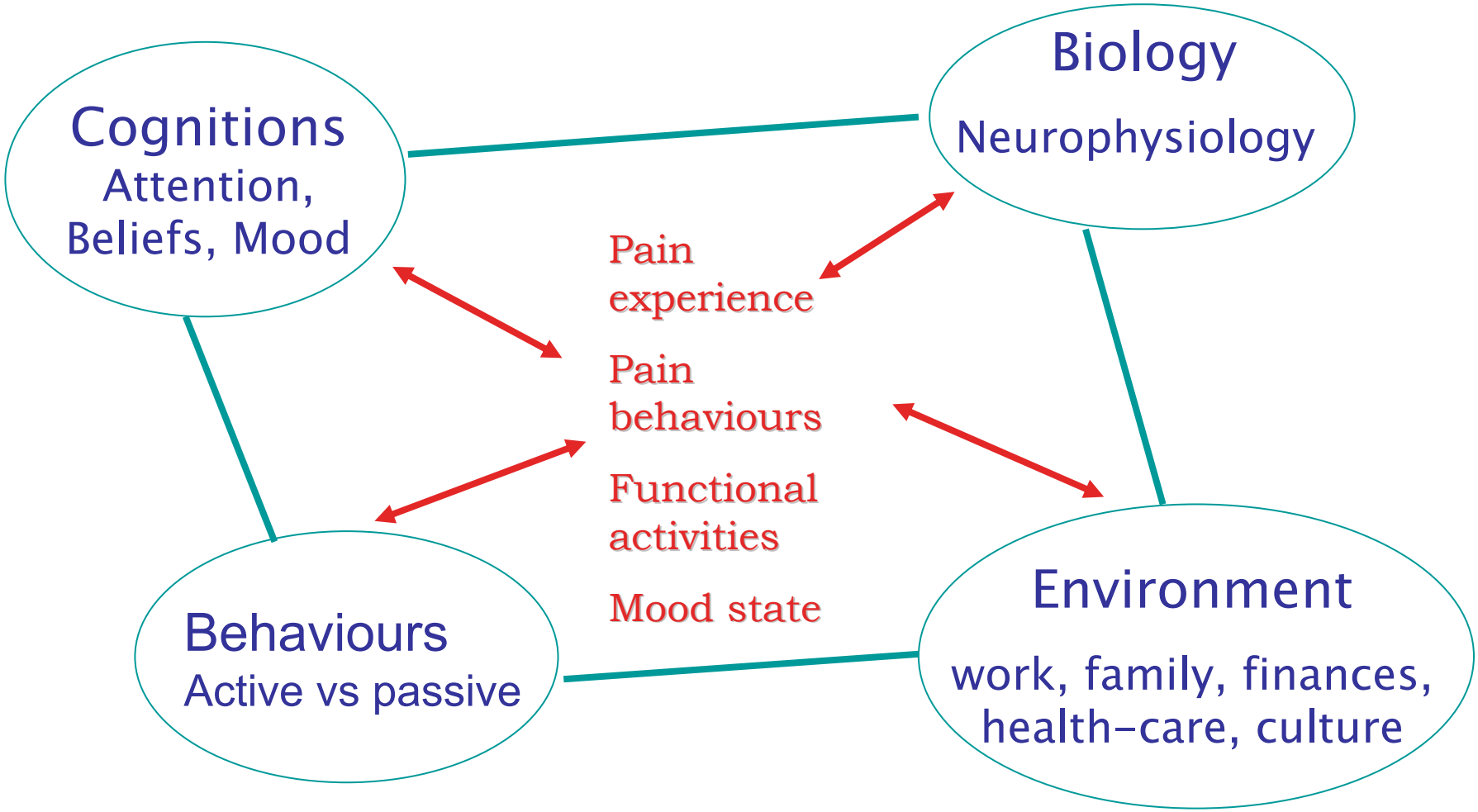
- Stein (2000): the report of pain and pain behaviour is influenced and maintained not only by nociception

  [Stein C. What's wrong with opioids in chronic pain? Curr Opin Anesthesiol 2000; 13: 557-59]

- When multiple factors contribute to pain report and pain behaviour, trying to relieve pain alone is unlikely to be sufficient.

A Bio-psycho-social paradigm

(Engels, Loeser, Waddell, Turk, Flor)



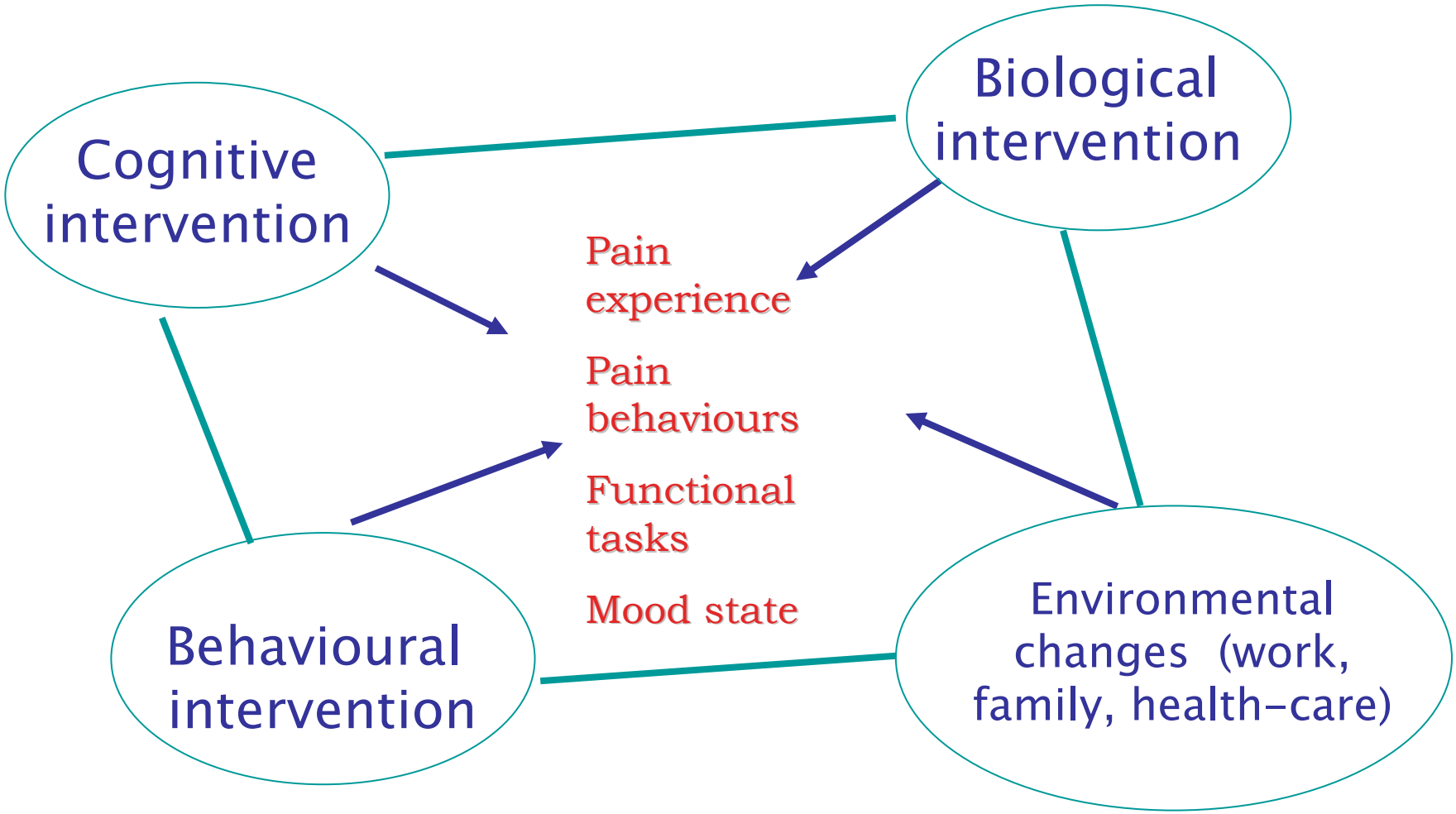
Bio-psycho-social interventions

- Instead of trying to change pain reports, mood, and disability by analgesia alone

- BPS approach involves identifying what is maintaining pain behaviours, distressed mood, and disability:

  (eg. pain mechanisms, unhelpful beliefs, poor coping strategies, interactions with family/social/work environment)
- Then attempting to change these contributors

How might this look?



What supporting evidence is available?

- Systematic reviews of CBT programs
- Systematic reviews of psychosocial interventions
- Reviews of combined treatments
- Community-based studies

Cognitive-Behavioural Treatments (CBT) with chronic pain

Support from systematic reviews and meta-analyses of randomized and non-randomized studies

- Flor et al., (1993) (heterogeneous chronic pain)
- McQuay et al., (1997) (heterogeneous chronic pain) Morley et al., (1999) (heterogeneous chronic pain- no headache studies)
- Van Tulder et al. (2000) (Chronic low back pain)
- Linton (2000) (Chronic low back pain)
- Guzman et al. (2001) (Chronic low back pain)
- Nielson & Weir Clin J Pain (2001)
- Koes et al. BMJ (2006) (Low back pain)

- Airaksinen et al., (2006) Eur Spine J; 15 (Suppl. 2): S192–S300:

"CBT may be one treatment of choice" for chronic LBP

Combining medical and psychological interventions for chronic pain

- Haythornthwaite (2005) Clinical trials studying pharmacotherapy and psychological treatments alone and together. Neurology 2005; 65(suppl 4): S20-S31.
- Holroyd et al. (1995; 2001): Treatment of headaches – combination of medication & cbt
- Kishino et al. (2000) Psychological intervention plus exercise for post-surgical pain
- Schonstein et al. (2003) Cochrane review – low back pain: combining cbt principles + exercises better
- Leibing et al. (1999); Sharpe et al. (2001): rheumatoid arthritis patients: combined rheumatology treatment & cbt more effective

Clark TS. Interdisciplinary treatment for chronic pain: is it worth the money? Baylor University Medical Center Proceedings 2000;13

Outcome variable	Interdisciplinary Conventional Pain Centre	Medical treatment alone
Pain reduction	±	±
Medication reduction	+	–
Reduction in emotional distress	+	?
Health care utilization	+	–
Iatrogenic consequences	+	–
Activity/return to work	+	–
Closure of disability claims	+	?

Key:

Positive and negative outcomes are indicated by ±; positive outcomes, +; negative outcomes, –; no reported outcomes, ?.

Workplace-based interventions

Workplace-based Return-to-work Interventions: A Systematic Review of the Quantitative Literature

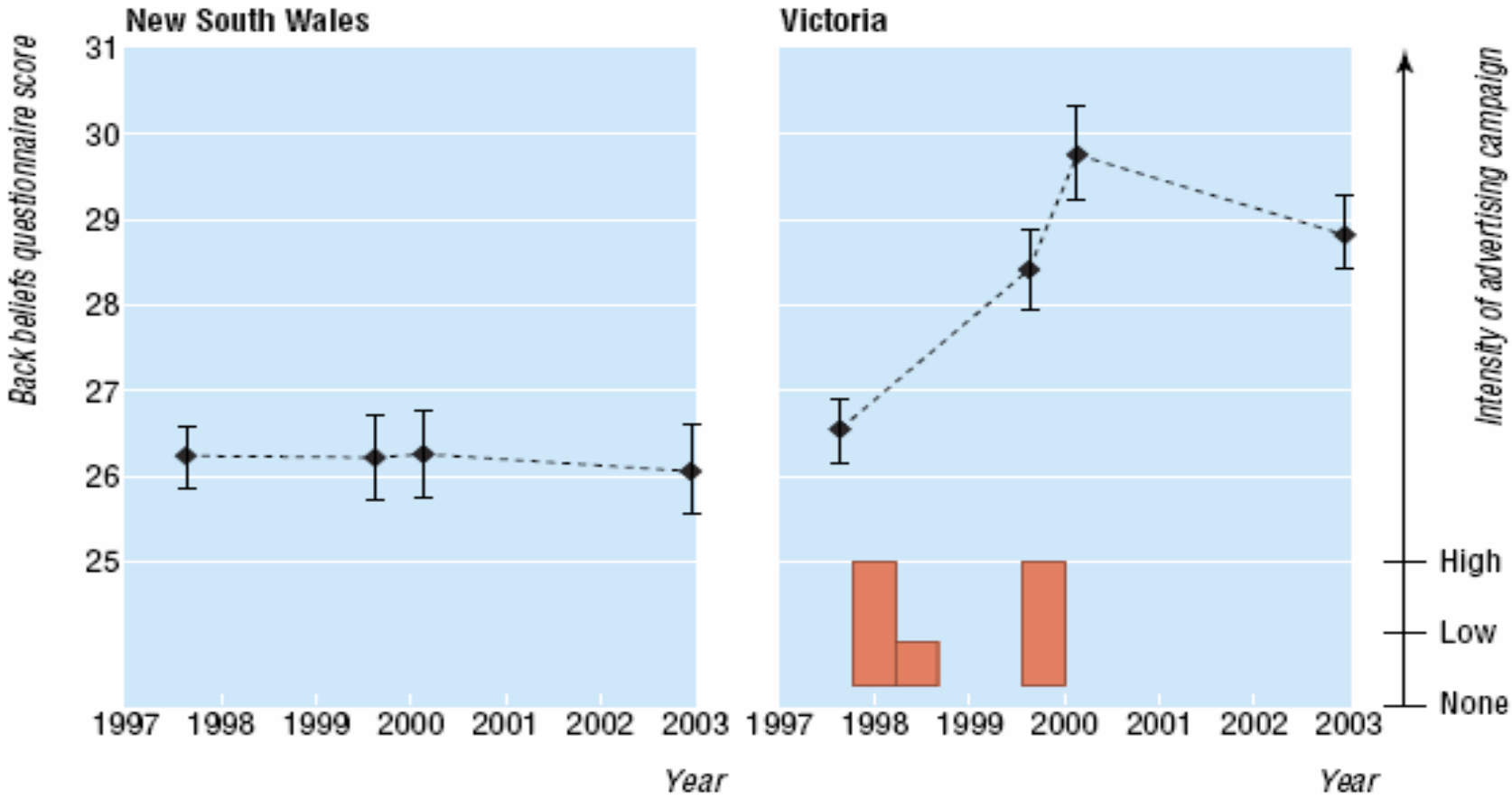
Franche et al. J. Occupational Rehabilitation 2005; 15 (4)

Key findings (Franche et al. 2005)

Workplace intervention strategies	Strength of Evidence (less) Work loss
• Early contact with the worker by the workplace	Moderate
• **Work accommodation offer**	**Strong**
• **Contact between healthcare provider and the workplace**	**Strong**
• RTW coordination	Moderate
• Super-numerary replacements	Insufficient

Community intervention

- Australia (Buchbinder et al. **Spine 2001;26:2535–2542**)
- Population-based, state-wide public health intervention to alter beliefs about back pain and its medical management.
- N = 4730 interviewed 2.5 yrs apart; 2556 GPs interviewed 2 yrs apart. 1 state (Victoria) = intervention, another state (NSW) = control



Mean score from the back pain beliefs questionnaire for New South Wales and Victoria for survey in August 1997, August 1999, February 2000, and December 2002 after media campaign ending in 1999. Error bars show 95% confidence interval. Bar chart shows media campaign (September 1997 to December 1999) with intensity indicated by height of bars

Buchbinder et al, BMJ, 2003

Findings

- **In Victoria:** Decline in claims for back pain, rates of days off, and costs of medical management.

- **In NSW:** No change

Conclusions

- A purely biological paradigm is not sufficient when multiple factors contribute to the presenting health problem
- An integrated bio-psycho-social paradigm offers prospect of better pain relief, improved mood and function.
- The challenge for all health systems is to find ways of developing integrated services.
- Adopting a bio-psycho-social paradigm offers a way forward.