


**VOMPTI**  
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**BIOPSYCHOSOCIAL/CENTRAL SENSITIZATION  
THERAPEUTIC NEUROSCIENCE EDUCATION**

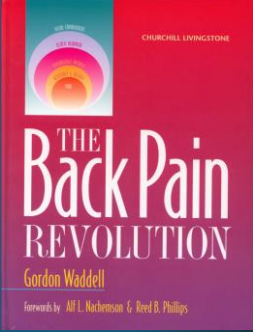


Orthopaedic Manual Physical Therapy Series  
Charlottesville 2017-2018

**Eric M Magrum DPT OCS FAAOMPT**

Orthopaedic Manual Physical Therapy Series 2017-2018

**“The Fear of  
pain may be  
more  
disabling than  
pain itself.”**



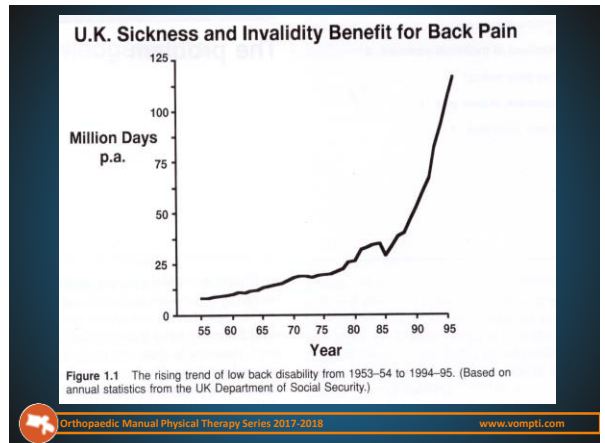
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- **Low Back Pain** is a 20th century **medical disaster**
- Surgical/diagnostic technology, cures, vaccines, pharmacology advances
- **Back strains** disable more people than all serious spinal pathology together
- **Rising** work loss, compensation, early retirement, and long term **disability** benefits continue

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## Disproportionate Costs

- 5% patients occupational LBP consume 90% of expenditures
- Individuals **not returning to work within 4-8 weeks following injury significantly increase chances of long term disability.**
- **Early detection of and proper management of patients with poor coping strategies showing psychological distress out of proportion to the organic back disorder may help facilitate recovery and return to function.**

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**Chronic back pain**  
Persistent or intermittent  
> 3 Months

✦ ✦ ✦

**Acute back pain**  
self-limited

>\$90B Annually

Estimated cost of managing back pain

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## Adverse Prognostic Indicators

- ▶ Yellow flags are psychosocial indicators suggesting increased risk of progression to long-term distress, disability, and pain
- ▶ Can be applied more broadly to assess likelihood of development of persistent problems from acute pain presentation
- ▶ Yellow flags can relate to the patient's attitudes and beliefs, emotions, behaviors, family, and workplace

Kendall NA. *Ballieres Best Pract Res Clin Rheumatol.* 1999;13(3):545-554.

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## Risk Factors for Chronic Low Back Pain: Yellow Flags

- ▶ Belief that pain and activity are harmful
- ▶ "Sickness behavior" such as extended rest
- ▶ Bodily preoccupation and catastrophic thinking
- ▶ Low or negative mood, anxiety, social withdrawal
- ▶ Personal problems (eg, marital, financial, etc)
- ▶ History of substance abuse
- ▶ Problems/dissatisfaction with work ("blue flags")
- ▶ Overprotective family/lack of support
- ▶ History of disability and other claims
- ▶ Inappropriate expectations of treatment
  - ▷ Low expectation of active participation

The presence of yellow flags highlights the need to address specific psychosocial factors as part of a multimodal management approach

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## Low Back Pain




**Acute** ← → **Chronic**

- Estimate of tissue damage
- Context
- Adaptive behaviors/Confrontation
- Nociceptive pain
- Inflammatory pain
- Management
  - Acute injury management
  - Short period of rest
  - Graded activity

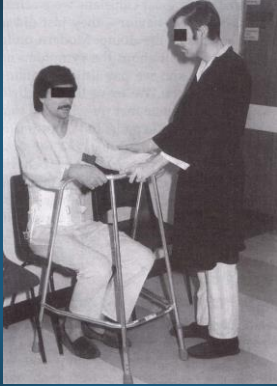
- No tissue damage
- Lifestyle factors
- Psychosocial factors
- Mal adaptive behaviors
- Management
  - Relaxation
  - Assurance
  - Cognitive Functional Therapy






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Journal of Orthopaedic & Sports Physical Therapy  
Official Publication of the Orthopaedic and Sports Physical Therapy Sections of the American Physical Therapy Association

### Fear: A Factor to Consider in Musculoskeletal Rehabilitation

Steven Z. George PT, PhD<sup>1</sup>  
*J Orthop Sports Phys Ther* 2006;36(5):264-266. doi:10.2519/jospt.2006.0106

- Research has consistently confirmed that **psychosocial factors**, instead of physical impairments, are the **best predictors** of which patients will develop **chronic disability** from an acute episode of LBP




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## Fear Avoidance Model of Chronic Pain

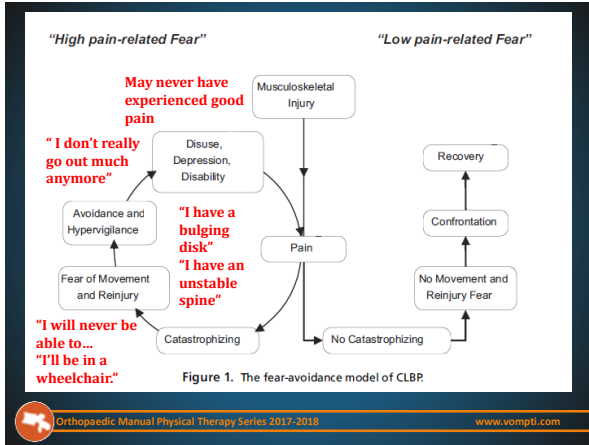
- **Psychological Model**
- **Elevated Fear** → Explains development of Chronic LBP!
- **Beliefs** determine initial response to pain
  - Anxiety
  - Pain related fear
    - Fear of movement
    - Re-injury
  - Pain Catastrophizing

**Avoidance** ← → **Confrontational**



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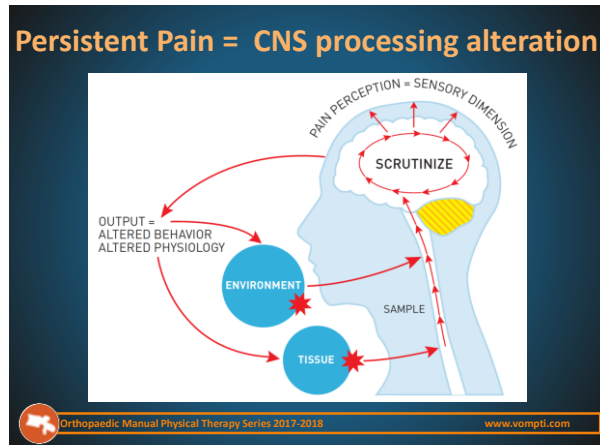


## Fear-Avoidance Model of Chronic Pain

- Pain perception (2 components)
  - Sensory and Emotional
- Sensory mediated by physiological factors related to nociception
- Emotional reaction mediated by psychological factors related to fear of pain

### Moseley Key Points:

- Pain is a conscious experience that depends on the brain evaluating many inputs, not just those from the tissues.
- It hurts where your brain thinks the problem is, not necessarily where it really is.
- Pain depends on how much danger your brain thinks you are in, not how much you are really in.



## Catastrophization

- "I've never had pain like this before; it's never less than 10/10 pain" (Magnification)
- "Oh my God, I'll never get back to work, bless you, this is going to permanently injure me for life, I can never do my job again" (Rumination)
- "Oh, my mom had this pain and, oh my God, she was out of work for a year, and she got, you know, she went to the chiropractor, nothing worked, I just know I'm going to get surgery." (Helplessness)



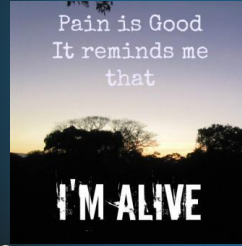
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Low Fear → Sensory = Emotional →

Confrontational = Adaptive

– Return to normal social/vocational activity



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- High Fear → Emotional > Sensory → Avoidance = Maladaptive (exaggerated pain perception → chronic disability)
  - Psychological (hyperalgesia, depression)
  - Physical (decrease physical performance, disuse)
  - Societal (chronic disability)



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## Disease versus Illness Behavior

- Distinguish physical signs/symptoms from behavioral
- Diagnostic Triage - RED FLAGS

Simple backache  
Nerve root pathology  
Possible serious spinal pathology

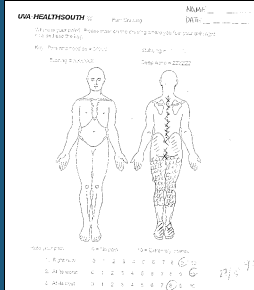


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## Assess Illness Behavior

- FABQ
- PHQ – 2
- TSK
- Body Chart/Pain Diagram
- Oswestry/NDI
- Listen/Observe



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## FABQ/PHQ-2

Here are some of the things which other patients have told us about their pain. For each statement please circle any number from 0 to 6 to say how much physical activity such as bending, lifting, walking or driving affect or would affect your pain.

*\*\*If you don't have back pain, please answer these questions in relation to where you are feeling pain.\*\**



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## Physical Activity Subscale

	Completely Disagree		Unsure		Completely Agree	
1. My pain was caused by physical activity	0	1	2	3	4	5 6
2. Physical activity makes my pain worse	0	1	2	3	4	5 6
3. Physical activity might harm my back	0	1	2	3	4	5 6
4. I should not do physical activities which (might) make my pain worse	0	1	2	3	4	5 6
5. I cannot do physical activities which (might) make my pain worse	0	1	2	3	4	5 6

**FABQ PA sub scale: score items 2-5; High > 15**



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## Work Activity Subscale

The following statements are about how your normal work affects or would affect your back pain.

	Completely Disagree		Unsure		Completely Agree	
6. My pain was caused by my work or by an accident at work	0	1	2	3	4	5 6
7. My work aggravated my pain	0	1	2	3	4	5 6
8. I have a claim for compensation for my pain	0	1	2	3	4	5 6
9. My work is too heavy for me	0	1	2	3	4	5 6
10. My work makes or would make my pain worse	0	1	2	3	4	5 6
11. My work might harm my back	0	1	2	3	4	5 6
12. I should not do my normal work with my present pain	0	1	2	3	4	5 6
13. I cannot do my normal work with my present pain	0	1	2	3	4	5 6
14. I cannot do my normal work till my pain is treated	0	1	2	3	4	5 6
15. I do not think that I will be back to my normal work within 3 months	0	1	2	3	4	5 6
16. I do not think that I will ever be able to go back to that work	0	1	2	3	4	5 6

**FABQ-W: Score items 6-7, 9-12, 15; High score > 34/42**



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The role of fear-avoidance beliefs in acute low back pain: relationships with current and future disability and work status

Julie M. Fritz<sup>a,\*</sup>, Steven Z. George<sup>b</sup>, Anthony Delitto<sup>c</sup> Pain 94 (2001) 7–15

- FABQ correlated with pain, disability, depressive symptoms, physical impairments, non organic findings
- FABQ-W correlated with disability (r=.40)
- FABQ-PA correlated with disability (r=.34)
- FABQ-W predictive of perceived disability, future return to work



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Investigation of Elevated Fear-Avoidance Beliefs for Patients With Low Back Pain: A Secondary Analysis Involving Patients Enrolled in Physical Therapy Clinical Trials

- FABQ – W (work subscale) better predictor of 6 month outcomes
- FABQ-W > 20 indicated and increased risk of chronic disability

J Orthop Sports Phys Ther 2008;38(2):50-58



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Tampa Scale for Kinesiophobia  
(Miller, Ken and Todd 1991)

- 1 = strongly disagree
- 2 = disagree
- 3 = agree
- 4 = strongly agree

1. I am afraid that I might injury myself if I exercise	1	2	3	4
2. If I were to try to overcome it, my pain would increase	1	2	3	4
3. My body is telling me I have something dangerously wrong	1	2	3	4
4. My pain would probably be relieved if I were to exercise	1	2	3	4
5. People aren't taking my medical condition seriously enough	1	2	3	4
6. My accident has put my body at risk for the rest of my life	1	2	3	4
7. From stress (worry) I have injured my body	1	2	3	4
8. Just because something aggravates my pain does not mean it is dangerous	1	2	3	4
9. I am afraid that I might injure myself accidentally	1	2	3	4
10. Simply being careful that I do not make any unnecessary movements is the safer thing I can do to prevent my pain from worsening	1	2	3	4
11. I wouldn't have that much pain if there weren't something potentially dangerous going on in my body	1	2	3	4
12. Although my condition is painful, I would be better off if I were physically active	1	2	3	4
13. Pain is not know when to stop exercising so that I don't injure myself	1	2	3	4
14. It's really not safe for a person with a condition like mine to be physically active	1	2	3	4
15. I can't do all the things normal people do because it's too easy for me to get injured	1	2	3	4
16. Even though something is causing me a lot of pain, I don't think it's really dangerous	1	2	3	4
17. No one should have to exercise when he/she is in pain	1	2	3	4



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Depression Screening Tool  
Patient Health Questionnaire (PHQ-2)

Over the past 2 weeks, have you often been bothered by:

1. Little interest or pleasure in doing things?  Yes  No
2. Feeling down, depressed, or hopeless?  Yes  No

Kroenke K, Spitzer RL, Williams JB. The Patient Health Questionnaire-2: validity of a two-item depression screener. Med Care 2003; 41:1284-92



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## Oswestry LBP Disability Questionnaire

- Perceived level of Disability- self reported
- Proven reliable and responsive to change
- MCID = 6 points

SCORE INTERPRETATION OF THE OSWESTRY LBP DISABILITY QUESTIONNAIRE	
0-20% Minimal disability	Can cope with most ADLs. Usually no treatment is needed, apart from advice on lifting, sitting, posture, physical fitness, and diet. In this group, some patients have particular difficulty with sitting and this may be important if their occupation is sedentary (typist, driver, etc.)
20-40% Moderate disability	This group experiences more pain and problems with sitting, lifting, and standing. Travel and social life are more difficult and they may well be off work. Personal care, sexual activity, and sleeping are not grossly affected, and the back condition can usually be managed by conservative means.
40-60% Severe disability	Pain remains the main problem in this group of patients, but travel, personal care, social life, sexual activity, and sleep are also affected. These patients require detailed investigation.
60-80% Crippled	Back pain impinges on all aspects of these patients' lives both at home and at work. Positive intervention is required.
80-100%	These patients are either bed-bound or exaggerating their symptoms. This can be evaluated by careful observation of the patient during the medical examination.

Data compiled from Fairbanks et al. 1980.

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### Clinical biopsychosocial physiotherapy assessment of patients with chronic pain: The first step in pain neuroscience education

**Assessment**

1. Type of pain
 

Noiceptive

Neuropathic

CS pain

2. Somatic factors

3. Cognitive factors

4. Emotional factors

5. Behavioral factors

6. Social factors

7. Motivation

Pain analysis

➔

Pain neuroscience education

PHYSIOTHERAPY THEORY AND PRACTICE  
2016, VOL. 32, NO. 5, 368-384

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## Listen/Observe

- Build Therapeutic Alliance
- Express Empathy
- Open/Reflective Questioning
- Summarizing
- Identify Discrepancies
- Goal setting
- Support Self efficacy



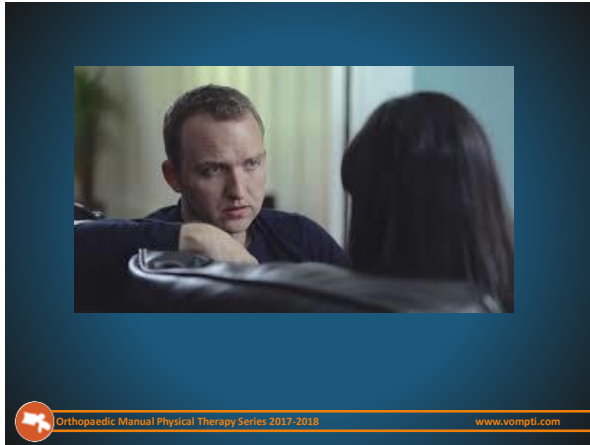
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## Let patients tell their story

- Pain and impact on life
- History of pain
- Location
- Pain behavior (aggs/ease)
- Functional impairments
- Disability
- Sleep patterns
- Level of fear
- Activity level
- Lifestyle behaviors
- Avoidance specific activities (work/social)
- Degree of pain focus
- Pain coping strategies
- Stress and relationship to pain
- Pain beliefs
- History of anxiety/depression
- Goals for management

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### Explanatory and Diagnostic Labels and Perceived Prognosis in Chronic Low Back Pain

**Results.** Two major categories representing the predominant themes emerging from the content analysis were “Degeneration” and “Mechanical.” Degenerative terms such as “wear and tear” and “disc space loss” indicated a progressive loss of structural integrity. Examples of phrases used by patients included “deterioration [...] spine is crumbling” and “collapsing [...] discs wearing out.” The use of degenerative terms by patients was associated with a poor perceived prognosis ( $P < 0.01$ ). Degenerative and mechanical terms were more commonly used by patients when they were documented in correspondence from secondary care specialists ( $P = 0.03$  and  $0.01$ , respectively).

SPINE Volume 35, Number 21, pp E1120-E1125

### Editorial: How the Words We Use Affect the Care We Deliver

Clinical Orthopaedics and Related Research®  
A Publication of The Association of Bone and Joint Surgeons®

### Interventional Therapies, Surgery, and Interdisciplinary Rehabilitation for Low Back Pain


An Evidence-Based Clinical Practice Guideline From the American Pain Society

- **Recommendations**
  - Non Radicular LBP
  - Unresponsive to conservative management
  - Integrated approach
    - Rehab + Psychological/Social-Occupational
  - Intensive Interdisciplinary rehab
    - Component of cognitive/behavioral emphasis
    - Strong Recommendation/High-quality Evidence

SPINE Volume 34, Number 10, pp 1066-1077

## Therapeutic Neuroscience Education

- **Decrease fear** and positively change a patient's **perception of their pain** (Moseley 2003)
- **Immediate effect** on improvements in patients' **attitudes** about pain (Moseley 2003)
- **Improvements in pain, cognition and physical performance** (Moseley 2004)
- **Increased pain thresholds during physical tasks** (Moseley, Hodges et al. 2004)
- **Improved outcomes of therapeutic exercises** (Moseley 2002)
- **Reduction in widespread brain activity** characteristic of a pain experience (Moseley 2005)




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SYSTEMATIC REVIEW Arch Phys Med Rehabil Vol 92, December 2011


### The Effect of Neuroscience Education on Pain, Disability, Anxiety, and Stress in Chronic Musculoskeletal Pain

Adriaan Louw, PT, MAppSc, Ina Diener, PT, PhD, David S. Butler, PT, EdD, Emilio J. Puentedura, PT, DPT


- **“Compelling Evidence”**
- **TNSE**
  - **Improved Movement**
  - **Decr Pain perception**
  - **Decr Disability**
  - **Decr Catastrophization**
- **Re conceptualize - Chronic Pain caused by increased sensitization not tissue damage**
  - **Decrease Threat**
  - **Reappraise ability to move**



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- **Understand Pain**
  - **Explain cycle of pain**
  - **Change beliefs/thoughts/response to pain**
  - **Reassurance**
  - **Reduce threat**
  - **Patient Goal setting**
  - **Behavior change**
- **Change Perception of pain as threatening and harmful**
- **Chronic Pain Physiology**
- **Nervous system Sensitivity**
- **Multiple biopsychosocial factors influence**




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#### How to explain central sensitization to patients with 'unexplained' chronic musculoskeletal pain: Practice guidelines

- **Pain Physiology Education indicated**
  - **Maladaptive illness behavior present**
  - **Clinical picture dominated by Central Sensitization**
- **What sustains Chronic pain**
  - **Emotions**
  - **Stress**
  - **Pain behavior**
- **Education**
  - **Re conceptualize pain**
  - **Acute versus Chronic pain**
  - **Purpose of acute pain**
  - **How acute pain progresses to chronic**
- **Coping strategies**
- **Self management programs**
- **Graded Exposure/Activity**

Manual Therapy 16 (2011) 413–418



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### BIOPSYCHOSOCIAL MANAGEMENT OF BACK PAIN

Is like Teenagers and Sex;  
Everybody talks about it,  
Nobody really knows how to do it,  
Everyone thinks everyone else is doing it,  
So everyone claims to be doing it.

back pain

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### Re Conceptualize Pain

16<sup>th</sup> Century

21<sup>st</sup> Century

Excitatory

Inhibitory

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### Neuro Physiology of Pain

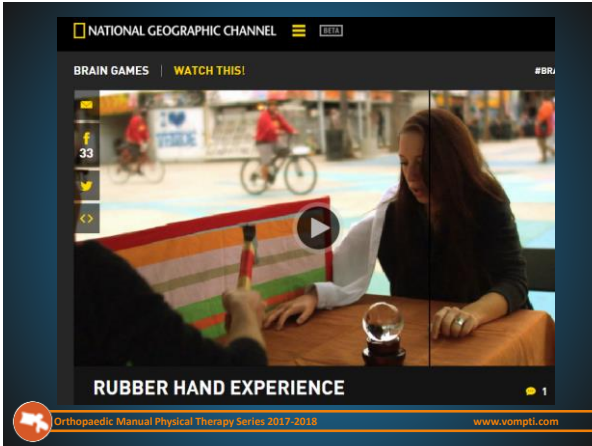
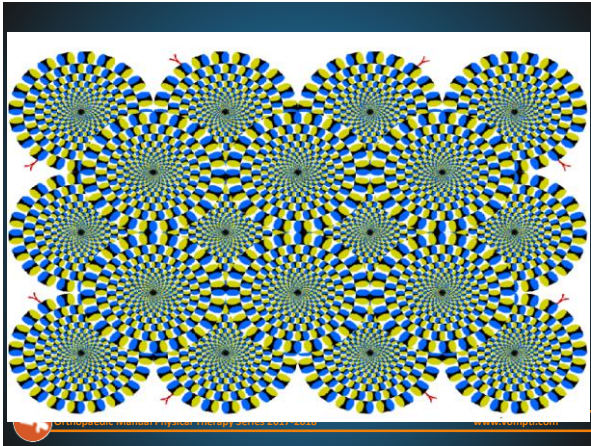
- Pain is a sensory and emotional experience - not just tissue damage
- Pain is constantly modulated with the CNS
- Pain is a perception (like other inputs/senses) – the brain has to decide how to interpret

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**Visualization of Painful Experiences Believed to Trigger the Activation of Affective and Emotional Brain Regions in Subjects with Low Back Pain**

task

**Patients with LBP!**  
Displayed activation in cortical areas related to pain and emotions

PLoS ONE | November 2011 | Volume 6 | Issue 11  
Orthopaedic Manual Physical Therapy Series 2017-2018  
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**Modern definition of LBP**

LBP is a multiple system output, activated by an individual's pain neuromatrix in response to perceived threat

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### A TYPICAL PAIN NEUROTAG

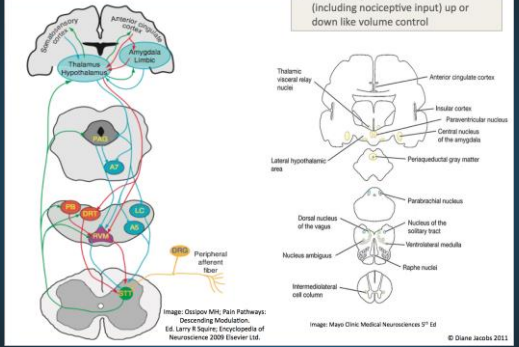
1. PREMOTOR/ MOTOR CORTEX  
*organize and prepare movements*
2. CINGULATE CORTEX  
*concentration, focusing*
3. PREFRONTAL CORTEX  
*problem solving, memory*
4. AMYGDALA  
*fear, fear conditioning, addiction*
5. SENSORY CORTEX  
*sensory discrimination*
6. HYPOTHALAMUS/ THALAMUS  
*stress responses, autonomic regulation, motivation*
7. CEREBELLUM  
*movement and cognition*
8. HIPPOCAMPUS  
*memory, spatial recognition, fear conditioning*
9. SPINAL CORD  
*gating from the periphery*



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### DESCENDING MODULATION


Internal regulation system:  
• can literally turn afferent input (including nociceptive input) up or down like volume control



Images: Ossipov MH, Pain Pathways, Descending Modulation, Ed Larry R. Spence, Encyclopedia of Neuroscience 2009 Elsevier Ltd. Image: Mayo Clinic, Medical Neurosciences 9<sup>th</sup> Ed © Diana Jacobs 2011

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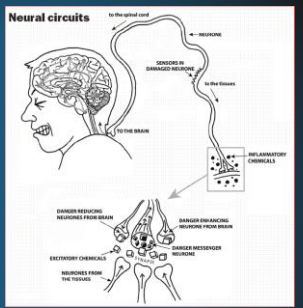
“Amplification of the neural signaling in the CNS that elicits pain hypersensitivity”



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### Pain/Altered Sensation

- Synaptic and membrane excitability changes in the central nervous system and not necessarily due to processes in tissues



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Recognition of central sensitization in patients with musculoskeletal pain: Application of pain neurophysiology in manual therapy practice

Manual Therapy 15 (2010) 135-141

- Central Sensitization
- Alterations in CNS processing
  - Impaired descending inhibitory mechanisms
  - Activation ascending/descending Pain facilitation pathways
  - Increased activity in brain centers involved in acute pain
  - Noxious stimulus are amplified, prolonged, and widely spread : **Hyperalgesia**
  - Increased excitability : Non noxious → Noxious: **Allodynia**

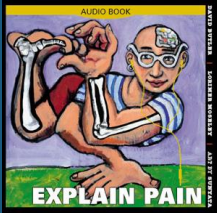
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How to explain central sensitization to patients with 'unexplained' chronic musculoskeletal pain: Practice guidelines

Manual Therapy 16 (2011) 413-418

Jo Nijs<sup>a,b,c,\*</sup>, C. Paul van Wilgen<sup>d,e</sup>, Jessica Van Oosterwijk<sup>a,b,c</sup>, Miriam van Ittersum<sup>d,e</sup>, Mira Meeus<sup>a,b</sup>

- **Reconceptualise Pain**
- Convince patient hypersensitivity of CNS not local tissue damage is cause of pain
- Educate:
  - Acute vs. Chronic Pain**
  - How pain originates in nervous system**
    - Nocioceptors
    - Ion Gates
    - Neurons
    - Action potentials
    - Peripheral sensitization
    - Synapses
    - Inhibitory/excitatory chemicals
    - Descending/ascending pathway
    - Role of CNS - Pain memory/perception
  - How pain becomes chronic**
    - Plasticity of nervous system
    - Potential sustaining factors of central sensitization
    - Emotions, stress, illness perceptions, pain cognitions, pain behaviors



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**Teach pain is in your head**

**Without teaching that pain is in your head**

- Pain is an output of the brain developed to protect
- Pain is a reflection of the brain's evaluation of danger messages to body tissues
- Modulated by many systems/factors - **Beliefs**
  - Cognitive
  - Physical
  - Emotional
  - Social
  - Lifestyle



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The Explain Pain Handbook

**PROTECTOMETER**



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## Analogies Metaphors Stories

Before Pain

Lots of room for activities

NORMAL EXCITED LEVEL

After Pain

Little room for activities

EXTRA SENSITIVE

NORMAL EXCITED LEVEL

Why Do I Hurt?, Loew 2013 OPTP

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www.vompti.com

TEDxAdelaide - Lorimer Moseley - Why Things Hurt

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**LBP is a**

- multiple system
- output
- activated by an individual's pain
- neuromatrix
- in response to
- perceived
- threat

Education is Therapy  
www.vompti.com

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- Understand Pain
  - Explain cycle of pain
  - Change beliefs/thoughts/response to pain
  - Reassurance
  - Reduce threat
  - Patient Goal setting
  - Behavior change
- Change Perception of pain as threatening and harmful
- Chronic Pain Physiology
- Nervous system Sensitivity
- Multiple biopsychosocial factors influence

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### Widespread brain activity during an abdominal task markedly reduced after pain physiology education: fMRI evaluation of a single patient with chronic low back pain

Australian Journal of Physiotherapy 2005 Vol. 51

Decrease perceived threat through education

G Lorimer Moseley

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### A Modern Neuroscience Approach to Chronic Spinal Pain: Combining Pain Neuroscience Education With Cognition-Targeted Motor Control Training

- Phase 1**
  - Pain neuroscience education:
    - changing pain beliefs through the reconceptualization of pain
- Phase 2**
  - Cognition-targeted neuromuscular training:
    - time-contingent training of coordinated activity of the spinal muscles
    - progression to next level preceded by motor imagery
- Phase 3**
  - Cognition-targeted dynamic and functional exercises:
    - increasing complexity of exercises to functional tasks
    - progression toward those movements for which the patient is fearful
    - exercises during cognitively and psychosocially stressful conditions

Physical Therapy Volume 94 Number 5

Orthopaedic Manual Physical Therapy Series 2017-2018 [www.vompti.com](http://www.vompti.com)

### Cognitive Functional Therapy for Disabling Nonspecific Chronic Low Back Pain: Multiple Case-Cohort Study

Physical Therapy Volume 95 Number 11  
Kieran O'Sullivan, Wim Dankkaerts, Leonard O'Sullivan, Peter B. O'Sullivan

- Behaviorally based intervention
- Decrease CNS sensitivity
- Tailored to individual
- Target specific behaviors
  - Aggravating postures/activities
  - Muscle guarding
  - Pain behaviors
  - Cognitive/Psychosocial behaviors
    - Pain experience
    - Thoughts/emotions
- Goal of CFT
  - Facilitate patients performing painful activity
    - Relaxed
    - In control of pain
    - Different view of pain
  - Reduce the threat
  - Provide reassurance
  - Provide Hope
  - Encourage Active approach to Rehab

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## Target Functional Behaviors

- Behavior experiments to reduce pain
- Breathing/Relaxation/Mindfulness
- Normalize faulty movement patterns
- Break into component parts
- Enhance Body awareness
- Discourage pain behaviors
- Target fearful/painful activities
- Avoid isolated muscle training
- Graded exposure training
- Confidence – self efficacy



Physical Therapy Volume 95 Number 11

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## Graded Exercise “Exposure without danger”

- Behavioral intervention
- Encourages confrontation by improving exercise/activity tolerance
- Parameters set based on time (not pain contingent)
  - Frequency
  - Intensity
  - Duration
  - Graduated Progressions

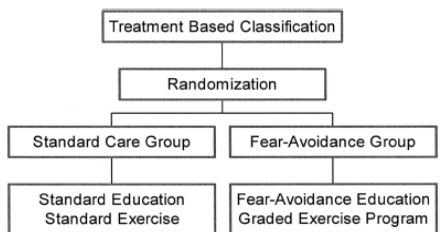


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The Effect of a Fear-Avoidance–Based Physical Therapy Intervention for Patients With Acute Low Back Pain: Results of a Randomized Clinical Trial

SPINE Volume 28, Number 23, pp 2551–2560

Steven Z. George, PT, PhD,\* Julie M. Fritz, PT, PhD, ATC,† Joel E. Bialosky, PT, MS,‡ and Douglas A. Donald, MPT§



```

            graph TD
            A[Treatment Based Classification] --> B[Randomization]
            B --> C[Standard Care Group]
            B --> D[Fear-Avoidance Group]
            C --> E[Standard Education]
            C --> F[Standard Exercise]
            D --> G[Fear-Avoidance Education]
            D --> H[Graded Exercise Program]
            
```

Figure 2. Treatment group components.

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Steven Z. George, PT, PhD,\* Julie M. Fritz, PT, PhD, ATC,† Joel E. Bialosky, PT, MS,‡ and Douglas A. Donald, MPT§

- Resultant disability at 4 weeks/6 months
- Dependent on classification and specifically directed intervention
- Pts with elevated Fear Avoidance Beliefs benefited from Fear Avoidance directed PT
- Pts without elevated Fear Avoidance did not benefit from Fear Avoidance directed PT

SPINE Volume 28, Number 23, pp 2551–2560

Orthopaedic Manual Physical Therapy Series 2017-2018 www.vompti.com

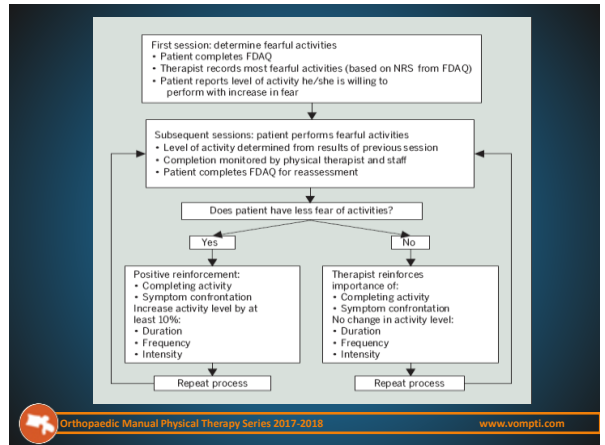
## Physical Therapy Utilization of Graded Exposure for Patients With Low Back Pain

### FEAR OF DAILY ACTIVITIES QUESTIONNAIRE (FDAQ)

People with low back pain have told us that they are fearful of performing certain activities because they believe these activities will cause additional low back pain, or require their back. Examples of such activities are listed below. Using the provided scale, please rate each activity for the amount of fear it causes you, as it relates to your low back pain. Because not all activities are fearful for all people, we are also asking you to list 2 different activities that cause you fear, and to rate the fear associated with those activities.


	0	100
	No fear of activity	Maximal fear of activity
<b>Activity</b>		<b>Rating (0-100)</b>
1. Sitting for longer than 1 hour		_____
2. Standing for longer than 30 minutes		_____
3. Walking for longer than 30 minutes		_____
4. Lifting less than 20 pounds*		_____
5. Lifting 20 pounds* or more		_____
6. Carrying less than 20 pounds*		_____
7. Carrying 20 pounds* or more		_____
8. Twisting		_____
9. Reaching to the floor		_____
10. Performing back exercises		_____
11. _____		_____
12. _____		_____

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George SZ, JOSP 2009



## Graded Exposure

- Behavioral approach
- Decrease fear through controlled experience
- Encourages confrontational response
- Patients learn (direct experience) activities will not harm the spine
- Fearful activities assessed (FDAQ)
- Modified position, frequency, intensity, duration – not fearful
- Education, Positive reinforcement, Utilize coping strategies



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## Exercise for chronic musculoskeletal pain: A biopsychosocial approach

Musculoskeletal Care. 2017;1-9.

- Understand Pain biology- **"Explain Pain"**
- Frequently reassure pts – **Safe to move**
- Exercise time, **not pain based**
- Have responses to 'flare ups'
- Individualized, enjoyable – related to **patient goals**
- Lower exercise dose
- Provide feedback, correct technique
- Emphasis on **restoring movement confidence**

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**Feasibility and Safety of a Virtual Reality Dodgeball Intervention for Chronic Low Back Pain: A Randomized Clinical Trial**  
The Journal of Pain, 2016

- **Increased Lumbar flexion**
- **No adverse effects**
- **No increased pain/disability**
- **No increased pain medication use**




What did you like most about the game? "It was a fun way to engage my back in exercise and I was most focused on the game than the pain in my body."

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## Treatment interventions

- **Therapeutic Neuroscience Pain Education**
  - Reduce fear, Improve coping ability
  - Improve understanding, Ergonomics, Back school
  - Encourage confrontation
- **Empower patient**
- **Multi Disciplinary approach**
- **Aerobic Exercise**
- **Cognitive Functional Training**
- **Graded Exposure (time not symptom based)**
  - Early active mobility
  - Return to normal activity levels - modified without increasing pain
- **Graded Exercise**
  - Graduated- progressive Exercise
  - Restore function, improve disc/cartilage nutrition, promote bone/muscle strength, increased endorphin levels and reduce pain sensitivity

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**Therapeutic Neuroscience Education**  
 Teaching Patients About Pain  
A Guide for Clinicians

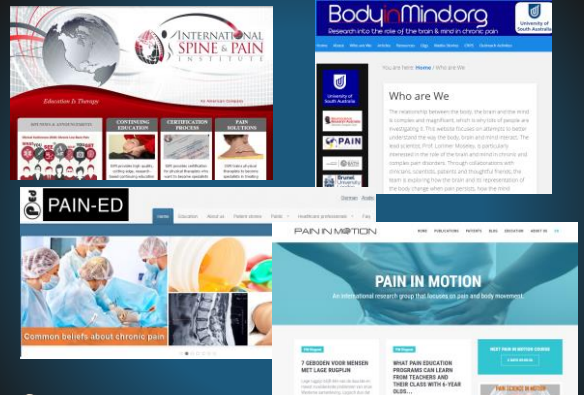
**EXPLAIN PAIN**  
 A FUNNY BOOK ABOUT THE ANATOMY OF PAIN

**WHY DO I HURT?**  
 A FUNNY BOOK ABOUT THE ANATOMY OF PAIN

**painful yarns**  
 metaphors & stories to help understand the biology of pain

**PAIN**

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**INTERNATIONAL SPINE & PAIN INSTITUTE**  
 Education & Therapy

**Body in Mind.org**  
 Research into the use of the brain & mind in chronic pain

**PAIN-ED**

**PAIN IN MOTION**  
 An international research group that focuses on pain & body movement


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## How much would you pay to live pain free?

By Christopher Ingraham August 7

actually pose it to people: "Consider your overall satisfaction with life being often troubled by pain, what would you be willing to pay to be just as happy but without pain?"

The answer: between \$56 and \$145 *A day*. Which works out to between \$20,000 and \$53,000 *a year*. Recall that the median household income is about \$56,000, and the trade-off becomes stark: Some people would theoretically be willing to give up their entire livelihoods to be pain-free.

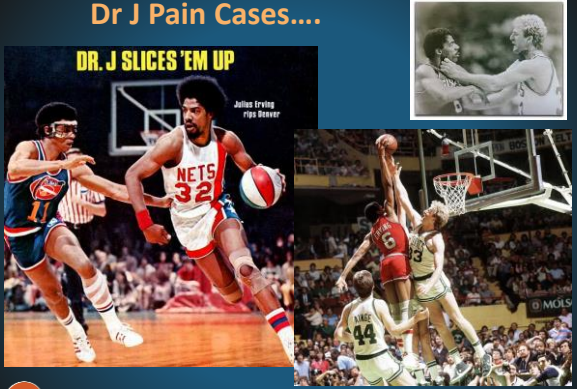


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## Dr J Pain Cases...

### DR. J SLICES 'EM UP

Julius Erving  
rips Beaver



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