

# Iatrogenic Disability, Low Back Pain and Treatment Guidelines

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# Disclosures

- ▶ Author, contributor, speaker  
American Medical Association  
Royalties
- ▶ President, IAIME – no \$
- ▶ Author – Elsevier – no \$



# Case scenario

- ▶ 55 yo male long-haul truck driver
  - ▶ Loads and unloads
- ▶ Presents to Urgent Care with complaints of low back pain
- ▶ PE findings: limited lumbar range of motion; no neurologic findings
- ▶ Requests an MRI



Numbness	Pins & Needles	Burning	Aching	Stabbing
----	oooo	vvvv	xxxx	////
----	oooo	vvvv	xxxx	////
----	oooo	vvvv	xxxx	////

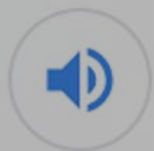
  

Signature: Paul V. Skendzel Date: 4-2-19

## Physical Examination Findings

- ▶ Palpable spasm (no lumbar shift or scoliosis)
- ▶ Limited range of motion in all planes
- ▶ Normal motor and sensory exam
- ▶ Negative straight leg raise





# i·at·ro·gen·ic

/ī,atrə'jenik/

*adjective*

adjective: **iatrogenic**

relating to illness caused by medical examination or treatment.

"drugs may cause side effects which can lead to iatrogenic disease"

Use over time for: iatrogenic





# Cascade Effect

**“a chain of events initiated by an unnecessary test... which results in ill-advised tests or treatment that may cause avoidable adverse effects and/or morbidity”**

Webster, Barbara S., YoonSun Choi, Ann Z. Bauer, Manuel Cifuentes, and Glenn Pransky. "The Cascade of Medical Services and Associated Longitudinal Costs Due to Nonadherent Magnetic Resonance Imaging for Low Back Pain." *Spine* 39, no. 17 (August 2014): 1433–40.

<https://doi.org/10.1097/BRS.0000000000000408>.



# Is an MRI indicated?

1. What is the specific question to be addressed?
2. What will be done with the results?

Hegmann, Kurt T., Russell Travis, Roger M. Belcourt, Ronald Donelson, Marjorie Eskay-Auerbach, Jill Galper, Scott Haldeman, et al. "Diagnostic Tests for Low Back Disorders:" *Journal of Occupational and Environmental Medicine* 61, no. 4 (April 2019): e155–68.  
<https://doi.org/10.1097/JOM.0000000000001551>.

# Treatment Guidelines

- ▶ Do no harm
- ▶ Intended to recommend appropriate care
- ▶ Avoid unnecessary and iatrogenic conditions



# Guideline Recommendations for MRI

- ▶ **Not recommended** for acute low back pain < 6 weeks duration and no “red flag” conditions.
- ▶ Early (< 6 weeks) lumbar imaging including X-rays, CT or MRI *rarely offers medical benefits in the absence of trauma or other red flags.*
- ▶ Low back pain or radiculopathy (acute, subacute, or chronic), **surgery or intervention candidate** with persistent or progressive symptoms during or following 6 weeks of conservative management



- ▶ Acute low back pain
- ▶ No red flags
- ▶ Not a candidate for surgery or other intervention

Does this patient meet  
the criteria?



# Why Guideline Recommendations?

- ▶ Lumbar imaging frequently reveals “abnormalities” of uncertain clinical significance
  - ▶ Findings are similar to those seen in asymptomatic individuals.

*MRI is highly sensitive but not specific in identifying the cause of back pain.*



# Why Are MRIs Ordered Early?

- ▶ Patient requests/ fear
- ▶ provider concerns
  - ▶ *What is the natural history of radiculopathy?*
- ▶ desire to satisfy patient
- ▶ *desire by physician to identify a treatable physical cause*
- ▶ economic incentives to pursue overly intensive treatment strategies

Webster, Barbara S., Ann Z. Bauer, YoonSun Choi, Manuel Cifuentes, and Glenn S. Pransky. "Iatrogenic Consequences of Early Magnetic Resonance Imaging in Acute, Work-Related, Disabling Low Back Pain:" *Spine* 38, no. 22 (October 2013): 1939–46. <https://doi.org/10.1097/BRS.0b013e3182a42eb6>.



# What Does This MRI Tell You?



What is the significance of degenerative disc disease on MRI in a 55 year old male truckdriver?

*Are these findings the CAUSE of his symptoms?*

There is a **poor correlation** between LBP and degenerative findings on imaging studies

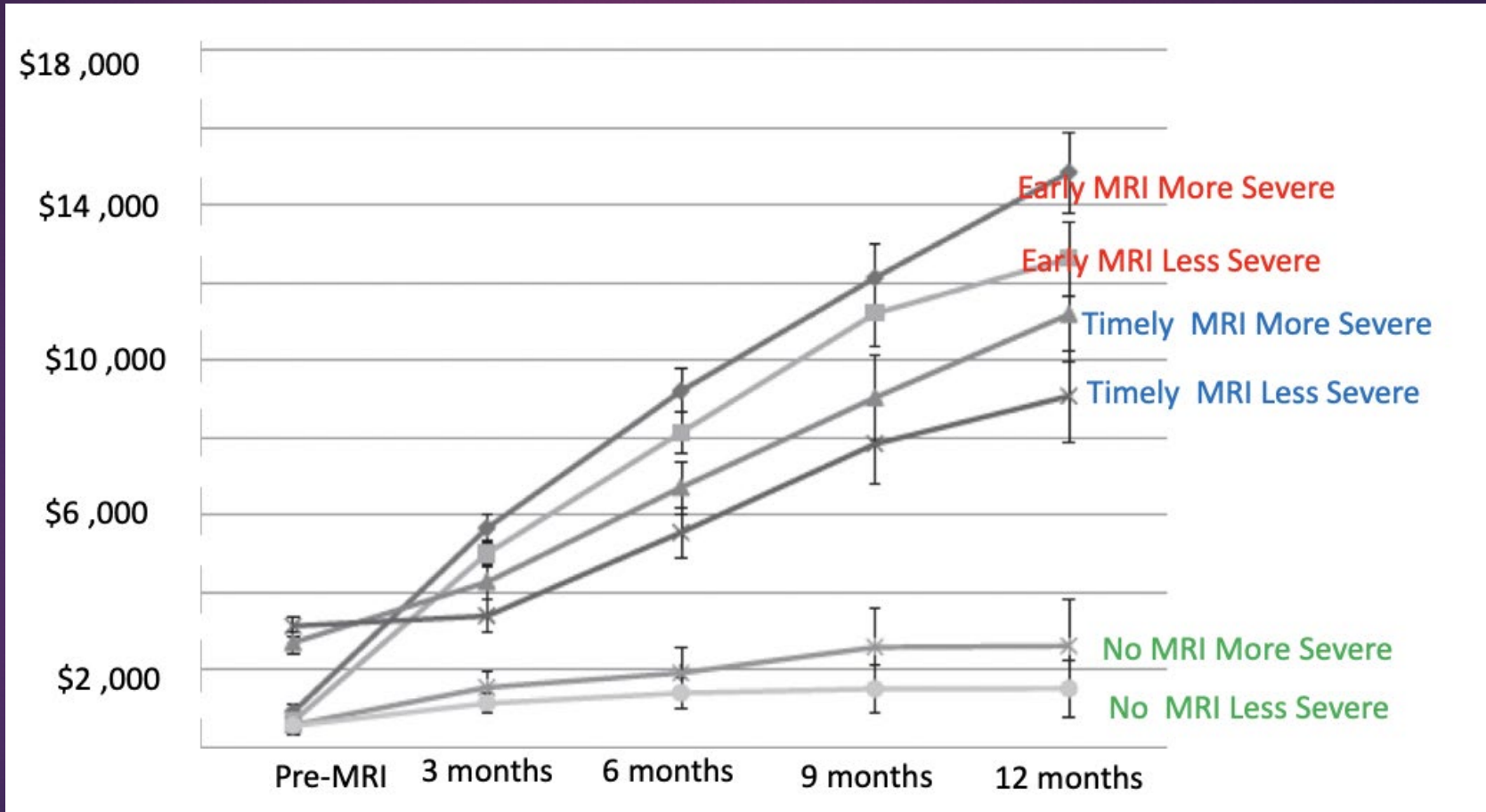


# What is the Result of Early MRI?

- ▶ Patients and/or physicians may misinterpret **unrelated abnormalities** as indicative of a more specific or severe diagnosis
- ▶ Erroneous attributing **patient's pain to an abnormality**
- ▶ *A systematic review of randomized trials found no benefit in health, function, or disability outcomes with early MRI in LBP.*



# Total Medical Costs over Time by MRI group



# Is A Specialist the Answer?

- ▶ Early imaging has been associated with an increase in specialist referrals and spinal surgery without improvement in outcomes
- ▶ Surgery earlier



Webster, Barbara S., Ann Z. Bauer, YoonSun Choi, Manuel Cifuentes, and Glenn S. Pransky. "Iatrogenic Consequences of Early Magnetic Resonance Imaging in Acute, Work-Related, Disabling Low Back Pain:" *Spine* 38, no. 22 (October 2013): 1939–46. <https://doi.org/10.1097/BRS.0b013e3182a42eb6>.



# What are the consequences?



After early MRI:

- ▶ Patients' sense of well-being decreased after receiving imaging results (*more about that later*)





# Is There an Identifiable Injury?

- ▶ Biomedical back pain model
  - ▶ identification of a PAIN GENERATOR
  - ▶ predominates for many patients and providers
  - ▶ drives treatment



Webster, Barbara S., YoonSun Choi, Ann Z. Bauer, Manuel Cifuentes, and Glenn Pransky. "The Cascade of Medical Services and Associated Longitudinal Costs Due to Nonadherent Magnetic Resonance Imaging for Low Back Pain:" *Spine* 39, no. 17 (August 2014): 1433–40.

<https://doi.org/10.1097/BRS.0000000000000408>.



# Is There an Identifiable Injury?

- ▶ invasive pain treatment model
  - ▶ directing therapeutic interventions at multiple “pain generators”
  - ▶ based on an overinterpretation of the meaning of “abnormalities” that are commonly observed in asymptomatic people.



# What are the Patient's Expectations?

- ▶ A diagnostic focus may lead patients to expect a “cure”
  - ▶ Is there a cure for “bulging discs” or “degenerative disc disease” ?
  - ▶ Requests for more invasive interventions
  - ▶ Delay of functional restoration

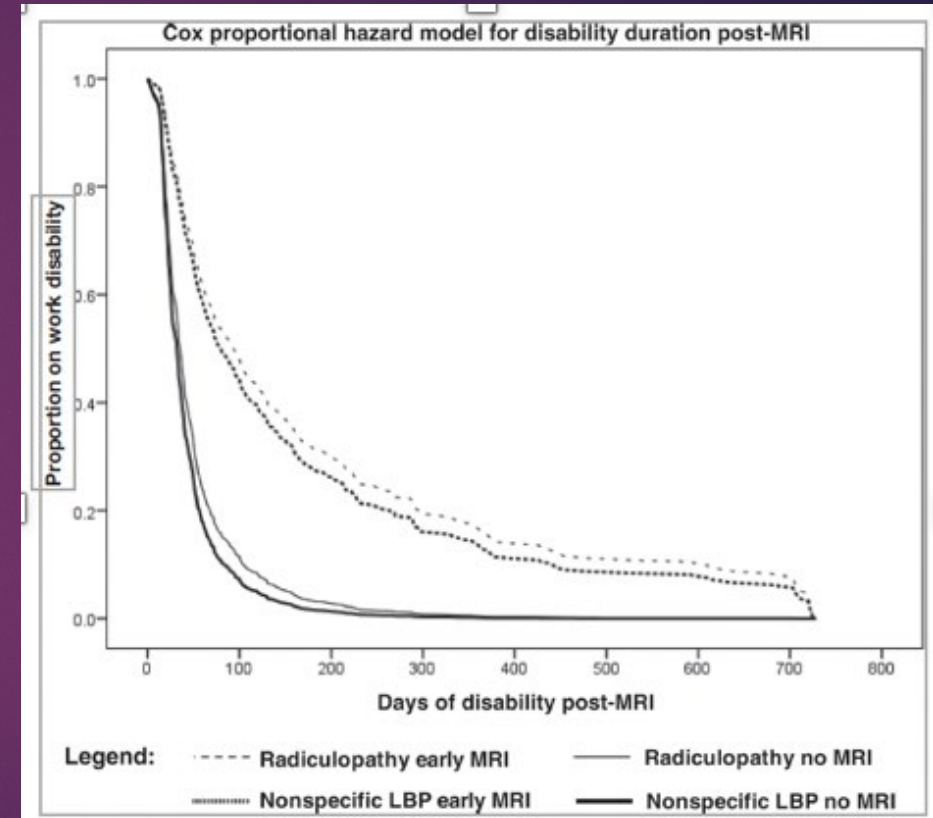


# What Do We Know About LBP?

- ▶ Common to refer to these **injuries** as “sprains” and/or “strains”; however, ***there is no identifiable ligament or myotendinous injury.***
- ▶ The most precise diagnosis is **“symptom of LBP.”**

# MRI and Disability

- ▶ Early MRI has also been associated with prolonged disability, even after controlling for potential confounders.



Webster, Barbara S., YoonSun Choi, Ann Z. Bauer, Manuel Cifuentes, and Glenn Pransky. "The Cascade of Medical Services and Associated Longitudinal Costs Due to Nonadherent Magnetic Resonance Imaging for Low Back Pain." *Spine* 39, no. 17 (August 2014): 1433–40. <https://doi.org/10.1097/BRS.0000000000000408>.



# Work Status and LBP

- ▶ Physicians rely on patient input for disability assessment

AND

- ▶ Patients who seek extensive medical care for MSK complaints have attitudes and beliefs about pain and function that are more restrictive, and report higher levels of disability than those who self-treat their symptoms.



## Common false beliefs about pain and disability

- ▶ back pain is due to progressive pathology
- ▶ back pain is harmful or severely disabling
- ▶ *avoidance of activity will help recovery*
- ▶ *expectation that passive treatments rather than active self management will help*



# Work and Low Back Pain

- ▶ There are no quality studies of degenerative spine conditions including radiculopathy and work activities
- ▶ no true job physical risk factors are known.
  - ▶ Cross-sectional studies have reported mostly *unconfirmed associations between LBP and heavy physical work* (particularly lifting heavy objects)

Hegmann, Kurt T., Russell Travis, Roger M. Belcourt, Ronald Donelson, Marjorie Eskay-Auerbach, Jill Galper, Scott Haldeman, et al. "Diagnostic Tests for Low Back Disorders." *Journal of Occupational and Environmental Medicine* 61, no. 4 (April 2019): e155–68. <https://doi.org/10.1097/JOM.0000000000001551>.



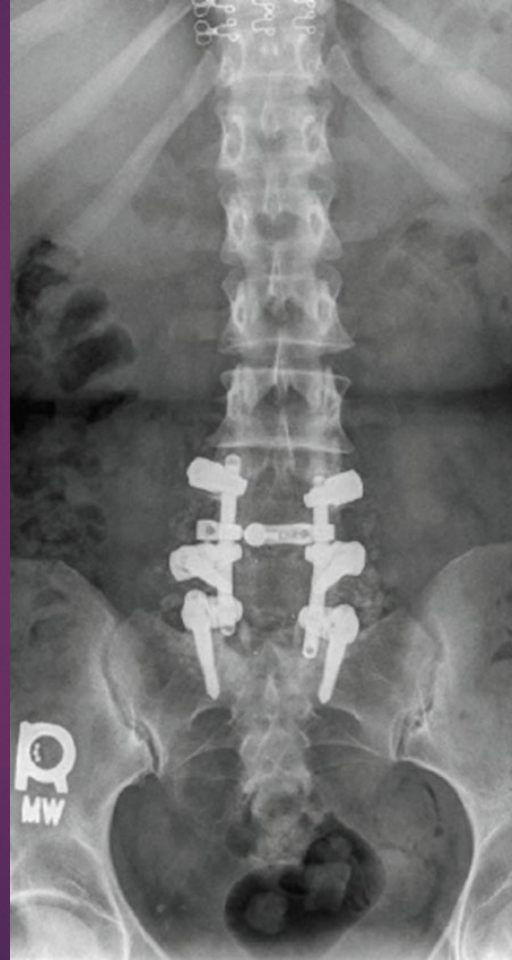
# Early Disability

- ▶ Evidence-based physician recommendations about disability/ RTW encouraging resumption of activity independent of pain status, lead to improved disability outcomes in low back pain (LBP) and other disorders.



# Case History

- ▶ Physical therapy → caused increased pain
- ▶ Taken off work
- ▶ Referred to pain management
  - ▶ Epidural injections -→ no relief
  - ▶ Facet injections → no relief



Current meds:

Gabapentin  
OxyContin  
Tramadol  
Celexa





***IS FAILURE OF CONSERVATIVE CARE  
AN INDICATION FOR SURGERY???***

# Unnecessary Spine Surgery

- ▶ Some surgeons will argue that pain alone, particularly in patients who have exhausted conservative treatment modalities [e.g. anti-inflammatories, physical therapy, epidural steroids] over a 3-6 month period, justifies spinal surgery.



# Treatment Guidelines

(A) Recommended as an option for the following conditions with ongoing symptoms, corroborating physical findings and imaging, and after failure of non-operative treatment (unless contraindicated, e.g., acute traumatic unstable fracture, dislocation, spinal cord injury) subject to criteria below:

- (1) Spondylolisthesis (isthmic or degenerative) with at least one of these:
  - (a) instability, and/or
  - (b) symptomatic radiculopathy, and/or
  - (c) symptomatic spinal stenosis;
- (2) Disc herniation with symptomatic radiculopathy undergoing a third decompression at the same level;
- (3) Pseudoarthrosis (single revision attempt);
- (4) Unstable fracture;
- (5) Dislocation;
- (6) Acute spinal cord injury (SCI) with post-traumatic instability;
- (7) Spinal infections with resultant instability;
- (8) Scoliosis with progressive pain, cardiopulmonary or neurologic symptoms, and structural deformity;
- (9) Scheuermann's kyphosis;
- (10) Tumors.

(B) Not recommended in workers' compensation patients for the following conditions:

- (1) Degenerative disc disease (DDD);
- (2) Disc herniation;
- (3) Spinal stenosis without degenerative spondylolisthesis or instability;
- (4) Nonspecific low back pain.



***Back pain treatment in the real world  
is notoriously out of step with  
guidelines and best practices.***

<https://www.painscience.com/tutorials/low-back-pain.php>



# Alternative Approaches??

## BIOMEDICAL MODEL

- ▶ Identify pathology known to be a cause of “low back pain”
- ▶ Invasive treatments aimed at “fixing” the problem

## BIOPSYCHOSOCIAL MODEL

- ▶ In over 95% of most employed populations, there is **no definable pathophysiological abnormality.**
- ▶ Many patients in the WC setting have contributing psychological factors – consider

# Non-specific Musculoskeletal Pain

34

AAOS WC 2006 PHOENIX



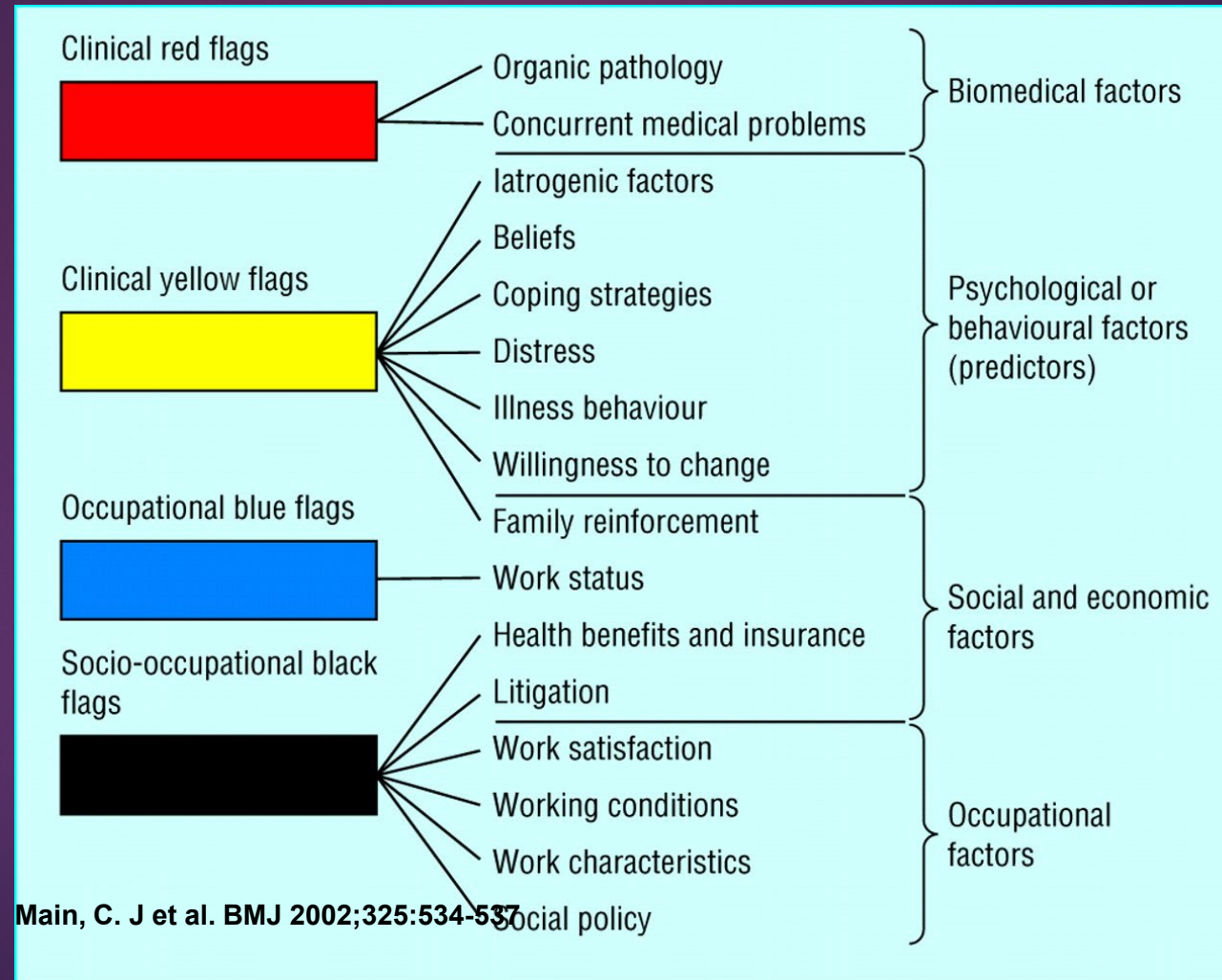
5/29/2019



# Non-specific Musculoskeletal Pain

35

AAOS WC 2006 PHOENIX  
5/29/2019



# Occ and Non-Occ Psychosocial Factors

- ▶ task enjoyment, monotony, mental stress
- ▶ work stress, job dissatisfaction,
- ▶ high demand/low control
- ▶ low supervisor support,
- ▶ low coworker support
- ▶ life dissatisfaction





# Other Non-Occ Risk Factors

- ▶ Prior history of LBP
- ▶ Smoking, obesity
- ▶ High triglycerides, hypertension,
- ▶ Poor general health, poor sleep
- ▶ Pain-related fear
- ▶ Deconditioning, physical inactivity or lack of exercise

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<https://doi.org/10.1097/JOM.0000000000001551>.



# Psychological Risk Factors (Non-Occ and Occ)

- ▶ anxiety, depression
- ▶ low energy
- ▶ emotional problems,
- ▶ somatization



Hegmann, Kurt T., Russell Travis, Roger M. Belcourt, Ronald Donelson, Marjorie Eskay-Auerbach, Jill Galper, Scott Haldeman, et al. "Diagnostic Tests for Low Back Disorders:" *Journal of Occupational and Environmental Medicine* 61, no. 4 (April 2019): e155–68. <https://doi.org/10.1097/JOM.0000000000001551>.



# Mental Health

- ▶ Poor mental health is more common in people with disabling musculoskeletal pain
- ▶ Predict the transition from acute to chronic knee pain, low back pain and neck pain

# Mental Health

- ▶ Depressive symptoms are related to
  - ▶ higher levels of pain intensity,
  - ▶ more functional limitation and
  - ▶ disability and worse prognosis



# Clinical Management

- Identify persons with at-risk personality types

Original Article

Clinics in Orthopedic Surgery 2016;8:164-167 • <http://dx.doi.org/10.4055/cios.2016.8.2.164>



## Failure Rate of Spine Surgeons in Preoperative Clinical Screening of Severe Psychological Disorders

Farzad Omid-Kashani, MD<sup>\*,†</sup>, Farhad Faridhoseini, MD<sup>‡</sup>, Shahrara Ariamanesh, MD<sup>§</sup>,  
Mahya Hashemi Kazar, MD<sup>\*</sup>, Aslan Baradaran, MD<sup>†</sup>

# What is the Answer??

- ▶ Pain and fear are a powerful cocktail!
- ▶ Patients in the compensation setting cannot be expected to decline surgery if it is presented as a reasonable treatment option
- ▶ Many patients in the WC setting have contributing psychological factors



# What Are the Alternatives?

PAIN  
MANAGEMENT

SURGERY

??

# MSK and Negative Beliefs

- ▶ The persistence of MSK pain is predicted by pessimistic beliefs about
  - ▶ the prognosis of pain
  - ▶ the relationship of physical activity and work to musculoskeletal symptoms

Vargas-Prada, Sergio, and David Coggon. "Psychological and psychosocial determinants of musculoskeletal pain and associated disability." *Best practice & research. Clinical rheumatology* vol. 29,3 (2015): 374-90. doi:10.1016/j.berh.2015.03.003



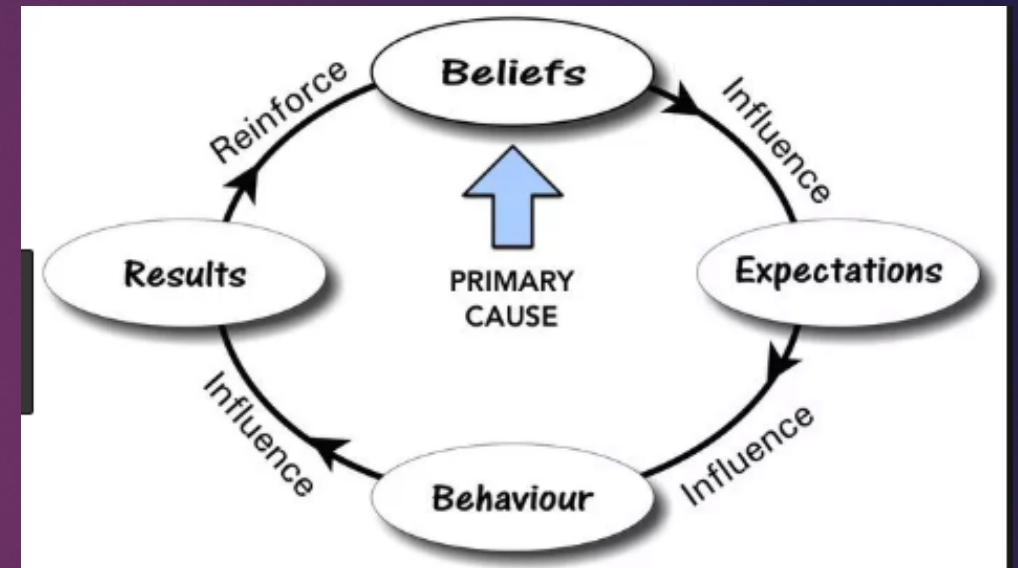
# Adverse Beliefs

- ▶ Adverse beliefs and expectations may have stronger influences on the persistence of musculoskeletal pain and associated disability than on their initial development

Vargas-Prada, Sergio, and David Coggon. "Psychological and psychosocial determinants of musculoskeletal pain and associated disability." *Best practice & research. Clinical rheumatology* vol. 29,3 (2015): 374-90. doi:10.1016/j.berh.2015.03.003

# Placebo Effect

- ▶ Strongest determinants
  - ▶ Nature of symptom being treated
- ▶ Patient
  - ▶ Beliefs
  - ▶ Expectations
  - ▶ Conditioning
  - ▶ Individual psychological factors



Chamsi-Pasha M, Albar MA, Chamsi-Pasha H. Minimizing nocebo effect: Pragmatic approach. *Avicenna J Med*. 2017;7(4):139-143.



# Conditioning (Pavlov) and Suggestion

- ▶ 200 patients with functional illnesses
- ▶ 4 groups
  - ▶ PLACEBO + POSITIVE CONSULTATION
  - ▶ PLACEBO + NEGATIVE CONSULTATION
  - ▶ POSITIVE CONSULTATION
  - ▶ NEGATIVE CONSULTATION
- ▶ *After 2 weeks, 64% of those who got a positive consultation had improved* compared to 39% of those who got a negative consultation and there was no significant difference in those who did or did not get the placebo

# Patient-Practitioner Relationship

- ▶ patient–practitioner relationship IS the most important piece of the placebo puzzle.



what are other  
words for  
reassurance?



comfort, solace, consolation,  
encouragement, cheer, assurance,  
relief, confidence, support,  
security



# Nocebo Effects

- ▶ The result of **negative expectations**
  - ▶ Nocebo administration induces negative results
  - ▶ **Negative expectations are anxiogenic**





# Physician-Patient Interaction and Nocebo

- ▶ The doctor's words and behavior may induce negative expectations in the patient
  - ▶ lead to clinical worsening.
- ▶ The impact of a negative diagnosis on the patient's brain and body can be substantial and can induce real worsening, e.g., pain increase.
- ▶ *Anxiety plays a key role in these situations*



**"Your chances are 50-50. Not bad odds with my luck lately."**



# Awareness

- ▶ Pain and fear are a powerful cocktail!
- ▶ Patients in the compensation setting cannot be expected to decline surgery if it is presented as a reasonable treatment option

# The Risk of Chronicity is Reduced

- ▶ Paying attention to the psychological aspects of symptom presentation
- ▶ Avoiding unnecessary, excessive, or inappropriate investigation
- ▶ Avoiding inconsistent care (which may cause patients to become overcautious)
- ▶ Giving advice on the natural history of LBP



A full-page background image of a sunset sky. The sky is filled with layers of clouds, some of which are illuminated from below by the setting sun, creating a warm orange and yellow glow. Other parts of the sky are a deep, dark blue. The overall effect is a dramatic and beautiful natural scene.

*Thank you!*