A Rational Approach to the Diagnosis and Treatment of Low Back Pain.
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Low Back Pain

- Seventy-five percent of all people will experience back pain at some time in their lives.
- The total cost in lost productivity is enormous. Back pain is the second leading cause of absenteeism from work, after the common cold and accounts for 15% of sick leaves.
- Back injuries cause 100 million lost days of work annually, and are the most costly injury for employers.

- After 52 weeks of back injury disability and absenteeism, only 25% of injured workers return to work.
- After two years of disability, the return rate is zero.
- For 85% of back pain sufferers, the primary site of injury is the lower lumbar spine.
- The average total cost per claim in 1989, was $18,365.00.
Prevalence

- Up-to-date evidence about levels and trends in disease and injury incidence, prevalence, and years lived with disability (YLDs) is an essential input into global, regional, and national health policies. In the Global Burden of Disease Study 2013 (GBD 2013) estimated these quantities for acute and chronic diseases and injuries for 188 countries between 1990 and 2013.
- Leading causes of YLDs included low back pain and major depressive disorder among the top ten causes of YLDs in every country.

Prevalence and Cost

- Total direct and indirect costs of chronic pain to the U.S. economy ranges between $560 to $630 billion annually.
- Moreover, 100 million American adults have some form of chronic pain, and it is also common among children and adolescents.
  - Overall, this makes chronic pain more common than the total number of individuals in the U.S. with diabetes, heart disease, and cancer combined
  - Musculoskeletal pain is the most common single type of chronic pain; chronic low back pain is the most prevalent in this category.

Incidence

- in 2008, there were more than 7.3 million emergency hospital room visits, and more than 2.3 million hospital inpatient stays, that were related to back problems
- low back pain is one of the major health problems in the U.S., and is associated with the largest number of years lived with disability

Reports by the Institute of Medicine, National Institutes of Health, and the World Health Organization

- Institute of Medicine of the National Academy of Science. Relieving Pain in America: A Blueprint for Transforming Prevention, Care, Education, and Research; Institute of Medicine: Washington, DC, USA, 2011; p. 5.

- 2,545 citations, 156 publications
- For acute low back pain, evidence suggested that NSAIDs, skeletal muscle relaxants, and superficial heat are more effective than placebo, no intervention, or usual care (SOE low to moderate).
- Acetaminophen and systemic corticosteroids are no more effective than placebo.


- 2,545 citations, 156 publications
- For chronic low back pain, effective therapies versus placebo, sham, no treatment, usual care, or wait list: NSAIDs, opioids, tramadol, duloxetine, multidisciplinary rehabilitation, acupuncture, and exercise (SOE: moderate)
- Benzodiazepines, psychological therapies, massage, yoga, tai chi, and low-level laser therapy (SOE: low)
- Spinal manipulation was as effective as other active interventions (SOE: moderate).


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- Few trials evaluated the effectiveness of treatments for radicular low back pain, but the available evidence found that benzodiazepines, corticosteroids, traction, and spinal manipulation were not effective or were associated with small effects (SOE: low).

Etiology of Low Back Pain Syndromes

- Not all low back pain is due to a herniated disc...
Not all leg pain is radiculopathy

- Referral patterns

Posteriors facet syndrome

Sacroiliac Joint Syndrome

Overuse Syndromes

- Repetitive loads can lead to ligamentous and muscle pain.
Pain with seated posture (loaded)

Malignancies
- Myeloma
- Osteosarcoma
- Osteoid Osteoma
- Osteoblastoma
Current Treatment Strategies
• Biopsychosocial Model
  • viewing pain as the result of a dynamic interaction among biological, psychological and social factors that can perpetuate and even worsen the clinical presentation

Rational Approach to Reduction of Chronic LBP
• Prevention of Acute LBP
• Decrease Chronification of LBP

Altered Function as an Etiology of Disease
• Anatomy and functional biomechanics of the hip, pelvis, and lumbar spine.
• Knowledge of their relationship to each other.

Deconstructing Low Back Pain
Pelvis serves as a stable base through which forces are transmitted both directly and indirectly.

Sacroiliac Joint is a “Self-Locking Mechanism”
- Form Closure
  - Joint surfaces that closely fit together and require no extra forces to maintain stability.
- Force Closure
  - Joint requiring outside force provided by muscles and ligaments to withstand a load.

Self-bracing Mechanism
- Forces are absorbed through the sacroiliac joint and pelvis which allow changes weight transmission while providing stability.

Motor Control with Awareness
- Timing and sequencing of muscle activation and release to facilitate ease of load transfer.
- Prerequisite tone or tension of the muscles.
Thoracolumbar Fascia – Critical

Asymmetrical Force Transmission

Pain
Osteoarthritis
- Spondylosis
- DDD
- Facet syndrome

Spondylolisthesis/spondylolysis
- Muscle imbalance
- New vs chronic
- Instability

Please stop this practice!