Low Back Pain: Diagnosis and Treatment

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Pain Management In Primary Care 24 Jan 2021

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Lecture Contents

- Guidelines and ruling out "Red Flags"
- Natural History of Low Back Pain (LBP)
- Treatment of LBP
- Global Burden of LBP
- Changing the way we manage LBP

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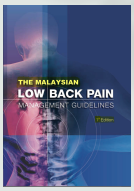
Guidelines to Managing Low Back Pain



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Ruling out "Red Flags"

Table 3.4

Essential Questions	Points to note
Neurological Symptoms – Presence of saddle anaesthesia – Weakness of the leg or foot – Loss of bladder or bowel control	Cauda equina lesion or cord compression
Pain – Nerve root pain (Sciatica)	Nerve root compression
– Unremitting night pain	Spinal infection or malignancy
Constitutional Symptoms – Fever – Night sweats	Spinal infection
– Significant loss of weight	Chronic spinal infection or malignancy

Table 3.5

Essential Examinations	Points to note
Heel and Toe walking	Significant muscle weakness if unable to perform this
Cross Straight Leg Raising	Prolapsed disc with significant nerve root impingement
Muscle Strength – Big toe flexion and extension – Ankle flexion and extension	Weakness indicates significant nerve root or cord compression
If loss of bladder/bowel control is present check perianal sensation and anal tone	Saddle anaesthesia and/or lax anal tone indicates cauda equina lesion

The Malaysian LBP Management Guidelines 2009
https://www.masp.org.my/index.cfm?menuid=23

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Red Flags For LBP Are Not Always Really Red

- Retrospective review of 9940 patients with LBP
- 90% of patients had at least 1 positive red flag symptom during their first visit.
- A negative response does not meaningfully decrease the likelihood of a red flag diagnosis.
- Clinicians should use caution when utilizing red flag questions as screening tools.

Premkumar A *et al* J Bone Joint Surg Am 2018;100:368-74

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The Low Back Pain Triage

Serious Pathology
- About 1-2%
- Vertebral fractures
- Spinal Tumour
- Spinal Infection
- Cauda Equina

Nerve Root Pain
- About 5%
- Disc Herniations
- Spinal Stenosis
- Spondylolisthesis

Non-Specific
- 85-95% of patients

Waddell G. J Rheumatol 2005; 32; 395-6.

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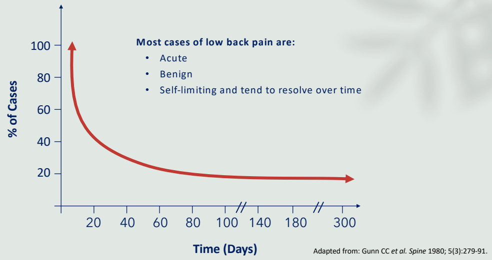
Natural History of Low Back Pain



Adapted from: Gunn CC *et al. Spine* 1980; 5(3):279-91.

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Prevalence and Risk Factors Associated with LBP Among Health Care Workers in A District Hospital In Malaysia

Recovery of LBP	
< 3 weeks	291(81.3%)
3-6 weeks	32 (8.9%)
6-12 weeks	10 (2.8%)
> 12 weeks	25 (7.0%)
Treatment for LBP	
Yes	122(34.1%)
No	236(65.9%)
Types of treatment	
Modern	33(27.7%)
Traditional	72(60.5%)
Both	14(11.8%)

Wong TS, Malaysian Orthopedic Journal 2010;Vol 4

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Natural History of Back Pain

- Meta-analysis of 33 discreet cohort with 11,166 participants found mean pain score for acute LBP
  - 52/100 at baseline
  - 23/100 at 6 weeks
  - 12/100 at 6 months
  - 6/100 at 12 months
- 1/3 will have a recurrence after 1 year of recovering from first episode.

Costa et al. CMAJ 2012. DOI:10.1503 /cmaj.111271
da Silva et al.J Orthop Sports Phys Ther 2017; 47: 305-13

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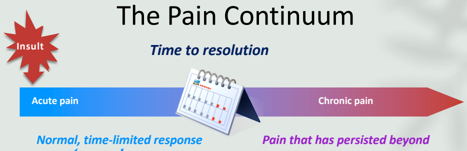
The Pain Continuum



Normal, time-limited response to 'noxious' experience (less than 3 months)
- Usually obvious tissue damage
- Serves a protective function
- Pain resolves upon healing

Pain that has persisted beyond normal tissue healing time (usually more than 3 months)
- Usually has no protective function
- Degrades health and function

Acute pain may become chronic

Chapman CR, Stillman M. In: Kruger L (ed). *Pain and Touch*. Academic Press; New York, NY: 1996; Cole BE. *Hosp Physician* 2002; 38(6):23-30;
International Association for the Study of Pain. *Unrelieved Pain Is a Major Global Healthcare Problem*. Available at: http://www.iasp-pain.org/AM/Template.cfm?Section=Press_Release&Template=/CM/ContentDisplay.cfm&ContentID=2908. Accessed: July 24: 2013;
National Pain Summit Initiative. *National Pain Strategy: Pain Management for All Australians*. Available at: http://www.iasp-pain.org/PainSummit/Australia_2010PainStrategy.pdf. Accessed: July 24, 2013;
Turk DC, Okifuji A. In: Loeser D *et al* (eds.). *Bonica's Management of Pain*. 3rd ed. Lippincott Williams & Wilkins; Hagerstown, MD: 2001.

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When to refer a patient with LBP

Clinical suspicion of a red flag disease.

LBP lasting more than 6 weeks despite treatment.

Unresolved psychosocial factors.

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Mechanisms of Pain

Nociceptive
- Usually aching or throbbing and well-localized
- Usually time-limited (resolves when damaged tissue heals), but can be chronic
- Generally responds to conventional analgesics

Neuropathic
- Pain often described as tingling, shock-like, and burning – commonly associated with numbness
- Almost always a chronic condition
- Responds poorly to conventional analgesics

Dray A. *Br J Anaesth* 2008; 101(1):48-58; Felson DT. *Arthritis Res Ther* 2009; 11(1):203; International Association for the Study of Pain.; McMahon SB, Koltzenburg M (eds). *Wall and Melzack's Textbook of Pain*. 5th ed. Elsevier; London, UK: 2006; Woolf CJ. *Pain* 2011; 152(3 Suppl):S2-15.

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Treatment of LBP

Pharmacological	Non-Pharmacological
NSAID's or COX-2 Selective	Reassure and educate
Anti-Neuropathics - Pregabalin, Gabapentin - Amitriptyline - Duloxitine	Gradual Return to Activities Hot or Cold compress.
Tramadol (weak evidence)	Consider Physiotherapy, acupuncture etc
Muscle Relaxants - PCM/Ophedrine - Eperisone - Baclofen	Early return to work
	Avoid Bed Rest, traction

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Treatment of LBP – Pain Interventions

- Axial LBP
  - Lumbar Facet Joint Injections
  - Sacroiliac Joint Injections
  - Radiofrequency Denervation
- Radicular (Neuropathic) Pain
  - Nerve root blocks
  - Epidural Injection

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Surgical Treatment of LBP

- Instability due to
  - Trauma
  - Malignancy
  - Infection
- Neuropathic Pain due to
  - Disc Herniations
  - Spinal stenosis
  - Spondylolisthesis

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2021 GLOBAL YEAR ABOUT

BACK PAIN

IASP

https://www.iasp-pain.org/Advocacy/GYAP.aspx?itemNumber=11008

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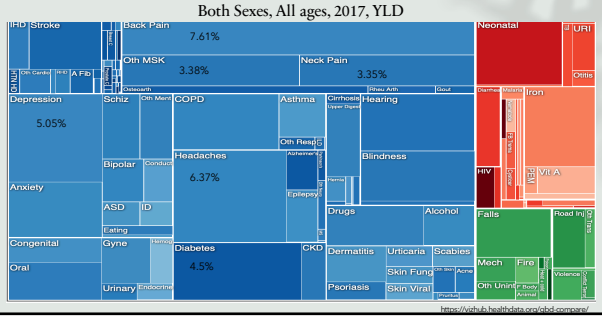
Global
Both Sexes, All ages, 2017, YLD



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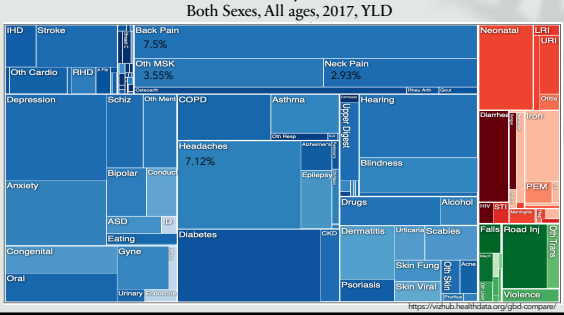
Malaysia
Both Sexes, All ages, 2017, YLD



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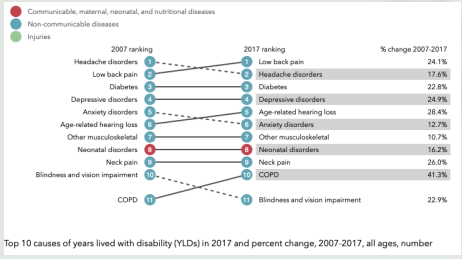
Health Problems Causing Most Disability in Malaysia



Top 10 causes of years lived with disability (YLDs) in 2017 and percent change, 2007-2017, all ages, number

http://www.healthdata.org/malaysia

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A Typical Scenario of a Person With LBP

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A Serious Flaw in The Standard Medical Approach?

Recognition of Symptoms and Signs
History and Physical Examination

Identify the Underlying Disease or Injury
Investigation

Treat The Underlying Disease or Injury
Specific Therapy

Expect Cure

➡ Biomedical Belief

Waddell G. J Rheumatol 2005; 32; 395-6.

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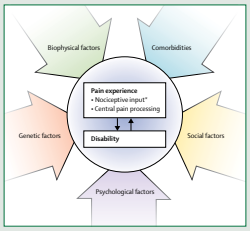
Model of Contributors to LBP and Disability



Harvigsen et al. The Lancet, Vol. 391, No. 10137 March 2018
Nociceptive input includes non-identifiable sources in non-specific low back pain, neurological sources (eg, radicular pain) and specific pathology (eg, fractures).

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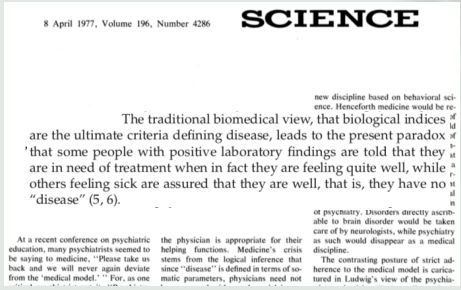

8 April 1977, Volume 196, Number 4286 **SCIENCE**

The traditional biomedical view, that biological indices are the ultimate criteria defining disease, leads to the present paradox that some people with positive laboratory findings are told that they are in need of treatment when in fact they are feeling quite well, while others feeling sick are assured that they are well, that is, they have no "disease" (5, 6).

At a recent conference on psychiatric education, many psychiatrists seemed to be saying to medicine, "Please take us back and we will never again deviate from the 'medical model.' " For, as one

the physician is appropriate for their helping functions. Medicine's crisis stems from the logical inference that since "disease" is defined in terms of somatic parameters, physicians need not

new discipline based on behavioral science. Henceforth medicine would be re-

or psychiatry. Disorders directly ascribable to brain disorder would be taken care of by neurologists, while psychiatry as such would disappear as a medical discipline.

The contrasting posture of strict adherence to the medical model is caricatured in Ludwig's view of the psychia-

George L Engel. Science. Vol.1 No. 4286 Apr 8 1977: 129-136

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A Scary Time At The Doctors Office

- LBP patients are often confused.
- Fearful that their spine is vulnerable and will be further damaged.
- Lead to protective and avoidance belief and behavior.
- Health care shopping and escalation of treatment to more invasive and risky procedures.

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Educating The LBP Patient

- Explain and educate the patient
  - Doctor comes from the Latin word Docere – To Teach
- Avoid from providing a simplistic structural and/or biomechanical diagnosis or fault.
- Engage the patient to develop a clear understanding of the contributing factors that promote pain and disability
- Empower the patient to develop active coping strategies to self-manage.

O'Sullivan P *et al* J Orth Sport Phy Ther Nov 2016; Vol.46 No. 11:932-7

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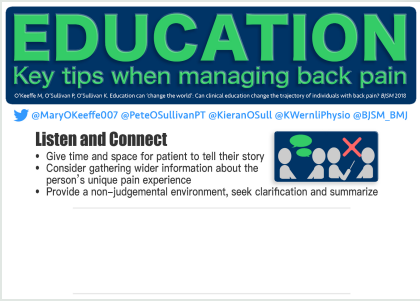

O'Keeffe M, O'Sullivan PB, O'Sullivan K British Journal of Sports Medicine 2019;53:1385-1386

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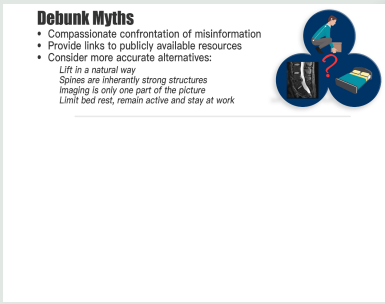

O'Keeffe M, O'Sullivan PB, O'Sullivan K British Journal of Sports Medicine 2019;53:1385-1386

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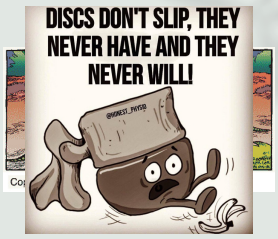
Common Misconceptions: LBP is due to "Slipped Disc"

- Term does not exist in the present medical literature.
- It denotes vulnerability of the disc.



https://www.thecomicstrips.com/subject/The-Disk-Comic-Strips.php

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Common Misconception: You have a "Slipped Disc" and You need a Scan!

- MRI is not a "pain scan" but almost all of patients who undergo lumbar MRI have LBP.

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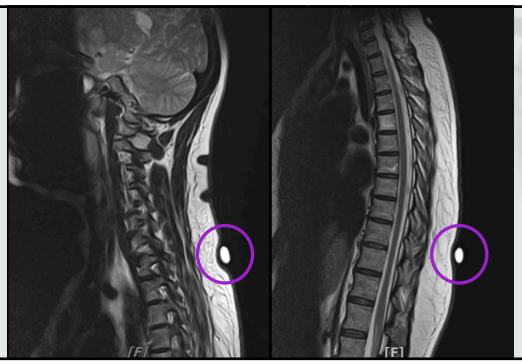

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The Issues in The Tissues with MRI

- MRI is a detailed photo of your insides that show changes that are present in people who do not have pain.

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Systematic Literature Review of Imaging Features of Spinal Degeneration in Asymptomatic Populations

Table 2: Age-specific prevalence estimates of degenerative spine imaging findings in asymptomatic patients[a]

Imaging Finding	Age (yr)						
	20	30	40	50	60	70	80
Disk degeneration	37%	52%	68%	80%	88%	93%	96%
Disk signal loss	17%	33%	54%	73%	86%	94%	97%
Disk height loss	24%	34%	45%	56%	67%	76%	84%
Disk bulge	30%	40%	50%	60%	69%	77%	84%
Disk protrusion	29%	31%	33%	36%	38%	40%	43%
Annular fissure	19%	20%	22%	23%	25%	27%	29%
Facet degeneration	4%	9%	18%	32%	50%	69%	83%
Spondylolisthesis	3%	5%	8%	14%	23%	35%	50%

[a]Prevalence rates estimated with a generalized linear mixed-effects model for the age-specific prevalence estimate (binomial outcome) clustering on study and adjusting for the midpoint of each reported age interval of the study.

Brinjikji W *et al* Am J Neuroradiol Apr 2015 36: 811-16

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The Issues in The MRI Report

- MRI report is a written description of what the Radiologist **SEE's** in your MRI pictures.

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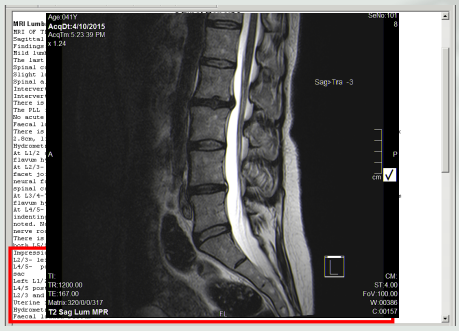

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Whoever Orders The MRI Must Act On It!

- BARF
  - **B**rainlessly **A**dhering to **R**adiological **F**indings
- VOMIT
  - **V**ictims **O**f **M**odern **I**maging **T**echnology

Hayward R. VOMIT (victims of modern imaging technology) - an acronym of our times BMJ 2003; 326: 1273

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Imaging Modalities

- Many findings of imaging modalities in people with LBP can also commonly found in people without LBP.
- No evidence to suggest that
  - imaging improves outcome in LBP
  - MRI can predict the future onset or course of LBP

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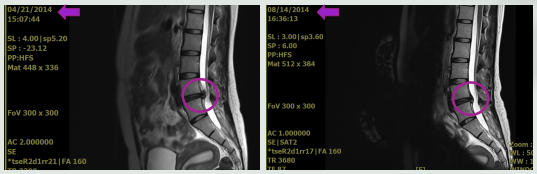
Common Misconception: "Slipped Disc" needs Surgery



Disc Herniations Do Disappear!!!

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Other Common Misconceptions

- "Pain Killers"
- Spondylosis
- Activities or exercise damage my discs further
- Previous falls or accidents resulting in present condition
- Wear and tear
- Aging

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The Number 1 Rule of the Body & Brain

USE IT, MOVE IT OR LOOSE IT

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Conclusion

We need to improve in how we manage LBP today which I believe further contributes to the burden of the disease by

- Adopting a biopsychosocial approach to treating LBP.
- Understanding LBP is rarely about damage.
- Avoiding reliance on imaging to justify the pain.
- Educating and empowering the patient.
- Gradual return to usual activities.
- Focusing on the patient's goals.

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