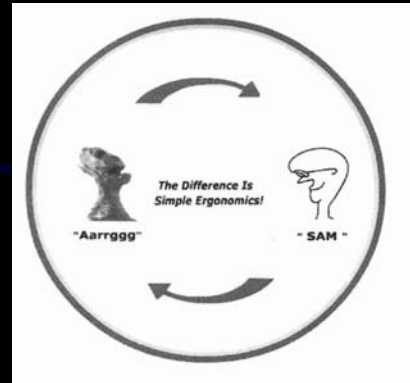


Low Back Pain

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Chronic – Recurring Back Pain



Back Pain

MSD (MUSCULO-SKELETAL DISORDER)
Cumulative Trauma

Chronic – Recurring Back Pain

"Back Pain"

is a

SYMPTOM

not a

DIAGNOSIS

Chronic – Recurring Back Pain

Back pain symptoms

May be relieved by:

- Increasing central tolerance;
- Central blocking of thalamic reception;
- Interference with spinal neural receptors;
- Severance of neural pathways;
- Silencing the site or origin; or
- Removal of the causes.

Chronic – Recurring Back Pain

Back pain symptoms

May be REMOVED by:

Elimination of the causes

Make the DIAGNOSIS !

Back Pain

Lack of evidence-based research for idiopathic low back pain: the importance of a specific diagnosis.

--Abraham & Killackey-Jones

Archives of Internal Medicine
Controversies in Internal Medicine:
July 8, 2002

Chronic - Recurring -- Back Pain Symptoms

Asymptomatic Adults
MRI Abnormalities

Disc degeneration	46	72%
Bulging Disc	24	81%
Disc Herniation	22	40%
Annular tear	14	56%
Stenosis	4	21%

- FINDINGS -
NOT DIAGNOSES !

Boden	1990
Jensen	1994
Stadnik	1998
Weinhaupt	1998

Back Pain
-Causation-

*DIAGNOSTICS

Radiographic studies:
what is the value?

Spine: 2000; 25: 1373-81

Spine: 1997; 22: 427-34

N England J Med: 1994; 331: 69-73

Spine: 1995; 20: 2613-25

J Bone Joint Surg Am: 1990; 72: 403-8

JAMA: 2003; 279,21:2810-18 (value plain X-ray to MRI @ 6 wk.)

Screening VALUE
=
Zilch or less

Chronic - Recurring
Back Pain

ALL
Back pain

Muscular-myofascial
components

Caused / Continued by
CUMULATIVE TRAUMAS

Chronic - Recurring
Back Pain

The usual Mechanical Components for
Chronic - Recurring Back Pain
are
CHRONIC MUSCULAR SPASMS
1° & 2°
(strains-sprains)

ABOVE
THE
WAIST

Mechanical Component

MSD Pain
IS

CHRONIC MUSCULAR SPASM

1° (muscle - motor unit - fatigue)
2° (nerve entrapment)

MUSCLE FATIGUE

Chronic - Recurring Back Pain

Ongoing Back Pain Symptoms

are 95%

Musculo - Myofascial

IDIOPATHIC = DIAGNOSIS (?)
in origin

SYMPTOMS ≠ CAUSE...

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Back Pain -Causation-

MAKE THE Diagnosis

DETERMINE THE SPECIFIC ANATOMICAL MUSCULAR-MYOFASCIAL DYSFUNCTION(S)

THEN

IDENTIFY THE Causes

FOR THE ANATOMICAL MUSCULO-MYOFASCIAL DYSFUNCTION(S)

Primary & Secondary
Precipitant Cause (s)
All Contributing Cause (s)s

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Back Pain Etiology =

Highest estimate:
<10% Spinal canal: Intervertebral path: Disc rupture, Radicular
< (<1%) operable disc

Highest estimate:
<5% Structural: stenosis, fracture, unstable
< (<½ %) operable

Lowest estimate:
>85% **Idiopathic:**
(musculo,ligamentous, myofascial, facet, etc.)

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Back Pain



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Chronic - Recurring Back Pain

Chronic Musculo-skeletal Strain-sprains

Brought-on & Maintained

Cumulative Traumas

DURING
Daily Living - Work-- Recreation

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Back Pain Diagnosis - Causation



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Back Pain - Causation

The precipitant: may be a specific event.

Cause of pain is rarely singular usually multiple

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Back Pain -Causation-

BACK PAIN

is a

Cumulative-trauma Phenomenon

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Chronic - Recurring Back Pain

TWELVE CONSIDERATIONS

in **DIAGNOSIS** and **MANAGEMENT**

of **LOW BACK PAIN**

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- Chronic - Recurring Back Pain**
- 5-- Specific Diagnoses; 7-- Contributors**
- Structural injuries - disruptions, sudden or gradual: (2) -- <5%
 - 2 Structure pathology
 - Specific nerve-cord pressure
 - Structural instability/damage
 - Specific strain injuries (Jolting) - episodic, may be chronic, recurring: (3) -- 45%
 - 3 Jolt, jarring - episodic
 - Iliopsoas muscle strain
 - Costo-vertebral dysfunction
 - SI joint strain/dysfunction
 - Axial support- muscle strain-sprains --- specific grouping --45%
 - Postural contributors- chronic disruptions Behavioral or Anatomical: (7) --Effect 90%
 - 4 Behaviors / mechanics
 - Sleep position
 - Loss of arch height
 - Wallet in the back pocket
 - Stick-shift vehicle
 - 3 Anatomical shape
 - Short upper-arm length
 - Leg length difference
 - Short hemi-pelvis
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- Chronic - Recurring Back Pain - SPECIFIC DIAGNOSES**
- INTERVERTEBRAL Diagnoses -2**
- Structure pathology**
 - Specific nerve-cord pressure
 - Structural instability/damage
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TAUMA - JOLT

Diagnoses -3

Jolting - episodic

- ❑ Ilio-psoas muscle strain
- ❑ Facet Dysfunction (Lumbar-Thoracic)
- ❑ SI joint strain/ dysfunction

❑ Postural muscle strains

DEFAULT

LOW BACK

- Quatrus lumborum*
- Ilio-costalis*
- Pyirformis* (Ilio-psoas)
- Gluts-min, mid, max*
- Multifidi

90% Prevalence

HIP, LEG, GROIN

- Pyirformis
- Tensor fascia lata
- Gluteus min, mid, max (Ilio-psoas)

45% Primary

Rarely alone - usually in multiples

❑ Postural muscle strains -

Symptoms:

- A** 1) Symptoms ; 2) Sub. Anatomy ; 3) Objective Anat.
Back-hip pain, +/- tingling // Diffuse back =+/- one-side // TTPs, specific
- B** 1) Onset ; 2) Worsen ; 3) Activity
With episode or chronic // AM, sleep, drive, stand sit; // Torso move
- C** 1) Behavior ; 2) Posture ; 3) Environment
Sleep, wallet, arch, drivet // Leg-l, Hemi-p, S-A // normal-activity
- D** 1) Physical Tests ; 2) Radiographic/ electrodiag
Cross-chest stretch, Balance, TTPs,; Pressure I-I Lgt // N/A
- E** 1) Behavior ; 2) Posture ; 3) P.M. ; 4) Equipment
Sleep, Car, Wallet, Arch // Balance L-L, H-P, S-A support elbows // HEP, Mobility - all // Activity

❑ Postural muscle strains -

LOW BACK

- Quatrus lumborum*
- Ilio-costalis*
- Multifidi

90%

HIP, LEG, GROIN

- Pyirformis
- Tensor fascia lata
- Gluteus min, mid, max

May have sudden trauma onset

Often caused by &

Always aggravated and maintained by

7 - FACTORS

4 - BEHAVIORS & 3 - POSTURES

Key Postural Muscles involved

in CHRONIC MUSCULAR BACK SPASM are:

LOW BACK

- Quatrus lumborum
- Ilio-costalis
- Pyirformis (Ilio-psoas)
- Gluts-min-mid-max
- Multifidi

HIP, LEG, GROIN

- Pyirformis
- Tensor fascia lata
- Gluteus minimus
- Gluteus-mediis
- Gluteus maximus (Ilio-psoas)

UP-BACK

- Trapezius
- Levator scapulae
- Serratus anterior
- Rhomboids
- Serratus posterior
- Latissimus dorsi
- Multifidi

NECK

- Trapezius
- Levator scapulae
- Scalenes
- Occipital
- Para-cervicals

FACET induced

- (Thoracic)
- (Lumbar)
- (Cervical)

FACTORS -7

Behavior / mechanics

- ❑ Sleep position
- ❑ Loss of arch height
- ❑ Wallet in the back pocket
- ❑ Stick-shift vehicle

Anatomical shape - postures

- ❑ Short upper-arm length
- ❑ Leg length difference
- ❑ Short hemi-pelvis

Structure pathology

Play a role in < 15%

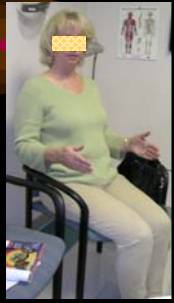
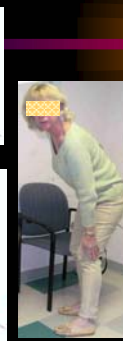
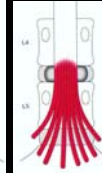
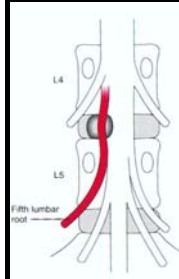
☐ S-1 Specific nerve-cord pressure

☐ S-2 Structural instability/damage

S-1. Specific nerve, cord pressure:

S-1

Structure



S-2. Structural stability/ damage:

S-2a

Structure compression fractures



Elizabeth
5'6" → 4'6"

Structure spondylolysis/ Spondylolisthesis

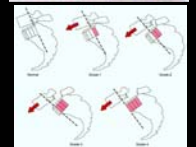
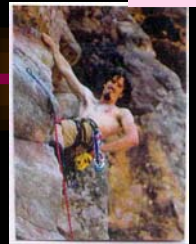
S-2b



Karl



Spondylolisthesis, Grade II



Start Jolting

Jolting - episodic

Play a role in 35% +

☐ J-1 Ilio-psyas muscle strain

☐ J-2 Facet dysfunction (Lumbar-thoracic)

☐ J-3 SI joint strain/ dysfunction

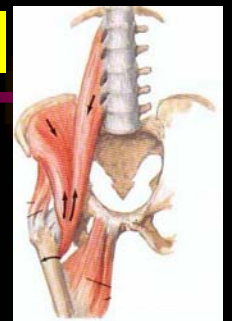
J-1. Ilio psyas strain

J 1

Sudden, acute strain may become chronic



Jolting - episodic



Ilio psoas strain **Back Pain -- Specific Diagnosis** **J1**

20 +% of acute OccMed back injuries

First onset is Jolting Trauma

Jerking catch
Auto collision
Fall
Bike
Digging

Can turn chronic –
35+% chronic disabling “idiopathic” back problems
- groin pains -
- totally numb leg -

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Ilio psoas strain **Back Pain -- Specific Diagnosis** **J1**

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Ilio psoas strain **Back Pain -- Specific Diagnosis** **J1**

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Ilio psoas strain **Specific Diagnosis** **Back Pain** **J1**

Related Neuropathies “come & go”

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Ilio psoas strain **Back Pain -- Specific Diagnosis** **J1**

Diagnosis → Treatment

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Ilio psoas strain **Back Pain -- Specific Diagnosis** **J1**

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Facet Dysfunction *Back Pain -- Specific Diagnosis* **J 2**

J-2. Facet Dysfunction (Lumbar Thoracic)

Jolting sudden

"Thoracic strain"

THORACIC FACET SD

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Facet Dysfunction *Back Pain -- Specific Diagnosis* **J 2**

Thoracic strain

THORACIC FACET SD

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Facet Dysfunction *Back Pain -- Specific Diagnosis* **J 2**

Lumbar Facet OccMed back injuries

Often recurring / chronic

5+ % chronic disabling "idiopathic" mid-back problems

-Low back, mid back, shoulder, neck, arm...

"Costochondritis"

-"Non-cardiac chest pain"

"Idiopathic" neuropathy of the upper extremity

Twist & reach

Fall

Jerk arm

Sleep wrong

Fall, hit chest

Overhead pull

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Facet Dysfunction *Back Pain -- Specific Diagnosis* **J 2**

Lumbar Facet

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Facet Dysfunction *Back Pain -- Specific Diagnosis* **J 2**

Lumbar Facet

Twist & reach

Simple bend

Several weeks to resolve

Sudden onset

Recurs at 1 - 2 year intervals

Body

W/ Ilio psoas strain

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Facet Dysfunction *Back Pain -- Specific Diagnosis* **J 2**

Lumbar Facet

THORACIC VERTEBRAE

LUMBAR VERTEBRAE

SACRAL VERTEBRAE

Composite

L1 Multifidus

S1 Multifidus

Iliopsoas

Iliocostalis lumborum

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Dysfunctional sleep position: Back Pain - Causes - Contributors **B 1**

ilocostalis lumborum Longissimus thoracis

1 2
Superficial Deep

Quadratus lumborum Longissimus thoracis Ilocostalis lumborum

back, also mid-back, shoulders, neck, arms and jaw

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Back Pain - Causes - Contributors **B 2**

B-2. Uncorrected loss of arch height

Behaviors | mechanics

Low Back Pain "Radicular" pain

Lateral Abdominals 50

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Uncorrected loss of arch height Back Pain - Causes - Contributors **B 2**

Prevalence (> 85 %)

Back pain, ache with prolonged standing/ walking

Plays a role in > 70 % LBP

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Back Pain - Causes - Contributors **B 3**

B-3. Wallet in the back pocket

Behaviors | mechanics

Plays a role in > 70 % of males

"Radicular pain" from butt to the back of knee

M-1

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Wallet in the back pocket Back Pain - Causes - Contributors **B 3**

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Wallet in the back pocket Causes - Contributors Back Pain **B 3**

Deep Superficial

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Back Pain - Causes - Contributors

B-4. Stick-shift vehicle

Behavior
I mechanics

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Stick-shift vehicle

Back Pain - Causes - Contributors

B 4

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Stick-shift vehicle

Back Pain - Causes - Contributors

B 4

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Chronic - Recurring Back Pain - PRECIPITANTS - CONTRIBUTORS

End Behaviors

Behaviors

Play a role in > 85%
Chronic - Recurring
Low Back Pain

- B 2** Sleep
- B 2** Arch-loss
- B 3** Wallet
- B 4** Stick-shift

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Chronic - Recurring Back Pain - PRECIPITANTS - CONTRIBUTORS

Start Anatomy

Anatomical shape

Plays a role in 70% +

- A 1** Leg length difference
- A 2** Short hemi-pelvis
- A 3** Short upper-arm length

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Back Pain - Causes - Contributors

A-1 Leg-length difference

Anatomy

(leg length + hemi-pelvis = **effective** leg length)

Detectable difference in 70%+

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Leg-length difference *Back Pain - Causes - Contributors* **A 1**

Functionally present with standing in 70% +

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Leg-length difference *Back Pain - Causes - Contributors* **A 1**

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Leg-length difference + Short hemi-pelvis *Back Pain - Causes - Contributors* **A 1 + A 2**

Functional scoliosis

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Leg-length difference *Back Pain - Causes - Contributors* **A 1**

Functional scoliosis

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A-2. Short hemi-pelvis *Back Pain - Causes - Contributors* **A 2**

Anatomy

Same effect with sitting as leg-length w/ standing

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Short hemi-pelvis *Back Pain - Causes - Contributors* **A 2**

Functionally present with sitting, also with standing; half with leg-length difference → 35% +

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Short hemi-pelvis + Leg-length difference **Back Pain - Causes - Contributors** **A 1 + A 2**

Compensation by "S" curve

Functional scoliosis

The brain commands:
the eyes to be level
and
the nose to be midline

Compensation by "C" curve

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Short hemi-pelvis + Leg-length difference **Back Pain - Causes - Contributors** **A 1 + A 2**

POTENTIAL for Multiple myofascial strains

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Short upper-arm syndrome **Back Pain - Causes - Contributors** **A 3**

A-3. Short upper-arm syndrome

Anatomy

Upper arms short
Crest of ilium
Usual length

"long-waisted"
"long-necked"
"can't sit still"
"shirt sleeves too-long"

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Short upper-arm syndrome **Back Pain - Causes - Contributors** **A 3**

"long wasted"

>50% can't reach chair arms.
Slender body is worse

If elbows are >8 1/2" above the chair seat, chair arms fit only with slouching --

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Short upper-arm syndrome **Back Pain - Causes - Contributors** **A 3**

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Short upper-arm syndrome **Back Pain - Causes - Contributors** **A 3**

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Short upper-arm syndrome **Back Pain - Causes - Contributors** **A 3**

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Chronic - Recurring Back Pain - PRECIPITANTS - CONTRIBUTORS End Anatomy

Anatomical shape *Play a role in 70% +*

A-1. Leg length difference
A-2. Short hemi-pelvis
A-3. Short upper-arm length

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12 = 5 -Specific Diagnoses + 7 -Ergonomic aggravators

5 - Specific Diagnoses - (Trauma)

- 2 Structure pathology
- 3 Jolting - episodic
- Postural muscle strains - DEFAULT 45

7 - CONTRIBUTORS day to day stuff

- 4 Behavior | costume
- 3 Anatomical shape

- Specific nerve-cord pressure 2
- Structural instability/ damage .5
- Ileo-psosas muscle strain 20
- Facet dysfunction (Thoracic strain) 15
- SI joint strain/ dysfunction 2
- Sleep position 85
- Loss of arch height 75
- Wallet in the back pocket 60
- Stick-shift vehicle 35
- Short upper-arm length 55
- Leg length difference 50
- Short hemi-pelvis 30

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The Low Back Pain Puzzle

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Chronic - Recurring Back Pain

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The Low Back Pain Puzzle -- Unraveled

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5-- Specific Diagnoses & 7-- Postural Contributors

- Structural injuries –disruptions, sudden or gradual:
 - -2 *Structure pathology*
 - *Specific nerve-cord pressure*
 - *Structural instability/damage*
- Specific strain injuries (Jolting) – episodic, may be chronic, recurring:
 - -3 *Jolt , jarring – episodic*
 - *Ilio-psaos muscle strain*
 - *Costo-vertebral dysfunction*
 - *S-1 joint strain / dysfunction*
- Postural muscle disruptions – Axial
- Contributors to postural & structural dysfunction–
 - -4 *Behaviors / mechanics*
 - *Sleep position*
 - *Loss of arch height*
 - *Wallet in the back pocket*
 - *Stick-shift vehicle*
 - -3 *Anatomical shape*
 - *Short upper-arm length*
 - *Leg length difference*
 - *Short hemi-pelvis*

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Chronic – Recurring Back Pain



IT'S REALLY NOT VERY COMPLICATED

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