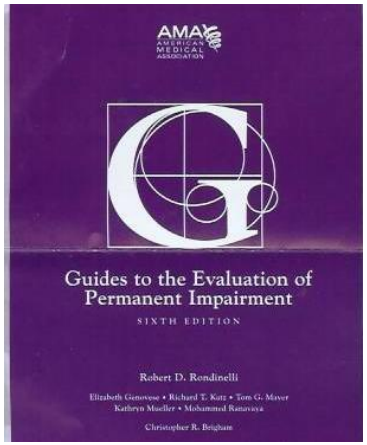

AMA Guides 6th Edition Spine Cases

2020 TN BWC AMA

Guides, 6th Edition

James B. Talmage MD

Nashville, TN

February 29, 2020

Questions ?

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In 2016 Retired from active practice

After 14,154 days as a treating Physician

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Adjunct Associate Professor

Division of Occupational Medicine

– Department of Family and Community Medicine

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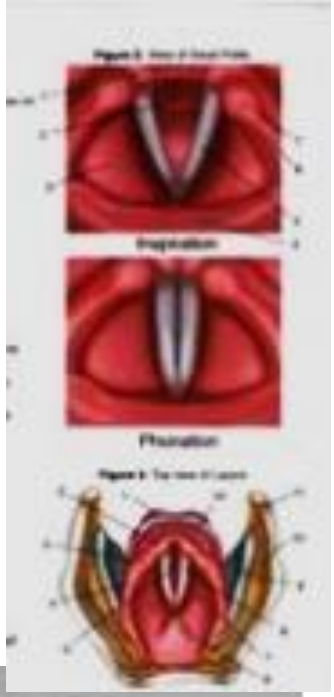
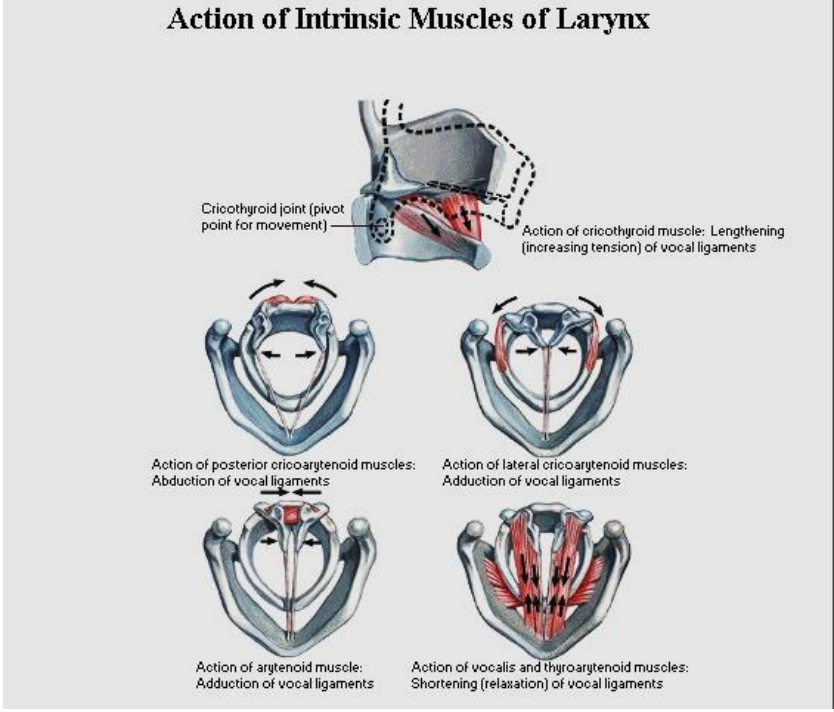
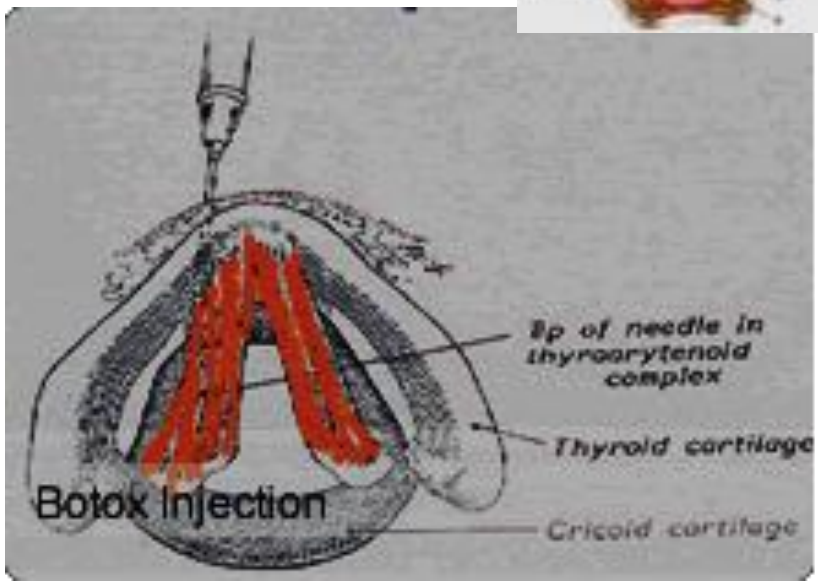

Inspiration
Phonation


Action of Intrinsic Muscles of Larynx
Cricothyroid joint (pivot point for movement)
Action of cricothyroid muscle: Lengthening (increasing tension) of vocal ligaments
Action of posterior cricoarytenoid muscles: Abduction of vocal ligaments
Action of lateral cricoarytenoid muscles: Adduction of vocal ligaments
Action of arytenoid muscle: Adduction of vocal ligaments
Action of vocalis and thyroarytenoid muscles: Shortening (relaxation) of vocal ligaments


Botox Injection
Tip of needle in thyroarytenoid complex
Thyroid cartilage
Cricoid cartilage

Financial Conflict of Interest Disclosure
Last 18 months

- **Paid American Medical Association**
  - **Author, editor (royalties), consultant**
- **Paid ACOEM:**
  - Faculty at Annual Musculoskeletal Course
  - Next one = June 21 -23, 2019
    - Elk Grove Village [Chicago] – ACOEM Learning Center
- **Paid by SEAK, Inc. [www.seak.com]**
  - Faculty at IME courses
  - Naples, FL IME courses
    - Basic IME – December 5 - 6, 2019
    - Advanced (“Masters”) December 7 - 8, 2019

UN-Paid Speaker

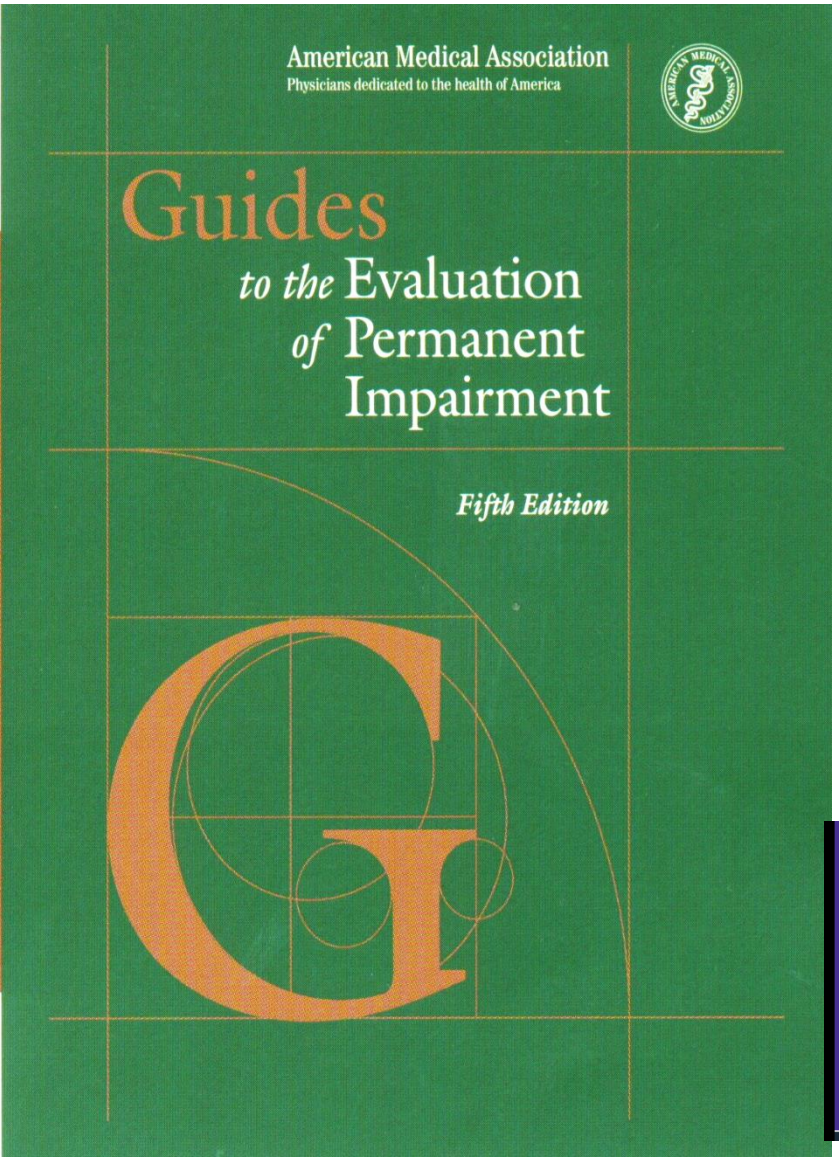
- **AAOS**, Annual Workers' Compensation Course
  - November 8 - 10, 2019
    - https://www.aaos.org/calendar/event/?productId=10398762
  - Half Day IME Course November 7, 2019
- IAIME (a.k.a. AADEP)
  - January 16-19, 2019, Tucson, AZ
  - www.iaime.org
  - Past President

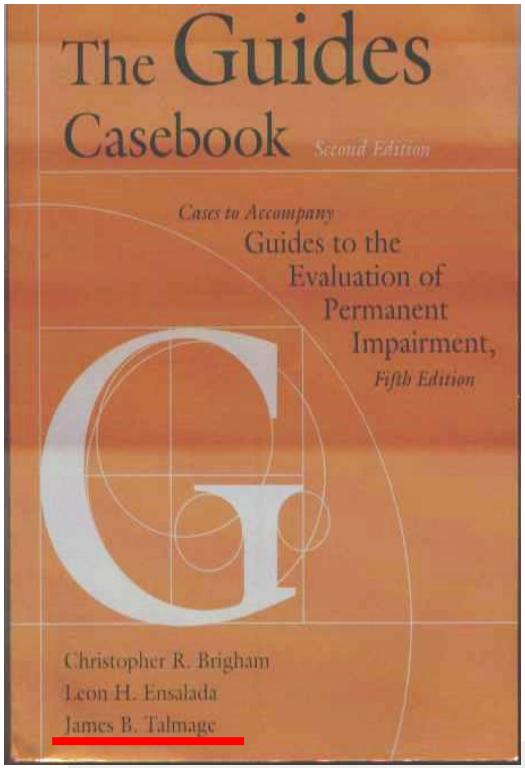
Financial Conflict of Interest Disclosure

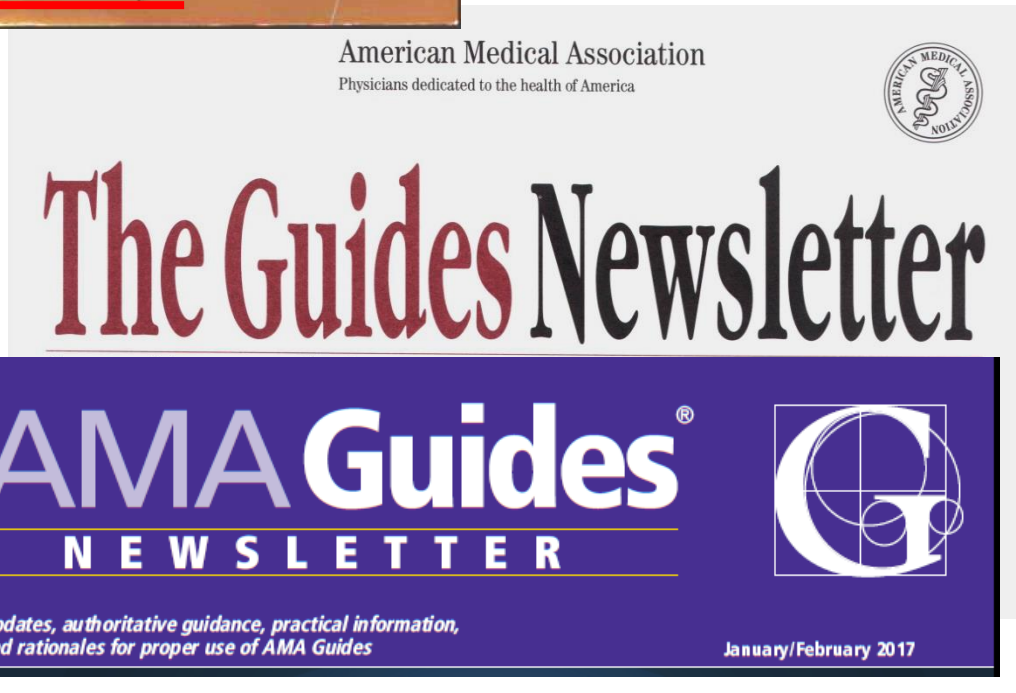
- **Paid State of Tennessee**
  - **Assistant Medical Director, Bureau of Workers' Compensation**
- **PAID** member physician advisory panel to the Ohio Police and Fire Pension Fund [Disability Evaluation Committee].

Ohio Police & Fire Pension Fund

AMA Publications

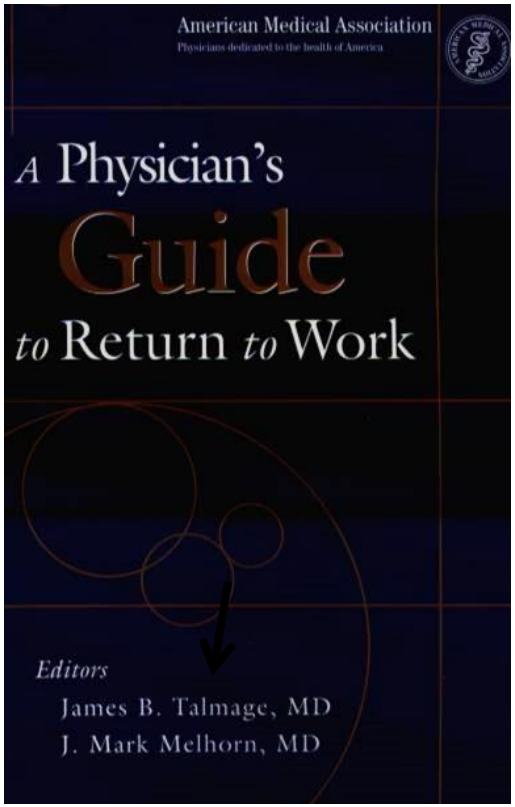


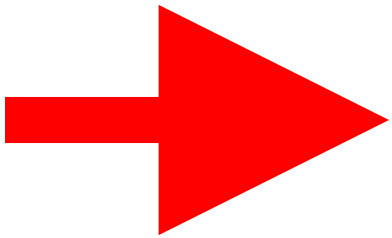


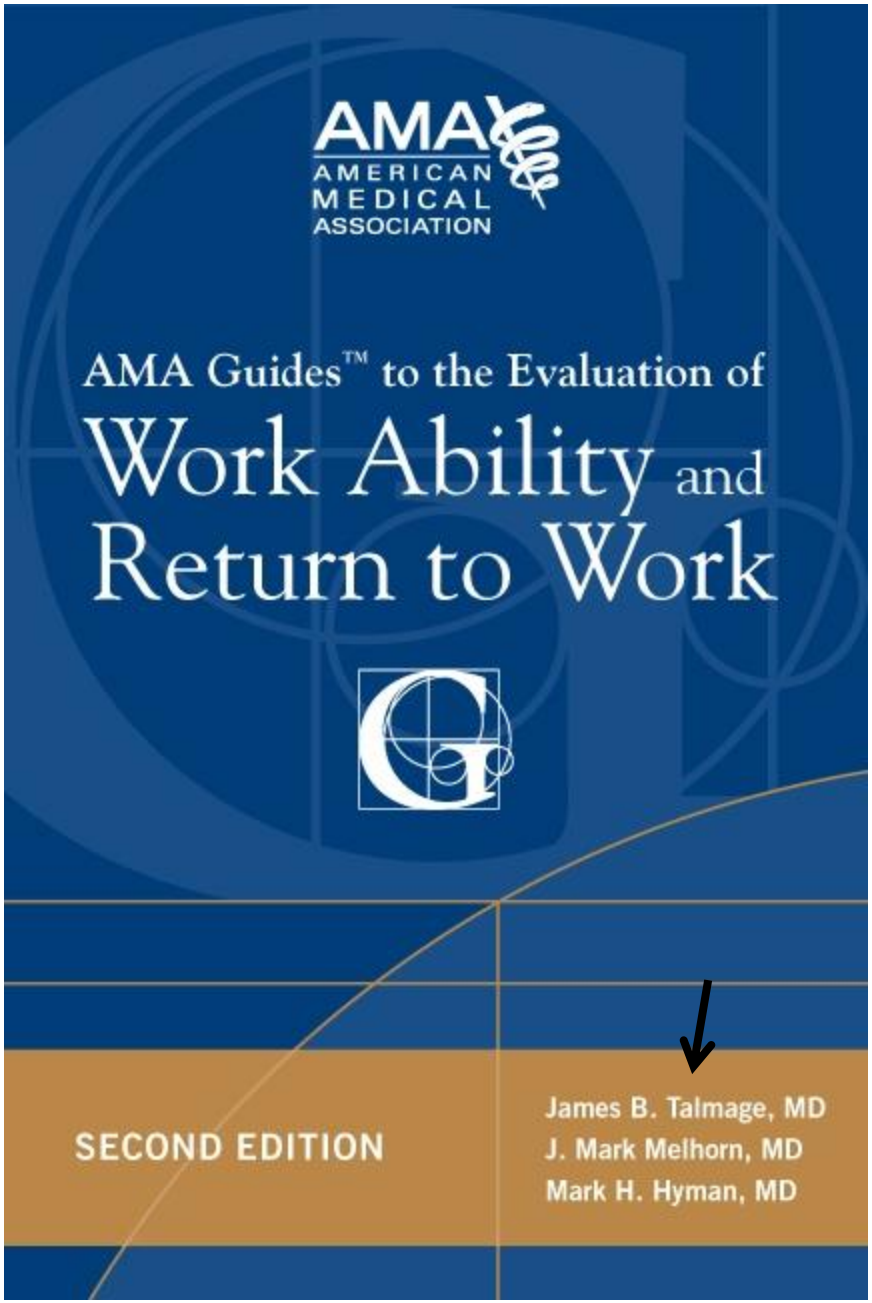


AMA Publications

2005 &


American Medical Association
Physicians dedicated to the health of America
A Physician's
Guide
to Return to Work
Editors
James B. Talmage, MD
J. Mark Melhorn, MD

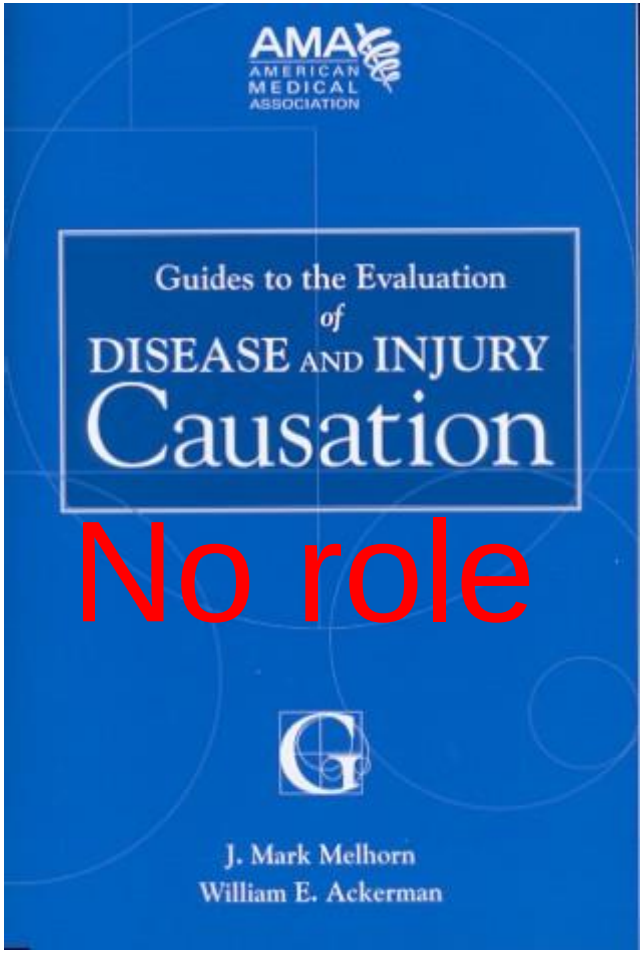



AMA
AMERICAN
MEDICAL
ASSOCIATION
AMA Guides™ to the Evaluation of
Work Ability and
Return to Work
SECOND EDITION
James B. Talmage, MD
J. Mark Melhorn, MD
Mark H. Hyman, MD

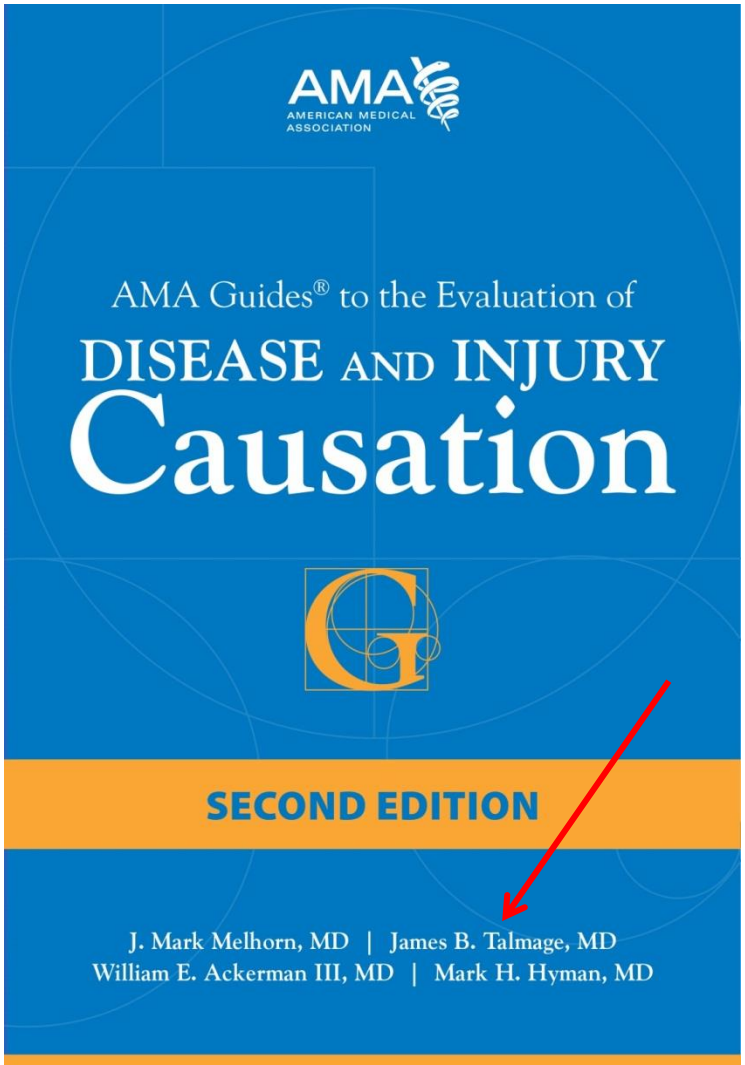
AMA Press

www.ama-assn.org

FINANCIAL CONFLICT OF INTEREST



No role



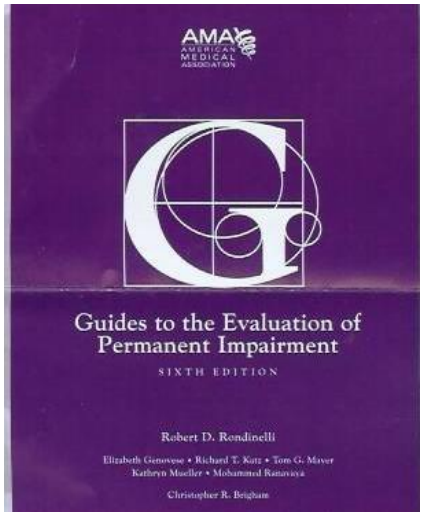
UNPAID Peer Reviewer

- ***The Spine Journal***
  - North American Spine Society
- ***Archives of Physical Medicine and Rehabilitation***
- ***Journal of Bone & Joint Surgery***

AMA *Guides* – Work in Progress

History of the *AMA Guides*

- 1956 - ad hoc committee
- 1958-1970 - 13 publications in JAMA
- 1971 - First Edition
- 1981 - established 12 expert panels
- 1984 - Second Edition
- 1988 - Third Edition
- 1990 - Third Edition-Revised
- 1993 - Fourth Edition (4 printings)
- **2000 – Fifth Edition (November 2000)**
- **2007 (December) – Sixth Edition**
  - **Radical paradigm shift**



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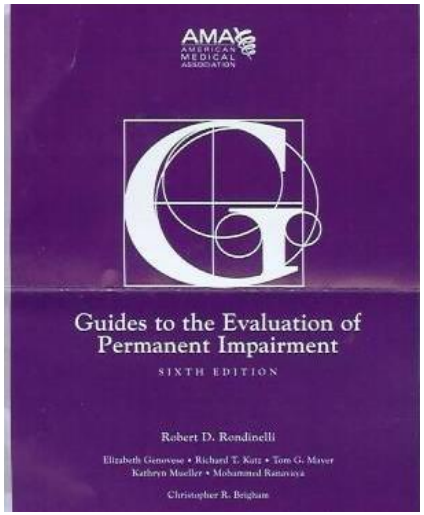
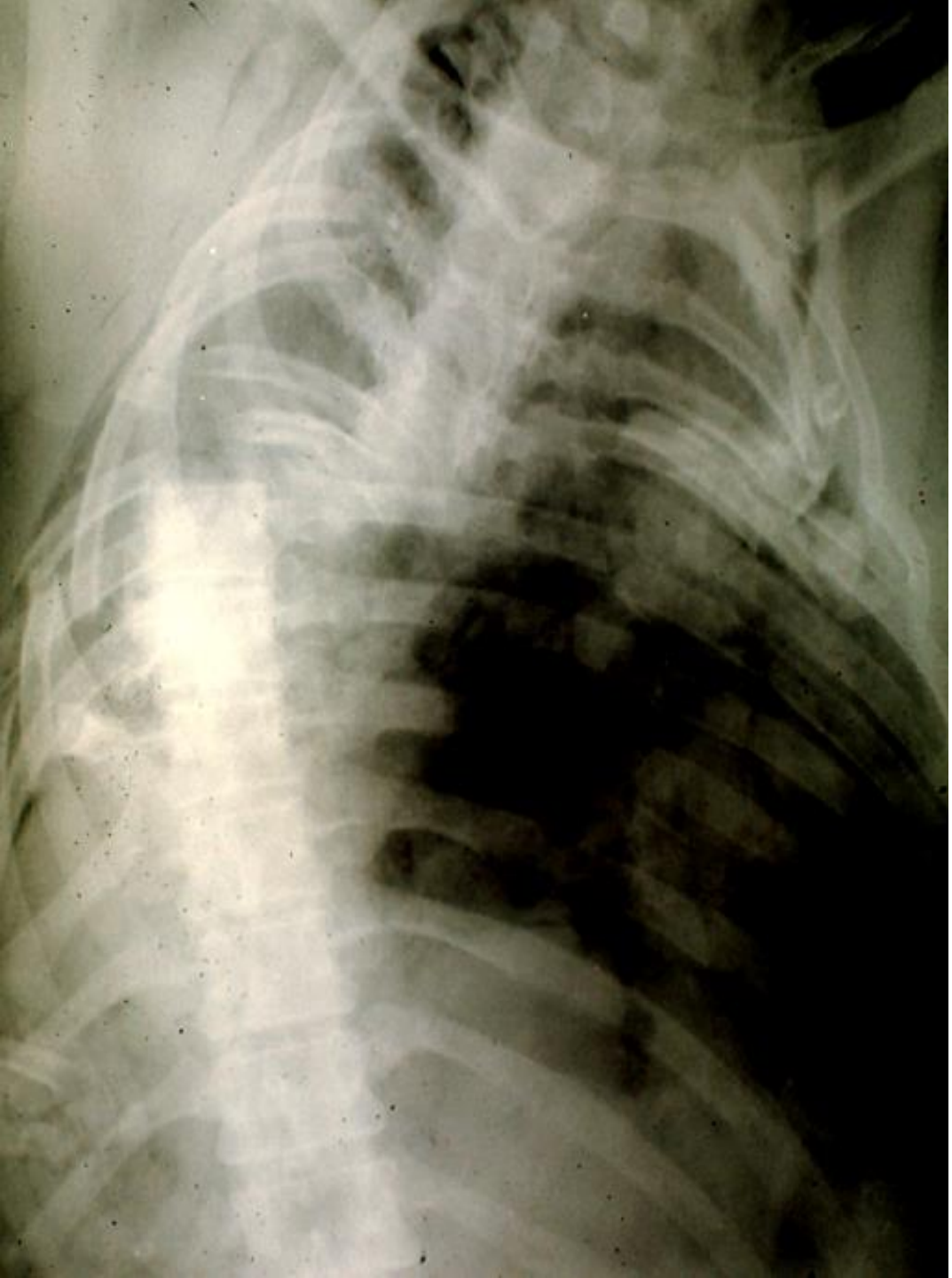





RED DISC

Case #1: Low Back Strain, Resolved

- Mr. A is a 35 year old with no prior history of low back pain.
- He works as a manual material handler in a warehouse.
- He **strained** his back **lifting** a box and twisting. [“Accepted” as a work injury]
- He had the acute onset of low back and right buttock pain without any leg symptoms.

Case #1: Low Back Strain, Resolved

- On the day of injury, and also 1 week later:
  - **"Spasm"** with a 10° forward list, trunk deviation to the right during flexion, and a "sciatic scoliosis."
  - Neurologic exam was normal.
  - **Straight leg raising** produced only **low back pain** at 40° of elevation of either leg.

RARE

Case #1: Low Back Strain, Resolved

- At 3 weeks, 6 weeks, and **6 months** post injury:
  - No low pain.
  - No leg pain or numbness.
  - No medications used (OTC or Rx).
  - **Normal physical exam**.
  - **Working full duty** without absences.
- Turn to Table 17-4, page 570
- What is the Impairment Rating ????

Reproducibility of Examination

κ = Kappa	**Agreement**
> 0.20	fair
> 0.40	moderate
>0.60	good
>0.80	excellent
1.00	perfect

Tenderness
JAMA 1992; 268 (6): 760-765

Finding	**Unit of measurement**	**Kappa Interobserver**
Bone tenderness	Yes/no	0.40
Soft-tissue tenderness	Yes/no	0.24
Muscle spasm	**Yes/no**	**Discarded***

* = Discarded “too unreliable”

Muscle Spasm?

- **Backache patients with "spasm"** have **electrically silent muscles on needle EMG**.
  - Harell A/Mead S. JAMA 1950; 143 (7): 640-1
  - Johnson EJ. Am J PM & R 1989; 68 (1): 1
- Body building and Physical Therapy literature says ISOMETRIC contraction is the best way to build muscle size.
  - **Chronic spasm = sustained isometric contraction**
  - YET, MRI on chronic back pain patients with "spasm" shows **muscle atrophy and fatty infiltration**
- Why do **only** muscles near the spine "spasm"?

Paraspinal “Spasm” in Chronic LBP

- Miller DJ, Comparison of Electromyographic Activity in the Lumbar Paraspinal Muscles of Subjects WITH and WITHOUT Chronic Low Back Pain. Physical Therapy 1985; 65: 1347-54

CLBP = Chronic Low Back Pain
NP = NO Pain

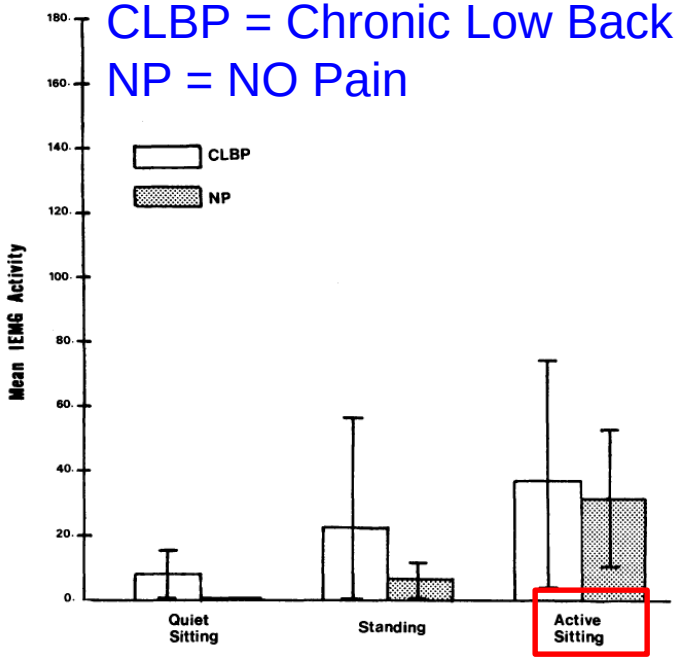


Fig. 5. Means and standard deviations of IEMG activity of the left paraspinal muscles for each group and task as a percent of the reference contraction.

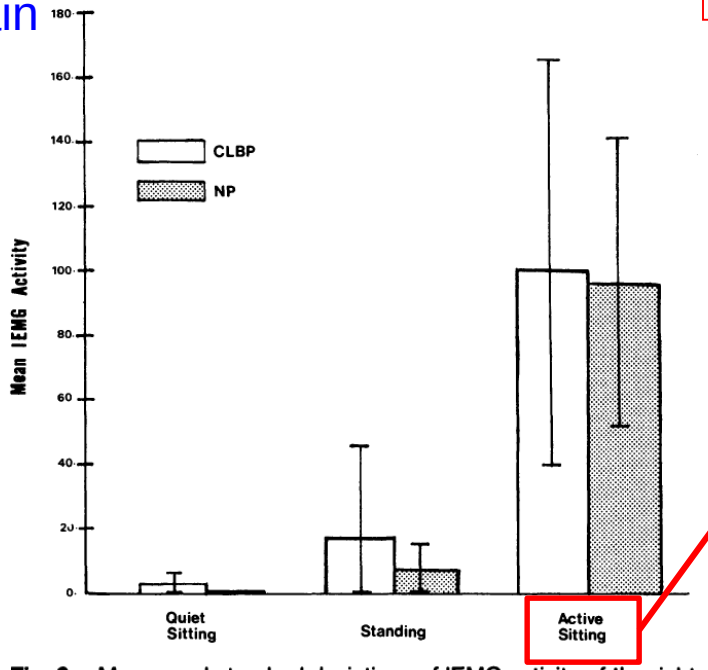


Fig. 6. Means and standard deviations of IEMG activity of the right paraspinal muscles for each group and task as a percent of the reference contraction.

Right Arm

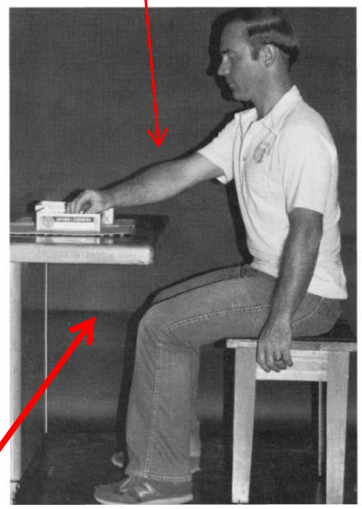
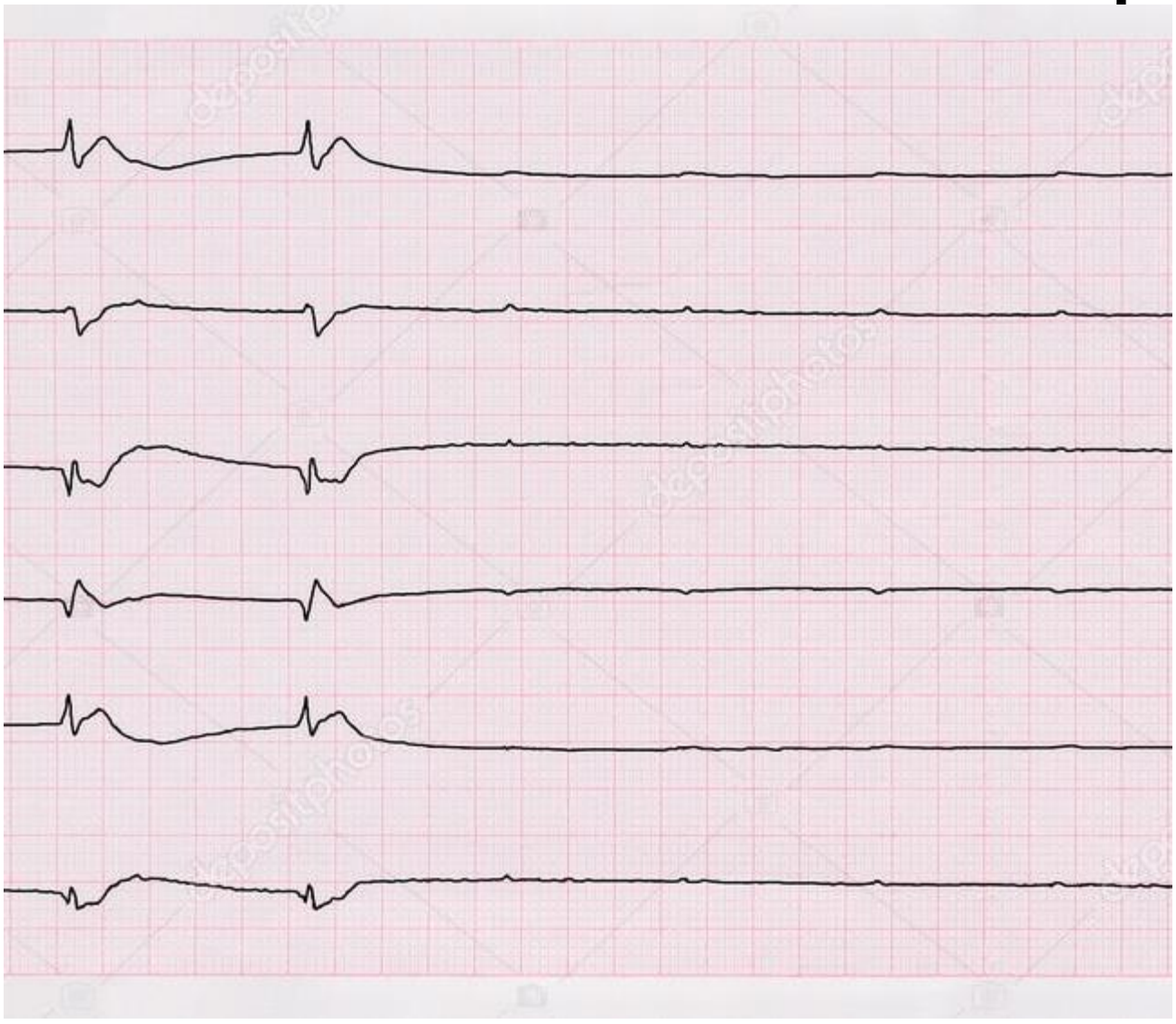


Fig. 3. Position for the active sitting task.

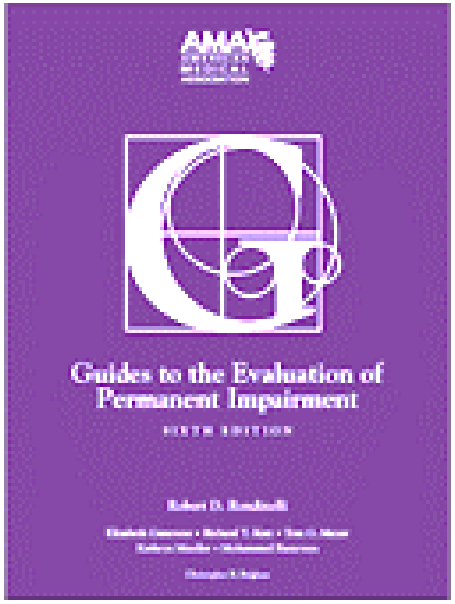
Surface electrodes

What is this cardiac rhythm ?
What Does It Imply ?



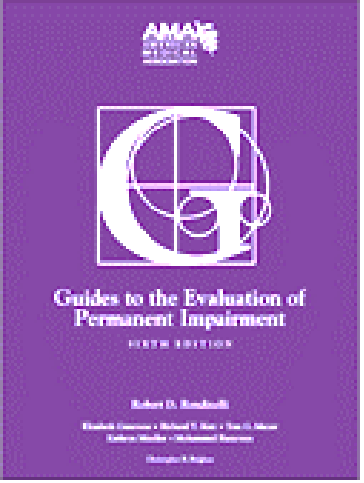
NO mechanical Correlate.
The heart
is **NOT** contracting.

Guides to the Evaluation of Permanent Impairment Sixth Edition



Chapter 17

The Spine and Pelvis



"The impairment rating process has been simplified by providing a **congruent rating methodology among the three musculoskeletal chapters.**

Once the examiner masters the methodology in one chapter, that same methodology applies to the other chapters."

DBI Method

Impairment class is determined by the diagnosis and specific criteria that are considered the "key factor" and then adjusted by grade modifiers, or " non-key factors"

Philosophy
NOT used in rating

TABLE 17-1

Definition of Impairment Classes and Impairment Ranges

		Whole Person Impairment (%)			
CLASS	PROBLEM	CERVICAL SPINE	THORACIC SPINE	LUMBAR SPINE	PELVIS
0	No objective findings	0%	0%	0%	0%
1	Mild	1%–8%	1%–6%	1%–9%	1%–3%
2	Moderate	9%–14%	7%–11%	10%–14%	4%–6%
3	Severe	15%–24%	12%–16%	15%–24%	7%–11%
4	Very severe	25%–30%	17%–22%	25%–33%	12%–16%

Diagnoses for the spine and pelvis are defined in several major categories, based on the selective region. **Categories include**:

- Non-specific chronic, or chronic recurrent spine pain
- Intervertebral disk and motion segment pathology
  - Single and multiple levels
- Cervical and lumbar stenosis
- Spine fractures and/or dislocations
- Pelvic fractures and/or dislocations

In the event that a specific **diagnosis** is **not** included in the diagnosis based regional grid, the examiner should **use a similar listed condition** as a guide in determining an impairment value.

Must fully **explain** rationale in report. – page 559

Diagnosis DETERMINES Class

- Selection of the optimal diagnosis requires judgment and experience. If more than one diagnosis **can** be used, **the one that provides the most clinically accurate impairment rating is selected**; this will generally be the **more specific** diagnosis. In cases where more than one diagnosis is applicable (eg, spinal stenosis and AOMSI), the **CAUSALLY-RELATED** diagnosis that provides the higher impairment rating should be used." – page 562

Example

- Person to be rated
  - 10 years ago sustained a stable L1 compression fracture, but there has been no back pain for over 9 years, UNTIL ….
  - **6 MONTHS ago** a lifting incident with prompt low back and sciatic leg pain, objective plantar flexion weakness, and a **L5-S1 disc herniation** on MRI
- **Rate as HNP**, and **NOT** as Fracture
  - Rate the "Causally Related" condition.

DIAGNOSIS: Surgery

Treatment may alter the functional status of the condition evaluated at MMI. For example. treatment of a disk herniation for symptomatic radiculopathy can move the impairment rating **from a higher** class **to a lower** class if the radiculopathy is resolved. However, if a condition has been **treated surgically**, this **does not result in an "add on"** value or additional distinct impairment percentage; changes related to surgical intervention are reflected in the provided ranges for impairment values. – page 562

Lumbar Spine table

P 570

TABLE 17-4 Lumbar Spine Regional Grid: Spine Impairments

Lumbar Spine Regional Grid

CLASS	CLASS 0	CLASS 1	CLASS 2	CLASS 3	CLASS 4
IMPAIRMENT RATING (WPI %)	0	1%–9%	10%–14%	15%–24%	25%–33%
Non-specific chronic, or chronic recurrent low back pain (also known as: chronic sprain/strain, symptomatic degenerative disc disease, facet joint pain, SI joint dysfunction, etc)	0 Documented history of sprain/strain-type injury, now resolved, or continued complaints of back pain with no objective findings on examination	0 1 2 3 3 Documented history of sprain/strain type injury with continued complaints of axial and/or non-verifiable radicular complaints and similar findings documented in previous examinations and present at the time of evaluation (see Sec. 17.2, General Considerations)			
MOTION SEGMENT LESIONS					
Intervertebral disk herniation and/or AOMSI *Note:* AOMSI includes instability (specifically as defined in the *Guides*), arthrodesis, failed arthrodesis, dynamic stabilization or arthroplasty, or combinations of those in multiple-level conditions	0 Intervertebral disk herniation or documented AOMSI at 1 or more levels (see definition in footnote), with medically documented injury; with or without surgery, with no residual signs or symptoms	5 6 7 8 9 Intervertebral disk herniation or documented AOMSI, at a single level or multiple levels with medically documented findings; with or without surgery *and* with documented resolved radiculopathy at clinically appropriate level or nonverifiable radicular complaints at clinically appropriate level(s), present at the time of examination	10 11 12 13 14 Intervertebral disk herniation and/or AOMSI at a single level with medically documented findings; with or without surgery *and* with documented radiculopathy at the clinically appropriate level present at the time of examination (see *Physical Examination adjustment grid in Table 17-7 to grade radiculopathy*)	15 17 19 21 23 Intervertebral disk herniations and/or AOMSI at multiple levels, with medically documented findings; with or without surgery *and* with or without documented radiculopathy at a single clinically appropriate level present at the time of examination (see *Table 17-7 to grade radiculopathy*)	25 27 29 31 33 Intervertebral disk herniations and/or AOMSI, at multiple levels, with medically documented findings; with or without surgery *and* with documented signs of bilateral or multiple-level radiculopathy at the clinically appropriate levels present at the time of examination (see *Table 17-7 to grade radiculopathy*)
Pseudarthrosis *Note:* Only applies after spinal surgery intended for fusion with resultant documented motion (not necessarily AOMSI by definition provided in footnote) with consistent radiographic findings or hardware failure; with or without surgery to repair	0 Pseudarthrosis (post surgery) with no residual signs or symptoms	5 6 7 8 9 Pseudarthrosis (post surgery) at a single level or multiple levels with medically documented findings *and* with documented resolved radiculopathy or nonverifiable radicular complaints at the clinically appropriate level(s) present at the time of examination	10 11 12 13 14 Pseudarthrosis (post surgery) at a single level with medically documented findings *and* with documented signs of radiculopathy at the clinically appropriate level present at the time of examination (see *Table 17-7 to grade radiculopathy*)	15 17 19 21 23 Pseudarthrosis (post surgery) at a multiple levels with medically documented findings *and* with or without documented radiculopathy at a single clinically appropriate level present at the time of examination (see *Table 17-7 to grade radiculopathy*)	25 27 29 31 33 Pseudarthrosis (post surgery) at a multiple levels with medically documented findings *and* with documented signs of bilateral or multiple-level radiculopathy at the clinically appropriate levels present at the time of examination (see *Table 17-7 to grade radiculopathy*)

(continued)

Page 570, Table 17-4 Lumbar Spine Regional Grid: Spine Impairments

SOFT TISSUE AND NON-SPECIFIC CONDITIONS					
Non-specific chronic, or chronic recurrent low back pain (also known as: chronic sprain/strain, symptomatic degenerative disc disease, facet joint pain, SI joint dysfunction, etc)	0 Documented history of sprain/strain-type injury, now resolved, or occasional complaints of back pain with no objective findings on examination	0 1 2 3 3 Documented history of sprain/strain type injury with continued complaints of axial and/or non-verifiable radicular complaints and similar findings on multiple occasions (see Sec. 17.2, General Considerations)			
MOTION SEGMENT LESIONS					
Intervertebral disk herniation and/or AOMSI[a] *Note:* AOMSI includes instability (specifically as defined in the *Guides*), arthrodesis, failed arthrodesis, dynamic stabilization or arthroplasty, or combinations of those in multiple-level conditions	0 Imaging findings of intervertebral disk herniation without a history of clinically correlating radicular symptoms	5 6 7 8 9 Intervertebral disk herniation(s) or documented AOMSI, at a single level or multiple levels with medically documented findings; with or without surgery *and* with documented resolved radiculopathy at clinically appropriate level or nonverifiable radicular complaints at clinically appropriate level(s), present at the time of examination[a]	10 11 12 13 14 Intervertebral disk herniation ~~and/or~~ AOMSI at a single level with medically documented findings; with or without surgery *and* with documented residual radiculopathy at the clinically appropriate level present at the time of examination (see *Physical Examination adjustment grid in Table 17-7 to grade radiculopathy*)	15 17 19 21 23 Intervertebral disk herniations ~~and/or~~ AOMSI at multiple levels, with medically documented findings; with or without surgery *and* with ~~or without~~ documented residual radiculopathy at a single clinically appropriate level present at the time of examination (see *Table 17-7 to grade radiculopathy*)	25 27 29 31 33 Intervertebral disk herniations and/or AOMSI, at multiple levels, with medically documented findings; with or without surgery *and* with documented signs of residual bilateral or multiple-level radiculopathy at the clinically appropriate levels present at the time of examination (see *Table 17-7 to grade radiculopathy*)
Pseudarthrosis *Note:* Only applies after spinal surgery intended for fusion with resultant documented motion (not necessarily AOMSI by definition provided in footnote) with consistent radiographic findings or hardware failure; with or without surgery to repair	0 ~~Pseudarthrosis (post surgery) with no residual signs or symptoms~~	5 6 7 8 9 Pseudarthrosis (post surgery) at a single level or multiple levels with medically documented findings *and* with documented resolved radiculopathy or nonverifiable radicular complaints at the clinically appropriate level(s) present at the time of examination	10 11 12 13 14 Pseudarthrosis (post surgery) at a single level with medically documented findings ~~*and*~~ may have documented signs of radiculopathy at the clinically appropriate level present at the time of examination (see *Table 17-7 to grade radiculopathy*)	15 17 19 21 23 Pseudarthrosis (post surgery) at a multiple levels with medically documented findings ~~*and*~~ may have documented radiculopathy at a single clinically appropriate level present at the time of examination (see *Table 17-7 to grade radiculopathy*)	25 27 29 31 33 Pseudarthrosis (post surgery) at a multiple levels with medically documented findings ~~*and*~~ may have documented signs of bilateral or multiple-level radiculopathy at the clinically appropriate levels present at the time of examination (see *Table 17-7 to grade radiculopathy*)

[a] Or AOMSI in the absence of radiculopathy, or with documented resolved radiculopathy or nonverifiable radicular complaints at the clinically appropriate levels present at the time of examination.

Case #1: Low Back Strain, Resolved
AMA Guides, 5th Edition Rating

Page 570, Table 17-4 Lumbar Spine Regional Grid: Spine Impairments

SOFT TISSUE AND NON-SPECIFIC CONDITIONS				
Non-specific chronic, or chronic recurrent low back pain (also known as: chronic sprain/strain, symptomatic degenerative disc disease, facet joint pain, SI joint dysfunction, etc)	0 Documented history of sprain/strain-type injury, now **resolved, or occasional complaints of back pain with no objective findings** on examination	0 1 2 3 3 Documented history of sprain/strain type injury with continued complaints of **axial and/or non-verifiable radicular complaints** and similar findings on multiple occasions (see Sec. 17.2, General Considerations)	How frequent and how severe, And how long in duration is back Pain that is "Occasional", and How many episodes make pain **"Multiple Occasions"** ???? **YOUR JUDGMENT**	

New Concept: Chronic Axial pain **CAN** Now be Rated

- Class 1: 0-3% WPI [0,1,2,3,3]
- The percentage impairment within that range depends on functional assessment, **since there are no reliable physical examination or imaging findings in this group.** – page 563
- [This means do **NOT** use Physical Exam or Clinical Studies as adjustment factors,
  - **use only Functional History**.]
- GMFH=Yes, GMPE & GMCS **"NOT** applicable"

Table 17-4, P 570

- These patients have **no objective findings** and, therefore, are often given a diagnosis of “chronic sprain/strain” or “nonspecific” back or neck pain. The current methodology allows these patients to be rated in impairment class 1, with a **range of impairment ratings from 1 to 3%** whole person impairment (WPI).

Page 570, Table 17-4 Lumbar Spine Regional Grid: Spine Impairments ERRATA

SOFT TISSUE AND NON-SPECIFIC CONDITIONS					
Non-specific chronic, or chronic recurrent low back pain (also known as: chronic sprain/strain, symptomatic degenerative disc disease, facet joint pain, SI joint dysfunction, etc)	0 Documented history of sprain/strain-type injury, now **resolved, or occasional complaints of back pain with no objective findings** on examination	0 1 2 3 3 Documented history of sprain/strain type injury with continued complaints of **axial and/or non-verifiable radicular complaints** and similar findings on multiple occasions (see Sec. 17.2, General Considerations)	**Case #1 Fits best with Class 0**		


Jeep
DM MD

Case 2: Cervical Strain with Residual

- Ms B is a 35 year old seat belt restrained driver who was **"rear-ended"** while stopped.
- She did not lose consciousness.
- She had posterior neck pain develop before leaving the scene of the accident.
- She developed **pain and numbness** down the arm to her right thumb and index finger (**C6** nerve root pattern).
- Physical exam initially showed decreased neck motion, deviation of the head/neck to the right during flexion, tenderness, but **no** neurologic deficit. [Normal sensation, strength, & reflexes]
- Imaging: **Normal X-rays** (mild C5-6 disc space narrowing).
  - MRI: Decreased disc height and loss of signal at C5-6

Case 2: Cervical Strain with Residual

- 1 year later, after:
  - Multiple chiropractic adjustments
  - Multiple sessions with a massage therapist
  - Multiple sessions with a physical therapist
- Constant posterior neck pain
- Intermittent, but daily occipital headache
- Twice weekly pain down the arm to the thumb and index finger
- Not willing to see a spine surgeon.
  - At MMI and thus “ratable”

Case 2: Cervical Strain with Residual

- **1 year later**:
  - **Normal** neurologic exam (Sharp vs Dull sensation, strength, reflexes, and no atrophy)
    - 'Spurling' Negative
  - Cervical range of motion with inclinometers:
    - Flexion 30°, extension 40°, left bending 30°, right bending 15°, left rotation 60°, right rotation 40°.
  - No instability on Flexion-Extension lateral x-rays.
  - PDQ = 80 [Pain Disability Questionnaire]

- WHAT IS THE IMPAIRMENT RATING?

Case 2: Cervical strain with residual

Chapter 17

Page 564, TABLE 17-2, Cervical Spine Regional Grid: Spine Impairments

CLASS	CLASS 0	CLASS 1	CLASS 2	CLASS 3
IMPAIRMENT RATING (WPI %)	0	1%–8%	9%–14%	15%–24%
SOFT TISSUE AND NON- SPECIFIC CONDITIONS				
Non-specific chronic, or chronic recurrent neck pain (also known as chronic sprain/strain, symptomatic degenerative disc disease, facet joint pain, chronic whiplash, etc)	0 Documented history of sprain/strain-type injury, now **resolved, or occasional complaints of neck pain with no objective findings** on examination	1 1 2 3 3 Documented history of sprain/strain-type injury with continued complaints of **axial and/or non-verifiable radicular complaints; similar findings documented on multiple occasions** (see Section 17.2 General Considerations)		

Follow the Footnotes

TABLE 17-2 Cervical Spine Regional Grid: Spine Impairments

Cervical Spine Regional Grid

CLASS	CLASS 0	CLASS 1	CLASS 2	CLASS 3	CLASS 4
IMPAIRMENT RATING (WPI %)	0	1%–8%	9%–14%	15%–24%	25%–30%
SOFT TISSUE AND NON- SPECIFIC CONDITIONS					
Non-specific chronic, or chronic recurrent neck pain (also known as chronic sprain/strain, symptomatic degenerative disc disease, facet joint pain, chronic whiplash, etc)	0 Documented history of sprain/strain-type injury, now resolved, or occasional complaints of neck pain with no objective findings on examination	1 1 2 3 3 Documented history of sprain/strain-type injury with continued complaints of axial and/or nonverifiable radicular complaints; similar findings documented on multiple occasions (see Section 17.2 General Considerations)			
MOTION SEGMENT LESIONS					
Intervertebral disc herniation and/or AOMSI[a] *Note:* AOMSI includes instability (specifically as defined in the *Guides*), arthrodesis, failed arthrodesis, dynamic stabilization or arthroplasty, or combinations of those in multiple-level conditions	0 Imaging findings of intervertebral disk herniation without a history of clinically correlating radicular symptoms	4 5 6 7 8 Intervertebral disk herniation(s) or documented AOMSI at a single level or multiple levels with medically documented findings; with or without surgery *and* for disk herniation(s) with documented **resolved radiculopathy or nonverifiable radicular complaints** at the clinically appropriate level(s) present at the time of examination[b]	9 10 11 12 14 Intervertebral disk herniation and/or AOMSI at a single level with medically documented findings; with or without surgery *and* with documented residual radiculopathy at the clinically appropriate level present at the time of examination *(see Table 17-7 to grade radiculopathy)*	15 17 19 21 23 Intervertebral disk herniations or AOMSI at multiple levels, with medically documented findings; with or without surgery *and* with documented signs of residual radiculopathy at a single clinically appropriate level present at the time of examination *(see Table 17-7 to grade radiculopathy)*	25 27 28 29 30 Intervertebral disk herniation(s) or AOMSI, with medically documented findings; with or without surgery *and* with documented signs of residual bilateral or multiple-level radiculopathy at the clinically appropriate levels present at the time of examination *(see Table 17-7 to grade radiculopathy)*

TABLE 17-2 (CONTINUED) Cervical Spine Regional Grid: Spine Impairments

CLASS	CLASS 0	CLASS 1	CLASS 2	CLASS 3	CLASS 4
IMPAIRMENT RATING (WPI %)	0	1%–8%	9%–14%	15%–24%	25%–30%
Spinal Stenosis (may include AOMSI)[a] *Note:* AOMSI includes instability (specifically as defined in the *Guides*), arthrodesis, failed arthrodesis, dynamic stabilization or arthroplasty, or combinations of those in multiple-level conditions	0 Cervical stenosis at **1 or more levels** with or without AOMSI with axial pain	4 5 6 7 8 Cervical stenosis **at a single level or multiple levels** with or without AOMSI with medically documented findings; with or without surgery *and* with documented **resolved radiculopathy or nonverifiable radicular complaints** at clinically appropriate level(s) present at the time of examination	9 10 11 12 14 Cervical stenosis **at a single level** with or without AOMSI with medically documented findings; with or without surgery *and* with documented **radiculopathy at the clinically appropriate level** present at the time of examination *(see Table 17-7 to grade radiculopathy)*[b]	15 17 19 21 23 Cervical stenosis **at multiple levels** with or without AOMSI with medically documented findings; with or without surgery *and* with documented **residual radiculopathy at a single clinically appropriate level** present at the time of examination *(see Table 17-7 to grade radiculopathy)*[b]	25 27 28 29 30 Cervical stenosis **at multiple levels** with or without AOMSI with medically documented findings; with or without surgery *and* with documented signs of **residual bilateral or multiple-level radiculopathy at the clinically appropriate levels** present at the time of examination *(see Table 17-7 to grade radiculopathy)*[b]
FRACTURES/DISLOCATIONS OF THE SPINE					
Fractures of 1 or more vertebral bodies Fracture of posterior element (pedicle, lamina, articular process, transverse process) *and* burst fracture	0 **Single- or multiple-levels fractures with no or minimal compression** of any vertebral body; with or without pedicle and/or posterior element fracture (<t5-mm displacement) Healed with or without surgical intervention; with **no residual signs or symptoms**	2 2 4 6 8 **Single- or multiple-level fractures with <25% compression** of any vertebral body; with or without bony retropulsion, with or without pedicle and/or posterior element fracture Healed, with or without surgery (including vertebroplasty or kyphoplasty) may have documented **resolved radiculopathy or nonverifiable radicular complaints** at clinically appropriate level(s)[b]	9 10 11 12 14 **Single- or multiple-level fractures with 25%–50% compression** of any vertebral body; with or without bony retropulsion; with or without pedicle and/or posterior element fracture Healed, with or without surgery (including vertebroplasty or kyphoplasty) with residual deformity may have documented **radiculopathy at the clinically appropriate level** present at the time of examination *(see Table 17-7 to grade radiculopathy)*[b]	15 17 19 21 23 **Single- or multiple-level fractures with >50% compression** of 1 vertebral body; with or without bony retropulsion; with or without pedicle and/or posterior element fracture Healed, with or without surgical intervention; with residual deformity may have **radiculopathy at a single clinically appropriate level** present at the time of examination *(see Table 17-7 to grade radiculopathy)*[b]	25 27 28 29 30 **Single- or multiple-level fractures with >50% compression** of 1 vertebral body; with or without bony retropulsion; with or without pedicle and/or posterior element fracture Healed, with or without surgical intervention; with residual deformity may have documented signs of **bilateral or multiple-level radiculopathy at the clinically appropriate levels** present at the time of examination *(see Table 17-7 to grade radiculopathy)*[b]

[a] See footnote [a] on page 571.
[b] With signs of spinal cord injury or myelopathy: see Chapter 13, The Central and Peripheral Nervous System, for calculating additional impairment.

"a"= See Footnote on page 571

Bottom of Page 571

- Footnote

SPONDYLOLISTHESIS					
Spondylolisthesis	0 Spondylolysis or spondylolisthesis at one or more levels on imaging studies with axial pain only	5 6 7 8 9 Spondylolisthesis with medically documented injury; with or without surgery *and* with documented resolved radiculopathy or non-verifiable radicular complaints at clinically appropriate level, present at the time of examination	10 11 12 13 14 Spondylolisthesis with medically documented injury; with or without surgery at a single level *and* with documented signs of radiculopathy at the clinically appropriate level present at the time of examination *(see Table 17-7 to grade radiculopathy)*	15 17 19 21 23 Spondylolisthesis with medically documented injury; with or without surgery at multiple levels *and* with documented signs of radiculopathy at a single clinically appropriate level present at the time of examination *(see Table 17-7 to grade radiculopathy)*	25 27 29 31 33 Spondylolisthesis with medically documented injury; with or without surgery at multiple levels *and* with documented signs of bilateral or multiple-level radiculopathy at the clinically appropriate levels present at the time of examination *(see Table 17-7 to grade radiculopathy)*

[a] Note: The following applies to the cervical, thoracic, and lumbar spine grids: 1) Intervertebral disk herniation excludes annular bulge, annular tear and disk herniation on imaging without consistent objective findings of radiculopathy at the appropriate level(s) when most symptomatic. 2) When AOMSI is the diagnosis being rated, imaging is not included in the Net Adjustment Calculation, because imaging is used to confirm the diagnosis.

Bottom of Page 571

- Footnote

Note: The following applies to the cervical, thoracic, and lumbar spine grids:

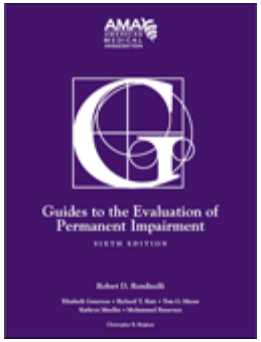
1) Intervertebral disk herniation **excludes** annular bulge, annular tear, and disk herniation **on imaging *without*** **consistent objective** findings of radiculopathy at the appropriate level(s) when most symptomatic.

"appropriate level" would **EXCLUDE** remote **unrelated** radiculopathy findings from separate condition

You may choose to account for second level of remote radiculopathy by increasing GMCS – as per shoulder example

Case 2: Cervical Strain with Residual AMA Guides, 6th Edition

- In the AMA Guides 6th Edition,
  - The concept of **non-verifiable radicular pain is retained.**
  - **Range of Motion is no longer rated.**
    - NOT part of the required spine physical exam.
    - Unless **VERY** Severely Restricted, Motion **Does NOT Correlate** with Function/ADLs
  - Symptoms (Functional History) can be assessed with the PDQ (Pain Disability Questionnaire).



Non-Key Factors

- Functional History
  - Proper FH enables physician to determine the **impact** of a given spine-or-pelvis-related condition on basic function and activities as they pertain to **ADLs**
- Functional assessment tool **may** be used, example is Pain Disabilities Questionnaire (PDQ) is included in appendix.
- **Physician is expected to weigh** the patient's subjective complaints and **score** on the functional assessment tool, relative to the expected severity for the condition.
- The grade modifier that reflects functional assessment **may or may not be accepted** as a variable in the impairment calculation.
  - **Examiner's choice – depends on "believability".**

Functional History: Spine

- Concept: adjusting the whole person impairment for function in **both** the cervical and the lumbar spine **double rates** the Functional History
- **Use GMFH ONLY Once.**
- **IF there is BOTH LBP & Neck Pain, GMFH is used for the MORE severe impairment, and is "NOT Applicable" for the other spinal region.**

- Functional History grade modifier should be applied **only** to the single, highest spine-related DBI if multiple regions are being rated. Specific **jurisdictions may modify** this process such that Functional History adjustment is considered for each DBI or not considered at all as a grade modifier." - page 569

Functional History Modifiers

- What is **normal** activity ?? [NOT defined]
- Minor constant leg numbness could be grade 4 ("symptoms at rest"), or grade 1 ("no interference with normal activity")

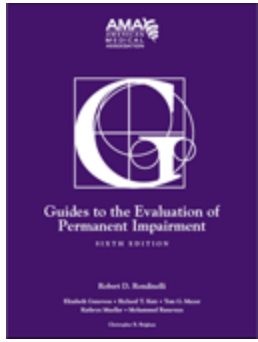
TABLE 17-6

Functional History Adjustment: Spine

Functional History Factor	Grade Modifier 0	Grade Modifier 1	Grade Modifier 2	Grade Modifier 3	Grade Modifier 4
Activity	Asymptomatic; problem resolved; inconsistent symptoms	Pain; symptoms with strenuous/ vigorous activity	Pain; symptoms with normal activity	Pain; symptoms with less-than-normal activity (minimal activity)	Pain; symptoms at rest, limited to sedentary activity
PDQ or alternative validated functional assessment, scaled appropriately	No disability 0	Mild disability 0–70	Moderate disability 71–100	Severe disability 101–130	Extreme disability 131–150

Note: PDQ indicates Pain Disabilities Questionnaire.

- **Undefined** words include:
  - inconsistent symptoms”
  - strenuous/vigorous activity
  - normal activity”
  - less than normal activity”
  - limited to sedentary activity



To help us out,
We May choose to use
The **Pain Disability Questionnaire**

TABLE 17-6

Functional History Adjustment: Spine

Functional History Factor	Grade Modifier 0	Grade Modifier 1	Grade Modifier 2	Grade Modifier 3	Grade Modifier 4
Activity	Asymptomatic; problem resolved; inconsistent symptoms	Pain; symptoms with strenuous/ vigorous activity	Pain; symptoms with normal activity	Pain; symptoms with less-than-normal activity (minimal activity)	Pain; symptoms at rest, limited to sedentary activity
PDQ or alternative validated functional assessment, scaled appropriately	No disability PDQ 0	Mild disability PDQ 0–70	Moderate disability PDQ 71–100	Severe disability PDQ 101–130	Extreme disability PDQ 131–150

Note: PDQ indicates Pain Disability Questionnaire.

Page 43, Appendix 3-1 Pain Disability Questionnaire
Page 600, Figure 17-A Pain Disability Questionnaire (PDQ)

Patient Name: _____ **Date:** _____

Instructions: These questions ask for your views about how your pain now affects how you function in everyday activities. Please answer every question and mark the ONE number on EACH scale that best describes how you feel.

1. Does your pain interfere with your normal work inside and outside the home?
Work normally — *Unable to work at all*
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7 -------- 8 -------- 9 -------- 10

2. Does your pain interfere with personal care (such as washing, dressing, etc.)?
Take care of myself completely — *Need help with all my personal care*
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7 -------- 8 -------- 9 -------- 10

3. Does your pain interfere with your traveling?
Travel anywhere I like — *Only travel to see doctors*
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7 -------- 8 -------- 9 -------- 10

4. Does your pain affect your ability to sit or stand?
No problems — *Cannot sit / stand at all*
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7 -------- 8 -------- 9 -------- 10

5. Does your pain affect your ability to lift overhead, grasp objects, or reach for things?
No problems — *Cannot do at all*
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7 -------- 8 -------- 9 -------- 10

6. Does your pain affect your ability to lift objects off the floor, bend, stoop, or squat?
No problems — *Cannot do at all*
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7 -------- 8 -------- 9 -------- 10

7. Does your pain affect your ability to walk or run?
No problems — *Cannot walk / run at all*
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7 -------- 8 -------- 9 -------- 10

8. Has your income declined since your pain began?
No decline — *Lost all income*
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7 -------- 8 -------- 9 -------- 10

9. Do you have to take pain medication every day to control your pain?
No medication needed — *On pain medication throughout the day*
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7 -------- 8 -------- 9 -------- 10

10. Does your pain force you to see doctors much more often than before your pain began?
Never see doctors — *See doctors weekly*
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7 -------- 8 -------- 9 -------- 10

11. Does your pain interfere with your ability to see the people who are important to you as much as you would like?
No problem — *Never see them*
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7 -------- 8 -------- 9 -------- 10

12. Does your pain interfere with recreational activities and hobbies that are important to you?
No interference — *Total interference*
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7 -------- 8 -------- 9 -------- 10

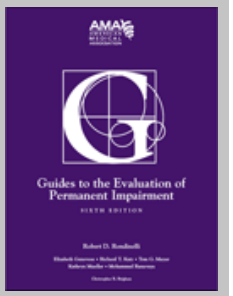
13. Do you need the help of your family and friends to complete everyday tasks (including both work outside the home and housework) because of your pain?
Never need help — *Need help all the time*
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7 -------- 8 -------- 9 -------- 10

14. Do you now feel more depressed, tense, or anxious than before your pain began?
No depression / tension — *Severe depression / tension*
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7 -------- 8 -------- 9 -------- 10

15. Are there emotional problems caused by your pain that interfere with your family, social, and / or work activities?
No problems — *Severe problems*
0 -------- 1 -------- 2 -------- 3 -------- 4 -------- 5 -------- 6 -------- 7 -------- 8 -------- 9 -------- 10

_____
Examiner

Anagnostis C, Gatchel RJ, Mayer TG. The Pain Disability Questionnaire: A New Psychometrically Sound Measure for Chronic Musculoskeletal Disorders. Spine 2004; 29 (20): 2290-2302.

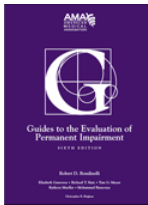


Page 43
Chapter 3

Page 600
Chapter 17

P 600, Appendix 17-A, Pain Disability Questionnaire
Instructions for administering and scoring

1. Reproduce the PDQ (Appendix 3-1) and ask the patient to complete all items on the questionnaire.
2. If necessary, the patient may complete the form with the assistance of a translator or reader. Be certain all 15 questions are answered. If the patient is unable to complete the PDQ, no functional assessment score will be given
3. The evaluating doctor will score the PDQ by adding together the marked integer in each question.
4. If the patient fails to mark a question, the default score for that question is 0.
5. Apply the final score to Table 17-A and consider this in the Steps of Assessment as described.



Aside: Questionnaires

- Pencil and paper **questionnaires** have been developed for a number of injuries and illnesses.
  - "VALIDATED" – meaning researched, and if given to a non -compensation seeking population of patients before and after a treatment (for example, total knee replacement) the improvement after treatment measures the effect size of the treatment.

IMPORTANT CAVEAT

- The concept of giving a questionnaire to a compensation ($$) seeking patient and saying:
  - "Please fill this out.
  - The **better you look** on this questionnaire, **the less money** we will pay you.
  - The **worse you look** on this questionnaire **the more money** we will pay you.
  - **But, please fill this out honestly"**

HAS NEVER BEEN TESTED !

Functional Adjustment: Spine

- "… and those with constant symptoms accompanied by functional deficits that persist despite treatment will be assigned grade 4 modifier." - page 569
  - **(severity of functional deficit NOT specified)**

Functional History

- Example 2: PDQ = 80 points
- Grade 2 Functional History Modifier

TABLE 17-6

Functional History Adjustment: Spine

Functional History Factor	Grade Modifier 0	Grade Modifier 1	Grade Modifier 2	Grade Modifier 3	Grade Modifier 4
Activity	Asymptomatic; problem resolved; inconsistent symptoms	Pain; symptoms with strenuous/ vigorous activity	Pain; symptoms with normal activity	Pain; symptoms with less-than-normal activity (minimal activity)	Pain; symptoms at rest, limited to sedentary activity
PDQ or alternative validated functional assessment, scaled appropriately	No disability 0	Mild disability 0–70	Moderate disability 71–100	Severe disability 101–130	Extreme disability 131–150

Note: PDQ indicates Pain Disabilities Questionnaire.

TABLE 17-7

Physical Examination Adjustment: Spine

Physical Examination Factor	Grade Modifier 0	Grade Modifier 1	Grade Modifier 2	Grade Modifier 3	Grade Modifier 4
Lumbar Neural Tension Signs	Negative straight leg raising test for radicular pain or invalid examination		Positive straight leg raising test, with reproducible radicular pain at 35°–70°		
Cervical Compression/ Foraminal Compression	Negative cervical compression/ foraminal compression		Positive cervical compression/foraminal compression (Spurling's test) with reproducible radicular pain		
Reflexes	Normal and symmetrical		New and asymmetrical abnormality consistent with other radicular findings (ie, differentiate between old and new changes)		
Atrophy UE LE	 <1 cm <1 cm	 1.0–1.9 cm 1.0–1.9 cm	 2.0–2.9 cm 2.0–2.9 cm	 3.0–3.5 cm 3.0–3.5 cm	 >3.5 cm >3.5 cm
Sensory Deficit	No loss of sensibility, abnormal sensation, or pain	Diminished light touch (with or without minimal abnormal sensations or pain) in a clinically appropriate distribution, that is forgotten during activity	Diminished light touch (with some abnormal sensations or slight pain) in a clinically appropriate distribution, that interferes with some activities	Decreased protective sensibility (with abnormal sensations or moderate pain in a clinically appropriate distribution) that may prevent some activities	Absent superficial pain and tactile sensibility or absent protective sensibility (abnormal sensations, or severe pain) that prevents all activity
Motor Strength	Normal Active movement against gravity with full resistance (5/5)	Active movement against gravity and some resistance (4/5)	Active movement against gravity only, without resistance (3/5)	Active movement with gravity eliminated (2/5)	Slight contraction and no movement or no contraction (0–1/5)

The highest grade modifier identified in each adjustment grid is chosen for use in the net adjustment calculation.

P 572

Non-Verifiable Radicular Complaints p 576

Nonverifiable Radicular Complaints:

Although there are subjective complaints of a specific radicular nature, there are inadequate or **no** *objective* findings to support the diagnosis of radiculopathy.

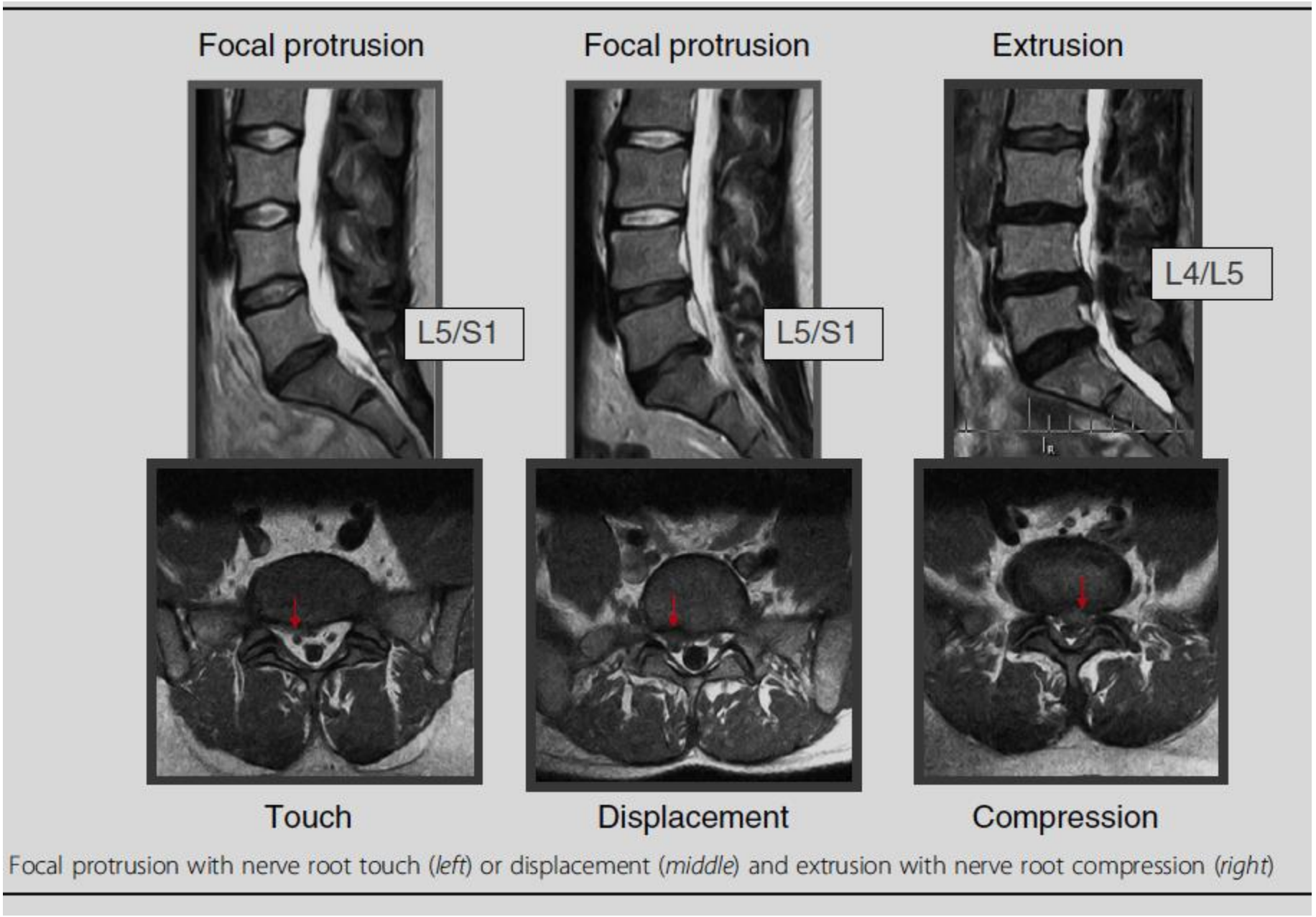
Non-Verifiable Radicular Complaints p 576

Nonverifiable Radicular Complaints:

Nonverifiable radicular complaints are defined as chronic persisting limb pain or numbness, which is consistently and repetitively recognized in medical records **in the distribution of a single nerve root that the examiner can name**

… ***preserved*** **sharp vs. dull** sensation and preserved muscle strength in the muscles it innervates, is **not** significantly **compressed** on imaging, and is **not** affected on electrodiagnostic studies (if performed).

Jensen et al. BMC MSD 2015; 16: 374 DOI 10.1 186/s12891-015-0827-4



Focal protrusion with nerve root touch (*left*) or displacement (*middle*) and extrusion with nerve root compression (*right*)

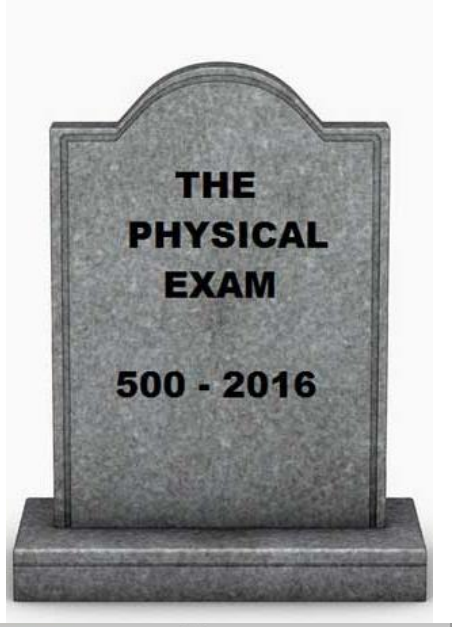
Radiculopathy Definition: "Hidden" in PE section. Page 576

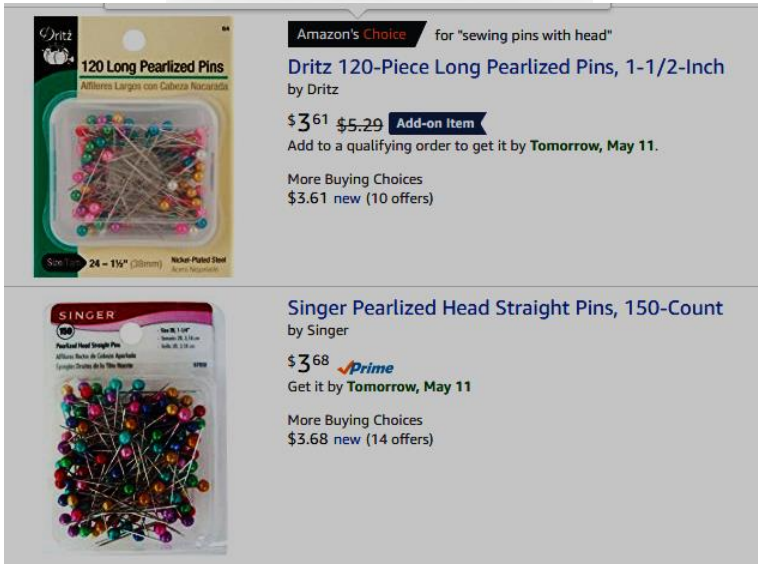
Subjective reports of sensory changes are more difficult to assess; therefore, these complaints should be consistent and supported by **other** findings of radiculopathy.

[**"It feels odd when you touch me there"**, yet perceives all stimuli IS **NOT necessarily** radiculopathy.]

There **may be** associated motor weakness and loss of reflex. A root tension sign is usually positive. [**NOT** "MUST be"]

Sharp vs. Dull Perception

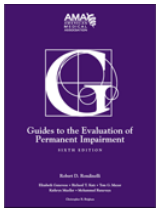




Sensory Exam: Instructions

- Close your eyes
- Each time you feel a touch on your leg, **tell me 2 things by saying 2 words.**
- **Say "Close your eyes and tell me"**
  - which leg felt the touch – "Right" or "Left"
  - whether you were touched with the "Sharp" or the "Dull" side of the pin
  - For example: "Left, Dull" OR "Right, Sharp"

The *Guides, 6th Edition* Terms



Radiculopathy "Any pathological condition of a spinal nerve root, most commonly compression with or without inflammation, or less frequently another disorder such as traction, tumor, or infection. Radicular **symptoms** may include pain, numbness, tingling, and/or weakness in distribution of the nerve root, usually involving an upper or lower extremity. **Physical findings** are **weakness** of the involved myotome (muscles innervated by the nerve root**), diminution** in **or loss** of the corresponding muscle stretch **reflex** (if any), ***diminished sensation*** in the appropriate dermatome (area of skin supplied by the nerve root) and/or **positive root tension signs.** As commonly used, and for purposes of the *Guides*, **radiculopathy requires** the presence of radicular physical findings **not just symptoms.**

AMA *Guides, 6th Edition,* Glossary P613-14

More Rules on Diagnosis: p 563

Common conditions related to **degenerative changes** in the spine, including abnormalities identified on imaging studies such as annular tears, facet arthropathy, and disk degeneration, **do not correlate** well with symptoms, clinical findings, or causation analysis and are **not** ratable according to the *Guides*.

Analogies

- "Of course you have **headache**
  You have **GRAY HAIR**
  on visual **imaging.**"
- Gray Hair also correlates with Type 2 Diabetes Mellitus

When you ORDER a MRI, **SAY**

- "You are **old enough** that we will see **aging changes** on your MRI.
- **Here is a list** of the aging changes commonly seen in volunteers who get a MRI done even though they say they have never had low back pain.
- **You will see some of these words** on your MRI report.
- **My job** is to figure out if the aging changes mean something, or **CORRELATE** with your symptoms "

Spine 2004; 29(23): 2679-2690, Battié

Table 1. Prevalence of Disc-Related Degenerative Findings on MRI Images of the Lumbar Spine in "Asymptomatic Subjects"

Author, year	N	Age (years) [mean ± SD (range)]	Gender	Bulge	Protrusion	Extrusion	Reduced Signal Intensity	Reduced Disc Height	Annular Tears (HIZ)	Schmorl's Nodes
Salo, 1995	49	8 (0–14)	NA	—	—		22%	—	—	—
Gibson, 1986	20	19 (17–21)	50% M	—	—	—	20%	—	—	—
Tertti, 1991	39	15	44% M	—	3%	—	26%	3%	—	8%
Paajanen, 1989	34	20 ± 1	100% M	—	—	—	35%	—	—	—
Burns 1996	41	26 (21–31)	100% M	0–10% level	0–32%pe level	—	0–24% level	—	—	7–15% level
Weinreb, 1989	41	30 (19–40)	100% F	44	—	10%	—	—	—	—
Evans, 1989	59	30	52% M	—	—	—	—	37%	—	—
Schellhas, 1996	17	30 (22–54)	NA	—	—	0%	23%	—	6%	—
Weishaupt, 1998	60	35 (20–50)	50% M	20–28%	38–42%	18%	—	—	32–33%	—
Boos, 1995	46	36 (20–50)	74% M	51%	63%	13%	—	—	—	—
Stadnick, 1998	36	42 (17–71)	56% M	81%	33%	—	55%	—	56%	—
Boden, 1990	67	42 (20–80)	45% M	—	59%	24%	—	—	—	—
Boden, 1996 (L3S1)	67	42 (20–79)	NA	22% discs	—	—	54%	—	9% discs	—
Jensen, 1994	98	42 (20–80)	51% M	52%	27%	1%	—	—	14%	19%
Jarvik, 2001	148	54 (36–71)	78% M	64%	32%	6%	83%	56%	38%	—
Paajanen, 1997	216	(10–49)	51% M	—	—	—	44%	—	—	—
Parkkolla, 1993	60	(30–47)	NA	15% bpe	—	—	—	—	—	—
Danielson, 2001	43	(20–60)	49% M	—	26%	—	—	—	—	—
Hamanishi, 1994	106	(1–82)	NA	—	—	—	—	—	—	9%
Powell, 1986	302	(16–80)	100% F	11–13% bpe	—	—	6–79% age	—	—	—

NA = not available, % disc = % from discs studied; % level = % of subjects at a given intervertebral level; % age = % per age strata; bpe = bulges, protrusions, or extrusions; pe = protrusions or extrusions.
Note: no study of 'asymptomatic subjects' reported on the prevalence of vertebral rim osteophytes.

Brinjikji W, et al.

- Am J Neuroradiol
- AJNR 2015; 36(4): 811-6
- Systematic Review
- 33 articles
- 3110 **ASYMPTOMATIC** individuals

Table 1: Estimated number of patients by age used to inform prevalence of degenerative spine imaging findings in asymptomatic patients[a]

	Age (yr)						
Imaging Finding	20	30	40	50	60	70	80
Disk degeneration	273 (9)	604 (16)	415 (12)	311 (10)	80 (4)	20 (2)	19 (2)
Disk signal loss	46 (2)	142 (5)	352 (4)	73 (2)	35 (1)	15 (1)	14 (1)
Disk height loss	15 (1)	163 (5)	186 (5)	208 (5)	35 (1)	15 (1)	14 (1)
Disk bulge	55 (4)	101 (7)	151 (8)	123 (7)	66 (5)	24 (3)	22 (3)
Disk protrusion	87 (5)	468 (14)	490 (14)	363 (12)	86 (5)	19 (2)	17 (2)
Annular fissure	167 (5)	350 (5)	426 (7)	53 (3)	35 (3)	15 (1)	14 (1)
Facet degeneration	0 (0)	0 (0)	596 (3)	53 (3)	35 (3)	15 (1)	14 (1)
Spondylolisthesis	0 (0)	0 (0)	31 (1)	53 (1)	35 (1)	15 (1)	14 (1)

[a] The number of studies are in parentheses.

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

	Age (yr)						
Imaging Finding	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.

Am J Neurorad 2014: ePub Ahead of Print 10.317A/ajnr.A4173

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%

Lumbar

Missing "1" for Grade A added in Oct 2014 Reprint

Same footnote in Tables 17-2 & 17-4

TABLE 17-4 Lumbar Spine Regional Grid: Spine Impairments

Lumbar Spine Regional Grid

CLASS	CLASS 0	CLASS 1	CLASS 2	CLASS 3	CLASS 4
IMPAIRMENT RATING (WPI %)	0	1%–9%	10%–14%	15%–24%	25%–33%
SOFT TISSUE AND NON-SPECIFIC CONDITIONS					
Non-specific chronic, or chronic recurrent low back pain (also known as: chronic sprain/strain, symptomatic degenerative disc disease, facet joint pain, SI joint dysfunction, etc)	0 Documented history of sprain/strain-type injury, now **resolved, or occasional complaints of back pain with no objective findings** on examination	0 1 2 3 3 Documented history of sprain/strain type injury with continued complaints of **axial and/or non-verifiable radicular complaints** and similar findings on multiple occasions (see Sec. 17.2, General Considerations)			
MOTION SEGMENT LESIONS					
Intervertebral disk herniation and/or AOMSI[a] *Note:* AOMSI includes instability (specifically as defined in the *Guides*), arthrodesis, failed arthrodesis, dynamic stabilization or arthroplasty, or combinations of those in multiple-level conditions	0 Imaging findings of intervertebral disk herniation without a history of clinically correlating radicular symptoms	5 6 7 8 9 Intervertebral disk herniation(s) or documented AOMSI, at a **single level or multiple levels** with medically documented findings; with or without surgery ***and*** for disk herniation(s) with documented **resolved radiculopathy or nonverifiable radicular complaints at clinically appropriate level(s)**, present at the time of examination[a]	10 11 12 13 14 Intervertebral disk herniation or AOMSI **at a single level** with medically documented findings; with or without surgery ***and*** with documented **residual radiculopathy at the clinically appropriate level** present at the time of examination (see *Physical Examination adjustment grid in Table 17-7 to grade radiculopathy*)	15 17 19 21 23 Intervertebral disk herniations or AOMSI **at multiple levels**, with medically documented findings; with or without surgery ***and*** with documented **residual radiculopathy at a single clinically appropriate level** present at the time of examination (see *Table 17-7 to grade radiculopathy*)	25 27 29 31 33 Intervertebral disk herniations and/or AOMSI, **at multiple levels**, with medically documented findings; with or without surgery ***and*** with documented signs of **residual bilateral or multiple-level radiculopathy at the clinically appropriate levels** present at the time of examination (see *Table 17-7 to grade radiculopathy*)
Pseudarthrosis *Note:* Only applies after spinal surgery intended for fusion with resultant documented motion (not necessarily AOMSI by definition provided in footnote) with consistent radiographic findings or hardware failure; with or without surgery to repair	0	5 6 7 8 9 Pseudarthrosis (post surgery) at a **single level or multiple levels** with medically documented findings ***and*** with documented **resolved radiculopathy or nonverifiable radicular complaints** at the clinically appropriate level(s) present at the time of examination	10 11 12 13 14 Pseudarthrosis (post surgery) at a **single level** with medically documented findings may have documented signs of **radiculopathy at the clinically appropriate level** present at the time of examination (see *Table 17-7 to grade radiculopathy*)	15 17 19 21 23 Pseudarthrosis (post surgery) at a **multiple levels** with medically documented findings may have documented **radiculopathy at a single clinically appropriate level** present at the time of examination (see *Table 17-7 to grade radiculopathy*)	25 27 29 31 33 Pseudarthrosis (post surgery) at a **multiple levels** with medically documented findings may have documented signs of **bilateral or multiple level radiculopathy at the clinically appropriate levels** present at the time of examination (see *Table 17-7 to grade radiculopathy*)

[a] Or AOMSI in the absence of radiculopathy, or with documented resolved radiculopathy or nonverifiable radicular complaints at the clinically appropriate levels present at the time of examination.

TABLE 17-4 (CONTINUED) Lumbar Spine Regional Grid: Spine Impairments

CLASS	CLASS 0	CLASS 1	CLASS 2	CLASS 3	CLASS 4
IMPAIRMENT RATING (WPI %)	0	1%–9%	10%–14%	15%–24%	25%–33%
Spinal stenosis[a] (may include AOMSI) *Note:* AOMSI includes instability (specifically as defined in the *Guides*), arthrodesis, failed arthrodesis, dynamic stabilization or arthroplasty, or combinations of those in multiple-level conditions	0 **Lumbar stenosis at 1 or more levels with** axial pain only	5 6 7 8 9 Lumbar stenosis, at a **single level or multiple levels**, (with or without AOMSI) with medically documented findings; with or without surgery *(decompression)* ***or*** **with resolved previously documented neurogenic claudication** ***and*** may have documented resolved radiculopathy at clinically appropriate level(s) or nonverifiable radicular complaints at clinically appropriate level(s), present at the time of examination	10 11 12 13 14 Lumbar stenosis, at a **single level** with or without AOMSI with medically documented findings; with or without surgery *(decompression)* ***and*** **documented** intermittent neurogenic claudication *(see Table 17-7 to grade radiculopathy, but not claudication)* may have documented signs of radiculopathy at the clinically appropriate level present at the time of examination with signs of cauda equina syndrome: use Chapter 13 to calculate additional impairment	15 17 19 21 23 Lumbar stenosis, at **multiple levels** with or without AOMSI with medically documented findings; with or without surgery *(decompression)* ***and*** **documented** neurogenic claudication, **walking limited to <10 minutes** *(see Table 17-7 to grade radiculopathy, but not claudication)* may have documented **signs of** radiculopathy at a single clinically appropriate level **present at the time of examination** with signs of cauda equina syndrome: use Chapter 13 to calculate additional impairment	25 27 29 31 33 Lumbar stenosis, at **multiple levels** with or without AOMSI with medically documented findings; with or without surgery *(decompression)* ***and*** severe neurogenic claudication and inability to ambulate **without assistive devices** may have **documented signs of** bilateral or multiple-level radiculopathy at the clinically appropriate levels **present at the time of examination** with signs of cauda equina syndrome: use Chapter 13 to calculate additional impairment
SPONDYLOLISTHESIS					
Spondylolisthesis	0 Spondylolysis or spondylolisthesis at one or more levels on imaging studies with axial pain only	5 6 7 8 9 Spondylolisthesis with medically documented injury; with or without surgery ***and*** with documented **resolved radiculopathy or nonverifiable radicular complaints** at clinically appropriate level, present at the time of examination	10 11 12 13 14 Spondylolisthesis with medically documented injury; with or without surgery at a single level ***and*** with documented signs of **radiculopathy** at the clinically appropriate level present at the time of examination (see *Table 17-7 to grade radiculopathy*)	15 17 19 21 23 Spondylolisthesis with medically documented injury; with or without surgery **at multiple levels** ***and*** with documented signs of **radiculopathy at a single clinically appropriate level** present at the time of examination (see *Table 17-7 to grade radiculopathy*)	25 27 29 31 33 Spondylolisthesis with medically documented injury; with or without surgery **at multiple levels** ***and*** with documented signs of **bilateral or multiple-level radiculopathy at the clinically appropriate levels** present at the time of examination (see *Table 17-7 to grade radiculopathy*)

[a] Note: The following applies to the cervical, thoracic, and lumbar spine grids: 1) Intervertebral disk herniation excludes annular bulge, annular tear and disk herniation on imaging without consistent objective findings of radiculopathy at the appropriate level(s) when most symptomatic. 2) When AOMSI is the diagnosis being rated, imaging is not included in the Net Adjustment Calculation, because imaging is used to confirm the diagnosis.

Footnote "a" on page 571

- Note: The following applies to the cervical, thoracic, and lumbar spine grids: 1) **Intervertebral disk herniation excludes annular bulge annular tear** and **disk herniation on imaging without consistent objective findings of radiculopathy** at the appropriate level(s) when most symptomatic.

More Rules on Diagnosis: p 563

Congenital anomalies such as spina bifida occulta, abnormal segmentation and conjoined nerve roots are not ratable as impairments. Developmental anomalies, including spondylolysis, some forms of spondylolisthesis, kyphosis and excessive lordosis or scoliosis are also **not** ratable.

There may be exceptions to these rules in some jurisdictions, related to aggravation of preexisting conditions.

New Concept: Chronic Axial pain **CAN** Now be Rated

- Class 1: 0-3% WPI [0,1,2,3,3]
- The percentage impairment within that range depends on functional assessment since there are **no** reliable physical examination or imaging findings in this group.
- [This means do **NOT** use Physical Exam or Clinical Studies as adjustment factors, use only functional history.]
- GMPE & GMCS are **NOT** applicable

Case 2: Cervical strain with residual

Chapter 17

Page 564, TABLE 17-2, Cervical Spine Regional Grid: Spine Impairments

CLASS	CLASS 0	CLASS 1	CLASS 2	CLASS 3
IMPAIRMENT RATING (WPI %)	0	1%–8%	9%–14%	15%–24%
SOFT TISSUE AND NON- SPECIFIC CONDITIONS				
Non-specific chronic, or chronic recurrent neck pain (also known as chronic sprain/strain, symptomatic degenerative disc disease, facet joint pain, chronic whiplash, etc)	0 Documented history of sprain/strain-type injury, now **resolved, or occasional complaints of neck pain with no objective findings** on examination	1 1 2 3 3 Documented history of sprain/strain-type injury with continued complaints of **axial and/or non-verifiable radicular complaints; similar findings documented on multiple occasions** (see Section 17.2 General Considerations)		

New 6th Edition Category Spinal pain [p563] **WITHOUT** Objective Findings

- These patients have no objective findings and, therefore, are often given a diagnosis of “chronic sprain/strain” or “nonspecific” back or neck pain. The current methodology allows these patients to be rated in impairment class 1, with a range of impairment ratings from 1 to 3% whole person impairment (WPI).
- The percentage impairment within that range depends on **functional assessment**, since there are no reliable physical examination or imaging findings in this group.

Page 563

The patient who is rated in this impairment class (IC 1) and then presents with another episode that results in placement in this same impairment class (IC 1) may move up or down a grade within the class with each successive assessment at MMI. However, this patient would **not** be entitled to an **accumulation** of 1% or 2% WPI ratings, **or** placement in a **different class**, **unless** the diagnosis changed.

Page 563

That is, the patient might, after a **second** injury, move from grade B to grade C within Class 1, but successive evaluations of 1% or 2% WPI would not be added to increase the impairment beyond the maximum impairment assigned for grade E in that diagnostic impairment class. Thus, a person with a grade B or 1% impairment who sustains a similar, subsequent injury that is rated as grade D or 3% WPI would then have a 3% WPI.

Page 563

In states where apportionment is appropriate, 1% impairment would have preexisted the new injury and 2% would be related to the new injury.

A person who has a grade C or 2% WPI who sustains a new injury, and still falls in grade A, B, or C, still has a 2% WPI, meaning there is **no new** impairment (0%) for the new injury.

Case 2: Cervical strain with residual

Chapter 17

Page 564, TABLE 17-2, Cervical Spine Regional Grid: Spine Impairments

CLASS	CLASS 0	CLASS 1	CLASS 2	CLASS 3
IMPAIRMENT RATING (WPI %)	0	1%–8%	9%–14%	15%–24%
SOFT TISSUE AND NON- SPECIFIC CONDITIONS				
Non-specific chronic, or chronic recurrent neck pain (also known as chronic sprain/strain, symptomatic degenerative disc disease, facet joint pain, chronic whiplash, etc)	0 Documented history of sprain/strain-type injury, now **resolved, or occasional complaints of neck pain with no objective findings** on examination	1 1 2 3 3 Documented history of sprain/strain-type injury with continued complaints of **axial and/or non-verifiable radicular complaints; similar findings documented on multiple occasions** (see Section 17.2 General Considerations)		

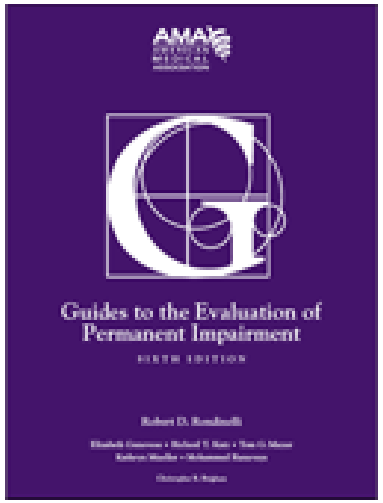
Now that Diagnosis has established the Class

- Adjust the impairment from the “default” or grade C value by considering:
  - Functional History
  - ~~Physical Exam~~
  - ~~Clinical Studies~~

For “Non-specific axial pain
the only adjustment is Functional History

Case 2, Cervical Strain with Residual AMA Guides, 6th Edition

- Net Adjustment = GMFH – CDX
- NA = 2 – 1 = **+1**
- Thus, Final rating is **Class 1, Grade D**, or 3% WPI



Case 2: Cervical strain with residual

Chapter 17

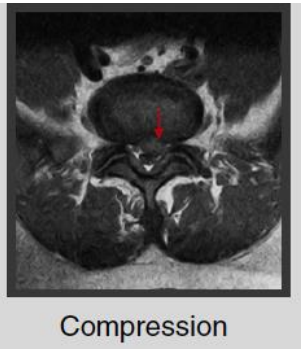
Page 564, TABLE 17-2, Cervical Spine Regional Grid: Spine Impairments

CLASS	CLASS 0	CLASS 1	CLASS 2	CLASS 3
IMPAIRMENT RATING (WPI %)	0	1%–8%	9%–14%	15%–24%
SOFT TISSUE AND NON- SPECIFIC CONDITIONS				
Non-specific chronic, or chronic recurrent neck pain (also known as chronic sprain/strain, symptomatic degenerative disc disease, facet joint pain, chronic whiplash, etc)	0 Documented history of sprain/strain-type injury, now **resolved, or occasional complaints of neck pain with no objective findings** on examination	1 1 2 3 3 Documented history of sprain/strain-type injury with continued complaints of **axial and/or non-verifiable radicular complaints; similar findings documented on multiple occasions** (see Section 17.2 General Considerations)		

Case 3, Lumbar Radiculopathy

- Mr. C is a 40 year old who slips and falls at work and lands on his buttocks with immediate low back and left leg pain.
- He does not improve with time.
- He complains of pain and numbness in the left leg that goes all the way to the great toe.
- His pain worsens with activity.
- **MRI shows a 8 mm left sided HNP at L4-5.**
- 6 weeks after injury has

  L4-5 left microdiscectomy.



Case 3, Lumbar Radiculopathy

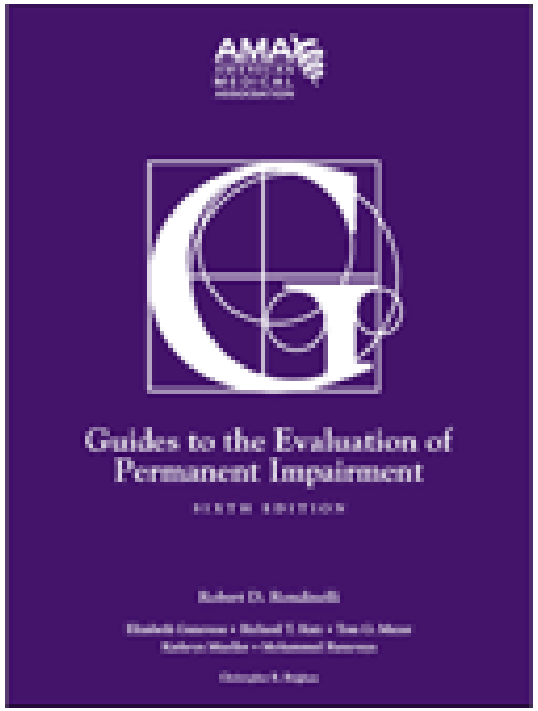
- On exam at MMI:
  - Straight leg raising increases his left ***leg*** pain at **30°** of elevation of the left leg, and at 40° of elevation of the right leg (positive crossed straight leg raising).
  - Retained sharp versus dull perception in the 1st dorsal web space (L5 dermatome area).
    - Subjective paresthesias in L5 dermatome
  - Grade 4+/5 strength in the Anterior Tibial muscle (mild foot drop gait). Does **not** have an AFO.
  - 2 cm of left leg atrophy, 0.5 cm of thigh atrophy.

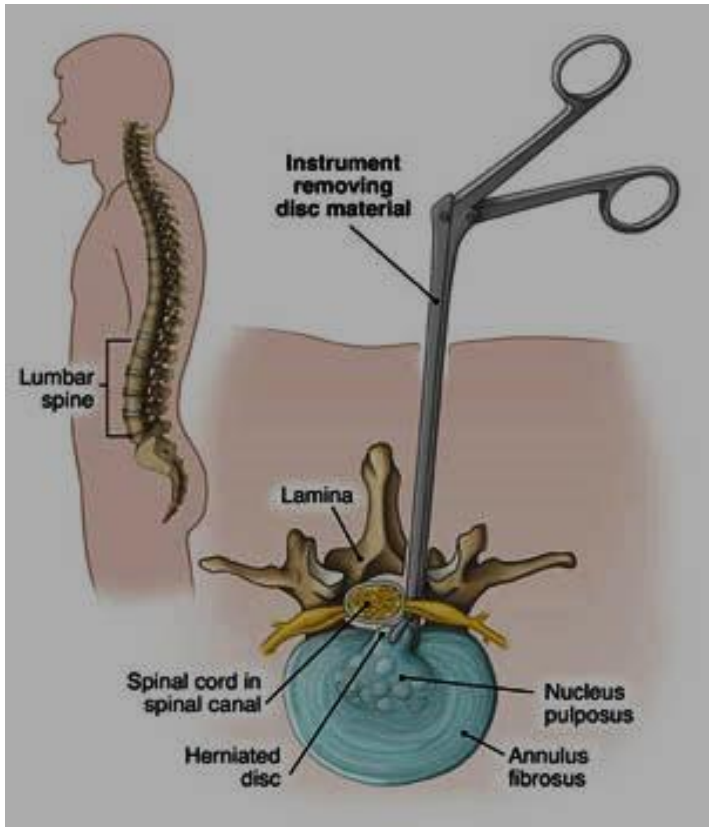
Case 3, Lumbar Radiculopathy

- No electrodiagnostic studies done.
- No post-op MRI done.
- Finished work conditioning and returned to work despite **frequent low back and left leg pain** to the foot (great toe).
  - Symptoms develop with **normal** activity, and especially at work.
- Taking naproxen and gabapentin.
  - No medication side effects
- **PDQ = 65**
- **WHAT IS THE IMPAIRMENT RATING ???**

Case 3: Lumbar Radiculopathy AMA Guides, 6th Edition

- Very Similar to Example 17-13: Class 2 p 589-590
- Left L4-5 disc herniation with residual radiculopathy.





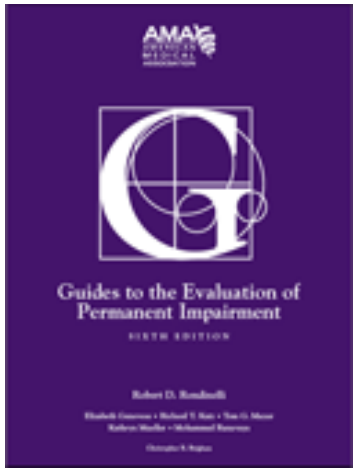
Residual ONE level radiculopathy

- Dorsiflexion weakness and leg pain.
- Table 17-4, page 570

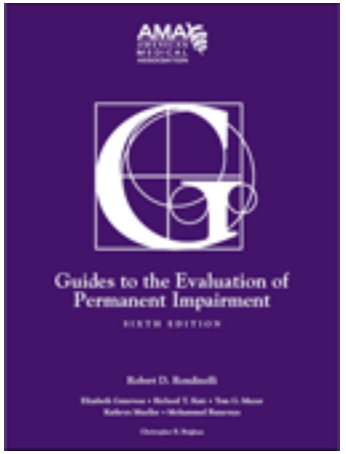
MOTION SEGMENT LESIONS					
Intervertebral disk herniation and/or AOMSI[a] *Note:* AOMSI includes instability (specifically as defined in the *Guides*), arthrodesis, failed arthrodesis, dynamic stabilization or arthroplasty, or combinations of those in multiple-level conditions	0 Imaging findings of intervertebral disk herniation without a history of clinically correlating radicular symptoms	5 6 7 8 9 Intervertebral disk herniation(s) or documented AOMSI, at a single level or multiple levels with medically documented findings; with or without surgery *and* with documented resolved radiculopathy at clinically appropriate level(s) or nonverifiable radicular complaints at clinically appropriate level(s), present at the time of examination[a]	10 11 12 13 14 Intervertebral disk herniation ~~and/~~or AOMSI at a single level with medically documented findings; with or without surgery *and* with documented residual radiculopathy at the clinically appropriate level present at the time of examination *(see Physical Examination adjustment grid in Table 17-7 to grade radiculopathy)*	15 17 19 21 23 Intervertebral disk herniations ~~and/~~or AOMSI at multiple levels, with medically documented findings; with or without surgery *and* with ~~or without~~ documented residual radiculopathy at a single clinically appropriate level present at the time of examination *(see Table 17-7 to grade radiculopathy)*	25 27 29 31 33 Intervertebral disk herniations and/or AOMSI, at multiple levels, with medically documented findings; with or without surgery *and* with documented signs of residual bilateral or multiple-level radiculopathy at the clinically appropriate levels present at the time of examination *(see Table 17-7 to grade radiculopathy)*

Example 17-13: Class 2

- Adjustment Grids:
  - Functional History: **Grade modifier is 2** based on report of pain with normal activity.
  - Physical Exam: **Grade modifier 2** for **either** positive SLR or for atrophy, note that 4/5 strength would only be grade modifier 1.
  - Clinical Testing: **Grade modifier 2** as well.
  - The net adjustment is 0,
  - **Impairment is grade 2, class C, which equals 12% WPI.**



Functional History



- PDQ = 65
- Grade 2

TABLE 17-6

Functional History Adjustment: Spine

Functional History Factor	Grade Modifier 0	Grade Modifier 1	Grade Modifier 2	Grade Modifier 3	Grade Modifier 4
Activity	Asymptomatic; problem resolved; inconsistent symptoms	Pain; symptoms with strenuous/ vigorous activity	Pain; symptoms with normal activity	Pain; symptoms with less-than-normal activity (minimal activity)	Pain; symptoms at rest, limited to sedentary activity
PDQ or alternative validated functional assessment, scaled appropriately	No disability 0	Mild disability 0–70	Moderate disability 71–100	Severe disability 101–130	Extreme disability 131–150

Note: PDQ indicates Pain Disabilities Questionnaire.

TABLE 17-7

Physical Examination Adjustment: Spine

Physical Examination Factor	Grade Modifier 0	Grade Modifier 1	Grade Modifier 2	Grade Modifier 3	Grade Modifier 4
Lumbar Neural Tension Signs	Negative straight leg raising test for radicular pain or invalid examination		Positive straight leg raising test, with reproducible radicular pain at 35°–70°		
Cervical Compression/ Foraminal Compression	Negative cervical compression/ foraminal compression		Positive cervical compression/foraminal compression (Spurling's test) with reproducible radicular pain		
Reflexes	Normal and symmetrical		New and asymmetrical abnormality consistent with other radicular findings (ie, differentiate between old and new changes)		
Atrophy UE LE	 <1 cm <1 cm	 1.0–1.9 cm 1.0–1.9 cm	 2.0–2.9 cm 2.0–2.9 cm	 3.0–3.5 cm 3.0–3.5 cm	 >3.5 cm >3.5 cm
Sensory Deficit	No loss of sensibility, abnormal sensation, or pain	Diminished light touch (with or without minimal abnormal sensations or pain) in a clinically appropriate distribution, that is forgotten during activity	Diminished light touch (with some abnormal sensations or slight pain) in a clinically appropriate distribution, that interferes with some activities	Decreased protective sensibility (with abnormal sensations or moderate pain in a clinically appropriate distribution) that may prevent some activities	Absent superficial pain and tactile sensibility or absent protective sensibility (abnormal sensations, or severe pain) that prevents all activity
Motor Strength	Normal Active movement against gravity with full resistance (5/5)	Active movement against gravity and some resistance (4/5)	Active movement against gravity only, without resistance (3/5)	Active movement with gravity eliminated (2/5)	Slight contraction and no movement or no contraction (0–1/5)

The highest grade modifier identified in each adjustment grid is chosen for use in the net adjustment calculation.

P 572

Clinical Studies: Spine (page 581)

TABLE 17-9

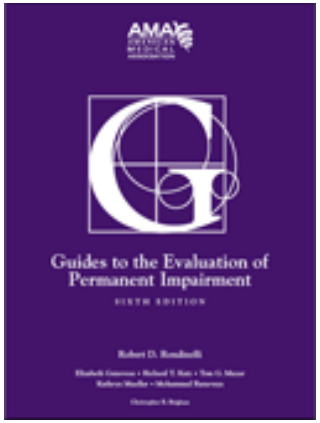
Clinical Studies Adjustment: Spine

Clinical Studies Factor	Grade Modifier 0	Grade Modifier 1	Grade Modifier 2	Grade Modifier 3	Grade Modifier 4
Imaging studies: Radiographs, bone scan, MRI Post-Op Study may Be Grade 0.	Imaging findings do not support symptoms or structural diagnosis within normal limits ***or*** normal age-related changes ***or*** clinically insignificant degenerative changes, or findings on the side opposite clinical presentation	This leaves radiculopathy	CT/MRI/other imaging findings consistent with clinical presentation, including evidence of AOMSI with segmental instability, fusion, or motion preservation device defined by region (see row below)	UNLESS Surgical "Oops" If a diagnosis of AOMSI, is made, imaging studies should be excluded as a grade modifier. P 563 ALSO includes *stenosis* pseudarthrosis, fracture, or spondylolisthesis.	Imaging evidence of major surgical complications, including infection or major deformity
Electrodiagnostic testing	Normal		EMG evidence consistent with single nerve root radiculopathy		EMG evidence consistent with multiple nerve root radiculopathy

Note: CT indicates computed tomography; MRI, magnetic resonance imaging; AOMSI, alteration of motion segment integrity; and EMG, electromyographic.

Rules, Rules, Rules

- If a diagnosis of AOMSI, pseudarthrosis, fracture or spondylolisthesis **imaging studies should be excluded** as a grade modifier. P 563 & 577
- Lists do not include Spinal Stenosis, but logically should, as imaging is just as key a criterion for diagnosis.



When do you use Imaging as a GRADE Modifier ??

Category	Use Imaging ?
Class 0, Every Diagnosis	No, to exclude diagnoses
Chronic Non-Specific Pain	No (FH is the only GM)
Disc Herniation	Yes (consistent or not)
AOMSI, Pseudarthrosis, Spinal Stenosis, Spondylolisthesis, Fracture, Dislocation	No, used in Class assignment.
Deep Spinal Infection	Perhaps, if not draining
Major surgical complications (Broken or displaced implant)	Yes

Example 17-13: Class 2

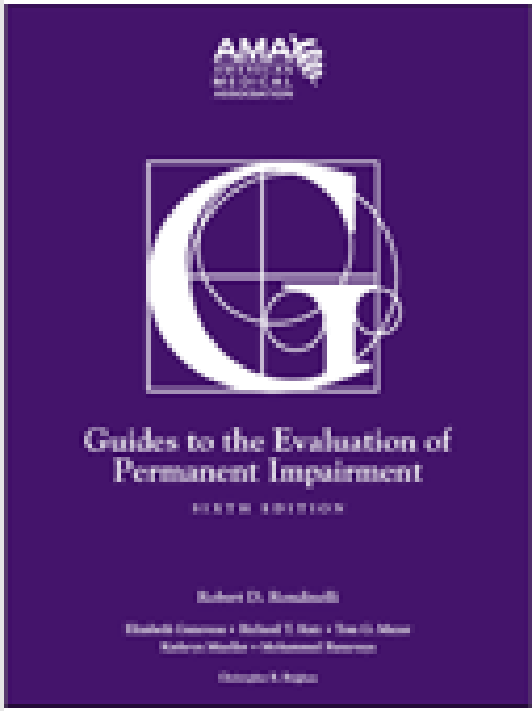
Class 2 Example Calculation			
CDX	**GMFH**	**GMPE**	**GMCS**
2	2	2	2

Net adjustment

$$(GMFH - CDX)\,(2 - 2) = 0$$
$$+ (GMPE - CDX) + (2 - 2) = 0$$
$$+ (GMCS - CDX) + (2 - 2) = 0$$
$$\text{Net adjustment} = 0$$

Result is class 2 with an adjustment of 0; therefore, this impairment is class 2 default grade C, which equals 12% impairment

Note: CDX indicates class of diagnosis; GMFH, grade modifier for Functional History; GMPE, grade modifier for Physical Examination; and GMCS, grade modifier for Clinical Studies.

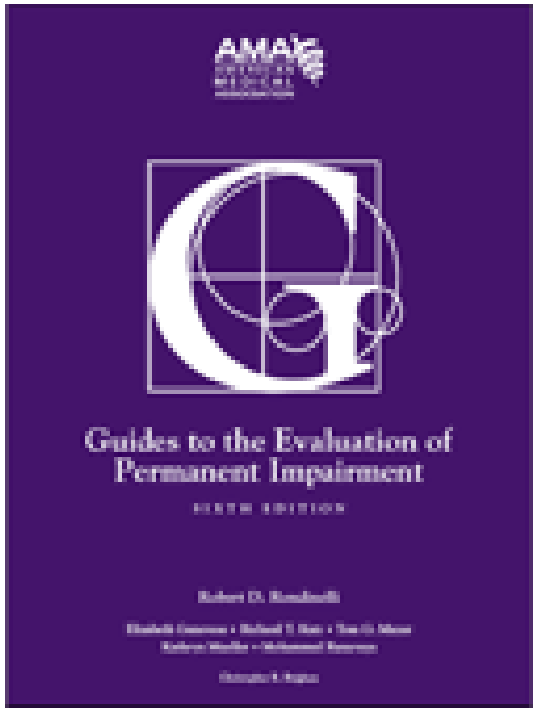


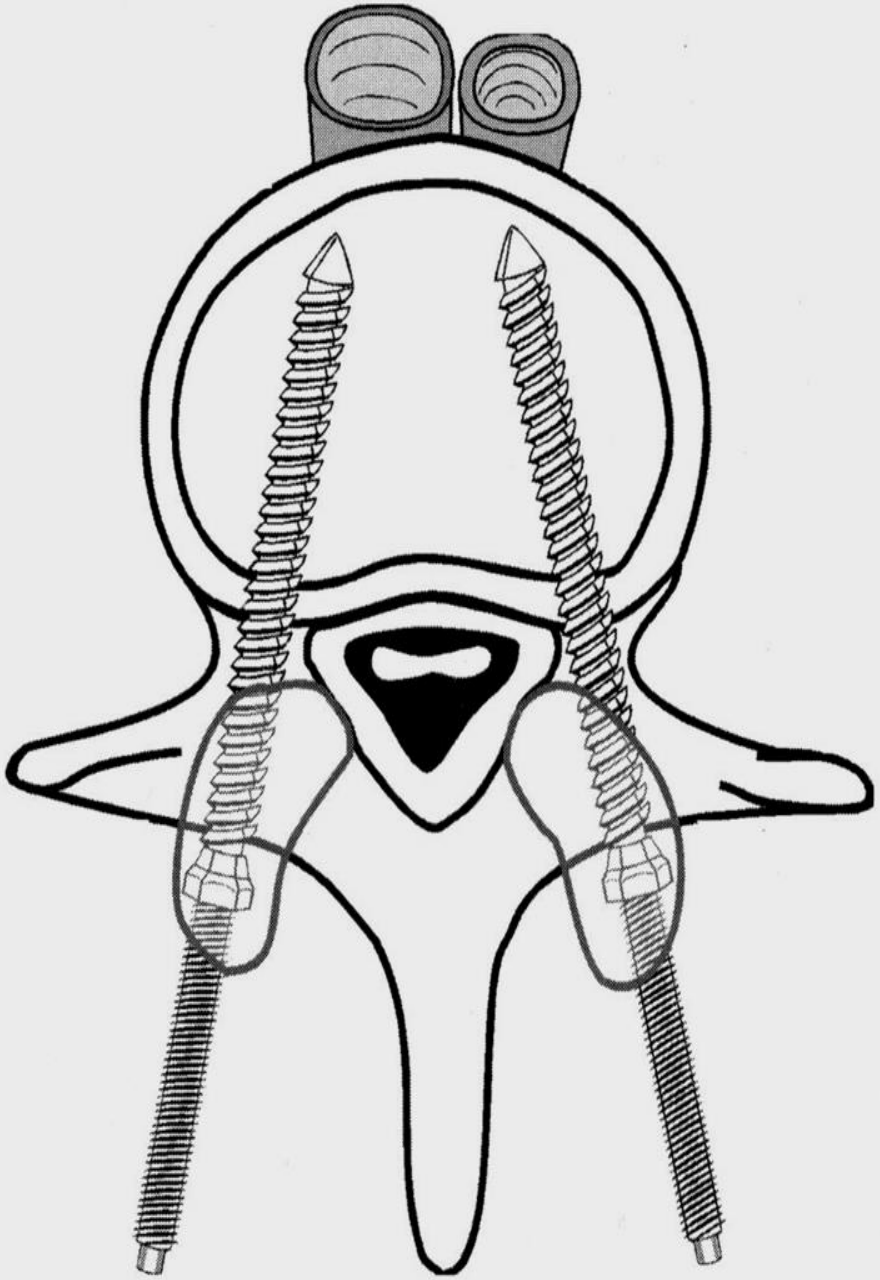
Key Point:
Residual ONE level radiculopathy

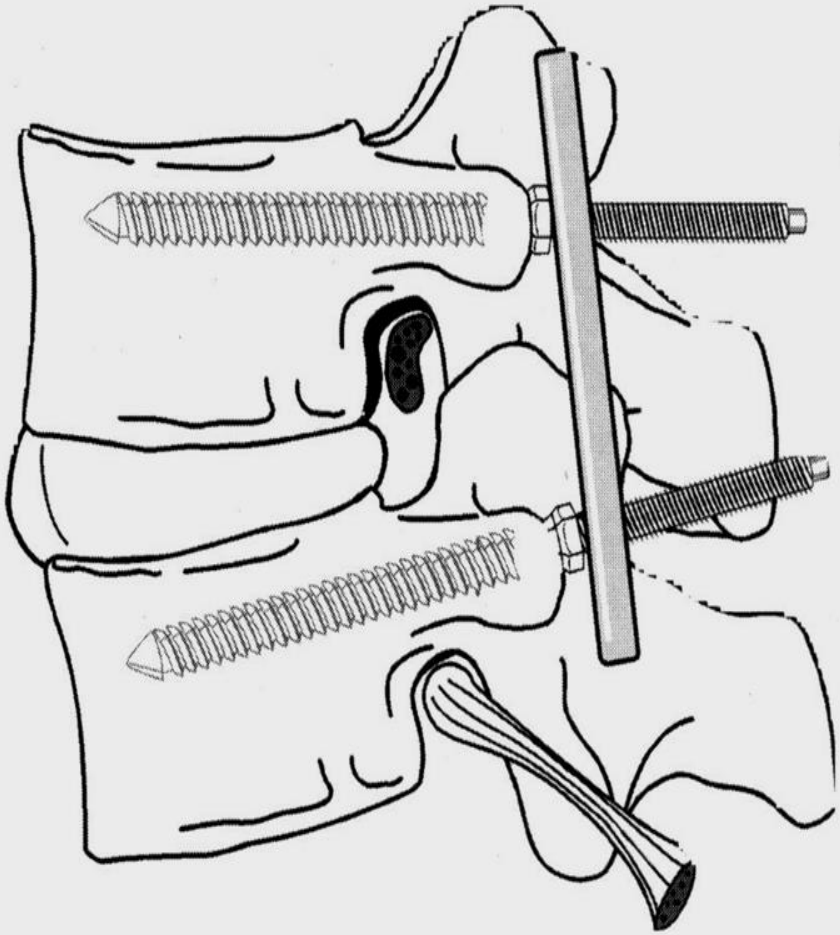
MOTION SEGMENT LESIONS					
Intervertebral disk herniation and/or AOMSI[a] *Note:* AOMSI includes instability (specifically as defined in the *Guides*), arthrodesis, failed arthrodesis, dynamic stabilization or arthroplasty, or combinations of those in multiple-level conditions	0 Imaging findings of intervertebral disk herniation without a history of clinically correlating radicular symptoms	5 6 7 8 9 Intervertebral disk herniation(s) or documented AOMSI, at a single level or multiple levels with medically documented findings; with or without surgery *and* with documented resolved radiculopathy at clinically appropriate level(s) or nonverifiable radicular complaints at clinically appropriate level(s), present at the time of examination[a]	10 11 12 13 14 Intervertebral disk herniation ~~and/~~or AOMSI at a single level with medically documented findings; with or without surgery *and* with documented residual radiculopathy at the clinically appropriate level present at the time of examination *(see Physical Examination adjustment grid in Table 17-7 to grade radiculopathy)*	15 17 19 21 23 Intervertebral disk herniations ~~and/~~or AOMSI at multiple levels, with medically documented findings; with or without surgery *and* with ~~or without~~ documented residual radiculopathy at a single clinically appropriate level present at the time of examination *(see Table 17-7 to grade radiculopathy)*	25 27 29 31 33 Intervertebral disk herniations and/or AOMSI, at multiple levels, with medically documented findings; with or without surgery *and* with documented signs of residual bilateral or multiple-level radiculopathy at the clinically appropriate levels present at the time of examination *(see Table 17-7 to grade radiculopathy)*

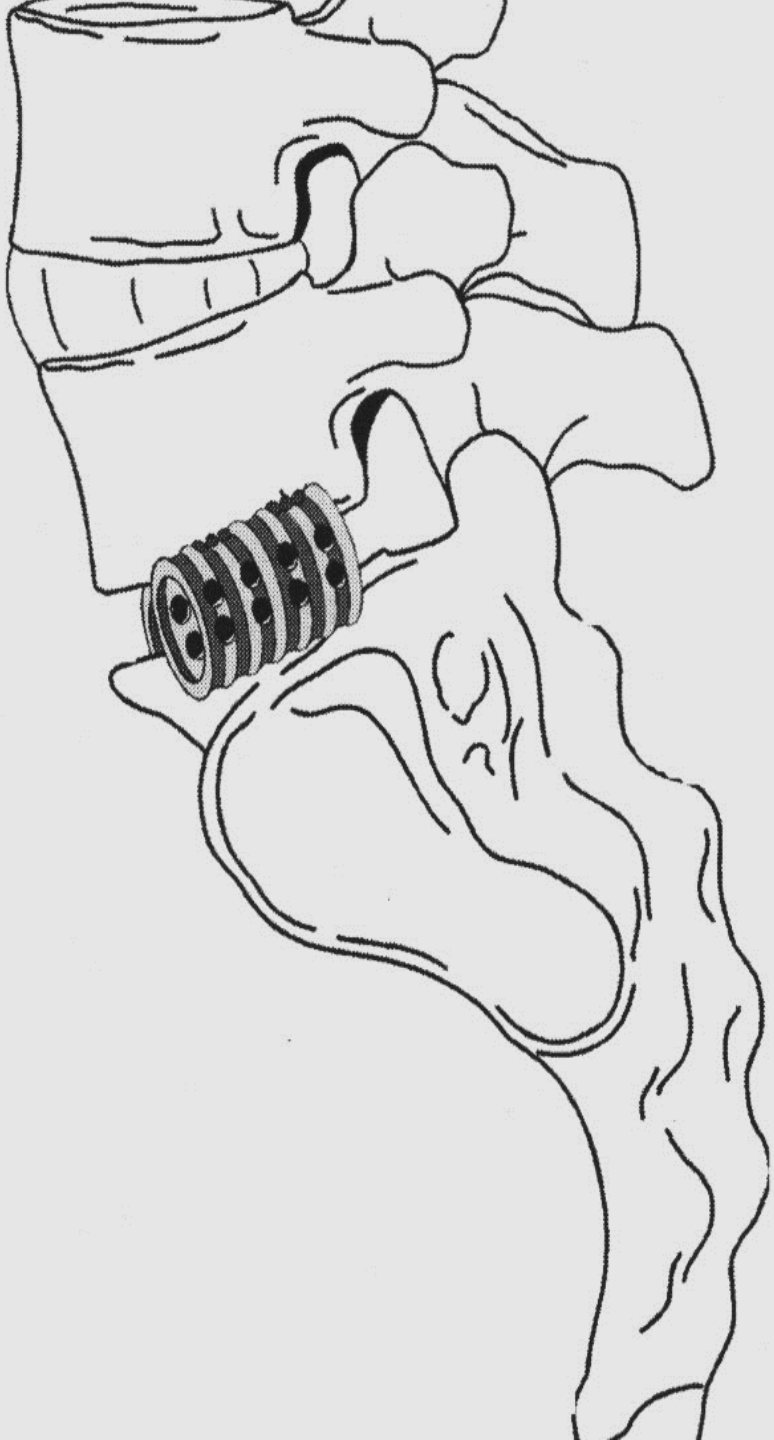
Case 3: Lumbar Radiculopathy AMA Guides, 6th Edition

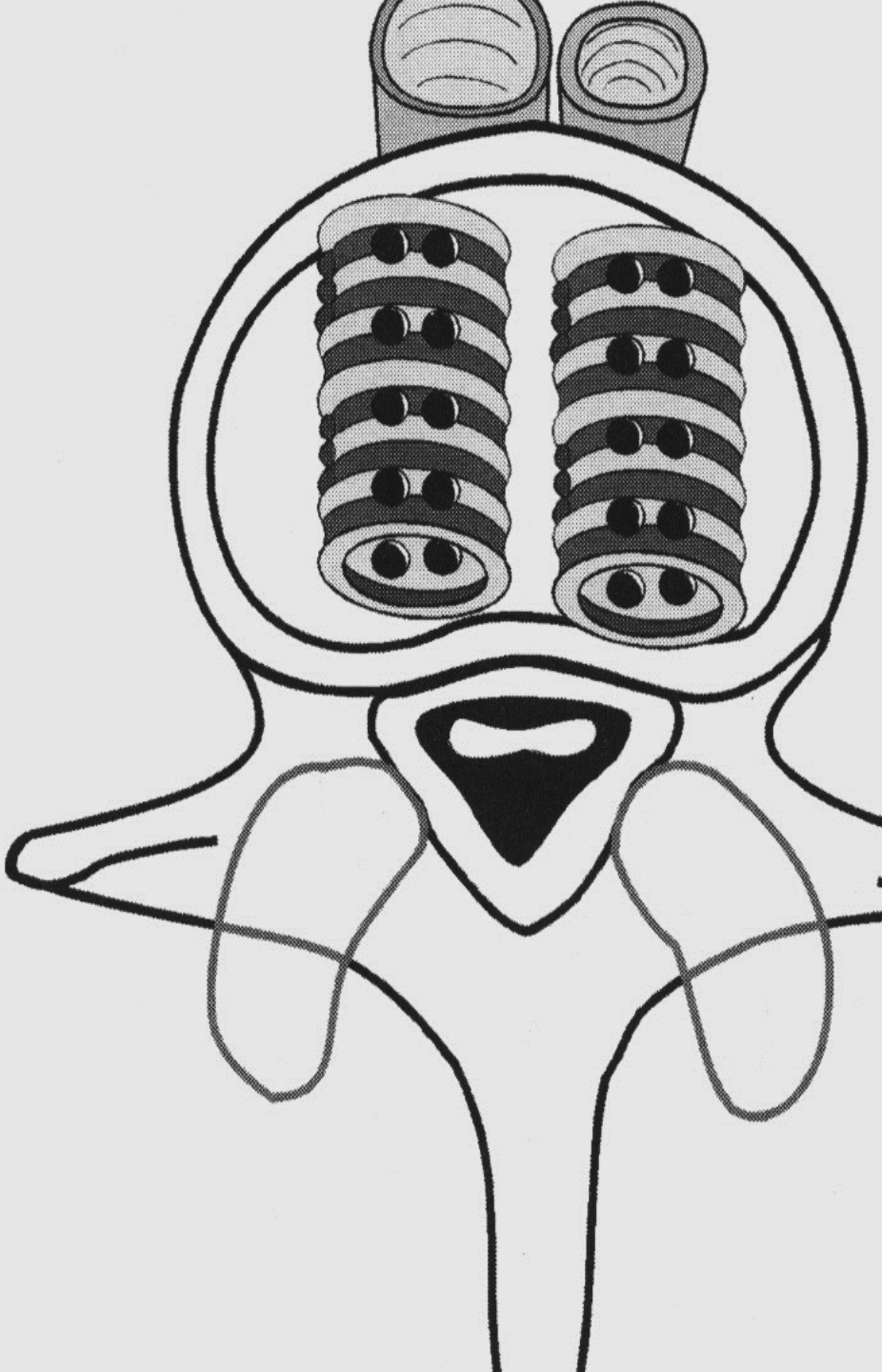
- Final Rating Class 2, Grade C, or 12 % WPI
- Left L4-5 disc herniation with residual radiculopathy.



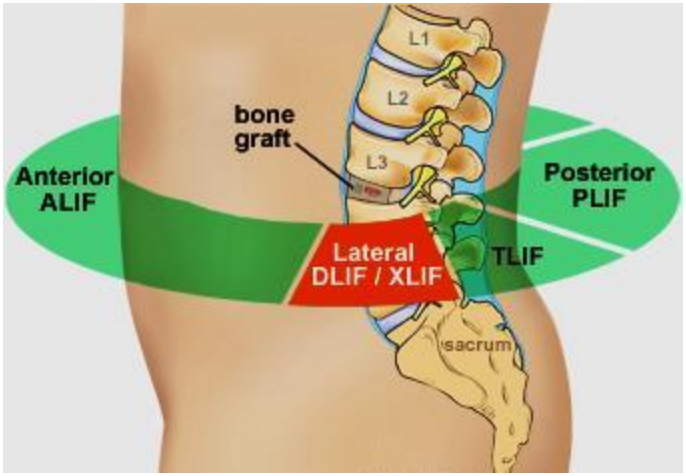


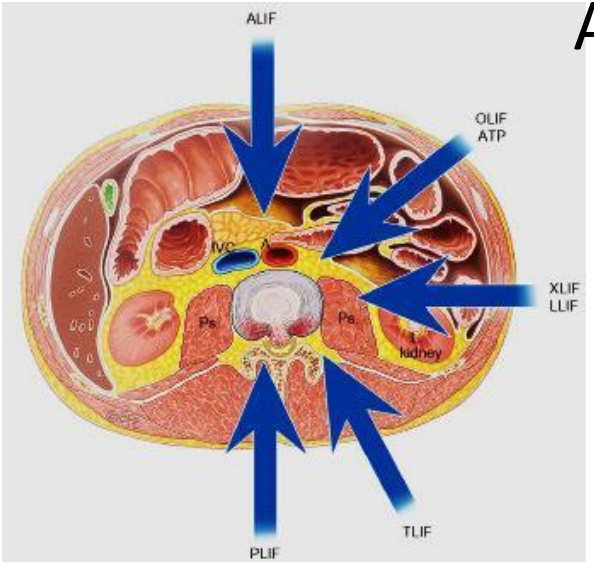


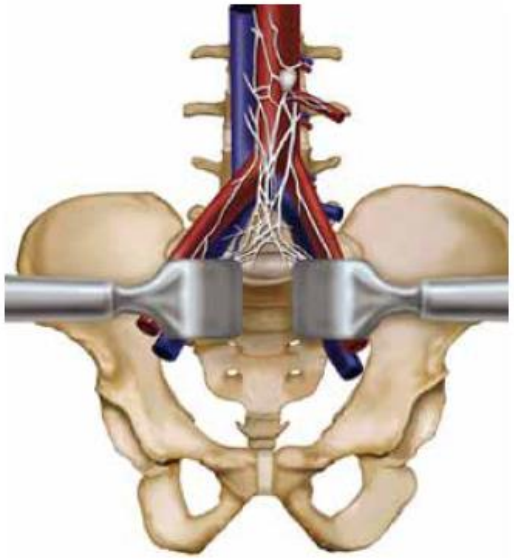


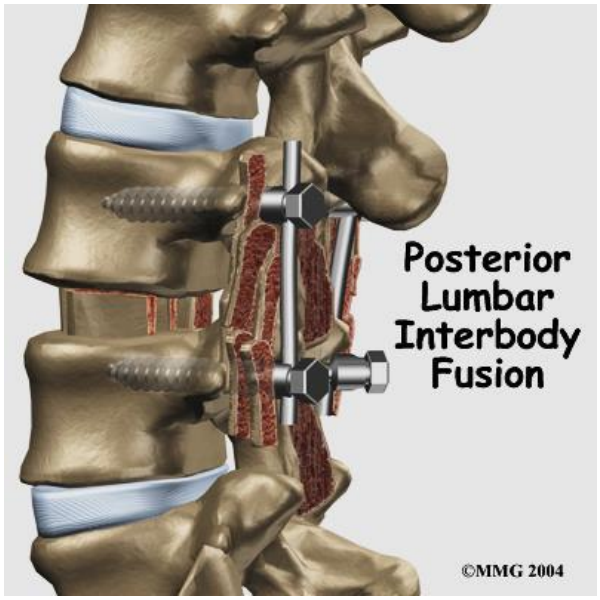


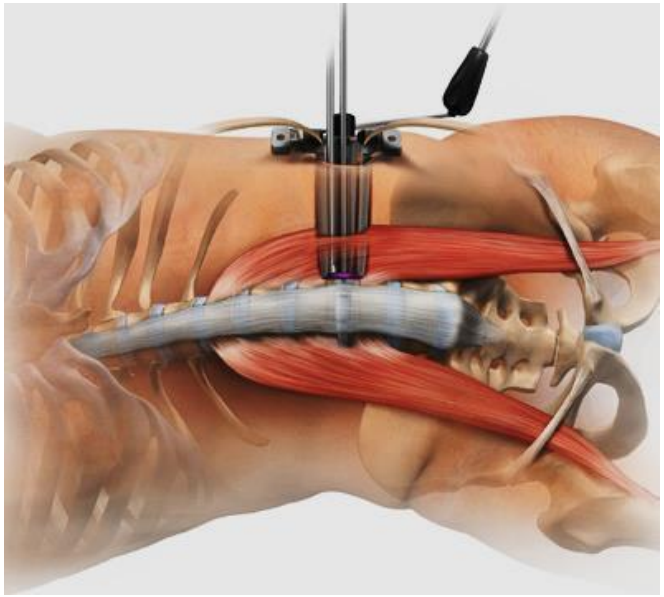
Anterior Approach











Example 4: Lumbar Fusion
Non-specific Low Back Pain

- **Subject:** 52-year-old man.
- **History:** The patient had an onset of back pain and right **thigh and calf pain** after digging trenches to lay cable.
  - NO neurologic deficit, straight leg raising negative
  - He was treated with physical therapy and medications, without resolution of symptoms.
  - MRI showed a **bulging disc** with an annular fissure at L4-5
  - Flexion/extension X rays before surgery documented **NO** instability within the parameters described for AOMSI.
  - The patient was treated with a lumbar fusion at L4-5 one year prior to evaluation.

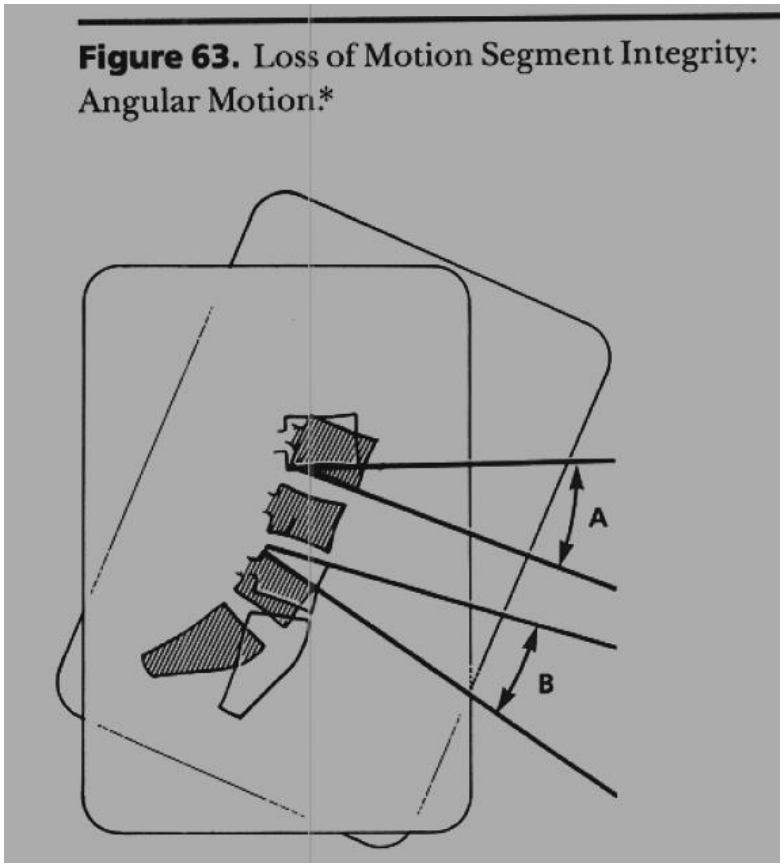
Example 4: Lumbar Fusion

- **Current Symptoms at MMI:** Reported "some" improvement in his back pain and ***no*** significant leg pain.
- **Functional History: PDQ score of 120**, consistent with severe disability. Pain with all ADLs, "prevents me from even sedentary work".
- **Physical Exam:** Decreased lumbar range of motion,
- "Positive" SLR test on the right at 30°
  BUT it **increases only his low back pain**.
- Normal neurologic exam.

Example 4: Lumbar Fusion

- **Imaging: Solid** L4-5 fusion with intact pedicle screw construct, and all screws appear to be in the pedicles**.**
- **Medications:** Sustained release opioids at 200 mg morphine equivalent daily, with carisoprodol at bedtime.
  - **Denies any medication side effects.**

AMA Guides, 4th Edition
Criteria for Loss of Motion Segment Integrity are Radiographic



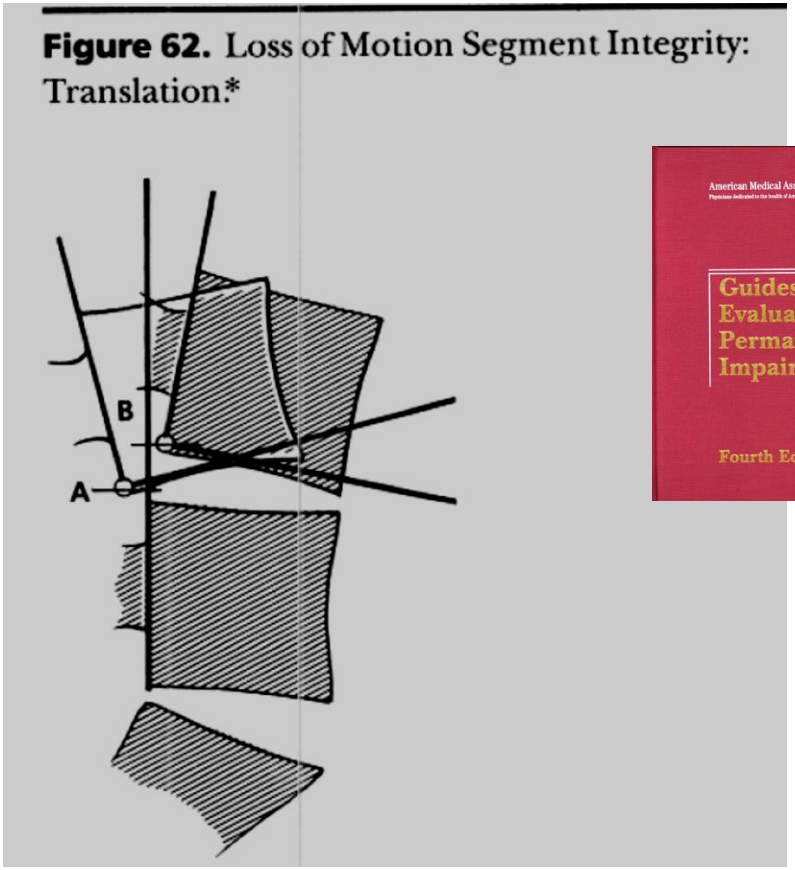
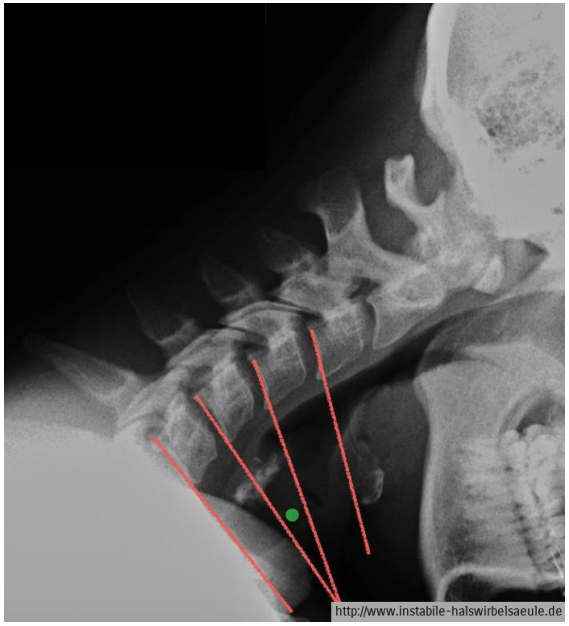


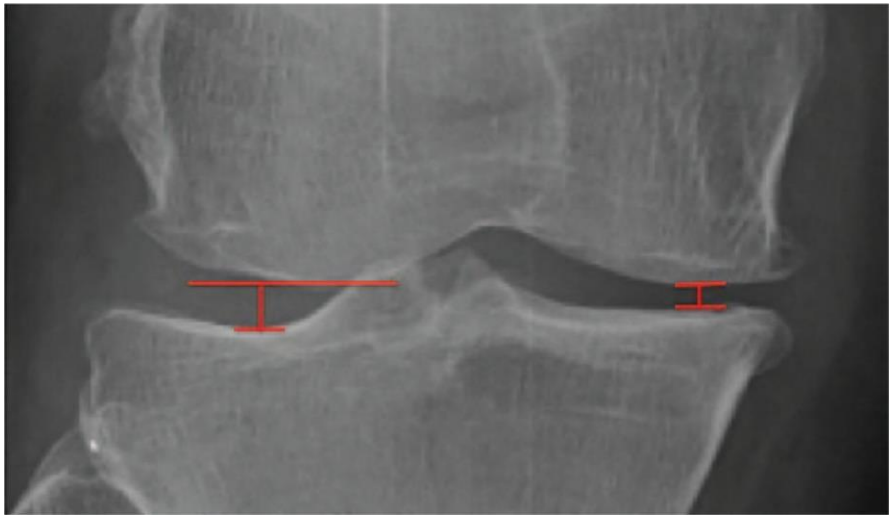
FIGURE 17-5

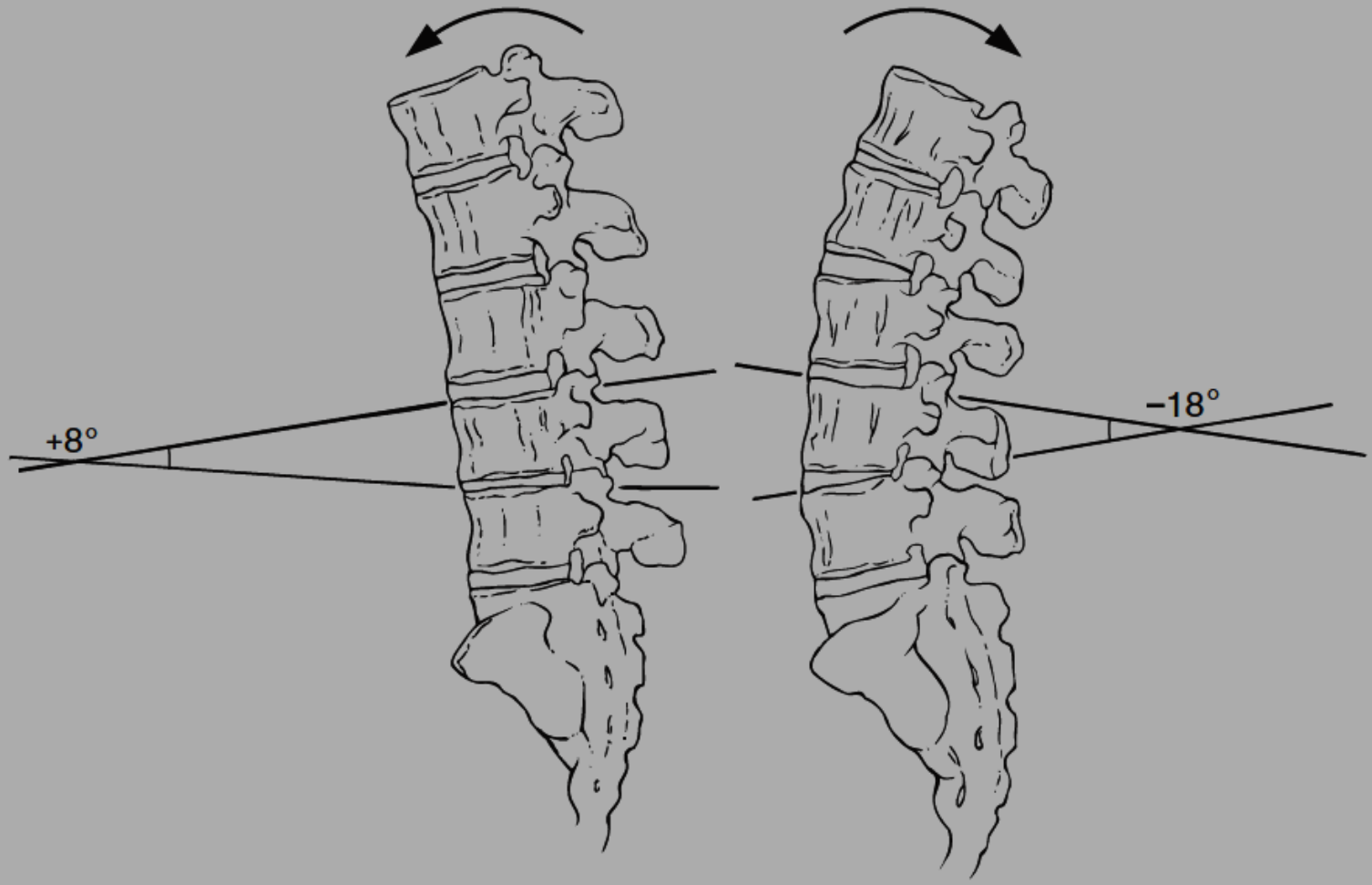
Loss of Motion Segment Integrity, Translation

A dot is placed at the posterior superior corner of the lower vertebra, and a separate dot is placed at the posterior-inferior corner of the upper vertebra. The distance (A) is measured as illustrated by the figure, using two intersecting lines. Measurements are obtained in flexion and extension, and the difference is calculated. A value greater than 2.5 mm in the thoracic spine, greater than 4.5 mm in the lumbar spine, and greater than 3.5 mm in the cervical spine qualifies as loss of structural integrity.

AMA 6 Method







Lines are drawn along the superior border of the vertebral body of the lower vertebrae and the superior border of the body of the upper vertebrae and the lines extended until they join. The angles are measured and subtracted. Note that lordosis (extension) is represented by a negative angle and kyphosis (flexion) by a positive angle. Loss of motion segment integrity is defined as motion greater than 15° at L1–2, L2–3, and L3–4 and greater than 20° at L4 to L5. Loss of integrity of the lumbosacral joint is defined as angular motion between L5 and S1 that is greater than 25°. The flexion angle is +8° and the extension angle is −18°. In the illustration, the flexion angle is +8°. Therefore (+8) − (−8) = +26° and would qualify for loss of structural integrity at any lumbar level.

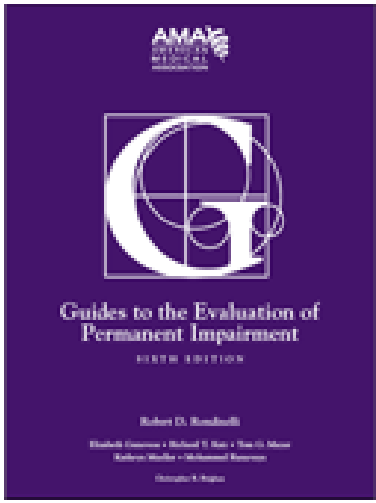
Case 4, Lumbar Fusion, 6th Edition

- Fusion with pain but no radiculopathy @ MMI

MOTION SEGMENT LESIONS					
Intervertebral disk herniation and/or AOMSI[a] *Note:* AOMSI includes instability (specifically as defined in the *Guides*), arthrodesis, failed arthrodesis, dynamic stabilization or arthroplasty, or combinations of those in multiple-level conditions	0 Imaging findings of intervertebral disk herniation without a history of clinically correlating radicular symptoms	5 6 7 8 9 Intervertebral disk herniation(s) or documented AOMSI, at a single level or multiple levels with medically documented findings; with or without surgery *and* with documented resolved radiculopathy at clinically appropriate level(s) or nonverifiable radicular complaints at clinically appropriate level(s), present at the time of examination[a]	10 11 12 13 14 Intervertebral disk herniation ~~and/~~or AOMSI at a single level with medically documented findings; with or without surgery *and* with documented residual radiculopathy at the clinically appropriate level present at the time of examination *(see Physical Examination adjustment grid in Table 17-7 to grade radiculopathy)*	15 17 19 21 23 Intervertebral disk herniations ~~and/~~or AOMSI at multiple levels, with medically documented findings; with or without surgery *and* with ~~or without~~ documented residual radiculopathy at a single clinically appropriate level present at the time of examination *(see Table 17-7 to grade radiculopathy)*	25 27 29 31 33 Intervertebral disk herniations and/or AOMSI, at multiple levels, with medically documented findings; with or without surgery *and* with documented signs of residual bilateral or multiple-level radiculopathy at the clinically appropriate levels present at the time of examination *(see Table 17-7 to grade radiculopathy)*

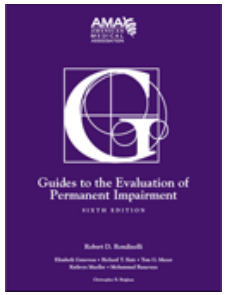
Case 4: Lumbar Fusion
AMA Guides, 6th Edition

- 6th Edition has a different methodology to measure instability radiographically.
- 6th Edition retains the concept of "too little motion (surgery) qualifies" as Alteration of motion segment integrity (AOMSI).
- Thus, **use the same diagnosis row** for:
  - Radiculopathy from HNP, NO surgery
  - Radiculopathy from HNP, surgery
    - Discectomy with or without Fusion
  - **Fusion** with or without radiculopathy



Example 4: Lumbar Radiculopathy AMA Guides, 6th Edition

- **Diagnosis:** Status post lumbar fusion at L4-5
  Impairment Rating: Regional Impairment: Diagnosis is consistent with "Intervertebral disk herniation and/or **AOMSI at a single level** or multiple levels with medically documented findings; with or without surgery,
- and
- with documented resolved radiculopathy the clinically appropriate level(s), **or nonverifiable radicular complaints** …" and therefore, assigned to **class 1** with default impairment of 7% WPI.



?

Example 4: Lumbar Radiculopathy AMA Guides, 6th Edition

- Some might argue, surgery is NOT to be considered in the 6th Edition ratings.

Page 570, Table 17-4 Lumbar Spine Regional Grid: Spine Impairments

SOFT TISSUE AND NON-SPECIFIC CONDITIONS				
Non-specific chronic, or chronic recurrent low back pain (also known as: chronic sprain/strain, symptomatic degenerative disc disease, facet joint pain, SI joint dysfunction, etc)	0 Documented history of sprain/strain-type injury, now resolved, or occasional complaints of back pain with no objective findings on examination	0 1 2 3 3 Documented history of sprain/strain type injury with continued complaints of axial and/or non-verifiable radicular complaints and similar findings on multiple occasions (see Sec. 17.2, General Considerations)	No mention of leg symptoms, Or of leg findings.	

Example 4: Lumbar Fusion

- **Current Symptoms:** Reported some improvement in his **back pain** and **no** significant leg pain.
- **Functional History:** PDQ score of 120, consistent with severe disability. **Pain** with all ADLs, "prevents me from even sedentary work".
- **Physical Exam:**
  - Decreased lumbar range of motion, [NOT used in rating impairment]
  - Positive SLR test on the right at 30° as it increases his low back pain.
  - Normal neurologic exam.

TABLE 17-7

Physical Examination Adjustment: Spine

Physical Examination Factor	Grade Modifier 0	Grade Modifier 1	Grade Modifier 2	Grade Modifier 3	Grade Modifier 4
Lumbar Neural Tension Signs	Negative straight leg raising test for radicular pain or invalid examination		Positive straight leg raising test, with reproducible radicular pain at 35°–70°	Back Pain, NOT radicular Leg pain	
Cervical Compression/ Foraminal Compression	Negative cervical compression/ foraminal compression		Positive cervical compression/foraminal compression (Spurling's test) with reproducible radicular pain		
Reflexes Normal	Normal and symmetrical		New and asymmetrical abnormality consistent with other radicular findings (ie, differentiate between old and new changes)		
Atrophy None UE LE	<1 cm <1 cm	1.0–1.9 cm 1.0–1.9 cm	2.0–2.9 cm 2.0–2.9 cm	3.0–3.5 cm 3.0–3.5 cm	>3.5 cm >3.5 cm
Sensory Deficit Normal	No loss of sensibility, abnormal sensation, or pain	Diminished light touch (with or without minimal abnormal sensations or pain) in a clinically appropriate distribution, that is forgotten during activity	Diminished light touch (with some abnormal sensations or slight pain) in a clinically appropriate distribution, that interferes with some activities	Decreased protective sensibility (with abnormal sensations or moderate pain in a clinically appropriate distribution) that may prevent some activities	Absent superficial pain and tactile sensibility or absent protective sensibility (abnormal sensations, or severe pain) that prevents all activity
Motor Strength Normal	Normal Active movement against gravity with full resistance (5/5)	Active movement against gravity and some resistance (4/5)	Active movement against gravity only, without resistance (3/5)	Active movement with gravity eliminated (2/5)	Slight contraction and no movement or no contraction (0–1/5)

Clinical Studies: Spine (page 581)

TABLE 17-9

Clinical Studies Adjustment: Spine

Clinical Studies Factor	Grade Modifier 0	Grade Modifier 1	Grade Modifier 2	Grade Modifier 3	Grade Modifier 4
Imaging studies: Radiographs, bone scan, MRI	Imaging findings do not support symptoms or structural diagnosis within normal limits ***or*** normal age-related changes ***or*** clinically insignificant degenerative changes, or findings on the side opposite clinical presentation		CT/MRI/other imaging findings consistent with clinical presentation, including evidence of AOMSI with segmental instability, fusion, or motion preservation device defined by region (see row below)		Imaging evidence of major surgical complications, including infection or major deformity
Electrodiagnostic testing	Normal		EMG evidence consistent with single nerve root radiculopathy		EMG evidence consistent with multiple nerve root radiculopathy

Note: CT indicates computed tomography; MRI, magnetic resonance imaging; AOMSI, alteration of motion segment integrity; and EMG, electromyographic.

UNLESS Surgical "Oops"

If a diagnosis of AOMSI, is made, imaging studies should be excluded as a grade modifier. P 563 ALSO includes *stenosis* pseudarthrosis, fracture, or spondylolisthesis.

Example 17-14: Class 2

- Reported “some” improvement in his back pain and continued to experience symptoms even with sedentary activity, consistent with **Grade 4**
- **Functional Assessment:** The PDQ is 120 consistent with **Grade 3.**

TABLE 17-6

P 575

Functional History Adjustment: Spine

Functional History Factor	Grade Modifier 0	Grade Modifier 1	Grade Modifier 2	Grade Modifier 3	Grade Modifier 4
Activity	Asymptomatic; problem resolved; inconsistent symptoms	Pain; symptoms with strenuous/ vigorous activity	Pain; symptoms with normal activity	Pain; symptoms with less-than-normal activity (minimal activity)	Pain; symptoms at rest, limited to sedentary activity
PDQ or alternative validated functional assessment, scaled appropriately	No disability 0	Mild disability 0–70	Moderate disability 71–100	Severe disability 101–130	Extreme disability 131–150

Note: PDQ indicates Pain Disabilities Questionnaire.

Functional History

The examiner must assess the **reliability** of the functional reports, recognizing the potential influence of behavioral and psychosocial factors.

If the grade for **Functional History** **differs by two or more grades** from that described by Physical Examination or Clinical Studies, the Functional History should be ***assumed*** to be **unreliable**.

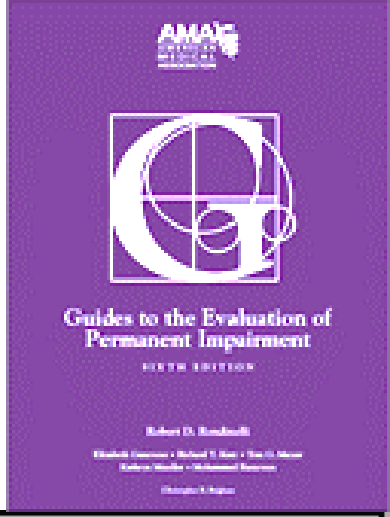
If the Functional History is determined to be unreliable or inconsistent with other documentation or clinical findings, it is **excluded** from the grading process.

Example 17-14: Class 1

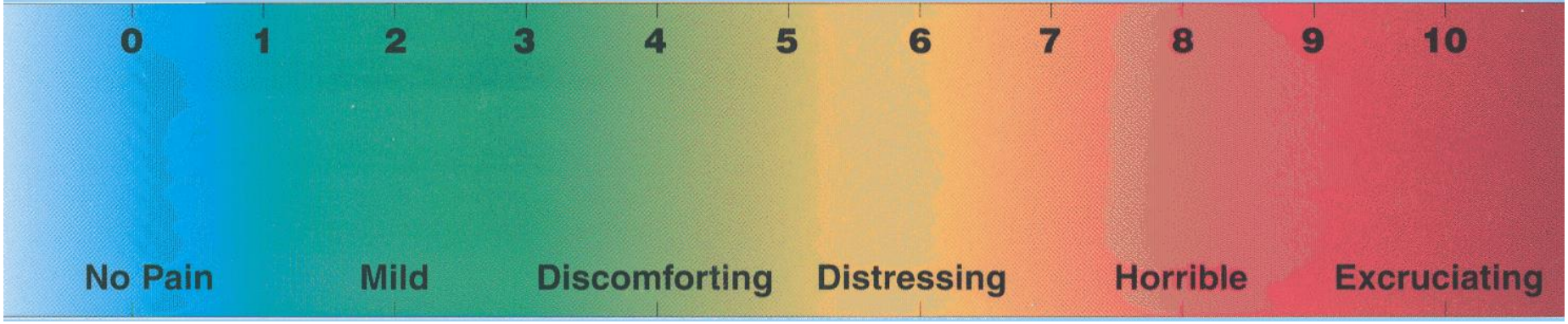
- Adjustment Grids:
  - Functional History: Grade modifier **3** or Grade **4**.
  - Note history is consistent with grade modifier 4 and PDQ score is consistent with grade 3 (assuming both are reliable, select highest value for net adjustment calculation).
  - Physical Examination: Grade modifier is **0** – No findings.
  - Clinical Testing Not applicable - AOMSI
- Thus, Functional History is 2 or more Grades higher than either Physical Exam or Clinical Studies and is excluded.
- **No Grade Modifiers are applicable.**
- **Use Class 1, Grade C**
  - From Row for AOMSI = 7 % WPI
  - From Row for Non-Specific Backache = 2 % WPI

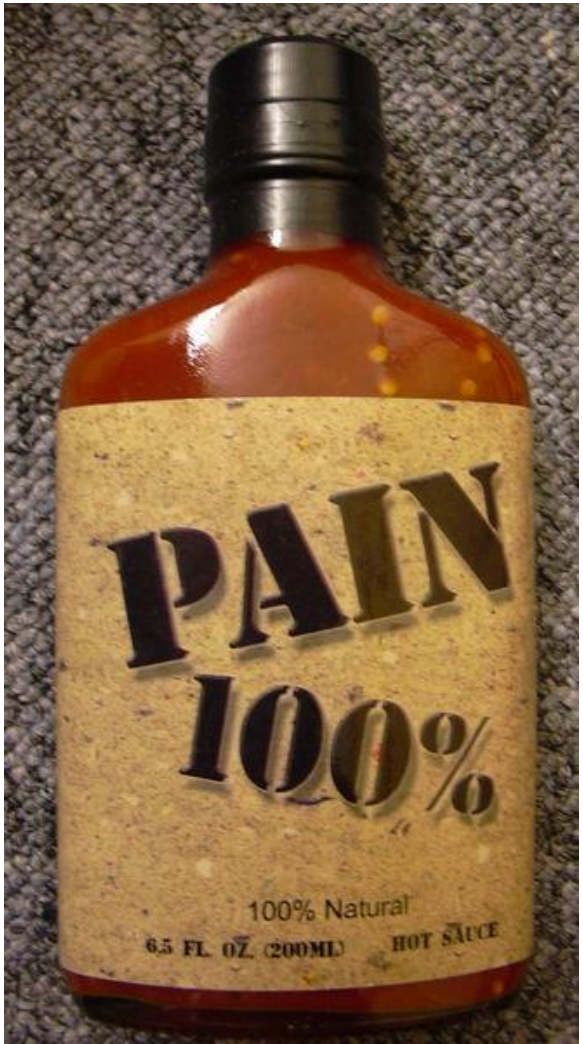
My Bias: Call it AOMSI

- Lumbar fusion with poor result

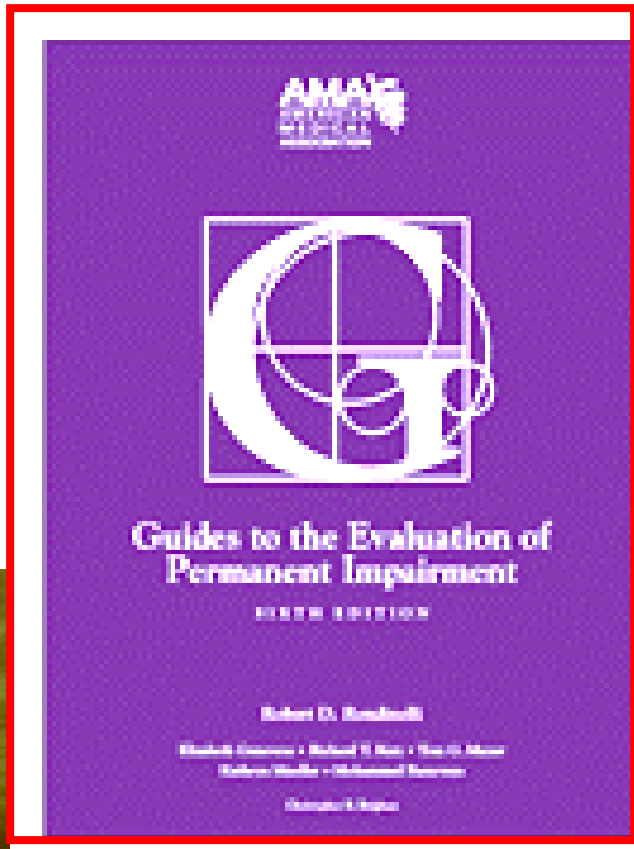


MOTION SEGMENT LESIONS					
Intervertebral disk herniation and/or AOMSI[a] *Note:* AOMSI includes instability (specifically as defined in the *Guides*), arthrodesis, failed arthrodesis, dynamic stabilization or arthroplasty, or combinations of those in multiple-level conditions Errata	0 Imaging findings of intervertebral disk herniation without a history of clinically correlating radicular symptoms	5 6 7 8 9 Intervertebral disk herniation(s) or documented AOMSI, at a single level or multiple levels with medically documented findings; with or without surgery *and* with documented resolved radiculopathy at clinically appropriate level(s) or nonverifiable radicular complaints at clinically appropriate level(s), present at the time of examination[a]	10 11 12 13 14 Intervertebral disk herniation ~~and/~~or AOMSI at a single level with medically documented findings; with or without surgery *and* with documented residual radiculopathy at the clinically appropriate level present at the time of examination *(see Physical Examination adjustment grid in Table 17-7 to grade radiculopathy)*	15 17 19 21 23 Intervertebral disk herniations ~~and/~~or AOMSI at multiple levels, with medically documented findings; with or without surgery *and* with ~~or without~~ documented residual radiculopathy at a single clinically appropriate level present at the time of examination *(see Table 17-7 to grade radiculopathy)*	25 27 29 31 33 Intervertebral disk herniations and/or AOMSI, at multiple levels, with medically documented findings; with or without surgery *and* with documented signs of residual bilateral or multiple-level radiculopathy at the clinically appropriate levels present at the time of examination *(see Table 17-7 to grade radiculopathy)*


0
1
2
3
4
5
6
7
8
9
10
No Pain
Mild
Discomforting
Distressing
Horrible
Excruciating


PAIN
100%
100% Natural
6.5 FL. OZ. (200ML)
HOT SAUCE


PAIN


AMA
Guides to the Evaluation of Permanent Impairment
SIXTH EDITION

Page 43, Appendix 3-1 Pain Disability Questionnaire
Page 600, Figure 17-A Pain Disability Questionnaire (PDQ)

Patient Name: _____ **Date:** _____

Instructions: These questions ask your views about how your pain now affects how you function in everyday activities. Please answer every question and mark the ONE number on EACH scale that best describes how you feel.

1. Does your pain interfere with your normal work inside and outside the home?
Work normally — *Unable to work at all*
0 —— 1 —— 2 —— 3 —— 4 —— 5 —— 6 —— 7 —— 8 —— 9 —— 10

2. Does your pain interfere with personal care (such as washing, dressing, etc.)?
Take care of myself completely — *Need help with all my personal care*
0 —— 1 —— 2 —— 3 —— 4 —— 5 —— 6 —— 7 —— 8 —— 9 —— 10

3. Does your pain interfere with your traveling?
Travel anywhere I like — *Only travel to see doctors*
0 —— 1 —— 2 —— 3 —— 4 —— 5 —— 6 —— 7 —— 8 —— 9 —— 10

4. Does your pain affect your ability to sit or stand?
No problems — *Cannot sit / stand at all*
0 —— 1 —— 2 —— 3 —— 4 —— 5 —— 6 —— 7 —— 8 —— 9 —— 10

5. Does your pain affect your ability to lift overhead, grasp objects, or reach for things?
No problems — *Cannot do at all*
0 —— 1 —— 2 —— 3 —— 4 —— 5 —— 6 —— 7 —— 8 —— 9 —— 10

6. Does your pain affect your ability to lift objects off the floor, bend, stoop, or squat?
No problems — *Cannot do at all*
0 —— 1 —— 2 —— 3 —— 4 —— 5 —— 6 —— 7 —— 8 —— 9 —— 10

7. Does your pain affect your ability to walk or run?
No problems — *Cannot walk/run at all*
0 —— 1 —— 2 —— 3 —— 4 —— 5 —— 6 —— 7 —— 8 —— 9 —— 10

8. Has your income declined since your pain began?
No decline — *Lost all income*
0 —— 1 —— 2 —— 3 —— 4 —— 5 —— 6 —— 7 —— 8 —— 9 —— 10

9. Do you have to take pain medication every day to control your pain?
No medication needed — *On pain medication throughout the day*
0 —— 1 —— 2 —— 3 —— 4 —— 5 —— 6 —— 7 —— 8 —— 9 —— 10

10. Does your pain force you to see doctors much more often than before your pain began?
Never see doctors — *See doctors weekly*
0 —— 1 —— 2 —— 3 —— 4 —— 5 —— 6 —— 7 —— 8 —— 9 —— 10

11. Does your pain interfere with your ability to see the people who are important to you as much as you would like?
No problem — *Never see them*
0 —— 1 —— 2 —— 3 —— 4 —— 5 —— 6 —— 7 —— 8 —— 9 —— 10

12. Does your pain interfere with recreational activities and hobbies that are important to you?
No interference — *Total interference*
0 —— 1 —— 2 —— 3 —— 4 —— 5 —— 6 —— 7 —— 8 —— 9 —— 10

13. Do you need the help of your family and friends to complete everyday tasks (including both work outside the home and housework) because of your pain?
Never need help — *Need help all the time*
0 —— 1 —— 2 —— 3 —— 4 —— 5 —— 6 —— 7 —— 8 —— 9 —— 10

14. Do you now feel more depressed, tense, or anxious than before your pain began?
No depression / tension — *Severe depression / tension*
0 —— 1 —— 2 —— 3 —— 4 —— 5 —— 6 —— 7 —— 8 —— 9 —— 10

15. Are there emotional problems caused by your pain that interfere with your family, social and or work activities?
No problems — *Severe problems*
0 —— 1 —— 2 —— 3 —— 4 —— 5 —— 6 —— 7 —— 8 —— 9 —— 10

_____

PDQ

Used in the Pain Chapter to determine impairment

Chapter 3: Pain

Degree of Pain-Related Impairment	Pain Disability Questionnaire (PDQ) →	Whole Person Impairment (%)
None	0	0
Mild	1- 70	0
Moderate	71-100	1
Severe	101-130	2
Extreme	131-150	3

Chapter 3: Pain, p 39

- **3.3b Rating Impairment When Pain Accompanies Objective Findings of Injury or Illness That Permit Rating Using Another Chapter in the *Guides***
- The PRI system that was developed for the Sixth Edition of the *Guides* makes a basic distinction between assessing pain in conditions that can be rated according to principles outlined in Chapters 4 through 17, vs ones that cannot be rated. **The PRI system outlined in this chapter is used *only* if a patient presents with a painful condition and cannot be rated according to principles outlined in Chapters 4 to 17.** should also be noted that patients' subjective experiences regarding their conditions are considered in the ratings described in Chapters 4 to 17.

Debate

- What if the 6th Edition has a clear methodology to rate an injury or illness, but the rating is ZERO Percent?

- **Can you then go to the pain chapter** to rate impairment??

Chapter 2

- **2.4d Pain and Suffering**
- The impairment ratings in the body organ system chapters make allowance for most of the functional losses accompanying pain. **It should be recognized that a zero percent impairment rating in Chapters 4-17 is a numerical impairment rating.** The broader impairment rating issues associated with pain are discussed in further detail in Chapter 3.


Gators

Enjoy
Your
Flight
Home

May You Travel Safely