Back To Chiropractic Continuing Education Seminars

Disability Impairment Rating for Chiropractors:

~ 6 Hours

Revised 06/5/2025

This course is a 6 Hour mandatory requirement for QMEs for the California Department of Industrial Relations, Division of Worker's Compensation (DWC).

This course also counts as a 6 Hour CE Elective for the Board of Chiropractic Examiners for the state of California.

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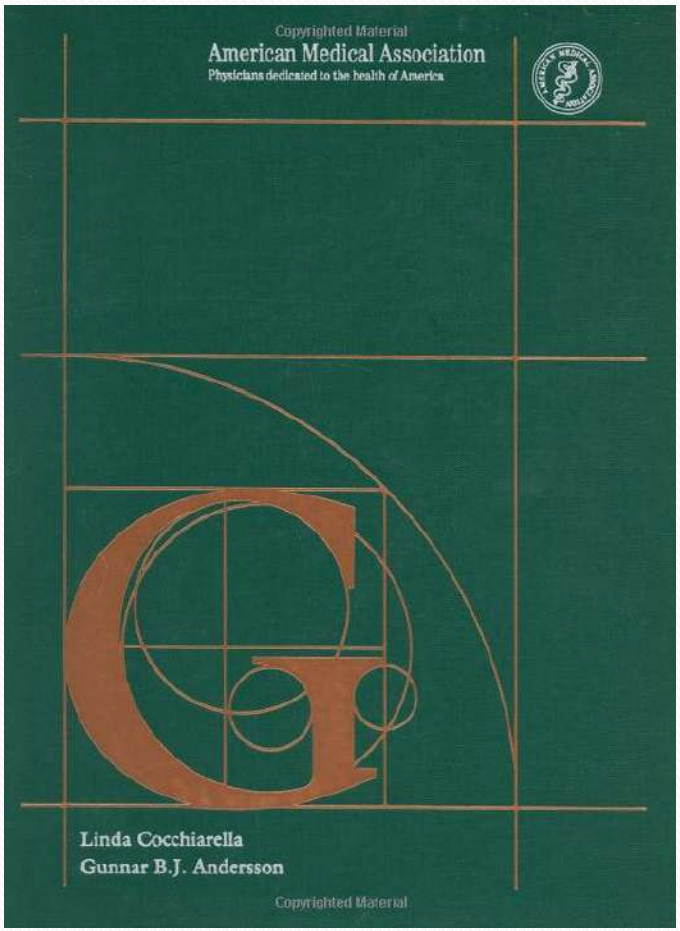
Disclaimer

- The following course material contains the opinions of the author and does not reflect the opinions of the Division of Workers' Compensation, or associated entities. This course is intended to be used as a reference tool in assisting QMEs, and is not to be relied on as legal advice.

Remember, the "guide" is a guide



"Combine" or "Add" Impairments?

- California DWC requires use of the AMA Guides to Impairment, 5th Edition
- Use of the "Combined Value Chart" to determine impairment
- Combine all impairment ratings from "one" body part/region *with* other body part(s)
- Exceptions to combining = impairment for a single joint (i.e. thumb or elbow)

Chapters 15, 16 & 17

- Chapter 15: The Spine
- Chapter 16: The Upper Extremities
- Chapter 17: The Lower Extremities

Chapters 15 –The Spine

- Determine if you will use Diagnosis Related Estimate (**DRE**) vs. Range of Motion (**ROM**) method to calculate the spinal impairment present.

- Section 15.2 – Determine the appropriate method

- Section 15.3 – DREs (Diagnosis Related Estimates)

- Section 15.4 – Page 384; **Lumbar Spine DRE**
- Section 15.5 – Page 389; **Thoracic Spine DRE**
- Section 15.6 – Page 392; **Cervical Spine DRE**

DRE vs. ROM
AMA Guides, Pg. 379

15.2 Determining the Appropriate Method for Assessment

Spinal impairment rating is performed using one of two methods: the diagnosis-related estimate (DRE) or range-of-motion (ROM) method.

The DRE method is the principal methodology used to evaluate an individual who has had a distinct injury. When the cause of the impairment is not easily determined and if the impairment can be well characterized by the DRE method, the evaluator should use the DRE method.

The ROM method is used in several situations:

1. When an impairment is not caused by an injury, if the cause of the condition is uncertain and the DRE method does not apply, or an individual cannot be easily categorized in a DRE class. It is acknowledged that the cause of impairment (injury, illness, or aging) cannot always be determined. The reason for using the ROM method under these circumstances must be carefully supported in writing.

DRE vs. ROM
AMA Guides, Pg. 379

2. When there is multilevel involvement in the same spinal region (eg, fractures at multiple levels, disk herniations, or stenosis with radiculopathy at multiple levels or bilaterally).
3. Where there is alteration of motion segment integrity (eg, fusions) at multiple levels in the same spinal region, unless there is involvement of the corticospinal tract (then use the DRE method for corticospinal tract involvement).
4. Where there is recurrent radiculopathy caused by a new (recurrent) disk herniation or a recurrent injury in the same spinal region.
5. Where there are multiple episodes of other pathology producing alteration of motion segment integrity and/or radiculopathy.

The ROM method can also be used if statutorily mandated in a particular jurisdiction.

In the small number of instances in which the ROM and DRE methods can both be used, evaluate the individual with both methods and award the higher rating.

DRE vs. ROM
AMA Guides, Pg. 380

15.2a Summary of Specific Procedures and Directions

1. Take a careful history, perform a thorough medical examination, and review all pertinent records and studies. This is helpful in determining the presence or absence of structural abnormalities, nerve root or cord involvement, and motion segment integrity.
2. Consider the permanency of the impairment, referring to *Guides* Chapter 1 and the Glossary for definitions as needed. If the impairment is resolving, changing, unstable, or expected to change significantly with or without medical treatment within 12 months, it is not considered a permanent (stable) impairment and should not be rated under the *Guides* criteria.
3. Select the region that is primarily involved (ie, the lumbar, cervical, or thoracic spine) and identify the individual's most serious objective findings.
4. Determine whether the individual has multilevel involvement or multiple recurrences/occasions within the same region of the spine. Use the ROM method if:
   a. there are fractures at more than one level in a spinal region,
   b. there is radiculopathy bilaterally or at multiple levels in the same spinal region,
   c. there is multilevel motion segment alteration (such as a multilevel fusion) in the same spinal region, or
   d. there is recurrent disk herniation or stenosis with radiculopathy at the same or a different level in the same spinal region; in this case, combine the ratings using the ROM method.

DRE vs. ROM
AMA Guides, Pg. 381

5. If the individual does not have multilevel involvement or multiple recurrences/occasions and an injury occurred, determine the proper DRE category. Most ratings will fall into categories I, II; or III. A corticospinal tract injury is evaluated according to Section 15.7.
6. If the individual has been treated with surgery or another modality, evaluate the results, extent of improvement, and impact on the ability to perform activities of daily living. If residual symptoms or objective findings impact the ability to perform ADL despite treatment, the higher percentage in each range should be assigned. If an individual had a prior condition, was asymptomatic, and now—at MMI—has symptoms that impact the ability to perform activities of daily living, the higher rating within a range may also be used. If ratings are increased, explicit documentation of the reasons for the increase should be included in the report.
7. If more than one spine region is impaired, determine the impairment of the other region(s) with the DRE method. Combine the regional impairments using the Combined Values Chart (p. 604) to express the individual's total spine impairment.
8. From historical information and previously compiled medical data, determine if there was a preexisting impairment. Congenital, developmental, and other preexisting conditions may be differentiated from those attributable to the injury or illness by examining preinjury roentgenograms or by performing a bone scan after the onset of the condition.
9. If requested, apportion findings to the current or prior condition, following jurisdiction practices and assuming adequate information is available on the prior condition. In some instances, to apportion ratings, the percent impairment due to previous findings can simply be subtracted from the percent based on the current findings. Ideally, use the same method to compare the individual's prior and present conditions. If the ROM method has been used previously, it must be used again. If the previous evaluation was based on the DRE method and the individual now is evaluated with the ROM method, and prior ROM measurements do not exist to calculate a ROM impairment rating, the previous DRE percent can be subtracted from the ROM ratings. Because there are two methods and complete data may not exist on an earlier assessment, the apportionment calculation may be a less than ideal estimate.
10. For individuals with corticospinal tract involvement, refer to Table 15-6 for the appropriate impairment rating.

Section 15.2 Determining the Appropriate Method Takeaways

- Always review available medical records, take a careful and thorough history, AND examination to elucidate presence of structural abnormalities, neurological deficits and loss of motion segmental integrity.
- Only evaluate impairments that are permanent (i.e. will not change over the next 12 moths with treatment).
- Identify the injured worker's most severe OBJECTIVE findings.
- Determine if there is MULTI-LEVEL involvement within the SAME region.

Section 15.2 Determining the Appropriate Method Takeaways

- **Use ROM if:**

1. There are fractures at more than one level within the same spinal region (i.e. compression Fx at L2 & L4)
2. Radiculopathy bilaterally –OR- multiple levels within the same spinal region.
3. Multi-Level motion segmental alteration within the same spinal region (i.e. fusion L3-5)
4. Recurrent disc herniation –OR- stenosis with radiculopathy at the same or different level within the same spinal region.

Section 15.2 Determining the Appropriate Method Takeaways

- **Using DRE:**
- Determine which category best fits the injured worker
- Most ratings are between category I-III
- Corticospinal tract injuries use Section 15.7 for spinal cord damage (Table 15-6)
- If residual symptoms impact the ability to perform ADLs (despite treatment), then assign the higher category percentage (i.e. Use 8% for a lumbar DRE category II; 5-8%)
- Combine DRE ratings from different regions of the spine (i.e. cervical & lumbar) using the Combine Values Chart.

Section 15.2 Determining the Appropriate Method Takeaways

- **Using DRE:**
- There are 5 DRE categories for each spinal region (cervical, thoracic & lumbar)
- Categories are chosen based on 2 scenarios:

1. Signs, symptoms & diagnostic test results
2. Presence of fractures/dislocations *with* or *without* symptoms

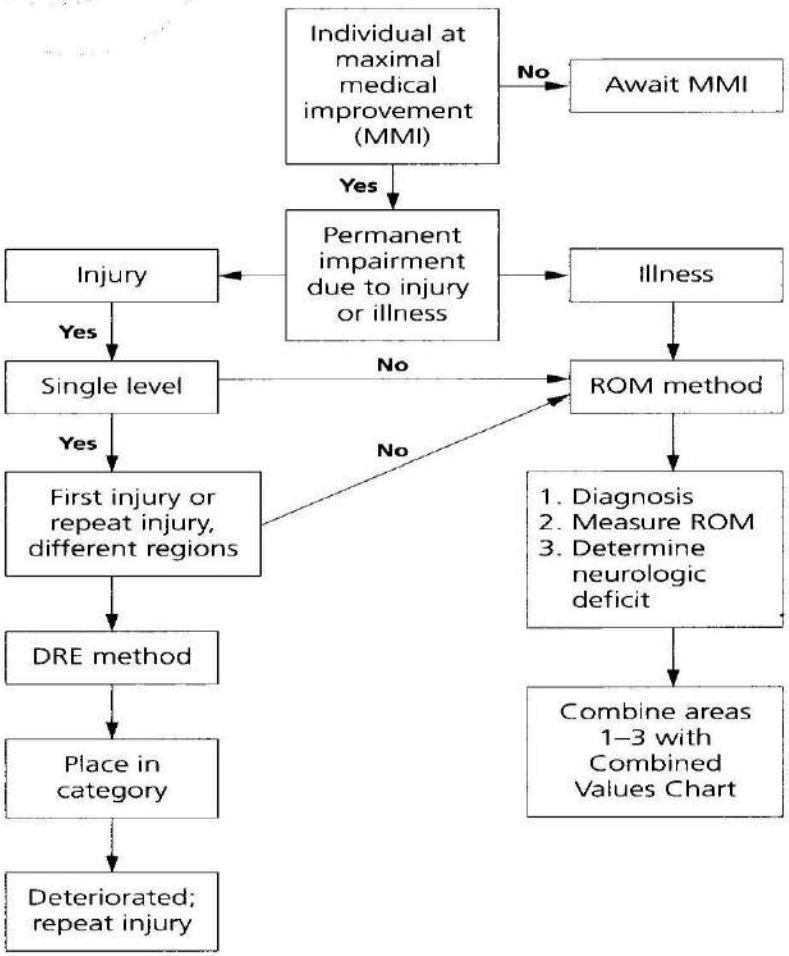
- Altered motion segmental integrity qualifies for **categories IV-V**

Use Algorithm:

To determine impairment evaluation process

DRE vs. ROM

Figure 15-4 Spine Impairment Evaluation Process



Choosing DRE Method

- The previous slide (figure 15.4) helps the QME/evaluator decide if DRE method should be used based on the following:

1. First, ensure the injured worker is now **P&S** (Permanent & Stationary) in order to determine any impairment.
2. Ensure there was in "**injury**" and that the injury applies to a "**single**" **level** (i.e. single vertebral level; L4-5 disc)
3. ROM would be used instead of DRE if there is multi-level involvement to the same spinal region (i.e. multiple fractures or multiple disc lesions at different levels; L2-3 & L4-5)
4. Read through the 5 categories (I-V) and place the injured worker into the **most appropriate category** based on their condition.

DRE Method

(Diagnosis Related Estimate)

Place patient into appropriate category


MAYES
LEVEL
+
ANGLE FINDER
MAYES BROTHERS TOOL MANUFACTURING CO. JOHNSON CITY, TENN.

Lumbar DRE Example

Section 15.4 –Lumbar Spine DRE

- Read through the 5 categories of DRE (page 384 – next slide) related to the lumbar spine to identify which category most appropriately describes the patient.
- **Example:**
- 40 year old male injured his lower back after lifting a heavy box at work. He is now P&S and suffers the following residuals:
- Physical Exam:
- Moderate palpable hypertonicity over the B/L lumbar paraspinals and right QL (quadratus lumborum).
- Diminished lumbar ROM with left lateral bending of 15/25 degrees.
- Patient complains of right leg pain into the hamstrings, but not verified as a true radiculopathy with diagnostic studies such as MRI/CT or electrodiagnostic studies.
- **Diagnosis:** Lumbar sprain/strain

THE SPINE

Page 384

DRE (Diagnosis-Related Estimate)

Lumbar Spine

Table 15-3 Criteria for Rating Impairment Due to Lumbar Spine Injury

DRE Lumbar Category I 0% Impairment of the Whole Person	DRE Lumbar Category II 5%-8% Impairment of the Whole Person	DRE Lumbar Category III 10%-13% Impairment of the Whole Person	DRE Lumbar Category IV 20%-23% Impairment of the Whole Person	DRE Lumbar Category V 25%-28% Impairment of the Whole Person
No significant clinical findings, no observed muscle guarding or spasm, no documentable neurologic impairment, no documented alteration in structural integrity, and no other indication of impairment related to injury or illness; no fractures	Clinical history and examination findings are compatible with a specific injury; findings may include significant muscle guarding or spasm observed at the time of the examination, asymmetric loss of range of motion, or nonverifiable radicular complaints, defined as complaints of radicular pain without objective findings; no alteration of the structural integrity and no significant radiculopathy *or* individual had a clinically significant radiculopathy and has an imaging study that demonstrates a herniated disk at the level and on the side that would be expected based on the previous radiculopathy, but no longer has the radiculopathy following conservative treatment *or* fractures: (1) less than 25% compression of one vertebral body; (2) posterior element fracture without dislocation (not developmental spondylolysis) that has healed without alteration of motion segment integrity; (3) a spinous or transverse process fracture with displacement without a vertebral body fracture, which does not disrupt the spinal canal	Significant signs of radiculopathy, such as dermatomal pain and/or in a dermatomal distribution, sensory loss, loss of relevant reflex(es), loss of muscle strength or measured unilateral atrophy above or below the knee compared to measurements on the contralateral side at the same location; impairment may be verified by electrodiagnostic findings *or* history of a herniated disk at the level and on the side that would be expected from objective clinical findings, associated with radiculopathy, or individuals who had surgery for radiculopathy but are now asymptomatic *or* fractures: (1) 25% to 50% compression of one vertebral body; (2) posterior element fracture with displacement disrupting the spinal canal; in both cases, the fracture has healed without alteration of structural integrity	Loss of motion segment integrity defined from flexion and extension radiographs as at least 4.5 mm of translation of one vertebra on another or angular motion greater than 15° at L1-2, L2-3, and L3-4, greater than 20° at L4-5, and greater than 25° at L5-S1 (Figure 15-3); may have complete or near complete loss of motion of a motion segment due to developmental fusion, or successful or unsuccessful attempt at surgical arthrodesis *or* fractures: (1) greater than 50% compression of one vertebral body without residual neurologic compromise	Meets the criteria of DRE lumbosacral categories III and IV; that is, both radiculopathy and alteration of motion segment integrity are present; significant lower extremity impairment is present as indicated by atrophy or loss of reflex(es), pain, and/or sensory changes within an anatomic distribution (dermatomal), or electromyographic findings as stated in lumbosacral category III and alteration of spine motion segment integrity as defined in lumbosacral category IV *or* fractures: (1) greater than 50% compression of one vertebral body with unilateral neurologic compromise

Section 15.4 –Lumbar Spine DRE

- *The injured worker is best described as:*
- **DRE Lumbar Category II**
- Rates **between 5-8%** Impairment of the Whole Person (WPI)

- Category II is most appropriate because the injured worker has:
- 1) a specific lifting injury
- 2) muscle spasm at time of the examination
- 3) asymmetric loss of range of motion
- 4) non-verifiable radicular complaint.

Section 15.4 –Lumbar Spine DRE

- **Q. How do we determine what WPI percentage to use for Category II (5-8%)?**
- **A. Determining which percentage of WPI is up to the QME/evaluator, but requires some form of substantiation.**
- In this case, it would be medically appropriate to rate the injured worker towards the lower end, or 5%.
- The injured worker did not have objective medical evidence outside of the physical exam and subjective factor to support their complaint of LBP with concomitant radiculopathy (i.e. no MRI or EDS supporting discogenic lesion, or peripheral nerve entrapment was pathologically present).
- WPI = 5% per Lumbar Spine Category II

Section 15.4 –Lumbar Spine DRE

- **NOTE:**
- If this case presented with more severe subjective factors and better objective support, then a higher rating more towards 8% could be justified.

Section 15.4 –Lumbar Spine DRE

- **Lumbar DRE Category III (10-13%) Impairment**

- Requires significant signs of radiculopathy & confirmed by positive diagnostic study
- Surgical intervention for diagnosed radiculopathy (resolved or unresolved)
- Presence of compression fracture 25-50% of the vertebral body

Section 15.4 –Lumbar Spine DRE

- **Lumbar DRE Category IV (20-23%) Impairment**
- Loss of motion segmental integrity (i.e. flexion/extension radiographs >4.5 mm

- Compression fracture that exceeds 50% of vertebral body without neuro compromise

Section 15.4 –Lumbar Spine DRE

- **Lumbar DRE Category V (25-28%) Impairment**
- Meets criteria of BOTH categories III & IV

- Compression fracture that exceeds 50% of vertebral body with neurological compromise

Thoracic DRE Example

Section 15.5 –Thoracic Spine DRE

- Section 15.5 – Page 389
- Read through the 5 categories of DRE (page 389 – next slide) related to the thoracic spine to identify which category most appropriately describes the patient.
- **Example:**
- 32 year old male injured his mid back after falling off of a fork lift resulting in a compression fracture at the T11 vertebra. ADLs not inhibited much by this injury. Injured worker reports pain with heavy lifting and paresthesia into the right lower extremity.
- **Physical Exam:**
- Inconsistent decreased pinwheel sensation over the right LE.
- 4/5 muscle testing with right quads.
- X-Ray: compression fracture of T11 with 45% body height loss

Table 15-4 Criteria for Rating Impairment Due to Thoracic Spine Injury

DRE Thoracic Category I 0% Impairment of the Whole Person	DRE Thoracic Category II 5%-8% Impairment of the Whole Person	DRE Thoracic Category III 15%-18% Impairment of the Whole Person	DRE Thoracic Category IV 20%-23% Impairment of the Whole Person	DRE Thoracic Category V 25%-28% Impairment of the Whole Person
No significant clinical findings, no observed muscle guarding, no documentable neurologic impairment, no documented changes in structural integrity, and no other indication of impairment related to injury or illness; no fractures	History and examination findings are compatible with a specific injury or illness; findings may include significant muscle guarding or spasm observed at the time of the examination, asymmetric loss of range of motion (dysmetria), or nonverifiable radicular complaints, defined as complaints of radicular pain without objective findings; no alteration of motion segment integrity *or* herniated disk at the level and on the side that would be expected from objective clinical findings, but without radicular signs following conservative treatment *or* fractures: (1) less than 25% compression of one vertebral body; (2) posterior element fracture without dislocation that has healed without alteration of motion segment integrity or radiculopathy; (3) a spinous or transverse process fracture with displacement, but without a vertebral body fracture	Ongoing neurologic impairment of the lower extremity related to a thoracolumbar injury, documented by examination of motor and sensory functions, reflexes, or findings of unilateral atrophy above or below the knee related to no other condition; impairment may be verified by electrodiagnostic testing *or* clinically significant radiculopathy, verified by an imaging study that demonstrates a herniated disk at the level and on the side that would be expected from objective clinical findings; history of radiculopathy, which has improved following surgical treatment *or* fractures: (1) 25% to 50% compression fracture of one vertebral body; (2) posterior element fracture with mild displacement disrupting the canal; in both cases the fracture has healed without alteration of structural integrity; differentiation from a congenital or developmental condition should be accomplished, if possible, by examining preinjury roentgenograms, if available, or by a bone scan performed after the onset of the condition	Alteration of motion segment integrity or bilateral or multilevel radiculopathy; alteration of motion segment integrity is defined from flexion and extension radiographs as translation of one vertebra on another of more than 2.5 mm; radiculopathy as defined in thoracic category III need not be present if there is alteration of motion segment integrity; if an individual is to be placed in DRE thoracic category IV due to radiculopathy, the latter must be bilateral or involve more than one level *or* fractures: (1) more than 50% compression of one vertebral body without residual neural compromise	Impairment of the lower extremity as defined in thoracolumbar category III and loss of structural integrity as defined in thoracic category IV *or* fractures: (1) greater than 50% compression of one vertebral body with neural motor compromise but not bilateral involvement that would qualify the individual for corticospinal tract evaluation

Section 15.5 –Thoracic Spine DRE

- This injured worker is best categorized in DRE III
- 15-18% impairment of the whole person
- Patient falls within the 25-50% compression fracture of one (1) vertebral body (T11 = 45% compression Fx)
- Patient also has residual neurological complaint of right LE paresthesia/weakness (4/5) that was documented by X-Ray and is an ongoing neurological impairment of the lower extremity.
- **Diagnosis:** T11 compression fracture
- **Impairment:**
- 18% since the compression fracture is nearly 50% of the vertebral body coupled with ongoing neurological findings.

Section 15.5 –Thoracic Spine DRE

- Thoracic spine **DRE category IV** would be appropriate if the compression fracture was > 50% of the T11 vertebral body WITHOUT neural compromise.

- DRE IV would also be appropriate if there was alteration of motion segment integrity –OR- bilateral/multi-level radiculopathy

- (i.e. requires flexion/extension x-ray views; **> 2.5 mm**)

Section 15.5 –Thoracic Spine DRE

- Thoracic spine **DRE category V** would be appropriate if the compression fracture was > 50% of the T11 vertebral body WITH neural compromise.

- DRE V would also be appropriate if there was impairment of the lower extremity defined by category III –AND- loss of structural integrity defined by category IV.

Cervical DRE Example

Section 15.6 –Cervical Spine DRE

- Section 15.6 – Page 392
- Read through the 5 categories of DRE (page 392 – next slide) related to the cervical spine to identify which category most appropriately describes the patient.
- **Example:**
- 39 year old female injured her neck from slip and fall at work onto a cement floor in a warehouse. She developed neck pain that radiates into her right digits 1-2. Conservative therapies and medications failed to ameliorate her pain. MRI revealed a herniated disc at C6-7. She had surgery to remove the C6-7 disc and fuse the two vertebra. Currently, she has residual neck pain. Right upper extremity neurological deficits resolved after surgery.
- **Physical Exam:**
- Decreased ROM
- Neurological exam unremarkable
- Positive shoulder depressor test for hypertonic upper traps B/L

Table 15-5 Criteria for Rating Impairment Due to Cervical Disorders

DRE Cervical Category I 0% Impairment of the Whole Person	DRE Cervical Category II 5%-8% Impairment of the Whole Person	DRE Cervical Category III 15%-18% Impairment of the Whole Person	DRE Cervical Category IV 25%-28% Impairment of the Whole Person	DRE Cervical Category V 35%-38% Impairment of the Whole Person
No significant clinical findings, no muscular guarding, no documentable neurologic impairment, no significant loss of motion segment integrity, and no other indication of impairment related to injury or illness; no fractures	Clinical history and examination findings are compatible with a specific injury; findings may include muscle guarding or spasm observed at the time of the examination by a physician, asymmetric loss of range of motion or nonverifiable radicular complaints, defined as complaints of radicular pain without objective findings; no alteration of the structural integrity ***or*** individual had clinically significant radiculopathy and an imaging study that demonstrated a herniated disk at the level and on the side that would be expected based on the radiculopathy, but has improved following nonoperative treatment ***or*** fractures: (1) less than 25% compression of one vertebral body; (2) posterior element fracture without dislocation that has healed without loss of structural integrity or radiculopathy; (3) a spinous or transverse process fracture with displacement	Significant signs of radiculopathy, such as pain and/or sensory loss in a dermatomal distribution, loss of relevant reflex(es), loss of muscle strength, or unilateral atrophy compared with the unaffected side, measured at the same distance above or below the elbow; the neurologic impairment may be verified by electrodiagnostic findings ***or*** individual had clinically significant radiculopathy, verified by an imaging study that demonstrates a herniated disk at the level and on the side expected from objective clinical findings with radiculopathy or with improvement of radiculopathy following surgery ***or*** fractures: (1) 25% to 50% compression of one vertebral body; (2) posterior element fracture with displacement disrupting the spinal canal; in both cases the fracture is healed without loss of structural integrity; radiculopathy may or may not be present; differentiation from congenital and developmental conditions may be accomplished, if possible, by examining preinjury roentgenograms or a bone scan performed after the onset of the condition	Alteration of motion segment integrity or bilateral or multilevel radiculopathy; alteration of motion segment integrity is defined from flexion and extension radiographs as at least 3.5 mm of translation of one vertebra on another, or angular motion of more than 11° greater than at each adjacent level (Figures 15-3a and 15-3b); alternatively, the individual may have loss of motion of a motion segment due to a developmental fusion or successful or unsuccessful attempt at surgical arthrodesis; radiculopathy as defined in cervical category III need not be present if there is alteration of motion segment integrity ***or*** fractures: (1) more than 50% compression of one vertebral body without residual neural compromise	Significant upper extremity impairment requiring the use of upper extremity external functional or adaptive device(s); there may be total neurologic loss at a single level or severe, multilevel neurologic dysfunction ***or*** fractures: structural compromise of the spinal canal is present with severe upper extremity motor and sensory deficits but without lower extremity involvement

Section 15.6 –Cervical Spine DRE

- This injured worker is best categorized in DRE IV
- 25-28% impairment of the whole person
- DRE category IV is appropriate because of the "alteration of motion segment integrity" (fusion)
- **Diagnosis:** Disc herniation at C6-7
- **Impairment:**
- 28% since the injured worker underwent surgical intervention to remove the C6-7 disc and fuse two vertebrae. Segmental motion at C6-7 is lost permanently with the fusion procedure.

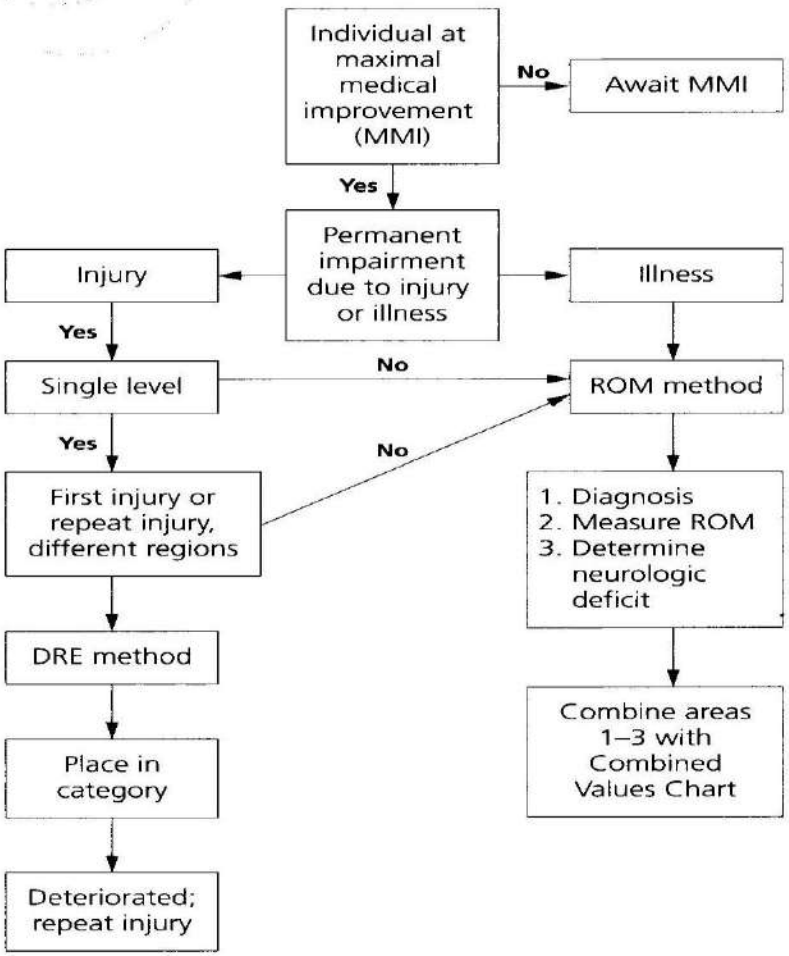
Section 15.6 –Cervical Spine DRE

- Cervical spine **DRE category V** would be appropriate "IF" there was significant upper extremity impairment/total neurologic loss at a single level –OR- severe multi-level neurologic dysfunction. Since this patient did not have any residual extremity pain, category V would be inappropriate.

- DRE V would be appropriate if there were fractures, structural compromise of the spinal canal with severe upper extremity motor & sensory deficits (without lower extremity involvement)

Switching Gears
Let's use the ROM Method

Figure 15-4 Spine Impairment Evaluation Process



ROM Method - Spine

Section 15.8 – Page 398

- **Things to remember:**
- Use ROM method of rating if the injury applies to more than a single level (i.e. L2, L3 & L5)
- Cannot rate if acute or not P&S

- **<u>ROM method is based on:</u>**

1. **Diagnosis**
2. **Measuring the ROMs**
3. **Neurologic Deficit**

- Combining 1-3 (above) using the Combined Values Chart

ROM Method – Spine

Section 15.8 – Page 398

- **Things to remember:**

1. Warm-up first
2. Obtain at least 3 consecutive measurements
3. Calculate the mean (average) of the three.
4. The mean is calculated by adding the highest and lowest value and dividing by two.
5. If the average is < 50 degrees, the 3 consecutive measurements should fall within 5 degrees of the mean.
6. If the average is > 50 degrees, the 3 consecutive measurements must fall within 10% of the mean.
7. ROM testing may be repeated up to 6 times.
8. If after 6 attempts this criteria is not met, the results are considered INVALID!

ROM Method – Spine

- **Table 15-7** = Used to determine the "Diagnosis" based impairment with ROM method.
- If there are >2 diagnoses within the same spinal region, then choose the most significant DDX.
- This percentage will be combined with the impaired ROM –AND- neurologic deficit.

ROM Method – Diagnosis Based Impairment Table 15-7; Page 404

Table 15-7 Criteria for Rating Whole Person Impairment Percent Due to Specific Spine Disorders to Be Used as Part of the ROM Method*

Disorder	% Impairment of the Whole Person		
	Cervical	Thoracic	Lumbar
I. Fractures			
A. Compression of one vertebral body.			
0%-25%	4	2	5
26%-50%	6	3	7
> 50%	10	5	12
B. Fracture of posterior element (pedicle, lamina, articular process, transverse process).	4	2	5
Note: An impairment due to compression of a vertebra and one due to fracture of a posterior element are combined using the Combined Values Chart (p. 604). Fractures or compressions of several vertebrae are combined using the Combined Values Chart.			
C. Reduced dislocation of one vertebra.	5	3	6
If two or more vertebrae are dislocated and reduced, combine the estimates using the Combined Values Chart.			
An unreduced dislocation causes impairment until it is reduced; the physician should then evaluate the impairment on the basis of the individual's condition with the dislocation reduced.			
If no reduction is possible, the physician should evaluate the impairment on the basis of the range-of-motion and neurologic findings according to criteria in this chapter and Chapter 13, The Central and Peripheral Nervous System.			

ROM Method – Diagnosis Based Impairment Table 15-7; Page 404

II. Intervertebral disk or other soft-tissue lesion			
Diagnosis must be based on clinical symptoms and signs and imaging information.			
A. Unoperated on, with no residual signs or symptoms.	0	0	0
B. Unoperated on, with medically documented injury, pain, and rigidity* associated with none to minimal degenerative changes on structural tests.†	4	2	5
C. Unoperated on, stable, with medically documented injury, pain, and rigidity* associated with moderate to severe degenerative changes on structural tests;† includes herniated nucleus pulposus with or without radiculopathy.	6	3	7
D. Surgically treated disk lesion without residual signs or symptoms; includes disk injection.	7	4	8
E. Surgically treated disk lesion with residual, medically documented pain and rigidity.	9	5	10
F. Multiple levels, with or without operations and with or without residual signs or symptoms.	Add 1% per level		
G. Multiple operations *with* or without residual signs or symptoms			
1. Second operation	Add 2%		
2. Third or subsequent operation	Add 1% per operation		

ROM Method – Diagnosis Based Impairment Table 15-7; Page 404

III. Spondylolysis and spondylolisthesis, not operated on			
A. Spondylolysis or grade I (1%-25% slippage) or grade II (26%-50% slippage) spondylolisthesis, accompanied by medically documented injury that is stable, and medically documented pain and rigidity with or without muscle spasm.	6	3	7
B. Grade III (51%-75% slippage) or grade IV (76%-100% slippage) spondylolisthesis, accompanied by medically documented injury that is stable, and medically documented pain and rigidity with or without muscle spasm.	8	4	9
IV. Spinal stenosis, segmental instability, spondylolisthesis, fracture, or dislocation, operated on			
A. Single-level decompression without spinal fusion and without residual signs or symptoms	7	4	8
B. Single-level decompression without spinal fusion with residual signs or symptoms	9	5	10
C. Single-level spinal fusion with or without decompression without residual signs or symptoms	8	4	9
D. Single-level spinal fusion with or without decompression with residual signs and symptoms	10	5	12
E. Multiple levels, operated on, with residual, medically documented pain and rigidity.	Add 1% per level		
1. Second operation	Add 2%		
2. Third or subsequent operation	Add 1% per operation		

* The phrase "medically documented injury, pain, and rigidity" implies not only that an injury or illness has occurred but also that the condition is stable, as shown by the evaluator's history, examination, and other diagnostic data, and that a permanent impairment exists, which is at least partially due to the condition being evaluated.

† Structural tests include radiographs, myelograms with and without CT scan, CT scan and MRI with and without contrast, and diskogram with and without CT scan.

ROM Method – Diagnosis Based Impairment Table 15-7; Page 404

- **Section I**
- Use for diagnosis of fractures
- Choose spinal region (cervical, thoracic, lumbar)
- Apply WPI %

ROM Method – Diagnosis Based Impairment Table 15-7; Page 404

- **Section II**
- Use for diagnosis of disc herniations
- Choose spinal region (cervical, thoracic, lumbar)
- Apply WPI %

- **Add 1%** (per spinal level) if "multiple levels with/without residual signs & symptoms"

- **Add 2%** if "multiple operations with/without residual signs & symptoms" Includes 2nd operation

- **Add 1%** (per operation) with 3 or more operations

ROM Method – Diagnosis Based Impairment Table 15-7; Page 404

- **Section III**
- Use for diagnosis of spondylosis & spondylolisthesis (NOT operated on)
- Choose appropriate grade of spondy and apply WPI%

ROM Method – Diagnosis Based Impairment Table 15-7; Page 404

- **Section IV**
- Use for diagnosis of spinal stenosis, segmental instability, spondylolisthesis, fracture or dislocation (operated on)
- **Add 1%** per level if "multiple levels (operated on) *WITH* residual signs & symptoms"
- **Add 2%** (if 2nd operation) and with "multiple levels (operated on) *WITH* residual and medically documented pain/rigidity"
- **Add 1%** (per operation) that is 3 or more operations.

The Spine

ROM

Range of Motion Method

(Inclinometry)

Measure the ROM
Page 403

- Use **dual inclinometers** for spinal measurements
- Calculate the average of each set of 3
- Determine if the 3 measurements fall within 5 degrees –*OR*- 10% of the mean, whichever is larger
- 6 attempts are allowed before the measurements are invalid
- Use the maximum motion to determine any impairment rating
- If there are impairments due to loss of motion in more than one plane within the same spinal region, then ADD the impairments to determine TOTAL Impairment of that spinal region.

Examples of when to use ROM Method:

- DRE method does not apply; patient cannot be categorized
- If there is multi-level involvement in the same spinal region
- (i.e. Fx at multiple levels, disc herniations or stenosis with radiculopathy at multiple levels or bilaterally

Dual Inclinometers

Where do I put them?

Figure 15-8 Two-Inclinometer Technique for Measuring Lumbar Flexion and Extension

The inclinometers are placed over T12 and the sacrum (S1), the anatomical landmarks.

a. neutral position

b. flexion

c. extension

d. straight leg raising (used for validation purposes)

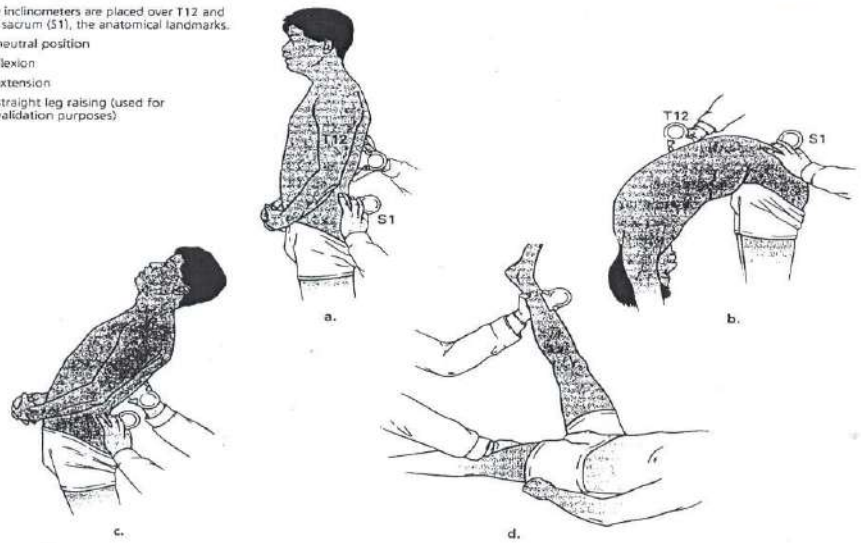


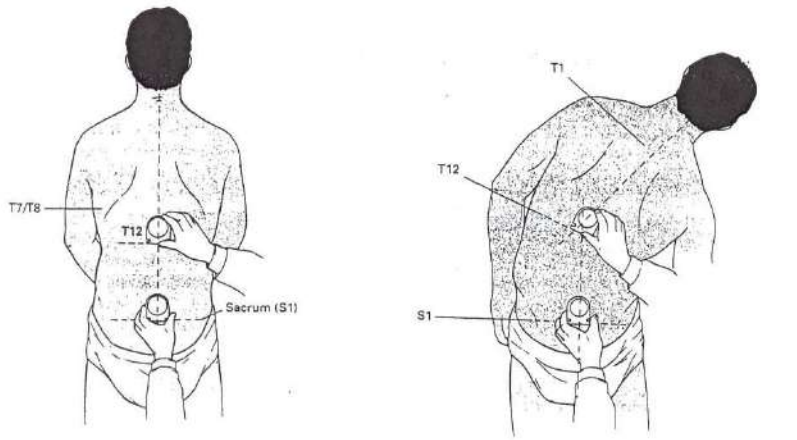
Table 15-8 Impairment Due to Abnormal Motion of the Lumbar Region: Flexion and Extension*

The proportion of flexion and extension of total lumbosacral motion is 75%.

Sacral (Hip) Flexion Angle (°)	True Lumbar Spine Flexion Angle (°)	% Impairment of the Whole Person
45+	60+	0
	45	2
	30	4
	15	7
	0	10
30-45	40+	4
	20	7
	0	10
0-29	30+	5
	15	8
	0	11

True Lumbar Spine Extension From Neutral Position (0°) to:	Degrees of Lumbosacral Spine Motion		% Impairment of the Whole Person
	Lost	Retained	
0	25	0	7
10	15	10	5
15	10	15	3
20	5	20	2
25	0	25	0

Figure 15-9 Two-Inclinometer Technique for Measuring Lumbosacral Lateral Bend



a. neutral position

b. lateral bending

Table 15-9 Impairment Due to Abnormal Motion and Ankylosis of the Lumbar Region: Lateral Bending

Abnormal Motion
Average range of left and right lateral bending is 50°; the proportion of total lumbosacral motion is 40% of the total spine.

a.	Left Lateral Bending From Neutral Position (0°) to:	Degrees of Lumbosacral Motion		% Impairment of the Whole Person
		Lost	Retained	
	0	25	0	5
	10	15	10	3
	15	10	15	2
	20	5	20	1
	25	0	25	0
b.	Right Lateral Bending From Neutral Position (°) to:	Degrees of Lumbosacral Motion		% Impairment of the Whole Person
		Lost	Retained	
	0	25	0	5
	10	15	10	3
	15	10	15	2
	20	5	20	1
	25	0	25	0
c.	Ankylosis / FUSION Region Ankylosed at (°):			
	0 (neutral position)			10
	30			20
	45			30
	60			40
	75 (full flexion)			50

LATERAL BENDING

(WISTABLE) DIP IN FLEXION CHART

Section 15.9 –Lumbar Spine ROM

- Use Figure 15-8 & 15-9; page 405 & 408 for inclinometer placement
- Use **Table 15-8**; **page 407** lumbar flexion/extension impairment
- Use **Table 15-9**; **page 409** lumbar lateral bending impairment
- **Example:**
- 44 year old male injured his lower back after carrying a box and tripping over an open drawer. He is P&S and suffers the following residuals:
- **ROM vs DRE - Spine Example:**
- DDX: Lumbar Disc Protrusion (L5-S1) (MRI Verified) = 7% using Table 15-7 II. c.
- Paresthesia along right lateral calf – decreased light touch minimally
- Decreased AROMs

- Range of Motion (ROM) method to be used with lumbar spine.
- DRE not to be used for lumbar spine rating when multiple levels are identified objectively through MRI and clinical findings on exam.

Section 15.9 –Lumbar Spine ROM

- Physical Exam:

Lumbar Spine	**Normal (Degrees ◦)**	**Exam**	**Exam (Mean)**	**Maximum Angle (WPI%)**
Flexion	60	20, 25, 20	23	**4%**
Extension	25	10, 10, 12	11	**5%**
(L) Lateral Flexion	25	12, 12, 15	14	**2%**
(R) Lateral Flexion	25	15, 15, 15	15	**2%**

- **Diagnosis:** M54.5

Determine Neurologic Deficits

Table 15-15 (Sensory) & Table 15-16 (motor)

- Use Table 15-15 = Sensory neurologic deficits
- Use Table 15-16 = Motor neurologic deficits

- Use Table 15-17 = Upper Extremity nerve roots
- Use Table 15-18 = Lower Extremity nerve roots

Table 15-15 Determining Impairment Due to Sensory Loss

a. Classification

Grade	Description of Sensory Deficit	% Sensory Deficit
5	No loss of sensibility, abnormal sensation, or pain	0
4	Distorted superficial tactile sensibility (diminished light touch), with or without minimal abnormal sensations or pain, that is forgotten during activity	1-25
3	Distorted superficial tactile sensibility (diminished light touch and two-point discrimination), with some abnormal sensations or slight pain, that interferes with some activities	26-60
2	Decreased superficial cutaneous pain and tactile sensibility (decreased protective sensibility), with abnormal sensations or moderate pain, that may prevent some activities	61-80
1	Deep cutaneous pain sensibility present; absent superficial pain and tactile sensibility (absent protective sensibility), with abnormal sensations or severe pain, that prevents most activity	81-99
0	Absent sensibility, abnormal sensations, or severe pain that prevents all activity	100

b. Procedure

1.	Identify the area of involvement using the dermatome charts (Figures 15-1 and 15-2).
2.	Identify the nerve(s) that innervate the area(s) (Table 16-12 and Figure 16-48).
3.	Grade the severity of the sensory deficit or pain according to the classification above.
4.	Find the maximum impairment of the extremity(ies) due to sensory deficit or pain for each: spinal nerves (Table 15-8) and brachial plexus (Table 16-14).
5.	Multiply the severity of the sensory deficit by the maximum impairment value to obtain the extremity impairment for each spinal nerve involved.

Table 15-16 Determining Impairment Due to Loss of Power and Motor Deficits

a. Classification

Grade	Description of Muscle Function	% Motor Deficit
5	Active movement against gravity with full resistance	0
4	Active movement against gravity with some resistance	1–25
3	Active movement against gravity only, without resistance	26–50
2	Active movement with gravity eliminated	51–75
1	Slight contraction and no movement	76–99
0	No contraction	100

b. Procedure

1.	Identify the motion involved, such as flexion, extension, etc.
2.	Identify the muscle(s) performing the motion and the spinal nerve(s) involved.
3.	Grade the severity of motor deficit of individual muscles according to the classification given above.
4.	Find the maximum impairment of the extremity due to motor deficit for each spinal nerve structure involved (Tables 15-18, 16-11, 16-13, and 17-37).
5.	Multiply the severity of the motor deficit by the maximum impairment value to obtain the extremity impairment for each spinal nerve involved.

* Adapted from Medical Research Council.[9]

Table 15-17 Unilateral Spinal Nerve Root Impairment Affecting the Upper Extremity*

Nerve Root Impaired	Maximum % Loss of Function Due to Sensory Deficit or Pain	Maximum % Loss of Function Due to Strength
C5	5	30
C6	8	35
C7	5	35
C8	5	45
T1	5	20

* For description of the process of determining impairment percent, see text.

Table 15-18 Unilateral Spinal Nerve Root Impairment Affecting the Lower Extremity*

Nerve Root Impaired	Maximum % Loss of Function Due to Sensory Deficit or Pain	Maximum % Loss of Function Due to Strength
L3	5	20
L4	5	34
L5	5	37
S1	5	20

* For description of the process of determining impairment percent, see text.

Determine Neurologic Deficits

Table 15-15 (Sensory)

- Use Table 15-15 = Sensory neurologic deficits

- Choose the appropriate "**Grade**" between **0-5**
- Choose the appropriate "**% sensory deficit**"

- Step 1. Identify the area of nerve deficit using the **dermatome charts** (Figure 15-1 & Figure 15-2)

- NOTE: Right lateral calf paresthesia is identified on physical exam (L5)

Determine Neurologic Deficits

Lower Extremities

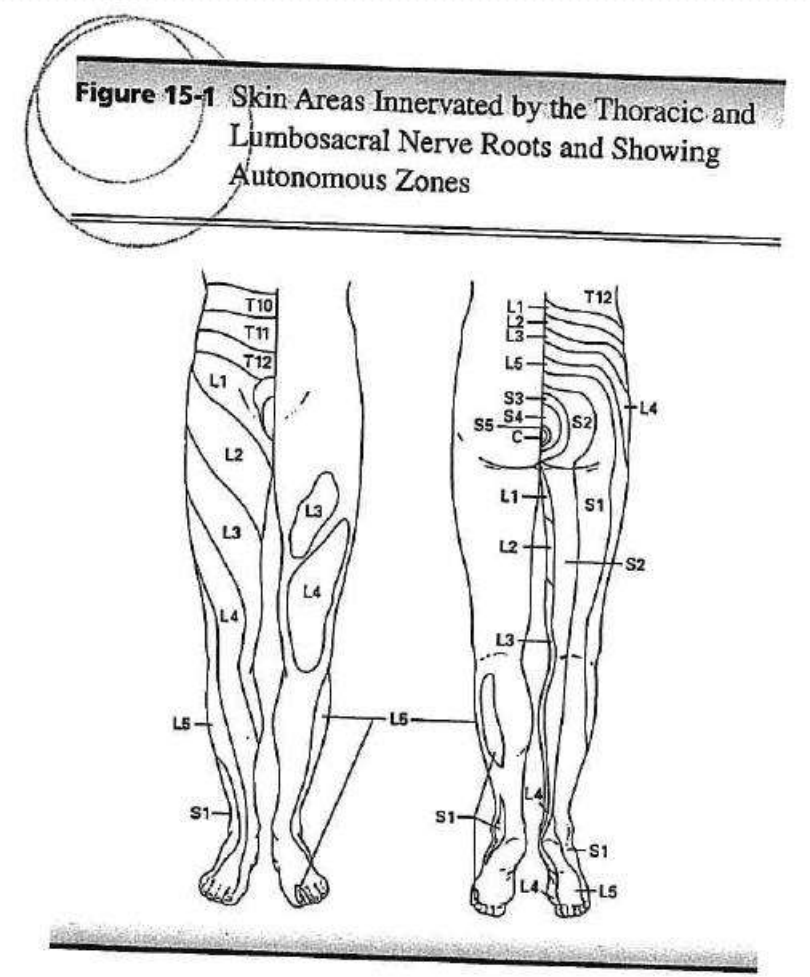
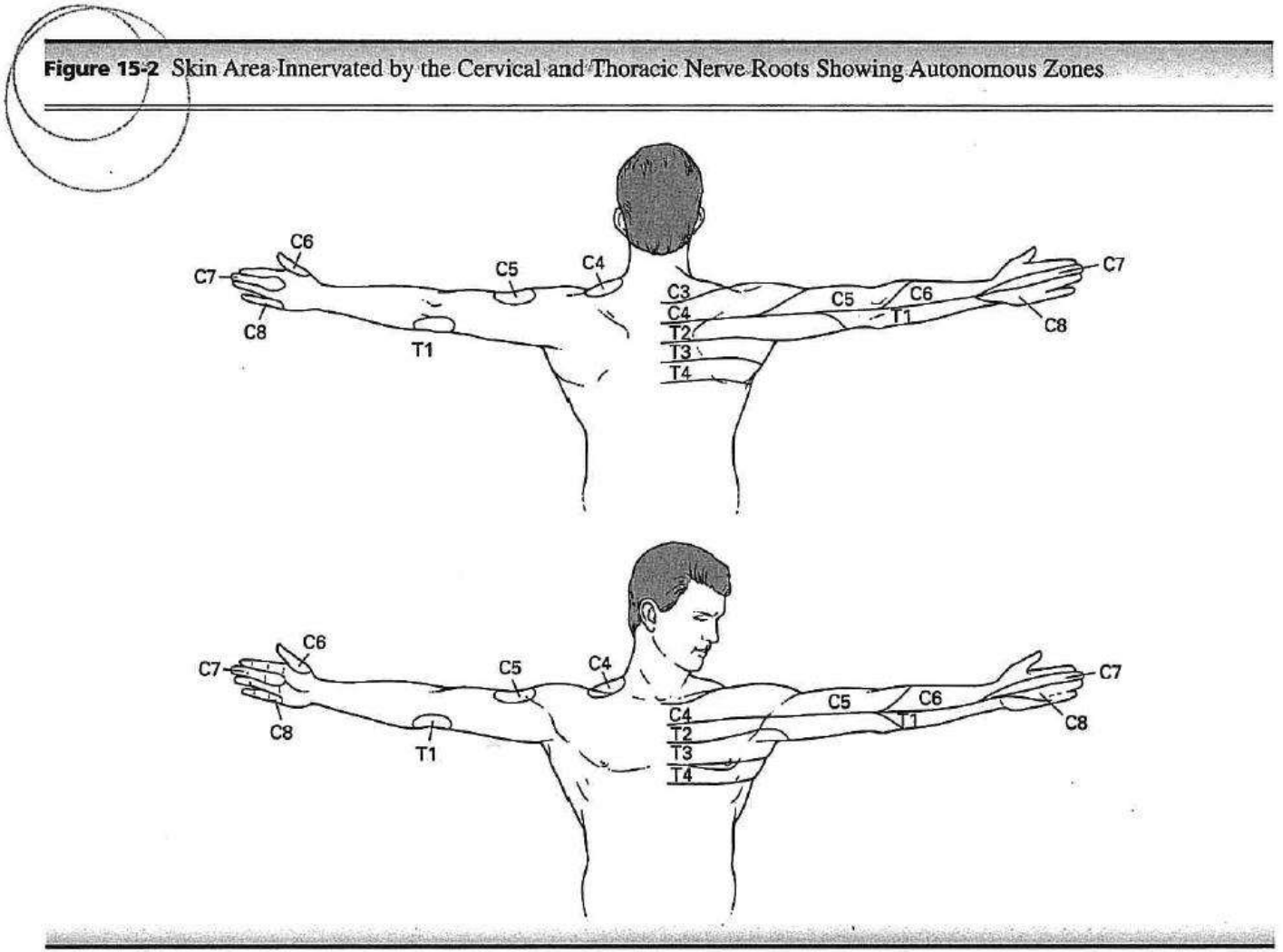


Figure 15-1 Skin Areas Innervated by the Thoracic and Lumbosacral Nerve Roots and Showing Autonomous Zones

Determine Neurologic Deficits

Upper Extremities



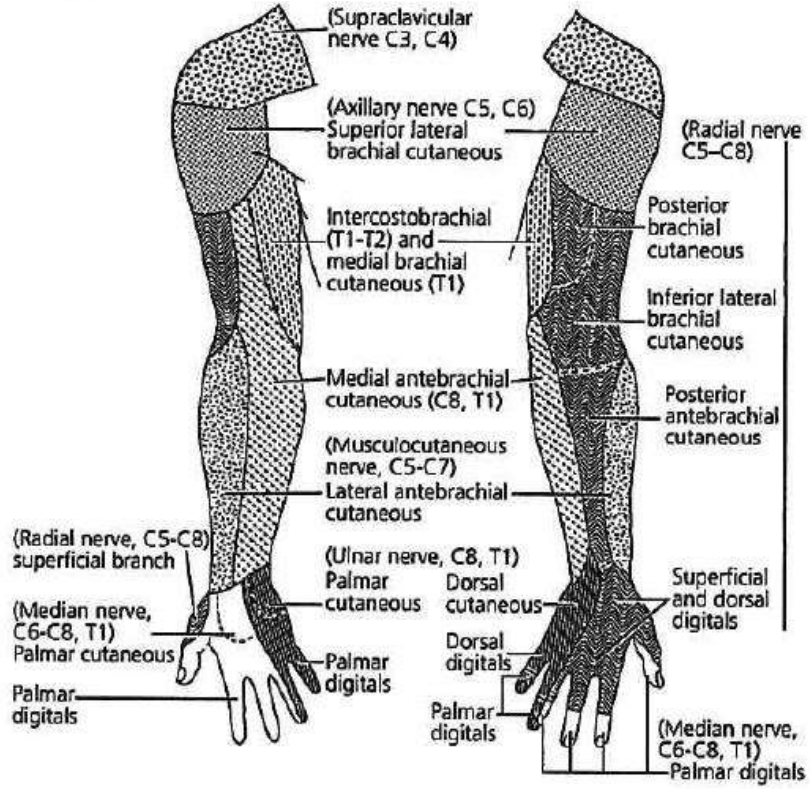
Determine Neurologic Deficits

Table 16-12 & Figure 16-48 (Upper Extremity)

- Step 2. Identify the nerve(s) that innervate the area(s) (Table 16-12 & Figure 16-48)

- L5 = Involves the lateral calf region

Figure 16-48 Cutaneous Innervation of the Upper Extremity and Related Peripheral Nerves and Roots



Adapted with permission from an original painting by F. H. Netter In: *The Atlas of Human Anatomy.* Summit, NJ: CIBA-GEIGY Corp; 1989.

Table 16-12a Origins and Functions of the Peripheral Nerves of the Upper Extremity Emanating From the Brachial Plexus

Nerves of Plexus	Primary Branches	Secondary Branches	Function
Muscular branches Dorsal scapular (C5) Long thoracic (C5, 6, 7) Suprascapular (C5, 6) Lateral pectoral (C5, 6, 7) Medial pectoral (C8, T1) Upper subscapular (C5, 6) Lower subscapular (C5, 6) Thoracodorsal ± C6, C7, 8)	Unnamed		Motor to longus colli, scalenes, and subclavius Motor to rhomboideus major and minor, levator scapulae Motor to serratus anterior Motor to supraspinatus and infraspinatus Motor to pectoralis major and minor Motor to pectoralis major and minor Motor to subscapularis Motor to teres major and subscapularis Motor to latissimus dorsi
Medial brachial cutaneous (T1)			Sensory to anteromedial surface of arm (with intercostobrachial)
Intercostobrachial (T2)			Sensory to posteromedial surface of arm (with medial brachial cutaneous)
Medial antebrachial cutaneous (C8, T1)			Sensory to anterocentral surface of arm, anteromedial half of forearm, and posteromedial third of elbow, forearm, and wrist
Musculocutaneous (C5, 6, 7)	Unnamed		Motor to coracobrachialis, biceps brachii, brachialis
	Lateral antebrachial cutaneous		Sensory to anterolateral half and posterolateral third of forearm

Axillary (C5, C6)	Teres minor branch		Motor to teres minor
	Anterior		Motor to deltoid (middle and anterior thirds)
	Posterior	Muscular branches	Motor to deltoid (posterior third)
		Upper lateral brachial cutaneous	Sensory over lower half of deltoid
Radial (C5,6,7,8 ± T1)	Unnamed		Motor to triceps brachii, brachialis (lateral part), brachioradialis, extensor carpi radialis longus, anconeus
	Ulnar collateral		Motor to triceps brachii (medial head)
	Posterior brachial cutaneous		Sensory to distal posterocentral surface of arm as far as olecranon
	Inferior lateral brachial cutaneous		Sensory to distal posterolateral surface of arm and elbow
	Posterior antebrachial cutaneous		Sensory to posterocentral surface of forearm
	Superficial terminal	Dorsal branches	Sensory to posterolateral half of wrist and hand
		Dorsal digitals (5 branches)	Sensory to dorsum of thumb, index, middle, and ring (radial half) fingers up to middle phalanx
	Deep terminal (posterior interosseous)	Unnamed	Motor to extensor carpi radialis brevis, and supinator
		Superficial branch	Motor to extensor digitorum communis, extensor digiti minimi, extensor carpi ulnaris
		Deep branch	Motor to extensor pollicis longus, extensor pollicis brevis, abductor pollicis longus, extensor indicis proprius
			Sensory to wrist joint capsule

Modified from [illegible] de Groot Swanson G. Evaluation of permanent impairment in the hand and upper extremity. In: Engelberg AL, ed. *Guides to the Evaluation of Permanent Impairment.* [illegible]

Determine Neurologic Deficits

- Step 3. Grade the severity of the SENSORY deficit or pain according to the classification in Table 15-15 section a (**Grade 0-5**).

Table 15-15 Determining Impairment Due to Sensory Loss

a. Classification

Grade	Description of Sensory Deficit	% Sensory Deficit
5	No loss of sensibility, abnormal sensation, or pain	0
4	Distorted superficial tactile sensibility (diminished light touch), with or without minimal abnormal sensations or pain, that is forgotten during activity	1-25
3	Distorted superficial tactile sensibility (diminished light touch and two-point discrimination), with some abnormal sensations or slight pain, that interferes with some activities	26-60
2	Decreased superficial cutaneous pain and tactile sensibility (decreased protective sensibility), with abnormal sensations or moderate pain, that may prevent some activities	61-80
1	Deep cutaneous pain sensibility present; absent superficial pain and tactile sensibility (absent protective sensibility), with abnormal sensations or severe pain, that prevents most activity	81-99
0	Absent sensibility, abnormal sensations, or severe pain that prevents all activity	100

Determine Neurologic Deficits

- Step 3. Grade the severity of the SENSORY deficit or pain according to the classification in Table 15-15 section a (**Grade 0-5**).

- Injured worker has distorted superficial tactile sensibility (i.e. decreased light touch) with or without minimal abnormal sensations or pain, that is "forgotten" during activity.

- This equates to a Grade 4, and range between 1-25 % sensory deficit.

Determine Neurologic Deficits

- Step 4. Find the MAXIMUM Impairment of the extremity(ies) due to SENSORY deficit or pain for EACH spinal nerve (Table 15-18) & brachial plexus (Table 16-14)

- Example:
- DDX: Lumbar Disc Protrusion (L5-S1) (MRI Verified)
- Paresthesia along right lateral calf
- Decreased light touch
- Decreased AROMs

Determine Neurologic Deficits

- Step 4. Find the MAXIMUM Impairment of the extremity(ies) due to SENSORY deficit or pain for EACH spinal nerve (Table 15-18)
- L5 is the involved nerve root in this example
- L5 represents a 5% maximum sensory deficit

Table 15-18 Unilateral Spinal Nerve Root Impairment Affecting the Lower Extremity*

Nerve Root Impaired	Maximum % Loss of Function Due to Sensory Deficit or Pain	Maximum % Loss of Function Due to Strength
L3	5	20
L4	5	34
L5	5	37
S1	5	20

* For description of the process of determining impairment percent, see text.

Determine Neurologic Deficits

- Step 5.

- Severity of Sensory Deficit (Table 15-15) **x** Maximum Impairment Value (Table 15-18) = **Extremity Impairment for each Spinal Nerve**

- Grade 4 (10% is chosen) since persistent mild right calf paresthesia.
- Maximum sensory deficit for L5 is 5%
- 10% x 5% = 1% Extremity Impairment for L5

Determine Neurologic Deficits

- Step 5.

- NOTE:
- A similar process is performed for strength (MOTOR)involvement using Table 15-16 and Table 15-18.

- The example with this injured worker did not reveal any motor loss, so Table 15-16 & Table 15-18 will not be used for impairment rating.

Calculating the Final Impairment
ROM Method

- Use **Table 15-20** to calculate the final WPI with the ROM method using all 3 categories below with this example:

1. Diagnosis (7%)
2. Measuring the ROMs (13%)
3. Neurologic Deficit (1%)

Combine the above impairments using the Combined Value Chart on page 604.

Combined Values Chart

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
1	2																																																	
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41	42	42	43	43	44	45	45	46	46	47	47	48	49	49	50	50	51	52	52	53	53	54	55	55	56	56	57	58	58	59	59	60	60	61	62	62	63	63	64	65	65				
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43	44	44	45	45	46	46	47	48	48	49	49	50	50	51	52	52	53	53	54	54	55	56	56	57	57	58	58	59	60	60	61	61	62	62	63	64	64	65	65	66	66	67	68		
44	45	45	46	46	47	47	48	48	49	50	50	51	51	52	52	53	54	54	55	55	56	56	57	57	58	59	59	60	60	61	61	62	62	63	64	64	65	65	66	66	67	68	68	69	
45	46	46	47	47	48	48	49	49	50	51	51	52	52	53	53	54	54	55	55	56	57	57	58	58	59	59	60	60	61	62	62	63	63	64	64	65	65	66	66	67	68	68	69	69	70
46	47	47	48	48	49	49	50	50	51	51	52	52	53	53	54	54	55	55	56	56	57	57	58	58	59	60	60	61	61	62	62	63	63	64	64	65	65	66	66	67	67	68	68	69	69
47	48	48	49	49	50	50	51	51	52	52	53	53	54	54	55	55	56	56	57	57	58	58	59	59	60	60	61	61	62	62	63	63	64	64	65	65	66	66	67	67	68	68	69	69	70
48	49	49	50	50	51	51	52	52	53	53	54	54	55	55	56	56	57	57	58	58	59	59	60	60	61	62	62	63	63	64	64	65	65	66	66	67	67	68	68	69	69	70	70	71	71
49	50	50	51	51	52	52	53	53	54	54	55	55	56	56	57	57	58	58	59	59	60	60	61	61	62	62	63	63	64	64	65	65	66	66	67	67	68	68	69	69	70	70	71	71	72
50	51	51	52	52	53	53	54	54	55	55	56	56	57	57	58	58	59	59	60	60	61	61	62	62	63	63	64	64	65	65	66	66	67	67	68	68	69	69	70	70	71	71	72	72	73

The values are derived from the formula A + B(1–A) = combined value of A and B, where A and B are the decimal equivalents of the impairment ratings. In the chart all values are expressed as percents. To combine any two impairment values, locate the larger of the values on the side of the chart and read along that row until you come to the column indicated by the smaller value at the bottom of the chart. At the intersection of the row and the column is the combined value.

For example, to combine 35% and 20%, read down the side of the chart until you come to the larger value, 35%. Then read across the 35% row until you come to the column indicated by 20% at the bottom of the chart. At the intersection of the row and column is the number 48. Therefore, 35% combined with 20% is 48%. Because of the construction of this chart, the larger impairment value must be identified at the side of the chart.

If three or more impairment values are to be combined, select any two and find their combined value as above. Then use that value and the third value to locate the combined value of all. This process can be repeated indefinitely, the final value in each instance being the combination of all the previous values. In each step of this process the larger impairment value must be identified at the side of the chart.

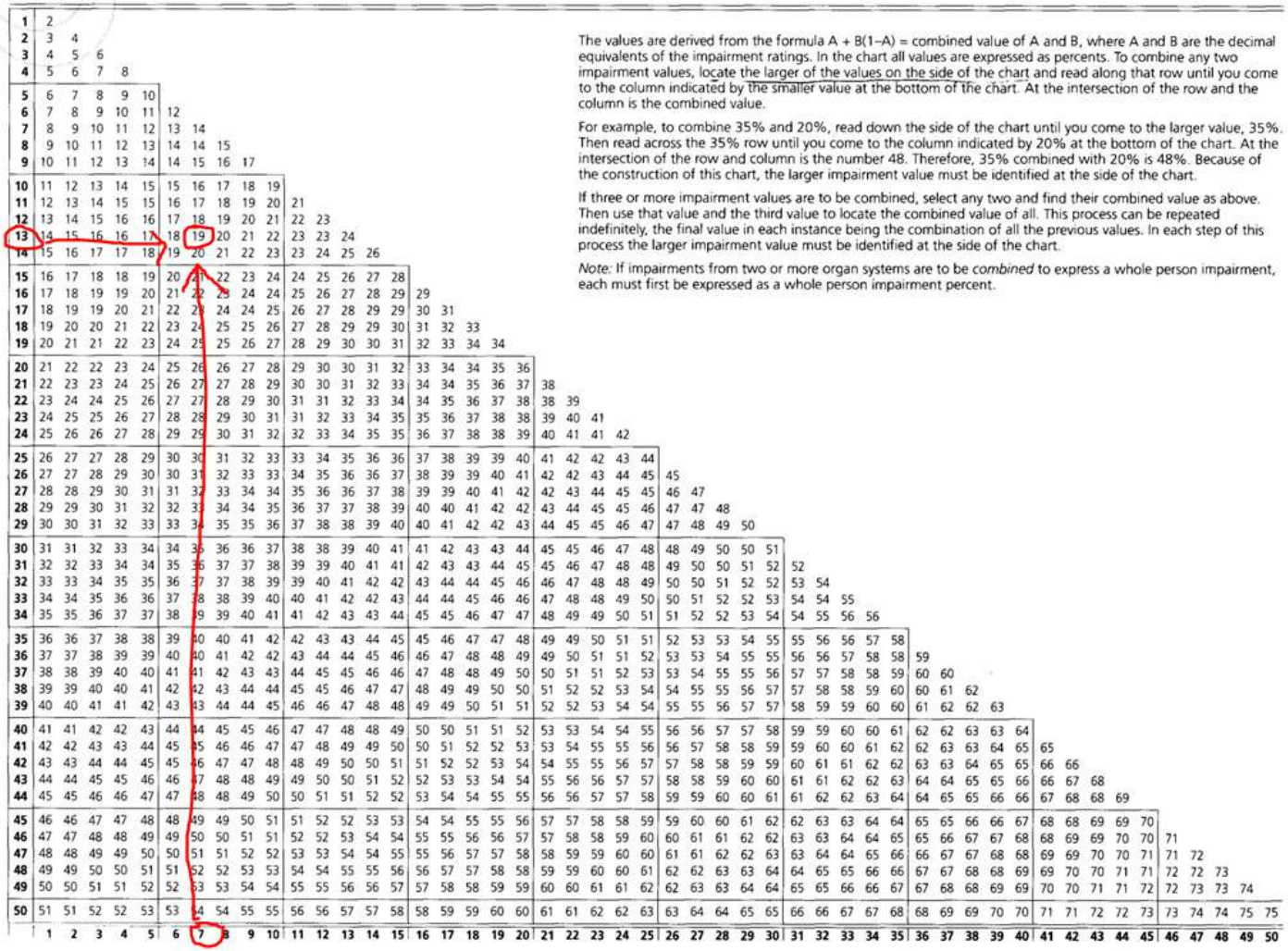
Note: If impairments from two or more organ systems are to be *combined* to express a whole person impairment, each must first be expressed as a whole person impairment percent.

Calculating the Final Impairment
Combined

1. **To use the Combined Value Chart, take the highest impairment % and find the corresponding # on the extreme left of the chart (vertical/y-axis).**
2. **Then locate the next highest impairment % on the extreme bottom of the chart (horizontal/x-axis).**
3. **Where these two numbers intersect will represent the impairment.**
4. **If you have multiple numbers to combine, then repeat these steps until you arrive at a final total WPI (Whole Person Impairment).**
5. **The number found in step 3 (above) is then found in the extreme left column and combined with the next highest number at the very bottom. Reapply these steps until all ratings have been combined to a single final Impairment rating.**

13% combined with 7% = 19% Impairment

Combined Values Chart



The values are derived from the formula A + B(1–A) = combined value of A and B, where A and B are the decimal equivalents of the impairment ratings. In the chart all values are expressed as percents. To combine any two impairment values, locate the larger of the values on the side of the chart and read along that row until you come to the column indicated by the smaller value at the bottom of the chart. At the intersection of the row and the column is the combined value.

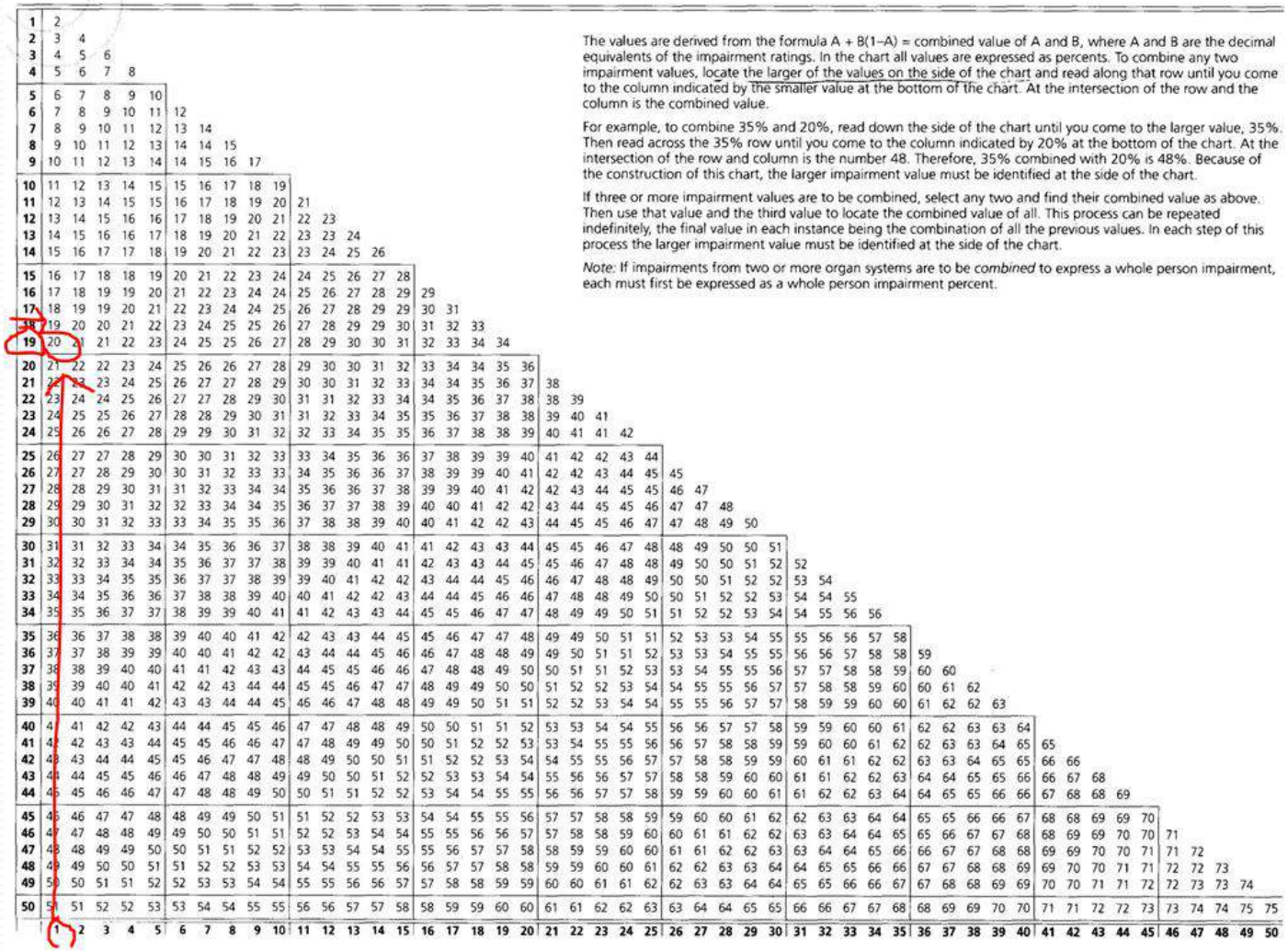
For example, to combine 35% and 20%, read down the side of the chart until you come to the larger value, 35%. Then read across the 35% row until you come to the column indicated by 20% at the bottom of the chart. At the intersection of the row and column is the number 48. Therefore, 35% combined with 20% is 48%. Because of the construction of this chart, the larger impairment value must be identified at the side of the chart.

If three or more impairment values are to be combined, select any two and find their combined value as above. Then use that value and the third value to locate the combined value of all. This process can be repeated indefinitely, the final value in each instance being the combination of all the previous values. In each step of this process the larger impairment value must be identified at the side of the chart.

Note: If impairments from two or more organ systems are to be *combined* to express a whole person impairment, each must first be expressed as a whole person impairment percent.

19% combined with 1% = 20% Impairment

Combined Values Chart



The values are derived from the formula A + B(1–A) = combined value of A and B, where A and B are the decimal equivalents of the impairment ratings. In the chart all values are expressed as percents. To combine any two impairment values, locate the larger of the values on the side of the chart and read along that row until you come to the column indicated by the smaller value at the bottom of the chart. At the intersection of the row and the column is the combined value.

For example, to combine 35% and 20%, read down the side of the chart until you come to the larger value, 35%. Then read across the 35% row until you come to the column indicated by 20% at the bottom of the chart. At the intersection of the row and column is the number 48. Therefore, 35% combined with 20% is 48%. Because of the construction of this chart, the larger impairment value must be identified at the side of the chart.

If three or more impairment values are to be combined, select any two and find their combined value as above. Then use that value and the third value to locate the combined value of all. This process can be repeated indefinitely, the final value in each instance being the combination of all the previous values. In each step of this process the larger impairment value must be identified at the side of the chart.

Note: If impairments from two or more organ systems are to be *combined* to express a whole person impairment, each must first be expressed as a whole person impairment percent.

Calculating the Final Impairment
ROM Method

1. Diagnosis (7%)
2. Measuring the ROMs (13%)
3. Neurologic Deficit (1%)

- 13% combined with 7% = 19%
- 19% combined with 1% = 20%

- **Total WPI = 20%**

15.15 Spine Evaluation Summary

See Table 15-20 for a spine evaluation summary form.

Table 15-20 Spine Evaluation Summary

Name _____ Soc. Sec. No. _____ Date _____

Impairment	Cervical	Thoracic	Lumbar
1. DRE Method (Tables 15-3 through 15-5)			
2. Range-of-Motion Method (and Table 15-8)			
3. Nerve root: Loss of sensation with or without pain Loss of strength			
4. Other (From Section 15.14)			
5. Regional impairment total (combine impairments in each column using the Combined Values Chart, p. 604)			
6. Spine impairment total (combine all regional totals using the Combined Values Chart)			

7. Impairment(s) of other organ systems: for each impairment list condition, page number in *Guides*, and percentage of impairment.

	Impaired System	% Impairment	*Guides* Page Number
a.			
b.			
c.			
d.			
e.			

8. Impairment of the whole person: Use Combined Values Chart to combine spine impairment with the impairment(s) listed in 7 above. If several impairments are listed, combine spine impairments with the larger or largest value, then combine the resulting percentage with any other value(s), until all the listed impairments have been accounted for.

Total whole person impairment: _____

Table 15-20 Spine Evaluation Summary

Name _____ Soc. Sec. No. _____ Date _____

Impairment	Cervical	Thoracic	Lumbar
1. DRE Method (Tables 15-3 through 15-5)			—
2. Range-of-Motion Method (and Table 15-8)			13%
3. Nerve root: Loss of sensation with or without pain Loss of strength			1%
4. Other (From Section 15.14) DIAGNOSIS			7%
5. Regional impairment total (combine impairments in each column using the Combined Values Chart, p. 604)			—
6. Spine impairment total (combine all regional totals using the Combined Values Chart)			

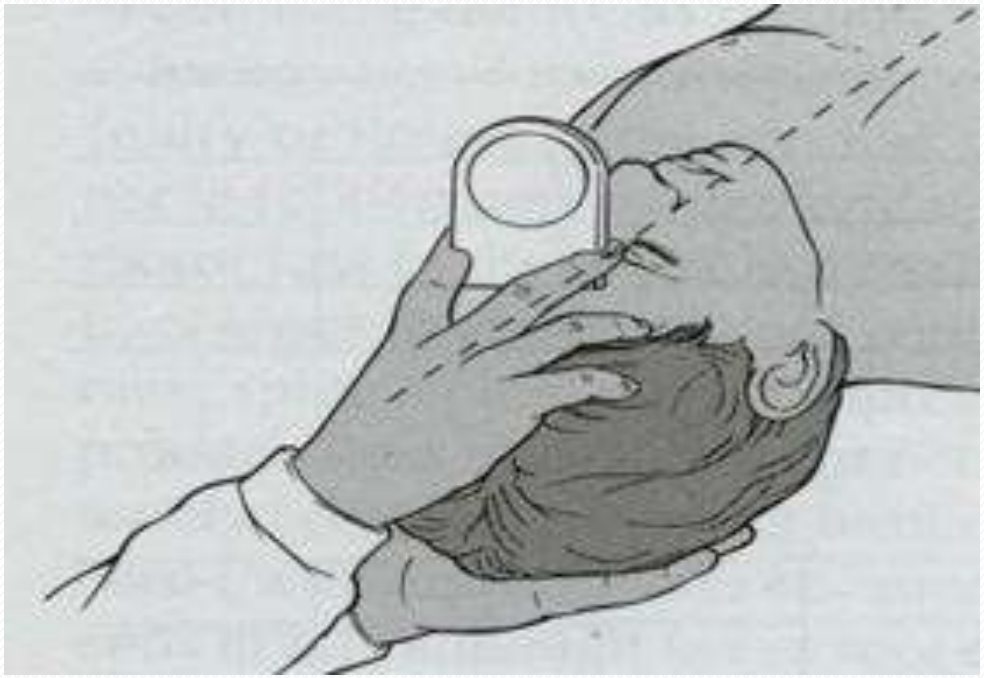
7. Impairment(s) of other organ systems: for each impairment list condition, page number in *Guides*, and percentage of impairment.

	Impaired System	% Impairment	*Guides* Page Number
a.			
b.			
c.			
d.			
e.			

8. Impairment of the whole person: Use Combined Values Chart to combine spine impairment with the impairment(s) listed in 7 above. If several impairments are listed, combine spine impairments with the larger or largest value, then combine the resulting percentage with any other value(s), until all the listed impairments have been accounted for.

Total whole person impairment: 20%

Cervical Spine ROM Example



Cervical Spine ROM Example

- **Spinal Measurements:**
- Table 15-12; Page 418; (Cervical Flexion/Extension) Chapter 15
- Table 15-13; Page 420; (Cervical Lateral Flexion) Chapter 15
- Table 15-14; Page 421; (Cervical Rotation) Chapter 15

Cervical Spine ROM Example

Cervical Spine	Normal (Degrees ◦)	Exam	Exam (Mean)	Maximum Angle (WPI%)
Flexion	50	52, 52, 50		
Extension	60	60, 62, 65		
Right Rotation	80	65, 68, 68		
Left Rotation	80	65, 70, 68		
Right Lateral Flexion	45	30, 30, 32		
Left Lateral Flexion	45	37, 40, 38		

Cervical Spine ROM Example

- Figure 15-18; Page 422; (Cervical Range of Motion (ROM)*) Chapter 15
- Use tables below to determine the WPI for the cervical spine based on the measurements in the previous slide.
- No Neurologic Deficit reported/documented
- No Diagnosis Based Impairment to apply (Table 15-7)
- TOTAL Cervical ROM Impairment=**???%**

Dual Inclinometers

Where do I put them?

Figure 15-17 Measuring Cervical Rotation

a. neutral position

b. right rotation

Table 15-14 Impairment Due to Abnormal Motion and Ankylosis of the Cervical Region: Rotation

Abnormal Motion **Average range of rotation is 160°;** **the proportion of all cervical motion is 35%.**				
a.	**Left Rotation From Neutral Position (0°) to (°):**	**Degrees of Cervical Motion**		**% Impairment of the Whole Person**
		Lost	**Retained**	
	0	80	0	6
	20	60	20	4
	40	40	40	2
	60	20	60	1
	80	0	80+	0
b.	**Right Rotation From Neutral Position (0°) to (°):**	**Degrees of Cervical Motion**		**% Impairment of the Whole Person**
		Lost	**Retained**	
	0	80	0	6
	20	60	20	4
	40	40	40	2
	60	20	60	1
	80	0	80+	0
c.	**Ankylosis Region Ankylosed at (°):**			
	0 (neutral position)			12
	20			20
	40			30
	60			40
	80 (full right or left rotation)			50

Table 15-13 Impairment Due to Abnormal Motion and Ankylosis of the Cervical Region: Lateral Bending

Abnormal Motion
The average range of lateral bending is 90°; the proportion of all cervical motions is 25%.

a.	Left Lateral Bending From Neutral Position (0°) to (°):	Degrees of Cervical Motion		% Impairment of the Whole Person
		Lost	Retained	
	0	45	0	4
	15	30	15	2
	30	15	30	1
	45	0	45	0
b.	**Right Lateral Bending From Neutral Position (0°) to (°):**	**Degrees of Cervical Motion**		**% Impairment of the Whole Person**
		Lost	**Retained**	
	0	45	0	4
	15	30	15	2
	30	15	30	1
	45	0	45	0
c.	**Ankylosis Region Ankylosed at (°):**			
	0 (neutral position)			8
	15			20
	30			30
	45 (full left or right rotation)			40

Table 15-12 Cervical Region Impairment From Abnormal Flexion or Extension or Ankylosis

Abnormal Motion
Average range of flexion and extension is 110°; the proportion of all cervical motions is 40%.

a.	Flexion From Neutral Position (0°) to (°):	Degrees of Cervical Motion		% Impairment of the Whole Person
		Lost	Retained	
	0	50	0	5
	15	35	15	4
	30	30	20	2
	50	0	50	0
b.	**Extension From Neutral Position (0°) to (°):**	**Degrees of Cervical Motion**		**% Impairment of the Whole Person**
		Lost	**Retained**	
	0	60	0	6
	20	40	20	4
	40	20	40	2
	60	0	60+	0
c.	**Region Ankylosed at (°):**			
	0 (neutral position)			12
	15			20
	30			30
	50 (full flexion)			40
d.	**Region Ankylosed at (°):**			
	0 (neutral position)			12
	20			20
	40			30
	60 (full extension)			40

AMA Guides to the Evaluation of Permanent Impairment (5th Edition)

Cervical Spine	Normal (Degrees ◦)	Exam	Exam (Mean)	Maximum Angle (WPI%)
Flexion	50	52, 52, 50	51	0
Extension	60	60, 62, 65	63	0
Right Rotation	80	65, 68, 68	67	1
Left Rotation	80	65, 70, 68	68	1
Right Lateral Flexion	45	30, 30, 32	31	1
Left Lateral Flexion	45	37, 40, 38	39	1

- **Add** up the individual WPI per cervical ROM to total =
- **4% Cervical WPI (ROM)**

Figure 15-18 Cervical Range of Motion (ROM)*

Name _____ Soc. Sec. No. _____ Date _____

Movement	Description	Range
Cervical flexion	Calvarium angle T1 ROM Cervical flexion angle ±10% or 5° Maximum cervical flexion angle % Impairment	Yes / No
Cervical extension	Calvarium angle T1 ROM Cervical extension angle ±10% or 5° Maximum cervical extension angle % Impairment	Yes / No
Cervical ankylosis in flexion/extension	Position % Impairment	(Excludes any impairment for abnormal flexion or extension motion)
Cervical left lateral bending	Calvarium angle T1 ROM Cervical left lateral flexion angle ±10% or 5° Maximum cervical right lateral flexion angle % Impairment	Yes / No
Cervical right lateral bending	Calvarium angle T1 ROM Cervical right lateral flexion angle ±10% or 5° Maximum cervical right lateral flexion angle % Impairment	Yes / No
Cervical ankylosis in lateral bending	Position % Impairment	(Excludes any impairment for abnormal lateral flexion or extension motion)
Cervical left rotation	Cervical left rotation angle ±10% or 5° Maximum cervical left rotation angle % Impairment	Yes / No
Cervical right rotation	Cervical right rotation angle ±10% or 5° Maximum cervical right rotation angle % Impairment	Yes / No
Cervical ankylosis in rotation	Position % Impairment	(Excludes any impairment for abnormal rotation)

Total cervical range of motion and ankylosis* impairment _____ %

Total cervical range of motion = % impairments of flexion + extension + left lateral bending + right lateral bending + left rotation + right rotation

* If ankylosis is present, combine the ankylosis impairment with the range-of-motion impairment (Combined Values Chart, p. 604). If ankyloses in several planes are present, combine the estimates (Combined Values Chart), then combine the result with the range-of-motion impairment.

ADL's

Play Role in Impairment

JAN 22, 2005

AMERICAN MEDICAL ASSOCIATION

'Guides to the Evaluation of Permanent Impairment', *Fifth Edition*

You Must Have The AMA Book to Perform Impairment Ratings
Call The AMA at 1-800-621-8335 to Order the Book Above

Page 4: "Impairment percentages or ratings developed by medical specialists are consensus-driven estimates that reflect the severity of the medical condition and the degree to which the impairment decreases an individual's ability, to perform common activities of daily living (ADL), *excluding work*. Impairment ratings were designed to reflect functional limitations and not disability. The whole person impairment percentages listed in the *Guide's* estimate the impact of the impairment on the individual's overall ability to perform activities of daily living, *excluding work, as listed in Table 1-2." (Below)*

Table 1-2 Activities of Daily Living Commonly Measured in Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL) Scales [6,7]

Activity	Example
Self-care, personal hygiene	Urinating, defecating, brushing teeth, combing hair, bathing, dressing oneself, eating
Communication	Writing, typing, seeing, hearing, speaking
Physical activity	Standing, sitting, reclining, walking, climbing stairs
Sensory function	Hearing, seeing, tactile feeling, tasting, smelling
Nonspecialized hand activities	Grasping, lifting, tactile discrimination
Travel	Riding, driving, flying
Sexual function	Orgasm, ejaculation, lubrication, erection
Sleep	Restful, nocturnal sleep pattern

Pain Add On

- **Pain Add On - Example:**

Body Parts	Chapter Number	Table/Figure Number
Pain Related Impairment (Slight)	18-Page 574	Figure 18-1

- Page 5 of the AMA Guides indicates…"The *Guides* refers to common ADLs, as listed in Table 1-2. The ADLs listed in this table correspond to the activities that physicians should consider when establishing a permanent impairment rating. *A physician can often assess a person's ability to perform ADLs based on knowledge of the patient's medical condition and clinical judgment.*"

- A **3% whole person impairment for pain** may be assigned. Please review figure 18-1, page 574 of the AMA Guides and also 18.3d part C on page 573.

- Step three states "*If pain-related impairment appears to increase the burden of the individual's condition slightly, the examiner can increase the percentage found in step 1 by up to 3%. No formal assessment of pain-related impairment is required.*"

Upper Extremity AMA Rating

Goniometer

Upper Extremity
Step 1: Hand

Upper Extremity

Steps to Evaluating Impairment

<u>Section 16.9 – Page 511</u>:

(Hand):

Determine impairment (if applicable) and enter the values on the…

Upper Extremity Evaluation Record (Figure 16-1a); Part 1

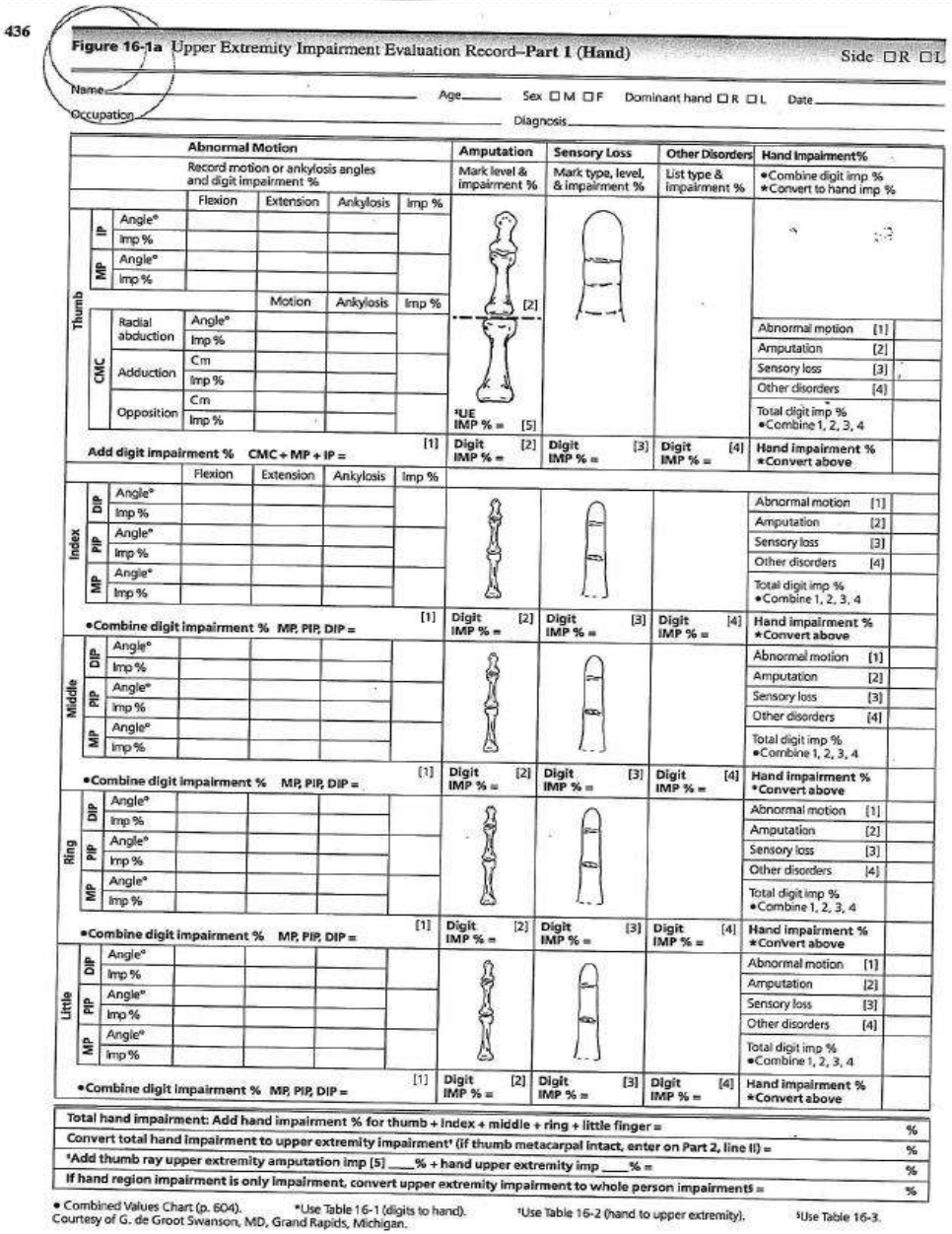


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Figure 16-1a Upper Extremity Impairment Evaluation Record—**Part 1 (Hand)** Side ☐R ☐L

Name _____ Age _____ Sex ☐M ☐F Dominant hand ☐R ☐L Date _____

Occupation _____ Diagnosis _____

		Abnormal Motion: Record motion or ankylosis angles and digit impairment %	Flexion	Extension	Ankylosis	Imp %	Amputation: Mark level & impairment %	Sensory Loss: Mark type, level, & impairment %	Other Disorders: List type & impairment %	Hand Impairment%: •Combine digit imp % •Convert to hand imp %
Thumb	IP	Angle°								
		Imp %								
	MP	Angle°								
		Imp %								
			Motion		Ankylosis	Imp %				
	CMC	Radial abduction: Angle°								
		Imp %								
		Adduction: Cm								
		Imp %								
		Opposition: Cm								
		Imp %								
							[2]			Abnormal motion [1]
										Amputation [2]
										Sensory loss [3]
										Other disorders [4]
							¹UE IMP % = [5]			Total digit imp % •Combine 1, 2, 3, 4
		Add digit impairment % CMC + MP + IP = [1]					Digit IMP % = [2]	Digit IMP % = [3]	Digit IMP % = [4]	Hand impairment % •Convert above
Index	DIP	Angle°								Abnormal motion [1]
		Imp %								Amputation [2]
	PIP	Angle°								Sensory loss [3]
		Imp %								Other disorders [4]
	MP	Angle°								Total digit imp % •Combine 1, 2, 3, 4
		Imp %								
		•Combine digit impairment % MP, PIP, DIP = [1]					Digit IMP % = [2]	Digit IMP % = [3]	Digit IMP % = [4]	Hand impairment % •Convert above
Middle	DIP	Angle°								Abnormal motion [1]
		Imp %								Amputation [2]
	PIP	Angle°								Sensory loss [3]
		Imp %								Other disorders [4]
	MP	Angle°								Total digit imp % •Combine 1, 2, 3, 4
		Imp %								
		•Combine digit impairment % MP, PIP, DIP = [1]					Digit IMP % = [2]	Digit IMP % = [3]	Digit IMP % = [4]	Hand impairment % •Convert above
Ring	DIP	Angle°								Abnormal motion [1]
		Imp %								Amputation [2]
	PIP	Angle°								Sensory loss [3]
		Imp %								Other disorders [4]
	MP	Angle°								Total digit imp % •Combine 1, 2, 3, 4
		Imp %								
		•Combine digit impairment % MP, PIP, DIP = [1]					Digit IMP % = [2]	Digit IMP % = [3]	Digit IMP % = [4]	Hand impairment % •Convert above
Little	DIP	Angle°								Abnormal motion [1]
		Imp %								Amputation [2]
	PIP	Angle°								Sensory loss [3]
		Imp %								Other disorders [4]
	MP	Angle°								Total digit imp % •Combine 1, 2, 3, 4
		Imp %								
		•Combine digit impairment % MP, PIP, DIP = [1]					Digit IMP % = [2]	Digit IMP % = [3]	Digit IMP % = [4]	Hand impairment % •Convert above

Total hand impairment: Add hand impairment % for thumb + index + middle + ring + little finger =	%
Convert total hand impairment to upper extremity impairment¹ (if thumb metacarpal intact, enter on Part 2, line II) =	%
¹Add thumb ray upper extremity amputation imp [5] ____% + hand upper extremity imp ____% =	%
If hand region impairment is only impairment, convert upper extremity impairment to whole person impairment§ =	%

• Combined Values Chart (p. 604). *Use Table 16-1 (digits to hand). †Use Table 16-2 (hand to upper extremity). §Use Table 16-3.
Courtesy of G. de Groot Swanson, MD, Grand Rapids, Michigan.

Upper Extremity
Steps to Evaluating Impairment

<u>Section 16.9 – Page 511</u>:

(Wrist, Elbow & Shoulder):

Determine impairment (if applicable) and enter the values on the…

Upper Extremity Evaluation Record (Figure 16-1b); Part 2

Figure 16-1b Upper Extremity Impairment Evaluation Record—**Part 2 (Wrist, elbow, and shoulder)** Side ☐R ☐L

Name_____ Age_____ Sex ☐M ☐F Dominant hand ☐R ☐L Date_____

Occupation_____ Diagnosis_____

Abnormal Motion Record motion or ankylosis angles and impairment %					Other Disorders List type & impairment %	Regional Impairment % •Combine [1] + [2]	Amputation Mark level & impairment %
Wrist		Flexion	Extension	Ankylosis	Imp %		
	Angle°						
	Imp %						
		RD	UD	Ankylosis	Imp %		
	Angle°						
	Imp %						
Add Imp % Flex/Ext + RD/UD = [1]					Imp % = [2]		
Elbow		Flexion	Extension	Ankylosis	Imp %		
	Angle°						
	Imp %						
		Pronation	Supination	Ankylosis	Imp %		
	Angle°						
	Imp %						
Add Imp % Flex/Ext + Pro/Sup = [1]					Imp % = [2]		
Shoulder		Flexion	Extension	Ankylosis	Imp %		
	Angle°						
	Imp %						
		Adduction	Abduction	Ankylosis	Imp %		
	Angle°						
	Imp %						
		Int Rot	Ext Rot	Ankylosis	Imp %		
	Angle°						
	Imp %						
Add Imp % Flex/Ext + Add/Abd + Int Rot/Ext Rot = [1]					Imp % = [2]		Imp % =

I. Amputation impairment (other than digits)	=	%
II. Regional impairment of upper extremity •(Combine hand____% + wrist____% + elbow____% + shoulder____%)	=	%
III. Peripheral nerve system impairment	=	%
IV. Peripheral vascular system impairment	=	%
V. Other disorders (not included in regional impairment)	=	%
Total upper extremity impairment (•Combine I, II, III, IV, and V)	=	%
Impairment of the whole person (Use Table 16-3)	=	%

• Combined Values Chart (p. 604).

If both limbs are involved, calculate the whole person impairment for each on a separate chart and combine the percents (Combined Values Chart).

Upper Extremity
Steps to Evaluating Impairment

- Determine any HAND impairment using Figure 16-1a Upper Extremity Impairment Evaluation Record (Part 1).
- **Convert** the **Thumb Impairment** to **Hand Impairment** using (Table 16-1)

Table 16-1 Conversion of Impairment of the Digits to Impairment of the Hand*

% Impairment of Thumb	Hand	% Impairment of Index or Middle Finger	Hand	% Impairment of Ring or Little Finger	Hand
0 - 1	0	0 - 2	0	0 - 4	0
2 - 3	1	3 - 7	1	5 - 14	1
4 - 6	2	8 - 12	2	15 - 24	2
7 - 8	3	13 - 17	3	25 - 34	3
9 - 11	4	18 - 22	4	35 - 44	4
12 - 13	5	23 - 27	5	45 - 54	5
14 - 16	6	28 - 32	6	55 - 64	6
17 - 18	7	33 - 37	7	65 - 74	7
19 - 21	8	38 - 42	8	75 - 84	8
22 - 23	9	43 - 47	9	85 - 94	9
24 - 26	10	48 - 52	10	95 -100	10
27 - 28	11	53 - 57	11		
29 - 31	12	58 - 62	12		
32 - 33	13	63 - 67	13		
34 - 36	14	68 - 72	14		
37 - 38	15	73 - 77	15		
39 - 41	16	78 - 82	16		
42 - 43	17	83 - 87	17		
44 - 46	18	88 - 92	18		
47 - 48	19	93 - 97	19		
49 - 51	20	98 -100	20		
52 - 53	21				
54 - 56	22				
57 - 58	23				
59 - 61	24				
62 - 63	25				
64 - 66	26				
67 - 68	27				
69 - 71	28				
72 - 73	29				
74 - 76	30				
77 - 78	31				
79 - 81	32				
82 - 83	33				
84 - 86	34				
87 - 88	35				
89 - 91	36				
92 - 93	37				
94 - 96	38				
97 - 98	39				
99 -100	40				

* See Table 16-2 for converting hand impairment to upper extremity impairment.

Upper Extremity
Steps to Evaluating Impairment

- **Convert** the Total **Hand Impairment** to **Upper Extremity Impairment** using (Table 16-2)

Table 16-2 Conversion of Impairment of the Hand to Impairment of the Upper Extremity*

% Impairment of Hand	Upper Extremity	% Impairment of Hand	Upper Extremity	% Impairment of Hand	Upper Extremity	% Impairment of Hand	Upper Extremity	% Impairment of Hand	Upper Extremity	% Impairment of Hand	Upper Extremity
0	0	18	16	36	32	54	49	72	65	90	81
1	1	19	17	37	33			73	66	91	82
2	2	20	18	38	34	55	50	74	67	92	83
3	3			39	35	56	50			93	84
4	4	21	19			57	51	75	68	94	85
		22	20	40	36	58	52	76	68		
5	5	23	21	41	37	59	53	77	69	95	86
6	5	24	22	42	38			78	70	96	86
7	6			43	39	60	54	79	71	97	87
8	7	25	23	44	40	61	55			98	88
9	8	26	23			62	56	80	72	99	89
		27	24	45	41	63	57	81	73	100	90
10	9	28	25	46	41	64	58	82	74		
11	10	29	26	47	42			83	75		
12	11			48	43	65	59	84	76		
13	12	30	27	49	44	66	59				
14	13	31	28			67	60	85	77		
		32	29	50	45	68	61	86	77		
15	14	33	30	51	46	69	62	87	78		
16	14	34	31	52	47			88	79		
17	15			53	48	70	63	89	80		
		35	32			71	64				

* Consult Table 16-3 to convert upper extremity impairment to whole person impairment.

Upper Extremity
Steps to Evaluating Impairment

- **Convert** the Total **Upper Extremity Impairment** to a final **whole Person Impairment** using (Table 16-3)

Table 16-3 Conversion of Impairment of the Upper Extremity to Impairment of the Whole Person

% Impairment of Upper Extremity	=	Whole Person	% Impairment of Upper Extremity	=	Whole Person	% Impairment of Upper Extremity	=	Whole Person	% Impairment of Upper Extremity	=	Whole Person	% Impairment of Upper Extremity	=	Whole Person
0	=	0	20	=	12	40	=	24	60	=	36	80	=	48
1	=	1	21	=	13	41	=	25	61	=	37	81	=	49
2	=	1	22	=	13	42	=	25	62	=	37	82	=	49
3	=	2	23	=	14	43	=	26	63	=	38	83	=	50
4	=	2	24	=	14	44	=	26	64	=	38	84	=	50
5	=	3	25	=	15	45	=	27	65	=	39	85	=	51
6	=	4	26	=	16	46	=	28	66	=	40	86	=	52
7	=	4	27	=	16	47	=	28	67	=	40	87	=	52
8	=	5	28	=	17	48	=	29	68	=	41	88	=	53
9	=	5	29	=	17	49	=	29	69	=	41	89	=	53
10	=	6	30	=	18	50	=	30	70	=	42	90	=	54
11	=	7	31	=	19	51	=	31	71	=	43	91	=	55
12	=	7	32	=	19	52	=	31	72	=	43	92	=	55
13	=	8	33	=	20	53	=	32	73	=	44	93	=	56
14	=	8	34	=	20	54	=	32	74	=	44	94	=	56
15	=	9	35	=	21	55	=	33	75	=	45	95	=	57
16	=	10	36	=	22	56	=	34	76	=	46	96	=	58
17	=	10	37	=	22	57	=	34	77	=	46	97	=	58
18	=	11	38	=	23	58	=	35	78	=	47	98	=	59
19	=	11	39	=	23	59	=	35	79	=	47	99	=	59
												100	=	60

Upper Extremity
Step 2: Wrist, Elbow, Shoulder

Upper Extremity
Steps to Evaluating Impairment

- Determine any WRIST, ELBOW, SHOULDER impairment using Figure 16-1b Upper Extremity Impairment Evaluation Record (Part 2).

- **WRIST:**
- Determine the impairments due to loss of motion (AROM) (section 16.4g)
- Determine the impairment due to other disorders (i.e. tenosynovitis) (section 16.7)
- Combine the values to determine the Upper Extremity Impairment related to the WRIST.
- Enter this impairment on Line 2 (Figure 16-1b)

- **ELBOW:**
- Determine Upper Extremity Impairments due to loss of motion (AROM) (section 16.4h)
- Determine the impairment due to other disorders (section 16.7)
- Combine the values to determine the Upper Extremity Impairment related to the ELBOW.
- Enter this impairment on Line 2 (Figure 16-1b)

- **SHOULDER:**
- Determine Upper Extremity Impairments due to loss of motion (AROM) (section 16.4i)
- Determine the impairment due to other disorders (section 16.7)
- Combine the values to determine the Upper Extremity Impairment related to the SHOULDER.
- Enter this impairment on Line 2 (Figure 16-1b)

Upper Extremity
Steps to Evaluating Impairment

- Determine the TOTAL UPPER EXTREMITY IMPAIRMENT by combining parts I-IV in Figure 16-1b (below)

- NOTE: Some part(s) may not apply (i.e. no amputation, etc.)

I. Amputation impairment (other than digits)	=	%
II. Regional impairment of upper extremity *(Combine hand_____% + wrist _____% + elbow_____% + shoulder _____%)	=	%
III. Peripheral nerve system impairment	=	%
IV. Peripheral vascular system impairment	=	%
V. Other disorders (not included in regional impairment)	=	%

Upper Extremity
Steps to Evaluating Impairment

- Determine the TOTAL UPPER EXTREMITY IMPAIRMENT
- Enter on the bottom of part 2

- **Convert** the TOTAL Upper Extremity Impairment to a WHOLE PERSON IMPAIRMENT (WPI) using **Table 16-3**

Total upper extremity impairment (•Combine I, II, III, IV, and V)	=	%
Impairment of the whole person (Use Table 16-3)	=	%

• Combined Values Chart (p. 604).
If both limbs are involved, calculate the whole person impairment for each on a separate chart and *combine* the percents (Combined Values Chart).

Table 16-3 Conversion of Impairment of the Upper Extremity to Impairment of the Whole Person

% Impairment of Upper Extremity	Whole Person	% Impairment of Upper Extremity	Whole Person	% Impairment of Upper Extremity	Whole Person	% Impairment of Upper Extremity	Whole Person	% Impairment of Upper Extremity	Whole Person
0	0	20	12	40	24	60	36	80	48
1	1	21	13	41	25	61	37	81	49
2	1	22	13	42	25	62	37	82	49
3	2	23	14	43	26	63	38	83	50
4	2	24	14	44	26	64	38	84	50
5	3	25	15	45	27	65	39	85	51
6	4	26	16	46	28	66	40	86	52
7	4	27	16	47	28	67	40	87	52
8	5	28	17	48	29	68	41	88	53
9	5	29	17	49	29	69	41	89	53
10	6	30	18	50	30	70	42	90	54
11	7	31	19	51	31	71	43	91	55
12	7	32	19	52	31	72	43	92	55
13	8	33	20	53	32	73	44	93	56
14	8	34	20	54	32	74	44	94	56
15	9	35	21	55	33	75	45	95	57
16	10	36	22	56	34	76	46	96	58
17	10	37	22	57	34	77	46	97	58
18	11	38	23	58	35	78	47	98	59
19	11	39	23	59	35	79	47	99	59
								100	60

Upper Extremity Example

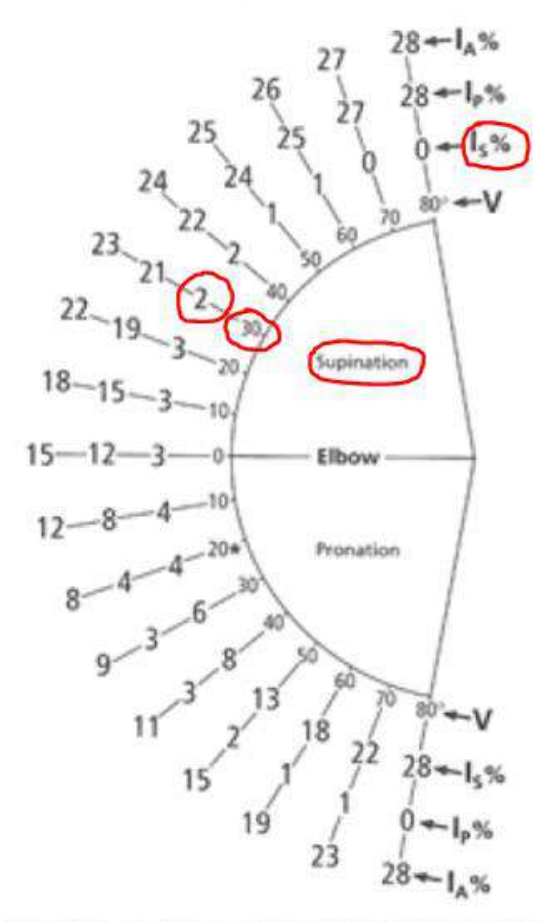
Upper Extremity Example

- **Extremity Impairment - Example:**

- DDX: (R) Elbow-Lateral Epicondylitis & (R) wrist strain
- Figure 16-34; Page 472; (Pie Chart Elbow Flexion/Extension) Chapter 16
- Figure 16-37; Page 474; (Pie Chart Elbow Supination/Pronation) Chapter 16

Right Elbow	Normal (Degrees ◦)	Exam	Exam (Mean)	Maximum Angle (WPI%)
Flexion	140	122, 125, 120	123	**2%**
Extension	0	0, 0, 0	0	**0%**
Supination	80	65, 65, 70	68	**0%**
Pronation	80	70, 72, 70	71	**1%**

Upper Extremity
Impairment Example

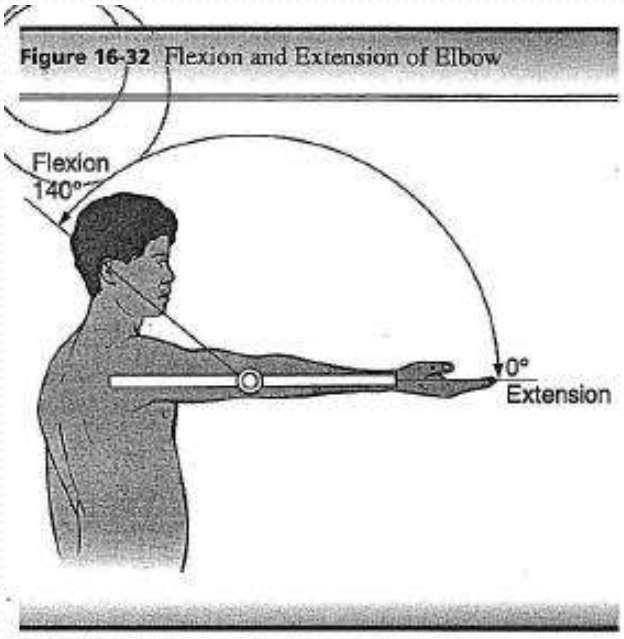


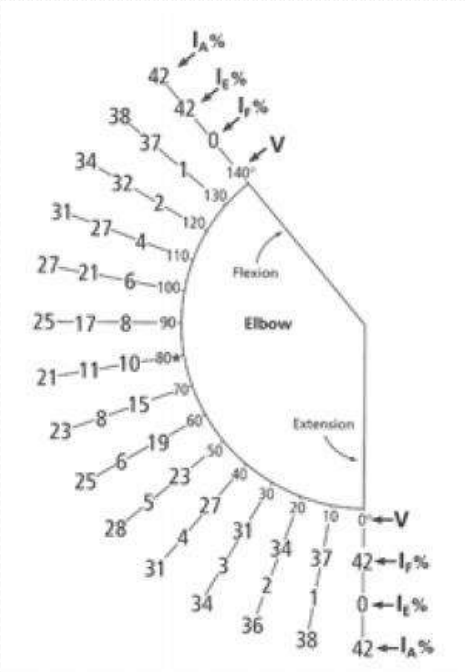
- Find elbow measurement on corresponding arc
- Supination = top of arc
- Pronation = bottom of arc
- Example:
- 30 degrees of supination represents **2% impairment**

Upper Extremity
Impairment Example

- **<u>Extremity Impairment - Example</u>:**

- DDX: (R) Elbow-Lateral Epicondylitis & (R) wrist strain
- <u>Figure 16-34; Page 472; (Pie Chart Elbow Flexion/Extension) Chapter 16</u>

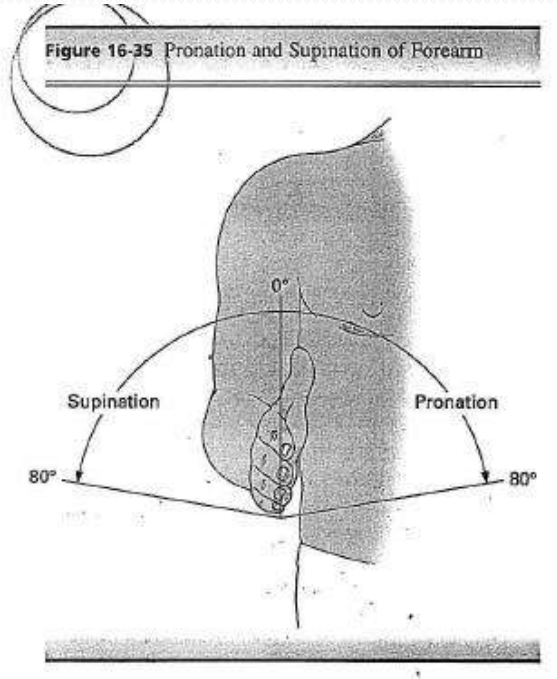


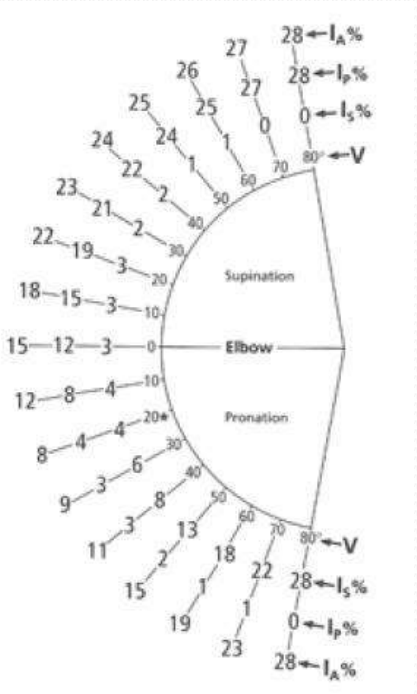


Upper Extremity
Impairment Example

- **<u>Extremity Impairment - Example</u>:**

- DDX: (R) Elbow-Lateral Epicondylitis & (R) wrist strain
- <u>Figure 16-37; Page 474; (Pie Chart Elbow Supination/Pronation) Chapter 16</u>

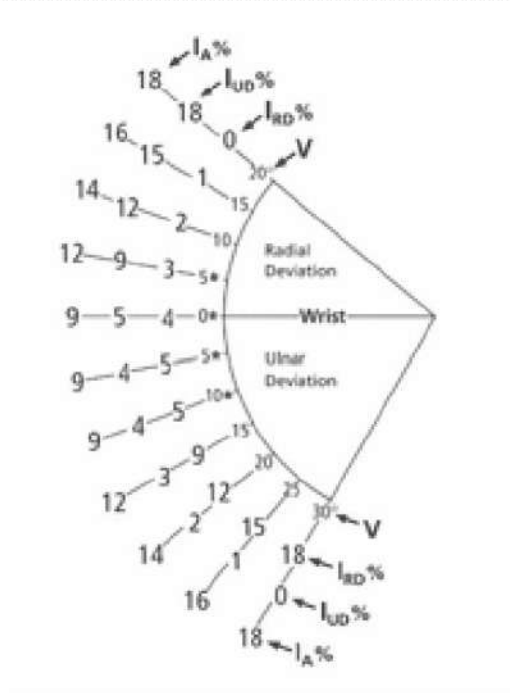




Upper Extremity
Impairment Example

- **<u>Extremity Impairment - Example</u>:**

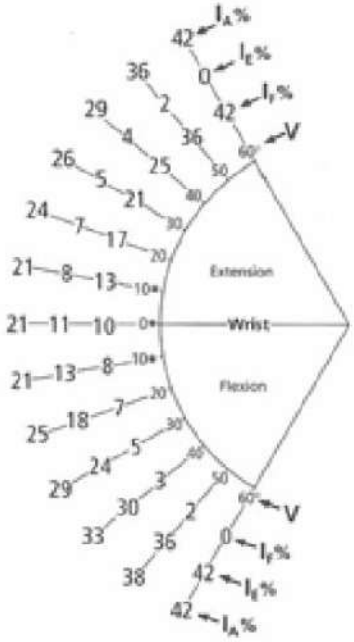
- DDX: (R) Elbow-Lateral Epicondylitis & (R) wrist strain
- <u>Figure 16-31; Page 469; (Pie Chart Wrist Radial/Ulnar Deviation) Chapter 16</u>



Upper Extremity
Impairment Example

- **<u>Extremity Impairment - Example</u>:**

- DDX: (R) Elbow-Lateral Epicondylitis & (R) wrist strain
- <u>Figure 16-28; Page 467; (Pie Chart Wrist Flexion/Extension) Chapter 16</u>



Upper Extremity
Impairment Example

- **Extremity Impairment - Example:**

- DDX: (R) Elbow-Lateral Epicondylitis & (R) wrist strain
- Figure 16-28; Page 467; (Pie Chart Wrist Flexion/Extension) Chapter 16
- Figure 16-31; Page 469; (Pie Chart Wrist Radial/Ulnar Deviation) Chapter 16

Right Wrist	Normal (Degrees ◦)	Exam	Exam (Mean)	Maximum Angle (WPI%)
Flexion	60	45, 44, 48	46	**3%**
Extension	60	47, 46, 45	46	**4%**
Radial Deviation	20	12, 14, 15	14	**1%**
Ulnar Deviation	30	17, 16, 19	18	**2%**

Upper Extremity
Impairment Example

- **Extremity Impairment - Example:**

- DDX: (R) Elbow-Lateral Epicondylitis & (R) wrist strain
- The following tables/figures are necessary to determine a rating for the upper extremities:

- Figure 16-1b; Page 437; Upper Extremity Impairment Evaluation Record (Wrist, Elbow, Shoulder); Chapter 16

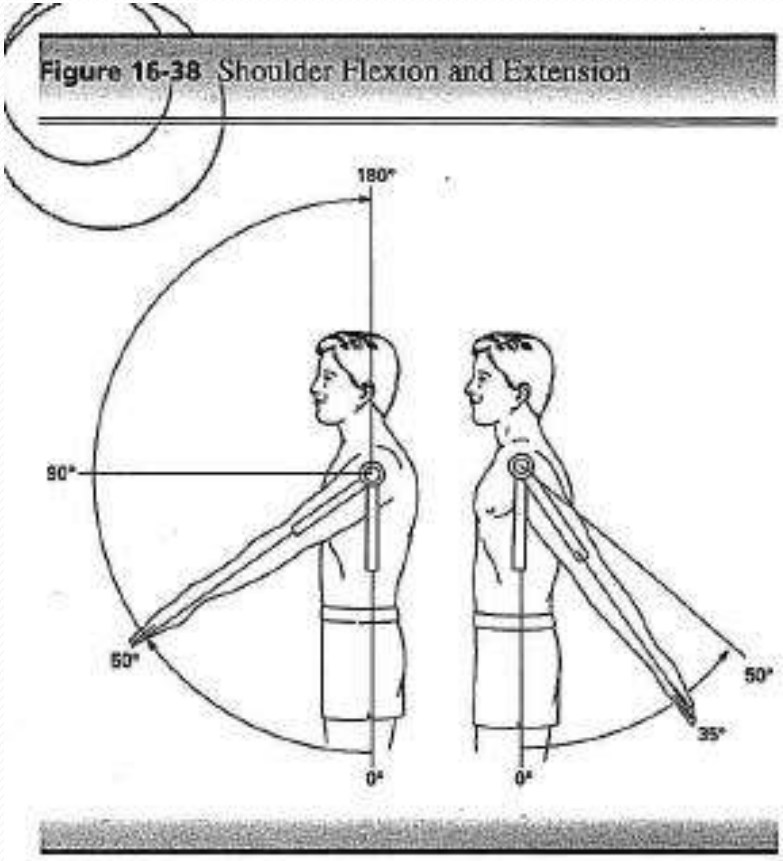
- (Right Upper Extremity) Figure 16-1b yielded:
- 10% (Wrist) and 3% (Elbow) which combines to 13%

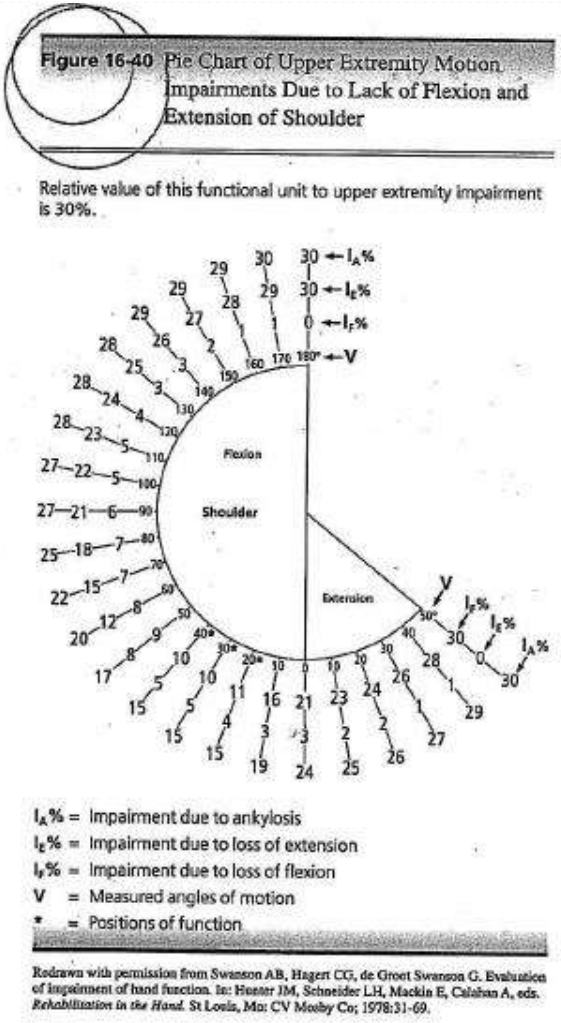
- Table 16-3 (Pg 439) was used to convert the Total Upper Extremity Impairment (13%) to Impairment of the Whole Person (8%)

- **(Right Upper Extremity) Impairment of the Whole Person = 8%**

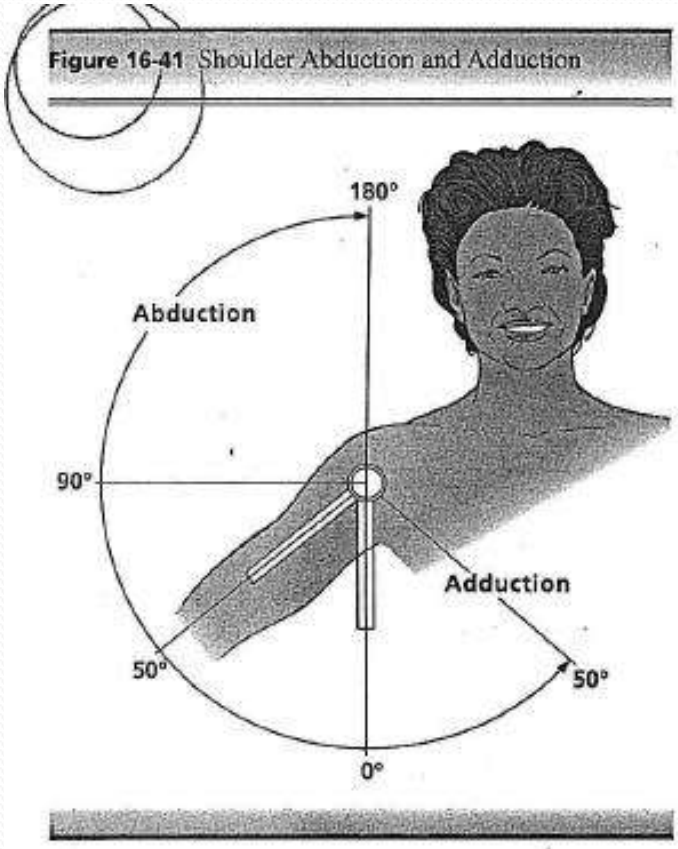
Upper Extremity Shoulder Measurements

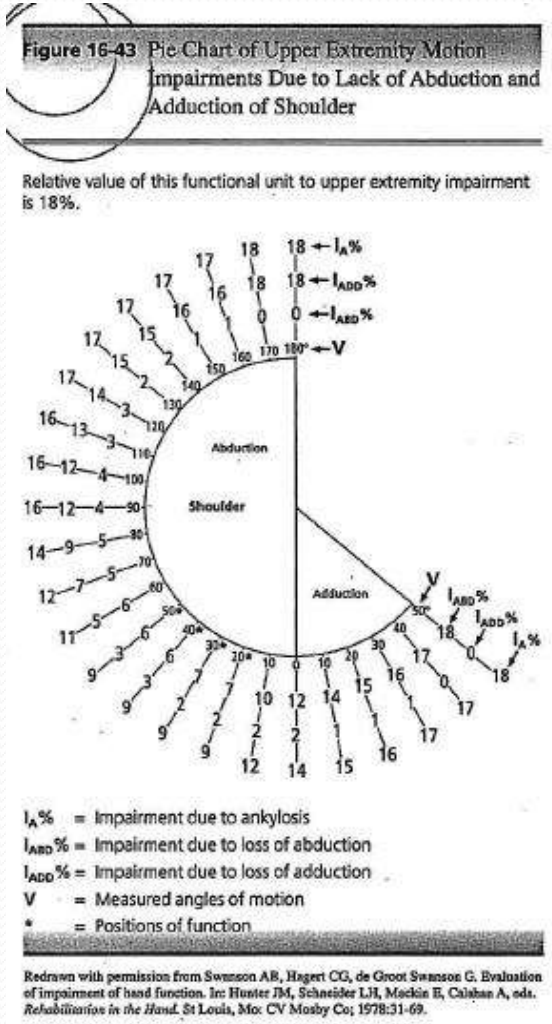
Upper Extremity Shoulder Measurements



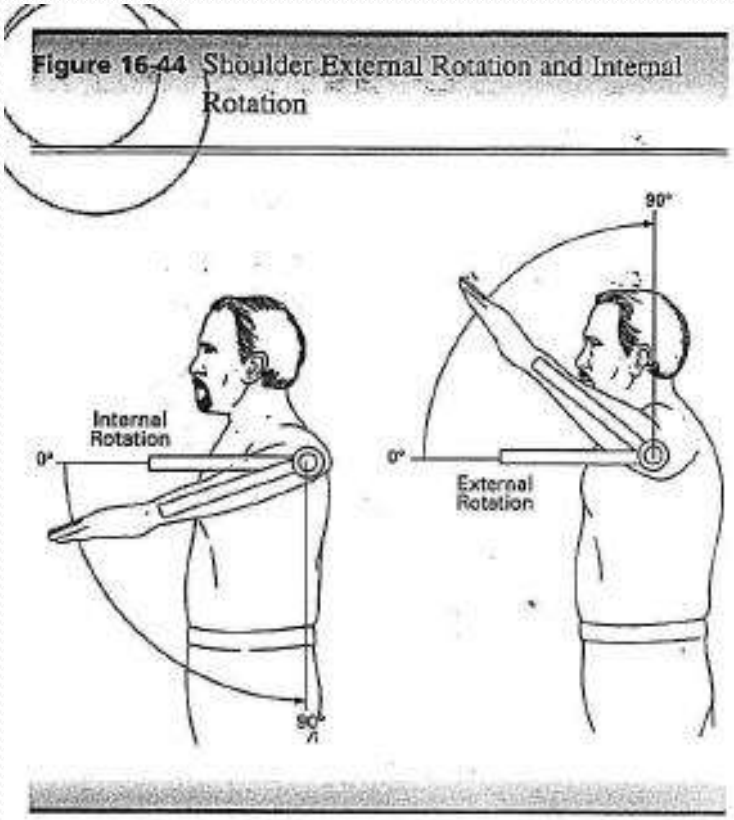


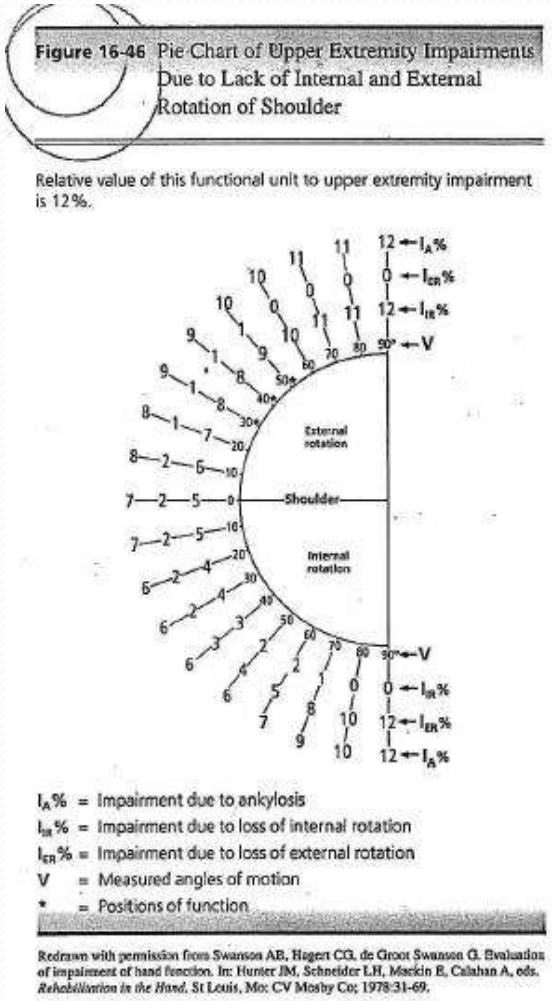
Upper Extremity Shoulder Measurements





Upper Extremity Shoulder Measurements





Still Awake?

Resources

- State of California Dept. of Insurance – *www.insurance.ca.gov*
- UR and Causation section of FAQs: *http://www.dir.ca.gov/dwc/UtilizationReview/UR_FAQ.htm*
- Division of Workers' Compensation Dept. of Industrial Relations - *http://www.dir.ca.gov/DWC*
- URAC – *www.urac.org*
- MTUS Regulations: *http://www.dir.ca.gov/dwc/DWCPropRegs/MTUS_Regulations/MTUS_Regulations.htm*.
- ACOEM-Occupational Medicine Practice Guidelines 2nd Edition 2004
- CWCI
- LexisNexis
- ICD-10 CM PMIC 2015
- CPT Plus PMIC 2012
- https://www.dir.ca.gov/t8/9795.html
- AMA Guides, 5th Edition 2005

COURSE EVALUATION FOR ADMINISTRATIVE DIRECTOR

As a part of the Administrative Director's ongoing efforts to ensure that courses for Qualified Medical Evaluators offer valuable information on California's Workers' Compensation-related medical evaluation issues, we are asking attendees of the courses approved by the Administrative Director (including distance learning programs) to complete the following Course Evaluation.

COURSE EVALUATION LINK (click here)

TO ALL ATTENDEES: PLEASE RETURN THIS FORM TO THE DWC

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