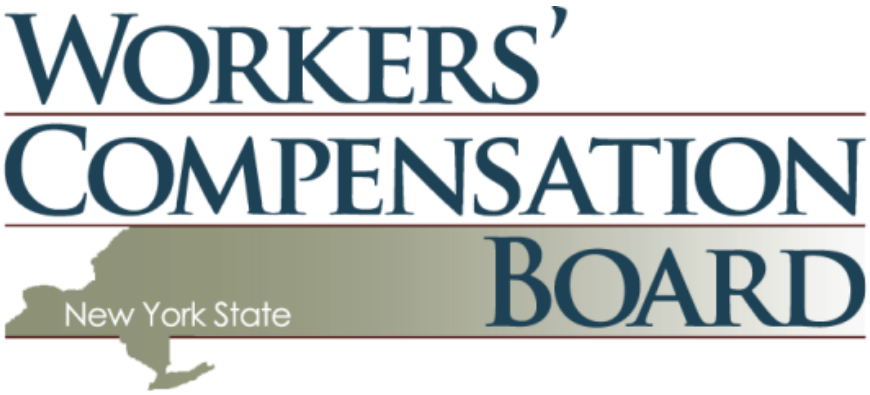


New York State Guidelines for Determining Permanent Impairment and Loss of Wage Earning Capacity

December, 2012

Table of Contents

Tables

Chapter 16: Pain

Chapter 17: Other Injuries and Occupational Diseases (Default Guideline)

Chapter 18: Medical Impairment Severity Crosswalk

Illustrations

Foreword

1996 Medical Guidelines

In 1983, the New York State Legislature established a Temporary State Commission on Workers' Compensation and Disability Benefits to study and evaluate the New York State Workers' Compensation Board systems. Appointments to the twelve-member commission in 1984 included representatives of organized labor, the insurance industry, the business community and the public-at-large. In addition, the Commissioner of Labor, the Superintendent of Insurance, and the Chair of the Workers' Compensation Board were designated ex officio members.

In 1986, the Commission issued its final recommendations, among which was the establishment of published uniform medical guidelines for the evaluation of functional impairments. The Commission stated that such guidelines should result in a more uniform evaluation process and greater consistency among providers in making functional impairment determinations, ultimately leading to a lesser amount of litigation with respect to such evaluations.

In order to meet this mandate, a committee was formed, co-chaired by the Workers' Compensation Board Medical Director and the Director of Regulator Services, including representatives of the medical profession and insurance industry. Utilizing available sources of information, including the American Medical Association's Guides to the Evaluation of Permanent Impairment 2nd edition, the committee produced a comprehensive document, 1994 Medical Guidelines, which addressed both schedule and non-schedule permanent partial disabilities. The Board published and sought comment on the 1994 Medical Guidelines, and in 1996 issued the 1996 Medical Guidelines, which have been operational from 1996 to 2011.

2007 Workers Compensation Reform and Workers Compensation Reform Task Force

In 2007, workers' compensation reform legislation established duration limitations on non-schedule permanent partial disability awards based on an injured worker's loss of wage-earning capacity (LWEC). In 2008, the Workers' Compensation Reform Task Force, and its Advisory Committee, established at the New York State Insurance Department, began developing guidelines for evaluating loss of wage earning capacity. In 2010, the Task Force issued recommended guidelines for the evaluation of medical impairment for non-schedule permanent partial disabilities, including the spine, pelvis, respiratory, cardiovascular, skin, brain, and pain. The Task Force also issued recommended guidelines for the evaluation of functional abilities and losses, but did not reach consensus on a guideline for evaluating loss of wage-earning capacity.

In the fall of 2010, the Workers' Compensation Board published and sought public comment on the proposed medical impairment and functional evaluation guidelines. Based on public comments, including input from organized labor and business, the Board updated its medical impairment guidelines. The NYS Guidelines for Determining Permanent Impairment and Loss of Wage Earning Capacity (NYS Guidelines) retain the existing guidelines for evaluating permanent impairment involving schedule permanent partial disabilities, i.e. permanent impairment involving the extremities, loss of vision or hearing, and facial disfigurement. The NYS Guidelines incorporate the Task Force's proposed medical impairment guidelines in place of the prior impairment guidelines for non-schedule impairments. The NYS Guidelines also include new sections for functional evaluation and the evaluation of loss of wage earning capacity.

Chapter 1: Introduction

Disability is a legal determination that reflects the impact of a workplace injury on the claimant's ability to work. The Workers' Compensation Law Judge establishes the level of disability based on the available medical evidence and other relevant information. Medical evidence may be submitted by the patient's health provider, a medical consultant for the employer and/or an independent medical examiner.

A distinction is made between disability and impairment. Impairment is a purely medical determination made by a medical professional, and is defined as any anatomic or functional abnormality or loss. Competent evaluation of impairment requires a complete medical examination and accurate objective assessment of function. The Guidelines provide the physician with a more uniform process to evaluate an individual's impairment resulting from a medically documented work related injury or illness.

1.1. Types of Disability under the Workers' Compensation Law

The law establishes the following types of disability in workers' compensation cases:

1. Temporary total disability
2. Permanent total disability
3. Temporary partial disability
4. Permanent partial disability

Evaluation of permanent disability occurs when there is a permanent impairment remaining after the claimant has reached maximum medical improvement (MMI). These guidelines were created for purposes of determining impairment for permanent disabilities.

1.2. Maximum Medical Improvement (MMI)

A finding of MMI is based on a medical judgment that (a) the claimant has recovered from the work injury to the greatest extent that is expected and (b) no further improvement in his/her condition is reasonably expected. The need for palliative or symptomatic treatment does not preclude a finding of MMI. In cases that do not involve surgery or fractures, MMI cannot be determined prior to 6 months from the date of injury or disablement, unless otherwise agreed to by the parties.

1.3. Role of Examining Health Providers

Health providers are obligated to provide the Board and the parties their best professional opinion based upon the Guidelines of the claimant's medical condition, degree of impairment, and functional abilities. The Guidelines provide detailed criteria for determining the severity of a medical impairment, with a greater weight given to objective findings. It is the responsibility of the health provider to submit medical evidence that the Board will consider in making a legal determination about disability.

Physicians should not infer findings or manifestations that are not drawn from the physical examination or test reports, but rather physicians should look to the objective findings of the physical examination and data as contained within the medical records of the patient. This methodology is intended to foster consistency, predictability and inter-rater reliability for determining impairment.

In order to prepare a report on permanent impairment, the physician should do the following:

1. Review the Guidelines.
2. Review the medical records.
3. Perform a thorough history and physical examination and recount the relevant medical history, examination findings and appropriate test results.
4. State the work related medical diagnosis(es) based upon the relevant medical history, examination and test results.
5. Identify the affected body part or system (include Chapter and Table No. for non-schedule disabilities); for body parts not covered by the Guidelines, see Chapter 17.
6. Follow the recommendations to establish a level of impairment.
7. For a non-schedule disability, evaluate the impact of the impairment(s) on claimant's functional and exertional abilities. See Medical Impairment and Functional Assessment Guidelines in Chapter 9.2.

1.4. Types of Final Evaluation Examination

Examining physicians will conduct final evaluation examinations in connection with the following categories of awards:

1. A schedule award for:
    a. Impairment of extremities (including nervous system impairment that impacts use of extremities, vision, or hearing)
    b. Loss of vision
    c. Loss of hearing
    d. Facial disfigurement

2. Non-schedule Award for:
    a. Classification as permanent partial disability
    b. Classification as permanent total disability

1.5. Schedule Awards

A schedule award is given not for an injury sustained, but for the residual permanent physical and functional impairments. Final adjustment of a claim by a schedule award must comply with the following medical requirements:

1. There must be a permanent impairment of an extremity, permanent loss of vision or hearing, or permanent facial disfigurement, as defined by law.
2. The impairment must involve anatomical or functional loss such as soft tissue, bone, sensation, atrophy, scarring deformity, mobility defects, loss of power, shortening, impaired dexterity or coordination.
3. The claimant must have reached maximum medical improvement.
4. No residual impairments must remain in the systemic area (i.e., head, neck, back, etc.) before the claim is considered suitable for schedule evaluation of an extremity or extremities involved in the same accident.

Workers' Compensation Law Section 15 prescribes the value for a percentage loss or loss of use of body members. See Chapter 8: Weeks by Percentage Loss of Use of Body Part for a table containing the appropriate number of weeks of compensation provided by percentage of loss.

1.6. Non-schedule Awards (Classification)

Non-schedule awards include permanent impairments that are not covered by a schedule, such as conditions of the spine and pelvis, lungs, heart, skin, and brain, as well as impairments of the extremities that are not amenable to a schedule award as described below.

Schedule Impairments Subject to Classification

Examples of impairments of the extremities not amenable to a schedule award:

1. Progressive and severe painful conditions of the major joints of the extremities such as the shoulders, elbows, hips and knees with:
    a. Objective findings of acute or chronic inflammation of one or more joints such as swelling, effusion, change of color or temperature, tenderness, painful range of motion, etc.
    b. X-ray evidence of progressive and severe degenerative arthritis.
    c. Minimal or no improvement after all modalities of medical and surgical treatment have been exhausted.

2. Chronic painful condition of an extremity commonly affecting the distal extremities such as the hands and feet, with:
    a. Complex regional pain syndrome (reflex sympathetic dystrophy), Sudeck's atrophy or chronic painful extremity syndrome
    b. Objective findings or chronic swelling, atrophy, dysesthesias, hypersensitivity or changes of skin color and temperature such as mottling.
    c. X-ray evidence of osteoporosis.
    d. Minimal or no reported improvement after claimant has undergone all modalities of chronic pain treatment.
3. Mal union of the long bones.
4. Aseptic necrosis of the head of the femur or other bones.
5. Instability of the knee joint or other major joints.
6. Advanced Paget's disease.
7. Tumors.
8. Caisson's disease involving the joints.
9. Chronic ulcerations, draining sinuses.
10. Recurrent dislocations (shoulders).
11. Amputees with neuromas or poorly healed stumps.
12. Failed joint replacement such as total hip, total knee and shoulder replacements.

1.7. Abbreviation Codes

Acronym	Definition
Mi	Mild
Mo	Moderate
Ma	Marked
F	Flexion defect
E	Extension defect
DIP	Distal interphalagneal joint
PIP	Proximal interphalangeal joint
MCP	Metacarpophalangeal joint
CMC	Carpo-metacarpal joint
MTP	Metatarsophalangeal joint
SLU	Schedule loss of use
ANCR	Accident Notice Causal Relation
ODNCR	Occupational Disease Notice Causal Relation

Chapter 2: Upper Extremities

2.1. Thumb

Table 2.1. Percent Loss of Use of the Thumb: Flexion and Extension

Joints	Mild	Moderate	Marked
IP	10-15%	20-25%	40-45%
MCP	15-20%	25-30%	45-50%
IP & MCP	20-30%	40-50%	80-90%
CMC	20-25%	30-40%	50-90%

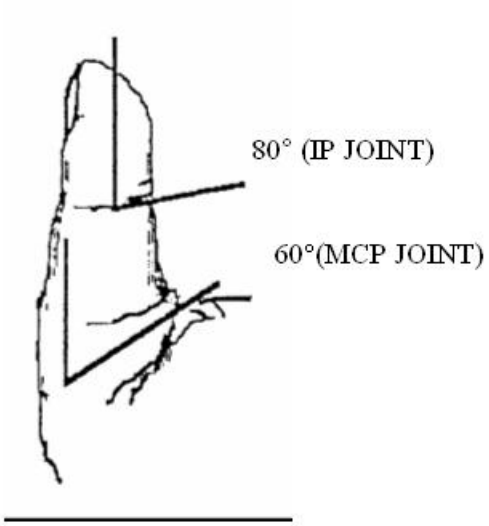


Figure 2.1. Composite Motion of the Thumb

Table 2.2: Percent Loss of Use of the Thumb: Thumb Ankylosis or Loss of Active Flexion

At IP Joint	50%
At MCP Joint	75%
At CMC Joint	80-100%

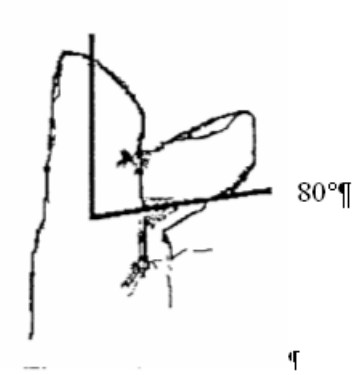


Figure 2.2. Distal IP Joint

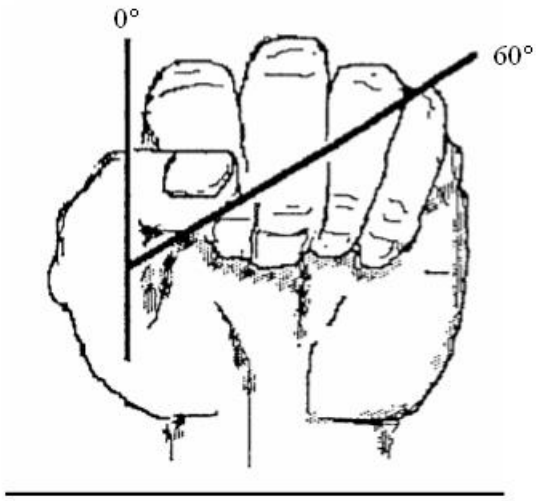


Figure 2.3. MCP Joint

Mild impairment of thumb adduction is equal to 7½ % loss of use of the thumb; radial abduction is equal to 10%; impairment of opposition is 10%. Moderate to marked mobility defects are given a higher schedule.

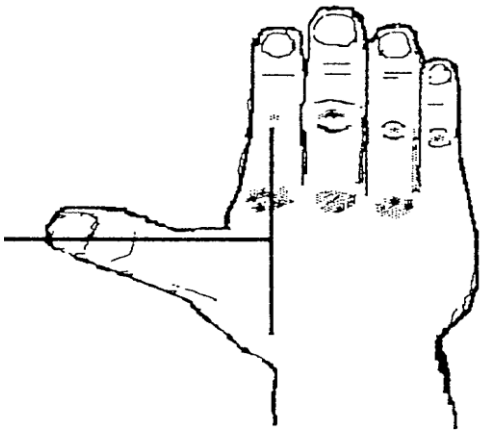


Figure 2.4. Radial Abduction

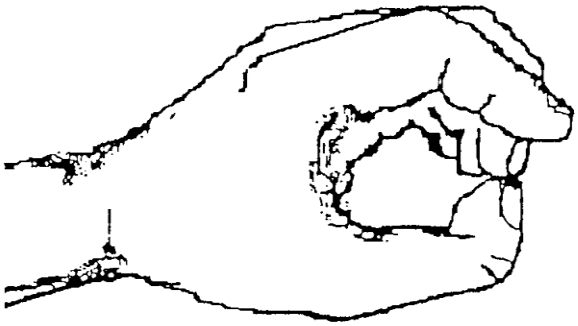


Figure 2.5. Opposition

Cases when a thumb defect becomes a hand schedule:

1. Loss of active flexion or ankylosis at CMC joint is 100% loss of use of the thumb and is usually associated with a wrist defect in which case it becomes a hand schedule.
2. A 100% loss of use of the thumb equals 75 weeks. In cases of amputation above the MCP joint, there is a load of 100% which means an additional 75 weeks. This total of 150 weeks is equal to 60% loss of use of the hand.
3. Abduction and opposition of the thumb is mainly centered on the CMC joint with possible defects at the MCP and IP joints, resulting in mild, moderate or marked impairment of pinch and grasp power of the hand. Such cases are given a hand schedule.

2.2. Fingers

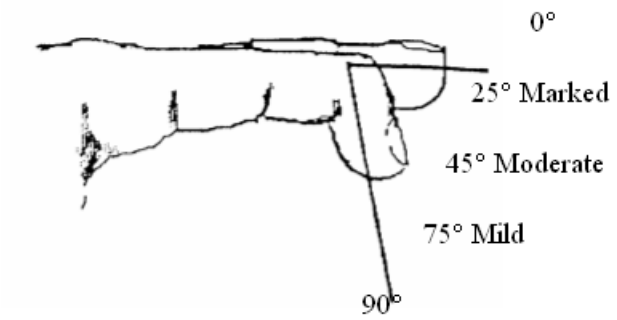


Figure 2.6. Range of Motion of DIP Joint

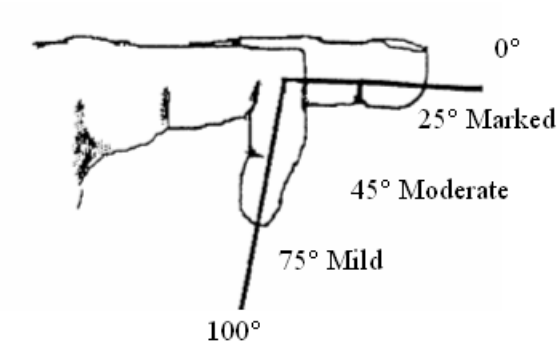


Figure 2.7. Range of Motion of PIP Joint

Table 2.3: Percent Loss of Use of the Fingers (Index, Middle, Ring, Small): Mobility Defects

Joints	Mild	Moderate	Marked
DIP	10-15%	20-25%	40-45%
PIP	15-20%	25-30%	45-50%
MCP	20-25%	30-40%	50-90%

Joint Values
In order to apply the figures in the chart, if a single motion defect is involved (flexion or extension), the lower figure applies. If both flexion and extension are involved, the higher figure applies.

Special Considerations: The following are special considerations in the final adjustment of the fingers.

1. Values for losses in all three joints are cumulative: A reduction to the sum of two major values may be in order.
2. Mallet deformity: Up to 33 1/3% loss of finger depending on degree.
3. Trigger finger: 25-33 1/3% loss of finger.
4. Loss of half or more of the distal phalanx: 50% of finger.
5. Ankylosis of DlP joint: Loss of active flexion: 50% of finger.
6. Flail DIP joint: 50% loss of finger.

Bone loss
Loss of tip of tuft of the distal phalanx equals 15% to 20% loss of use of the finger. Add percentage for mobility defect at the DIP joint if present.

Loss through the base of the tuft equals 33 1/3% loss of use of the finger.

Loss of half or all of the distal phalanx of the finger equals 50% loss of use of finger (no additional values added for mobility impairment at the DIP joint). Amputation through the DIP joint equals 50% loss of use of the finger.

Loss of any portion of the middle phalanx equals 100% loss of use of the finger.

Loss involving the proximal phalanx equals 100% loss of use of the finger.

Loss involving the entire finger and any part of the ray (metacarpal) equals 100% loss of use of the finger and is loaded 100% and converted to a hand schedule.

Schedules of below 50% in one or two digits remain in the digits. Schedules below 50% loss of use of three digits are loaded 25% and converted to a hand schedule.

Schedules of 50% or more in two or more digits are loaded 50% and converted to a hand schedule.

In cases where 100% was given for a member, additional schedules may be given under certain circumstances, e.g., amputation above the elbow receives 100% loss of the arm. In case of future shoulder injury, additional schedule may be given for the arm.

Loading
This is the amount added to a schedule to allow for weakness of grasp or major loss of function when multiple digits are affected.

In cases of loss of three fingers with less than 50% loss of use in each finger, a hand schedule is given with a 25% load.

Amputation of half of the distal phalanges of two or more digits or ankylosis of the DIP joints of two or more digits and loss of active flexion of two or more digits is loaded 50% and given a hand schedule.

Amputation through the middle phalanges of two or more digits is loaded 50% and given a hand schedule.

Amputation through the proximal phalanges of two or more digits is loaded 100% and given a hand schedule.

The load is 50% when one digit has 100% loss of use and another digit has 50% loss of use. No load is given when one digit has 50% loss of use and another has less than 50% loss of use; instead a separate percentage is given for each finger. The load is 50% when there is a 100% bone loss in either the thumb or index finger and a second digit has less than 50% loss of use.

The thumb deserves special consideration; it is the highest valued digit and the most important. The functional units of the thumb are the proximal and distal phalanges and the first metacarpal. An amputation involving the first metacarpal is loaded 100% and given a hand schedule. This is a major impairment of hand function with loss of pinch and reduced grasping power; furthermore, opportunity for reconstructive surgery is eliminated.

Amputations

Determination of residual impairment and functional loss depends on the level of amputation. Reliance on initial X-rays or reports may be misleading.

The operative amputation is frequently performed at a higher level in order to obtain adequate closure or better function. If in doubt, new post operative X-rays are needed to determine the degree of bone loss and the final level of amputation. This information will be needed in calculation of schedule loss.

Loss of all fingers at proximal phalanges equals 100% loss of use of the hand.

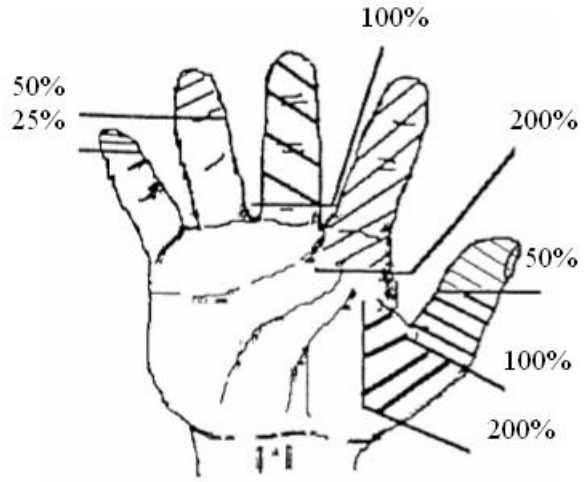


Figure 2.8. Schedule Loss of Use of the Hand Due to an Amputation

Note: Hand schedules can be verified by the usual method of calculations.

Table 2.4: Percent Loss of the Use of the Hand: Amputation of Two or More Fingers at Different Levels

Fingers	Proximal Phalanx	Middle Phalanx	Distal Phalanx
Thumb & Index	90%	75%	35%
Index & Middle	66 2/3%	50%	22 1/2%
Middle & Ring	50%	33 1/3%	15%
Ring & Small	35%	25%	12 1/2%
Index, Middle, Ring, & Small	100%	75%	35%
Index, Middle, & Ring	83 1/3%	60%	30%
Thumb, Index, & Middle	95%	90%	45%
Middle, Ring, & Small	66 2/3%	50%	25%
Thumb & Small	70%	55%	27 1/2%

Dupuytren's Contracture

There must be an ODNCR and/or ANCR for Dupuytren's Contracture before schedule evaluation thereof. Schedule loss of use should be limited to the accident or occupational disease of the folder. There is a 5% to 7 ½% loss of use of the hand if impairment is found in one finger only. A larger schedule may be given if two or three fingers are involved and function of the hand is compromised, such as grasp power.

2.3. Wrist

Amputation at the wrist equals 100% loss of use of the hand and 80% loss of use of the arm.

Ankylosis in a position of function (mild dorsiflexion) equals 60% loss of use of the hand. In any other position (palmar, marked dorsiflexion or lateral deviation), schedule increases to 70-90%.

Radial-lateral motion (20 degrees) and ulnar motion (30 degrees): any defects in these motions are not made cumulative, but may be separately considered if other findings in the wrist are normal. Marked defects in all wrist motions should not receive a total of more than 55% since ankylosis is rated 60% loss of use of the hand.

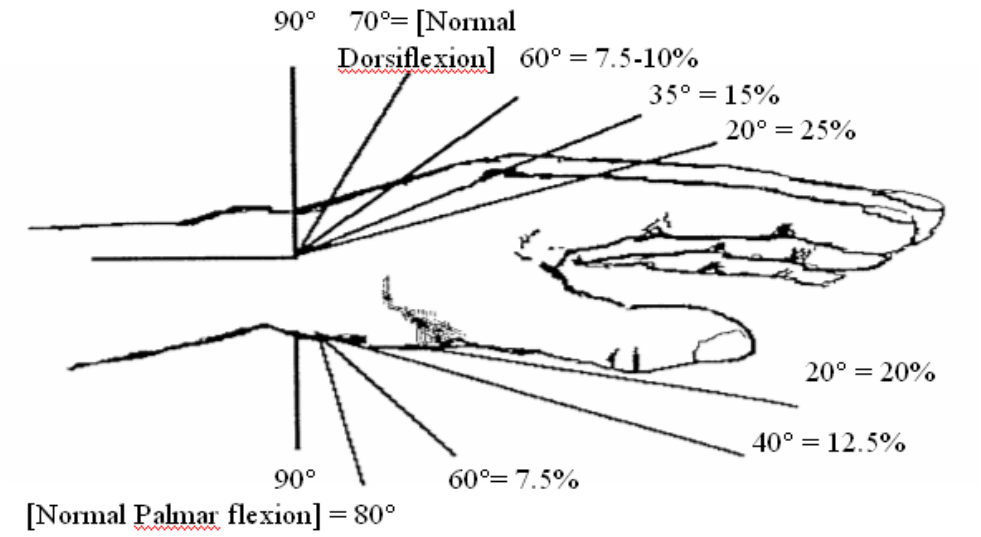


Figure 2.9. Flexion of the Wrist (Percent Loss of Use of the Hand)

Table 2.5: Palmar Flexion (80-90 degrees average)

	% Loss of Use of the Hand
Complete Loss	25%
Marked Defect (20◦)	20%
Moderate Defect (40◦)	12 ½%
Mild Defect (60◦)	7 ½%

Table 2.6: Dorsiflexion (70 degree average)

	% Loss of Use of the Hand
Complete Loss	33 ½%
Marked (20◦)	25%
Moderate Defect (35◦)	15%
Mild (60◦)	7 ½%

Table 2.7: Percent Loss of Use of the Hand: Defects of Pronation or Supination (180 degree)

	% Loss of Use of the Hand
Loss of Both	35%
Marked	25-30%
Moderate	17 ½%
Mild	7 ½-10%

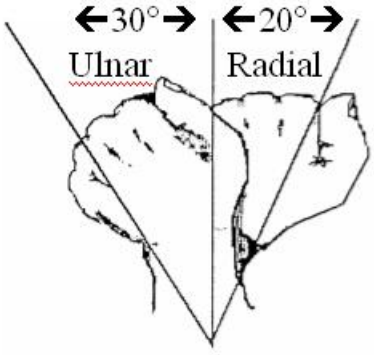


Figure 2.10. Lateral Wrist Motion

Special Considerations

1. Complete wrist drop or radial nerve palsy equals 66 2/3% loss of use of the hand; less is given for partial wrist drop
2. Darrach procedure (resection distal ulna) equals 10% loss of use of the hand for bone loss and add for mobility defects.
3. Resection "proximal row" carpal bones equals 20% loss of use of the hand for bone loss alone.
4. Navicular fracture - Hold non-union cases for two years. Give a schedule loss of use of the hand if the X-rays provide evidence of clinical union (fibrous) and if the pain is not severe. In rare, very painful condition, consider classification.
5. Kienböck's Disease - aseptic necrosis of carpal lunate. Hold until X-rays show static condition. Consider classification if condition is symptomatic.
6. Carpal Tunnel Syndrome - schedule one year post decompression if asymptomatic. If symptoms persist and become severe and disabling, consider classification.
7. De Quervain's Disease with or without surgical release equals 7 1/2-20% loss of use of the thumb depending on impairments. If there is a residual defect of the wrist and the grip power of the hand is impaired, give a schedule loss of use of the hand.
8. Ganglion of wrist equals 0-7 1/2% of hand depending on clinical findings.

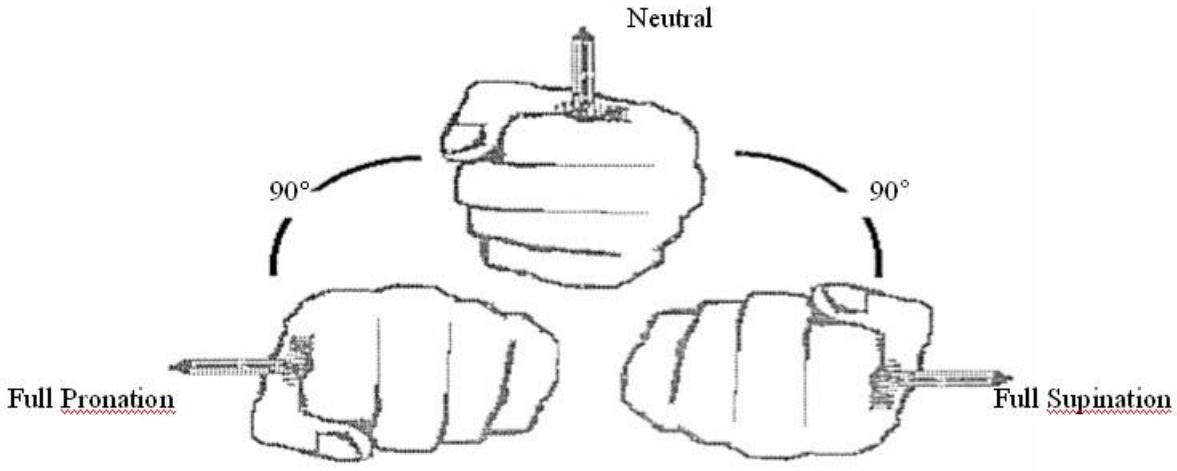


Figure 2.11. Pronation-Supination of the Wrist

2.4. Elbow

Table 2.8: Percent Loss of Use of the Arm: Amputation at Different Levels

Amputation	% Loss of Use of the Arm
At Elbow or Above	100%
Three Inches Below Elbow	95%
Mid-Forearm	90%
At Wrist Joint	80%

Ankylosis of the elbow in functional position equals 66 2/3 % loss of use of the arm. Higher percentage is given for extremes of flexion or rotation of the forearm.

Table 2.9: Percent Loss of Use of the Arm: Extension Defects of the Elbow

Range of Motion	% Loss of Use of the Arm
150 degree flexion to 45 degree extension	25%
150 degree flexion to 90 degree extension	50%
150 degree flexion to 125 degree extension	85%

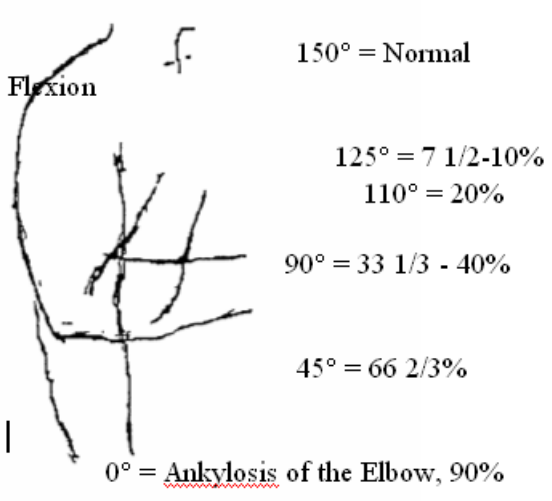


Figure 2.12. Percent Loss of Use of the Arm: Flexion Defects of the Elbow

Table 2.10: Percent Loss of Use of the Arm: Flexion Defects of the Elbow

Flexion defects of the Elbow	% Loss of Use of the Arm
To 45 degrees	66 2/3 %
To 90 degrees	33 1/3 %
To 110 degrees	20%
To 125 degrees	7 ½ %

Special Considerations

1. Loss of head of the radius equals 10% loss of use of the arm and add for mobility defects.
2. Laxity of the elbow with hyperextension defect equals 10-15% loss of use of the arm.
3. Medial and lateral epicondylitis are usually given a schedule, but if it becomes chronic, severe and disabling, consider classification.
4. Olecranon fracture and olecranon bursitis. Schedules depend on residual defects.
5. Olecranon excision equals 10% loss of the use of the arm for bone loss and add for mobility defects.

2.5. Shoulder Joint

1. Amputation from elbow to shoulder equals 100% loss of use of arm.
2. Ankylosis at scapulo-humeral joint at 0 degree equals 80% loss of use of the arm.
3. Abduction to 90 degrees equals 40% loss of use of the arm. Do not add mild defects of internal and external rotation to avoid cumulative values. May add 10-15% for marked defects of rotation and muscle atrophy.
4. Mild defect of adduction equals 7 ½%-10% loss of use of the arm.
5. Mild defect of posterior extension equals 7 ½-10% loss of use of the arm.

Table 2.11: Percent Loss of Use of the Arm: Anterior Flexion Defects of the Shoulder

Anterior Flexion to	% Loss of Use of the Arm
135 degrees	20%
90 degrees	40%
45 degrees	60%
25 degrees	70%

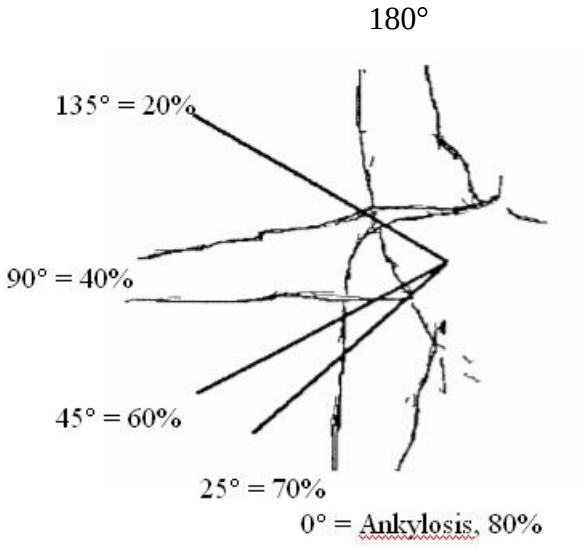


Figure 2.13. Percent Loss of Use of the Arm: Anterior Flexion Defects of the Shoulder

Complete loss of internal and external rotation equals 30% loss of use of the arm; 15% loss of use of the arm is given for each complete loss of motion.

- Marked defects of both internal and external rotation equals 20-25% loss of use of the arm.
- Moderate defects of internal and external rotation equals 15% loss of use of the arm.
- Mild defects of internal and external rotation equals 10% loss of use of the arm.
- Mild defects of internal rotation equals 7 1/2% loss of use of the arm.
- Mild defects of external rotation equals 7 1/2% loss of use of the arm.

Special Considerations

1. Dislocation of the shoulder: Do not give a schedule award until no recurrence has occurred for one year. Give a schedule award one year after the successful corrective surgery. Pre-existent recurrent dislocation of the shoulder calls for an overall schedule and apportionment.
2. Fracture of the clavicle equals 0-10% depending on degree of impairment.
3. Acromio-clavicular or sterno-clavicular separation equals 7 ½-10% loss of use of the arm.
4. Winged scapula due to Serratus Anterior Palsy and/or Trapezius Palsy may be given 15-20% loss of use of the arm depending on degree of functional impairment. For such cases do not give a schedule until two years post-surgical repair of a major nerve.
5. Resection of the clavicle, either end, equals 10% for bone loss; entire clavicle equals 15% loss of use of the arm. Add for mobility defects if present.
6. Resection of the head of the humerus with prosthesis equals 50% loss of use of the arm for anatomical bone loss. Add for mobility defects to a final schedule of 60-66 2/3% loss of use of the arm.
7. Rupture of the long head of the biceps muscle is equal to 10-15% loss of use of the arm. Rupture at distal point of insertion of the biceps is equal to 20% loss of use of the arm. Taking into consideration mobility and muscle weakness, the schedule can vary up to 33 1/3% loss of use of the arm depending on degree of impairment found.
8. Rotator cuff tear with or without surgery is given 10-15% loss of use of the arm and add for mobility defects.
9. Frozen shoulder and adhesive capsulitis (with or without surgery): if the condition is asymptomatic give a schedule loss of use of the arm. If extremely painful and all modalities of treatment exhausted, consider classification after two years.
10. The schedule is focused on the highest valued part of the extremity. In case of a high schedule for one part of the extremity calculate first for the major loss in part involved. For example, amputation at the wrist equals 100% loss of use of the hand or equals 80% loss of use of the arm. If there are additional defects of the elbow and/or shoulder add 10% to the 80% loss of use of the arm and the final schedule would be 90% loss of use of the arm.
11. Total joint replacement of the shoulder should be evaluated as other joint replacements, taking into consideration anatomical bone loss, mobility defects and muscle atrophy. Excision of the humeral head as with excision of the head of the femur is equal to 50% for anatomical bone loss. Should add 10-15% for defects of mobility and muscle atrophy. Final schedule should be 60-66 2/3% of the arm.

Chapter 3: Lower Extremities

3.1. Hip

Amputation at any level from the knee joint to the hip joint equals 100% loss of use of the leg.

Ankylosis at 0 degree at the hip joint equals 80% loss of use of the leg. Higher schedule is given for abnormal positions.

Table 3.1: Percent Loss of Use of the Leg: Anterior Flexion Defects of the Hip

Anterior Flexion of the Hip to	% Loss of Use of the Leg
90 degrees	10%
45 degrees	33 1/3%
25 degrees	66 2/3 %

Posterior extension equals 7 1/2% to 10% loss of use of the leg.

Normal abduction is 45 degrees and normal adduction is 35 degrees and loss of both equals 33 1/3% loss of use of the leg. Marked defects of both equals 25% loss of use of the leg; moderate defects of both equals 17 1/2%; mild defects of both equals 10%. Mild defect in one motion equals 7 1/2% loss of use of the leg.

Internal and external rotation: loss of both equals 30% loss of use of the leg. Marked defect of both equals 25%; moderate defect of both equals 15%; mild defect of both equals 10%. Mild defect in one equals 7 1/2% loss of use of the leg.

Shortening or lengthening of the leg equals 5% loss of use of the leg for 1/2 inch, 7 1/2% for 3/4 inch and 10% for 1 inch.

Special Considerations

1. Quadriceps Rupture: allow 15-20% for deformity and weakness. Add for mobility defects. Average schedule is 20-25% loss of use of the leg. If laxity of the knee is present, consider a higher schedule.
2. Quadriceps atrophy with weakness of extension of the knee equals 10% loss of use of the leg.
3. Excision of the head and neck of the femur with or without prosthetic replacement equals 50% loss of use of the leg for anatomical loss. Add for mobility defects. Total hip replacement has an average schedule of 60-66 2/3% loss of use of the leg.
4. Amputee with 100% loss of use of the leg can receive an additional schedule award for a second accident or consequential injury (e.g., hip fracture).
5. Hip fracture with or without surgery requires two years before final evaluation for schedule award. Request for up to date X-ray to rule out aseptic necrosis of the femoral head, loosening and displacement/malalignment of hardware. Evaluate for schedule award six months after removal of metallic fixtures
6. Synovitis of the hip, bursitis (Iliopsoas bursa, trochanteric bursa, ischiogluteal bursa): defer final evaluation for two years and usual schedule award is 0-7 1/2% loss of use of the leg.
7. Fractured pelvis could be given a schedule award at end of two years if there is residual impairment to the hip, such as restriction defects of mobility of the hip joint and atrophy of muscles of the thigh. Usual schedule is 15-20% loss of use of the leg.

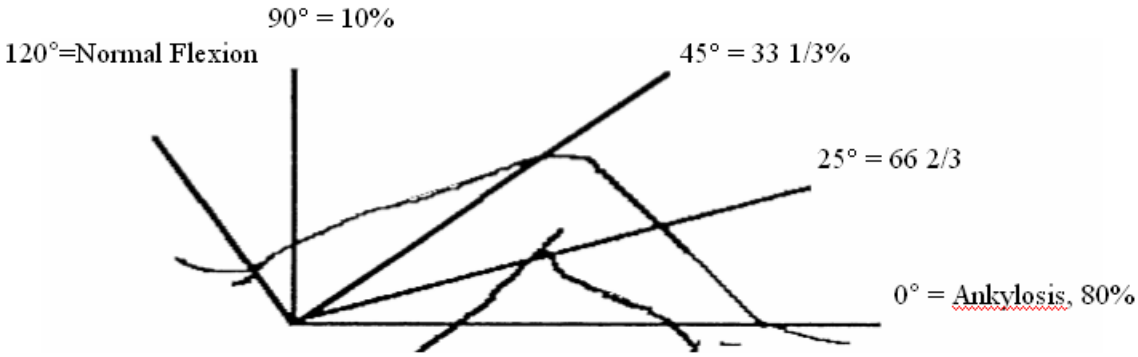


Figure 3.1. Percent Loss of Use of the Leg: Anterior Flexion Defects of the Hip

3.2. Knee

Amputation at knee joint equals 100% loss of use of the leg; at six inches below the knee equals 95%; at mid-calf equals 90%. In case of subsequent injury an amputee who has received a 100% loss of use of leg may receive an additional schedule award.

Ankylosis at 0 degrees equals 70% loss of use of the leg. Higher schedule is given for abnormal flexion ankylosis.

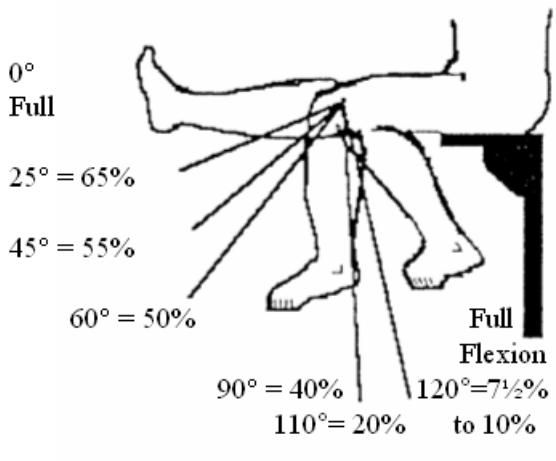


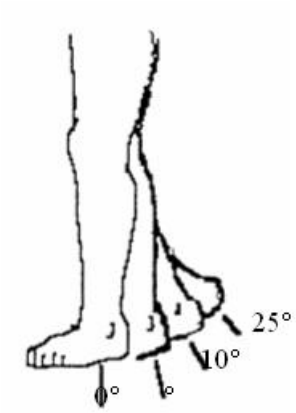
Figure 3.2. Percent Loss of Use of the Leg: Flexion Defects of the Knee

Mild defect of extension of the knee equals 7 1/2-10% loss of use of the leg.

Mild defect of flexion and extension equals 10-15% loss of use of the leg; moderate defects of flexion and extension equals 40-45%; marked defects of flexion and extension equals 66 2/3%.

Table 3.2: Percent Loss of Use of Leg: Flexion Defects of the Knee

Flexion limited to	% Loss of Use of the Leg
25 degrees	65%
30 degrees	60%
45 degrees	55%
60 degrees	50%
90 degrees	40%
110 degrees	20%
120 degrees	7 ½ - 10%



0° = Full Extension
10° = 7 1/2 - 10%
25° = 10% Leg

Figure 3.3. Percent Loss of Use of the Leg: Extension Defects of the Knee

Special considerations

1. Patella: total excision equals 15% loss of use of the leg; partial excision equals 7 ½ - 10%. Add for mobility defects and atrophy of muscles.
2. Patella fracture with internal fixation equals 7 l/2-10% loss of use of the leg.
3. Recurrent dislocation of the patella with or without surgery equals 10-15% loss of use of the leg if residual impairment is present.
4. Chondromalacia patella, mild to marked degree, equals 7 1/2%-10% loss of use of the leg, depending on the defects of motion and atrophy of muscles found.
5. Prepatellar or infapatellar bursitis equals 0 – 7 ½ % loss of use of the leg.
6. Rupture of the quadriceps tendon and patella ligament equals 10-15% loss of use of the leg.
7. Fracture of tibial plateau equals 10 -15% loss of use of the leg.
8. Osteochondritis desiccans with or without surgery equals 7 1/2 - 10% loss of use of the leg.
9. Medial or lateral meniscus excision, for one or both, equals 7 1/2-10% loss of use of the leg. With joint defects and muscle atrophy average award is 15 - 20%. Partial excision of the meniscus without defects equals 7 1/2% loss of use of the leg. Excision of the meniscus should be documented by operative report or pathological report.
10. Instability of the knee cannot be scheduled unless corrected by surgical reconstruction. If surgery fails and instability persists which will require the use of a brace, consider classification. Laxity of the ligaments (anteroposterior or lateral medial) is given a schedule loss of use of the leg.
11. Total knee replacement: Unlike the total hip replacement, there is no significant bone loss with TKR and the 50% given to anatomical loss does not apply. In almost all cases of TKR, knee flexion is usually limited to 90-110 degrees, which is equal to 35-40% loss of use of the leg. Add 10-15% for bone loss and the final schedule is 50-55% loss of use of the leg. Unfortunately, TKR wears out within ten to twelve years and may need a revision. Revision surgery tends to be less successful and have more complications than initial replacements. For these reasons, one may consider classifications rather than a schedule loss of the leg.
12. In non-functional prosthesis of an amputee with residual symptoms and complications, such as neuroma, phantom pain and chronic ulcers, consider classification.
13. Recurrent locking of the knee may not be amenable for schedule and should be disposed as a classification.
14. Tibial shaft fracture healed and no malalignment equal 0 - 10% loss of use of the leg.

3.3. Ankle and Foot

Amputation at the ankle joint equals 75% schedule loss of use of the leg.

Ankylosis at 0 degrees equals 60% schedule loss of use of the foot. Give higher schedule for abnormal position of ankylosis.

Table 3.3: Percent Loss of Use of the Foot

Pantar flexion (normal = 40 degrees)	% Loss of Use of the Foot
Complete Loss	35%
Marked Defect	25%
Moderate Defect	15%
Mild Defect	7 ½%

Table 3.4: Percent Loss of Use of the Foot: Dorsiflexion Defects

Dorsiflexion (normal = 20 degrees)	% Loss of Use of the Foot
Complete Loss	35%
Marked Defect	25%
Moderate Defect	15%
Mild Defect	7 ½%

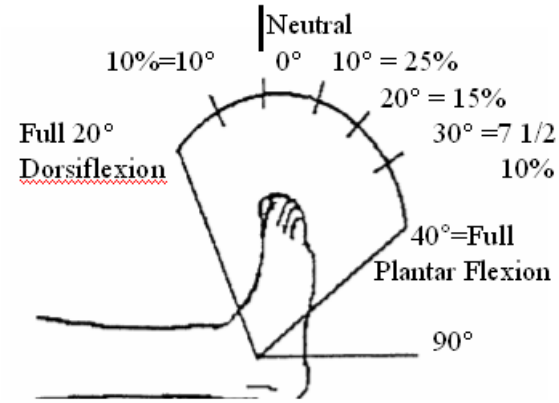


Figure 3.4. Percent Loss of Use of the Foot: Flexion Defects of the Ankle

Marked plantar flexion and dorsiflexion defect equals 40% loss of use of the foot.

Inversion – normal is 30 degrees.

Eversion – normal is 20 degrees.

Table 3.5: Percent Loss of Use of the Foot: Inversion and Eversion Defects of the Foot

Complete Loss of	% Loss of Use of the Foot
Inversion and Eversion	35%
Inversion alone	20%
Eversion alone	10%
Marked Defect of both	25%
Moderate Defect of both	17 ½ %
Mild Defect of both	10%
Mild Defect of Inversion alone	7 ½%
Mild Defect of Eversion alone	7 ½ %

Note that marked defects of all motions of the ankle and subtalar joint should not exceed 50-55% schedule loss of use of the foot since ankylosis is 60%.

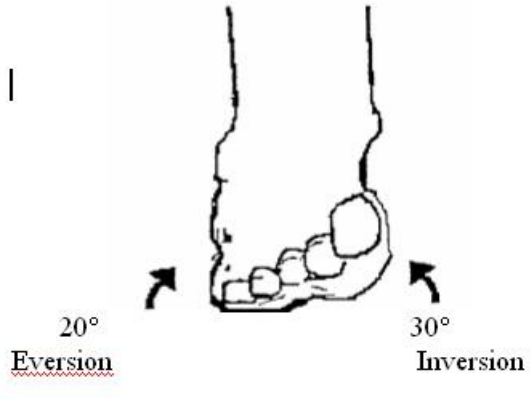


Figure 3.5. The Subtalar Joint Motion

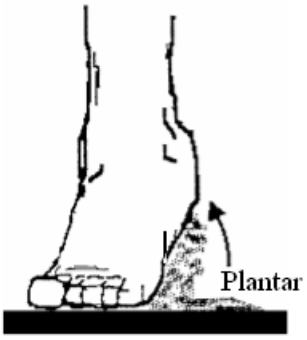


Figure 3.6. Plantar Motion

Special Considerations

1. Schedule losses must be substantiated by determination of residual permanent defects; consider tissue loss, mobility defects, sensory and motor loss, and impaired function.
2. Os calcis fracture equals an average schedule of 33 1/3-40% loss of use of the foot depending on residual mobility defects. If loss of height of the heel results in shortening of the leg, a leg schedule should be given.
3. Ankle fusion equals 75% loss of use of the foot which exceeds 60% for ankylosis if additional toe defects are present.
4. Complete foot drop equals 66 2/3% loss of use of the foot and partial foot drop equals 20 - 33 1/3%.
5. Consider a higher schedule award for severe residual neurological deficit.
6. Rupture of the Achilles tendon equals an average 20-25% loss of the foot.
7. Malleolar fractures (bimalleolar or trimalleolar) equals an average 20-30% loss of the foot.

3.4. Great Toe

Amputations

a. Amputations of the distal phalanx/distal interphalangeal joint equals 50% loss of use of the great toe.
b. Amputation of a major portion of the great toe distal phalanx equals 50% loss of use of the great toe.
c. Amputation at the metatarsophalangeal joint and/or proximal phalanx equals 100% loss of use of the great toe.

Defects of Mobility

a. Loss of active flexion or ankylosis at IP joint equals 50% loss of use of the great toe.
b. Loss of active flexion and/or ankylosis at MTP joint equals 75% loss of use of the great toe.

Table 3.6: Mild, Moderate and Marked Defects

	Mild	Moderate	Marked
IP Joint	10-15%	20-25%	40-45%
MTP Joint	15-20%	25-30%	45-50%
Both Joints	20-30%	40-50%	80-90%

3.5. Smaller Toes (Second, Third, Fourth & Fifth)

Table 3.7: Percent Loss of Use of the Toe: Amputations, Ankylosis or Loss of Active Motion

At DIP Joint	50% loss of use of the involved toes
At PIP Joint	75% loss of use of the involved toes
At MTO Joint	90-100% loss of use of the involved toes

Marked, moderate, mild (DIP, PIP, MTP) are given the same schedule values as the DIP, PIP and MCP joints of the fingers of the hand.

Special Considerations (Loading)

Amputations of two or more toes are loaded 50% and converted to a foot schedule. When there is bone loss through the metatarsals, the load is 100%. When three or more toes have defects and without bone loss, the load is 25%. Amputation through the five metatarsals is loaded to 100% and converted to a foot schedule.

Chapter 4: Nervous System

4.1. Central Nervous System – Cranial Nerves

A. First Nerve

Anosmia may be a sequelae of frontal trauma (coup or contra coup) due to fracture of the cribriform plate or injury to the perforating filaments of cranial nerves. Most common cause of anosmia is an upper respiratory infection. Anosmia may be clinically related to a fracture of the ethmoid.

B. Third, Fourth, & Sixth Nerve

Anisocoria due to trauma with Third Nerve involvement and lid droop (ptosis) may occur as well as involvement of the ciliary ganglion branches (sphincter of iris) with dilatation and reflex iridoplegia. If complete, the eye is turned outward/downward and the pupil is dilated. Fourth Nerve palsy results in diplopia looking downward (palsy of the superior oblique). With Sixth Nerve palsy there is a weakness or paralysis of abduction with a convergent squint. The clouding of the cornea, aphakia or other sequelae of eye injury may result in a permanent facial disfigurement.

C. Fifth Nerve

Any of the three branches: -- ophthalmic, maxillary or mandibular -- may be associated with a basal skull fracture due to trauma. Etiology of trigeminal neuralgia (douloureux) is not clear. Although disabling, it is not usually compensable. Bite function (masseters muscle) is the motor component of the Fifth Nerve.

D. Seventh Nerve

Traumatic injuries in the upper neck or face may involve the facial nerve. There is a loss of volitional and emotional movement of the affected side. There is an inability to elevate the eyebrow, frown, close the eye, show teeth, whistle, or purse the lips. In attempting to close the eyes the globe rolls upwards (Bell's phenomenon); on drinking, fluid spills from the affected side. If the stapedius muscle is affected there may be hyperacusis. Etiology of Bell's Palsy is unknown. Possible cause could be swelling of the stylomastoid foramen. At times it is viral with eruptions (Herpes Zoster) in the external auditory canal (Ramsey Hunt Syndrome). The etiology is obvious and not compensable. As a rule it is not a compensable injury unless there is facial or appropriate neck injury. Loss of taste on up to 2/3 of the ipsilateral tongue may occur.

E. Eighth Nerve

Eighth Nerve Components - cochlear (auditory) and vestibular (equilibrium). Unilateral loss is not that disabling but partially so. Bilateral loss is very disabling because of an impairment of communication. This can be a rather severe industrially related disability.

F. Ninth, Tenth and Eleventh Nerve

Not usually related to compensable injuries.

G. Twelfth Nerve

Unilateral loss is not really disabling and is usually related to a brainstem infarction and not trauma.

4.2. Peripheral Nervous System

A. Plexopathies

Brachial plexus injury is most frequently due to excessive stretching and compression, such as carrying heavy weights or being in a prolonged position during anesthesia, or to gunshot wounds. Avulsion of the cervical nerve root can produce a similar picture. Vehicular trauma may at times result in a complete brachial plexopathy with a paralyzed arm and total absence of reflexes.

A severe brachial plexopathy may cause a temporary total disability due to severe loss of function and pain. A milder involvement may result in a partial disability but wait for at least two years to see if defects ensue which might lead to a permanent disability or a schedule loss.

Upper brachial plexopathy affects the biceps, deltoid, supinator longus, brachialis, supraspinatus, infraspinatus and rhomboid muscles, and results in a sequelae with the arm hanging to the side and internally rotated. Hand motion is unaffected. Prognosis for recovery is good, although at times return of function is not complete. Reevaluate after two years for return of function, at which time it may be amenable for a schedule loss of use of the arm.

Lower brachial plexopathy can be associated with surgery or falls on the abducted arm. There is weakness and wasting of the small muscles of the hand and may result in a cases are usually given a high schedule loss of use of the hand.

Brachial plexopathies, even after a rib resection, usually lend themselves to a final adjustment after a two year period. Persistent severe weakness and intractable pain might necessitate considering a partial disability which might lead to a classification.

B. Thoracic Outlet Syndrome

Thoracic outlet syndrome may be related to an anomalous cervical rib, anterior scalene hyperplasia and to hyperabduction. An anomalous cervical rib arising from the 7th cervical vertebra can extend laterally between the anterior and medial scalene muscles disturbing the outlet and compressing the brachial plexus. The subclavian artery can also be compressed. Five tenths percent of the population have cervical ribs, ten percent of which are symptomatic. Sagging shoulders may have significance in women; occupational activities may play a part both in males and females. Pain and paresthesia are most commonly found. Adson's sign is helpful in making the diagnosis. The technique of performance of the test for obstruction of the subclavian artery by the scalenus anticus muscle is as follows: claimant is seated with elbows at sides and neck extended. During deep inspiration the chin is turned downwards towards the affected side while the radial pulse is palpated and there may be total obliteration. Nerve conduction studies and angiography may not be too helpful in making the diagnosis. It can be confused with cervical discs, carpal tunnel syndrome or ulnar nerve compression at the elbow. If corrected (e.g., through surgery or other modalities of treatment) and if mild symptoms and mild neurological deficit remain, it is amenable to schedule loss of use of the arm; if symptoms and deficits are severe and disabling, then consider classification.

4.3: Entrapment Neuropathies

Pathophysiology: a nerve passing through a tight canal trapped and subjected to constant movement or pressure. The epi and perineurium become greatly thickened strangling the nerve with ischemic damage. Sensory, more than motor function, is impaired and symptoms fluctuate with activity and rest.

A. Median Nerve – Carpal Tunnel Syndrome

This is the most common of peripheral nerve entrapment syndromes in the upper limb. The etiology is generally a compression of the median nerve due to thickening of the synovium around the flexor tendons at the wrist, i.e., hematoma, callus formation, malunited fractures, etc. Symptoms may include atrophy of the thenar eminence, tingling and numbness of the first three and one half fingers, weakness in opposition of the thumb, positive Tinel's test and positive Phalen's test.

Carpal Tunnel Syndrome with or without decompression is usually given a schedule loss of the hand, which usually averages 10-20% loss of use. If symptoms persist and condition becomes disabling, consider classification.

B. Ulnar Nerve - Cubital Tunnel Syndrome

Elbow

The ulnar nerve is subject to direct trauma in the elbow because of its superficial position being covered by fascia and skin only. It can be one big trauma or multiple small traumata (i.e., constant pressure on the elbow). Pressure may occur during anesthesia but more commonly the nerve is injured by being drawn tightly against the ulnar groove. The nerve is tethered as it passes through the two heads of the carpi ulnaris. Signs and symptoms are (a) burning pains and hypesthesia in the ring and small fingers, (b) inability to separate fingers due to interosseous weakness - a major portion of intrinsic muscles of the hand affected, (c) ring and small fingers are cocked up due to weakness of the flexor digitorum profundus at the MCP joint (hyperextension), (d) the hypothenar eminence flattens out due to loss of bulk. Ulnar nerve transposition is the treatment of choice. Entrapment of the ulnar nerve at the elbow is usually given a schedule loss of use of the arm if accompanied with defects at the elbow. If neurological deficit and defects of motion is confined to the hands and fingers, schedule loss of use of the hand is given.

Wrist

Wrist injury of the ulnar nerve: the palmar trunk and superficial branches are subject to direct trauma by force directed against the base of the hypothenar eminence as the bone rests on the thinly padded bone. The force may be a repetitive one as from use of a particular tool or instrument in industry such as pliers or a screwdriver. Another repetitive trauma can be from using a cane, crutches or pressure from using a splint. The most significant symptom at this level is weakness of the pinch power of the thumb and sensory loss occurs in the ring and small fingers.

C. Anterior Interosseous (Pronator Teres Syndrome)

This syndrome can occur due to compression of the median nerve as it passes through the heads of the pronator teres muscles.

Etiology: Most common is direct trauma by a heavy blow to the upper forearm. Reactive swelling of the muscles in this area can be caused by compressing the median nerve against the sublimis edge. Occult trauma such as forceful repeated pronation accompanying forceful finger flexion causes a hypertrophy of the pronator muscle which tautens the sublimis edge and compresses the median nerve.
Sensory loss is over the radial side of the palm and palmar side of the thumb, index, middle and radial half of the ring finger.

Motor findings include inability to pronate the wrist and loss of flexion of the IP joint of the thumb. In the Pronator Teres Syndrome, thenar atrophy is not as severe as in carpal tunnel syndrome. Such cases are usually given a schedule loss of use of the hand depending upon motor and sensory deficits.

D. Posterior Interosseous

Posterior Interosseous nerve syndrome is a neuropathy of the deep muscular branch of the radial nerve. This usually manifests into two distinct entities: a motor syndrome and a rarer entity, a pain syndrome. The pain syndrome is also called radial tunnel syndrome, resistant tennis elbow and clinically resembles a painful tennis elbow.

Etiology: The posterior interosseous nerve can be compressed by a tumor, ganglia, elbow synovitis or trauma. The traumatic injury may be a dislocation of the elbow, fracture of the ulna with dislocation of the radial head and radial head fractures. The posterior interosseous nerve can be injured by the compression plates used in the open reduction of fractures of the proximal radius. Compression of the nerve usually occurs at the point of entrance to the supinator muscle under the arcade of Frohse.

The clinical features of the posterior interosseous nerve motor syndrome may manifest with complete or partial weakness of the muscles supplied by the nerve, extensor carpi radialis, extensor digitorum communis, extensor indicis propius, abductor policis longus and brevis and extensor policis longus. There is usually weakness in extension of the wrist and is deviated radially. There will be weakness of the extension of the MCP joints of the fingers and thumb and weakness of abduction of the thumb radially.

Any residual neurological and functional deficit are the criteria for schedule loss of use and is usually given to the hands. If the examiner finds a defect of the elbow joint that is causally related, the schedule loss of use is given to the arms.

E. Lateral Femoral Cutaneous Nerve (Meralgia Paresthetica)

The lateral femoral cutaneous nerve is vulnerable to an entrapment neuropathy in the region of the anterior superior spine where it passes through the lateral end of the inguinal ligament. This is the binding point of the nerve. If the extremity is adducted, the nerve is tensed against the entrapment point. The ensuing neuropathy causes the burning type pain over the anterolateral thigh with some hypaesthesia. Etiology: It can follow a direct trauma to the area or a fracture of the anterior ilium. It can be caused by a shortened limb (i.e., post hip replacement) with a pelvic tilt. This causes adduction of the opposite hip stretching the deep fascia and nerve against the entrapment point. Secretaries sitting with legs crossed for prolonged periods of time may not have the same symptoms.

Meralgia Paresthetica is uncommon in workers' compensation. It is usually amenable for a schedule loss of use of the leg if there is a residual sensory deficit.

F. Tarsal Tunnel Syndrome (Posterior Tibial Entrapment)

It occurs behind and immediately below the medial malleolus. In this area the nerve is accompanied by tendons of the posterior tibialis, flexor hallucis longus and flexor digitorum longus muscles. The lancinate ligament roofs over the structure and converts the passageway into an osseofibrous tunnel. Tenosynovitis in this area can cause swelling acting as a space occupying lesion within the tarsal tunnel compressing the nerve.

Signs and symptoms include burning pain involving the toes and sole of the foot. If calcaneal branches are involved, pain is primarily in the heel. Pain may be referred along the sciatic axis to the buttock. History may furnish relevant trauma. There may be impairment of the flexion at the MTP joints of all the toes.

Pressure over the nerve may cause pain into the distribution of the posterior tibial nerve. Holding the heel in various positions may alleviate symptoms. Treatment is severing the flexor retinaculum.

Tarsal Tunnel Syndrome is quite common in Workers' Compensation. With or without surgery it is amenable for schedule loss of use of the foot depending upon residual defects of motion and neurological deficit.

G. Plantar (Morton's Metatarsalgia)

Entrapment is produced by hyperextension at the metatarsophalangeal joints in the foot. It produces pain most frequently between the 3rd and 4th toes (Morton's neuroma). There is anesthesia at the tip of the toes, also tenderness of the nerve (Interdigital) as it crosses the deep transverse ligament. These nerves come up from the sole of the foot to reach the more dorsal termination on the toes. These nerves are triggered against the transverse ligament when the toes are hyperextended at the MTP joints. Initially there is radiating pain into the 3rd and 4th toes only while walking, then pain recurs spontaneously at night.

Morton's metatarsalgia is usually given a schedule loss of use of the foot.

H. Complications of Plexus and Peripheral Nerve Injury

Pain as in sensory radiculopathies may be referred to the scleratome (i.e., muscle, fascia, periosteum and bone) and leads to an immobilization of the secondary changes in a joint; for example, a frozen shoulder may complicate cervical spondylosis.

Chapter 5: Visual System

5.1: Introduction

The purpose of this chapter is to provide criteria for use in evaluating permanent impairment resulting from dysfunction of the visual system, which consists of the eyes, ocular adnexa and the visual pathways. A method is provided for quantifying visual impairment resulting from a work-related injury. This can then be translated into a payment schedule.

The parameters for scheduling are: (1) loss of uncorrected or corrected visual acuity for objects at distance, (2) visual field loss and (3) diplopia. Evaluation of visual impairment is based on these three functions. Although they are not equally important, vision is imperfect without the coordinated function of all three.

Where there is a visible deformity related to the eye and face, this is scheduled on a per case basis.

The following equipment is necessary to test the functions of the eye:

1. Visual acuity test charts for distance vision; the Snellen test chart with letters and numbers, the illiterate E chart, or Landolt's broken-ring chart is desirable.
2. Either a Goldmann type or automated perimeter where the extent of visual field is recorded in degrees.
3. Refraction equipment or report of a recent refraction or recently prescribed glasses.
4. A hand held light with a red glass.
5. A slit lamp.
6. An ophthalmoscope.

5.2: Criteria and Methods for Evaluating Permanent Impairment

Central Visual Acuity

The chart or reflecting surface should not be dirty or discolored. The far test distance simulates infinity at 6 m (20 ft.) or at no less than 4 m (13 ft. 1 in.).

The central vision should be measured and recorded for distance with and without wearing conventional spectacles. The use of contact lens may further improve vision reduced by irregular astigmatism due to corneal injury or disease. In the absence of contraindications, if the patient is well adapted to contact lenses and wishes to wear them, correction by contact lenses is acceptable.

Visual acuity for distance should be recorded in the Snellen notation, using a fraction– where the numerator is the test distance in feet or meters – and the denominator is the distance at which the smallest letter discriminated by the patient would subtend 5 minutes of arc, that is, the distance at which an eye with 20/20 vision would see that letter. The fraction notation is one of convenience that does not imply percentage of visual acuity.

The procedure for determining the loss of central vision in one eye is as follows:

(1) Measure and record best central visual acuity for distance with and without conventional corrective spectacles or contact lens.

(2) Schedule according to the Table 1 for uncorrected or corrected visual loss (in the injured eye) whichever is greater.

Table 5.1. Visual Loss

Visual Acuity	Schedule %
20/20	0
20/20-1	5
20/20-2	7 ½
20/20-3	10
20/20-4	15
20/25	20
20/25-1	22 ½
20/25-2	25
20/30	33 1/3
20/30-1	35
20/30-2	37 ½
20/30+1	30

Visual Acuity	Schedule %
20/30 + 2 or 3	27 ½
20/40	50
20/40+2	45
20/40+3	40
20/40-1 or 2	51 ½
20/40-3	55
20/50	60
20/60	65
20/70	70
20/70-1 or 20/70-2	75
Over 75%	100%

Visual Fields

The extent of the visual field is determined by using a perimetric method with a white target. If the Goldmann 30 cm. radius bowl perimeter is used, the III/4 e target in the kinetic mode should be employed.

Determining Loss of Visual Field

The following steps are taken to determine the loss of visual field:

(1) Plot the extent of the visual field on each of the eight principal meridians of a visual field chart using Figure 5.1.

(2) Determine the percentage loss to schedule according to Table 5.2.

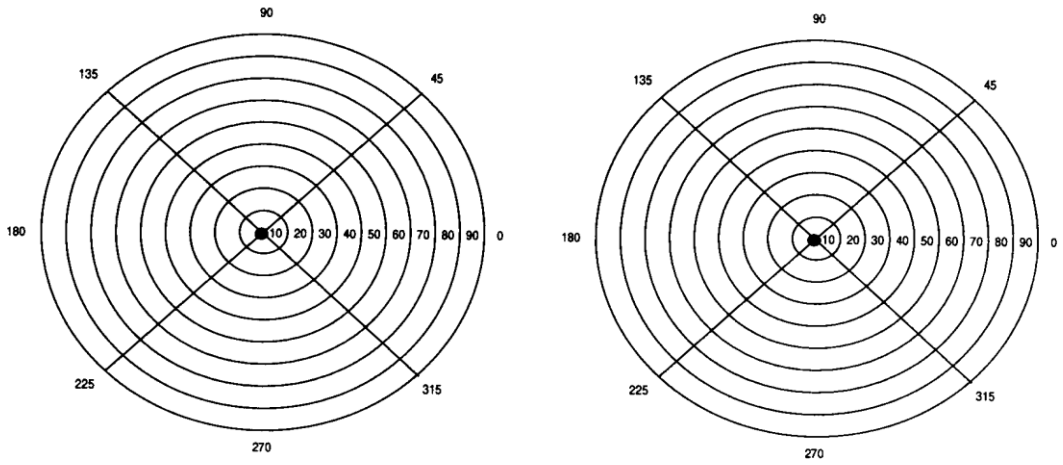


Figure 5.1. Example of Perimetric Charts

Note: These charts are used to plot extent or outline of visual field along the eight principal meridians, separated by 45 degree intervals.

Table 5.2. Visual Field Loss

Loss of	Schedule-One Eye %
Upper	33 1/3
½ of Upper	16 2/3
Lower	66 2/3
½ of Lower	33 1/3

Also: Sum of 8 principal radii of peripheral field total 420. This is 100% industrial visual field efficiency.

To calculate: Add 8 principal meridians of patient's peripheral field (x)

$$\frac{x}{420} = \%\ \text{Efficiency (y)}$$

100 - y% = % Loss to schedule for eye

Determining Schedule for Diplopia

Do red glass test, charting magnitude of diplopia within 30 degree field and calculate according to Table 5.3. Schedule to loss for the injured eye. Combine the percentage loss for diplopia with the schedule for central vision loss and visual field loss in the injured eye.

Table 5.3. Diplopia

Diplopia In	Schedule-One Eye %
Entire Upper Field	33 1/3
Half of Upper Field	16 2/3
Entire Lower Field	66 2/3
Half of Lower Field	33 1/3

Consider for 30 degree field

Chapter 6: Loss of Hearing

The waiting period for a worker to file a claim for a job-related hearing loss is three months from the date the worker leaves employment or is removed from exposure to harmful noise in the workplace (can be by way of effective protective devices). The last day of the three month period of removal is considered the worker's date of disablement.

6.1. Occupational Loss of Hearing

Under these standards which in effect measure the ability to hear normal speech, audiometric tone tests at varying intensity of sound are conducted at frequency levels of 500, 1000, 2000, 3000 Hertz (Hz).

Results at the four frequency levels are averaged and if the threshold necessary for the individual to hear sound is 25 decibels (dB) or less, no hearing impairment is considered to be present.

For every decibel that the hearing level of an ear exceeds 25 dB, hearing loss is calculated at 1 1/2 percent, up to 100 percent at 92 dB. Thus, if the worker's hearing level is 41 dB, he or she would have a hearing loss of 24 percent in that ear.

The percentage of hearing loss in the worker's better ear is multiplied by 5, and the resulting figure is added to the percentage of hearing loss in the worker's poorer ear. The total is divided by 6 and this represents the worker's overall percentage of hearing loss for which benefits are awarded.

6.2. Traumatic Loss of Hearing

Traumatic Hearing Loss - May occur as a result of a blow to the head, a strong blast of air into the ear, etc.

A different method is used to determine the degree of hearing loss as a result of trauma than as a result of occupational disease.

The scale used to measure percentage is based upon 250 Cycles Per Second (CPS) to 4000 CPS.

The schedule for complete loss of hearing for both ears is 150 weeks, and the schedule for each ear is 60 weeks. The method used to compute the loss is to take the percentage of loss in each ear, total it, and then divide it by 2.

For example:	25% in right ear
	40% in left ear
	65% total loss

Divide 65% by 2, which equals 32 ½ %.

Chapter 7: Facial Scars and Disfigurement

1. Permanent scars and disfigurement of the face and neck are usually evaluated one year post-injury and/or one year after the last surgical procedure was performed.

2. Scars and disfigurement involving the neck are limited to the region above the clavicle.

3. The scar and disfigurement should be described accurately, using such parameters as length, width, color, contour, and exact location.

4. Specific disfigurements of the eye, ear, nose and mouth are also to be noted.
   a. Common disfigurements of the eye include corneal scarring; defects of the iris and in some instances total loss of the eye with use of a prosthesis.
   b. Common disfigurements of the nose include nasal septal deviation, enlargement and tissue loss.
   c. Common disfigurements of the lips include loss of soft tissue, enlargement, and alteration of normal contour of the lips.
   d. Common disfigurements of the ear include loss of tissue and alteration of normal contour of the ear.
   e. If teeth are damaged, the dentist's report should be consulted.

Chapter 8: Weeks by Percentage Loss of Use of Body Part

Table of Weeks by Percentage Loss of Use of Body Part:

	5%	7 1/2%	8 1/3%	10%	12 1/2%	15%	16 2/3%	20%	25%	30%	33 1/3%	35%	37 1/2%	40%	45%
Arm	15 3/5	23 2/5	26	31 1/5	39	46 4/5	52	62 1/5	78	93 3/5	104	109 1/5	117	124 4/5	140 2/3
Hand	12 1/5	18 3/10	20 1/3	24 2/5	30 1/2	36 3/5	40 2/3	48 4/5	61	73 1/5	81 1/3	85 2/8	91 1/2	97 3/5	109 4/5
Thumb	3 3/4	5 5/8		7 1/2	9 3/8	11 1/4	12 1/2	15	18 3/4	22 1/2	25	26 1/4	28 1/8	30	33 3/4
First Finger	2 3/10			4 3/5	5 3/4	6 4/5	7 2/3	9 1/5	11 1/2	13 4/5	15 1/3	16 1/10	17 1/4	18 2/5	20 7/10
Second Finger	1 1/2			3	3 3/4	4 1/2	5	6	7 1/2	9	10	10 1/2	11 1/4	12	13 1/2
Third Finger	1 1/4			2 1/2	3 1/8	3 3/4	4 1/6	5	6 1/4	7 1/2	8 1/3	8 3/4	9 3/8	10	11 1/4
Fourth Finger	3/4			1 1/2	1 7/8	2 1/4	2 1/2	3	3 3/4	4 1/2	5	5 2/5	5 5/8	6	6 3/4
Leg	14 2/5	21 3/5		28 4/5	36	43 1/5	48	57 3/5	72	86 2/5	96	100 4/5	108	115 1/5	129 3/5
Foot	10 1/4	15 3/8	17 1/2	20 1/2	25 5/8	30 3/4	34 1/6	41	51 1/4	61 1/2	68 1/3	71 3/4	76 7/8	82	92 1/4
Great Toe	1 9/10	2 17/20		3 4/5	4 3/4	5 7/10	6 1/3	7 3/5	9 1/2	11 2/5	12 2/3	13 3/10	14 1/4	15 1/5	17 1/10
Other Toes	4/5			1 3/5	2	2 2/5	2 2/3	3 1/5	4	4 4/5	5 1/3	5 3/5	6	6 2/5	7 1/5
Eye	8	12		16	20	24	26 2/3	32	40	48	53 1/3	56	60	64	72
	50%	**55%**	**60%**	**62 1/2%**	**65%**	**66%**	**70%**	**75%**	**80%**	**83 1/3%**	**85%**	**87 1/2%**	**90%**	**95%**	**100%**
Arm	156	171 3/5	187 1/5	195	202 4/5	208	218 2/5	234	249 3/5	260	265 1/5	273	280 4/5	296 2/3	312
Hand	122	134 1/5	146 2/5	152 1/2	158 3/5	162 2/3	170 4/5	183	195 1/5	203 1/3	207 2/5	213 1/2	219 3/5	231 4/5	244
Thumb	37 1/2	41 1/4	45	46 7/8	48 3/4	50	52 1/2	56 1/4	60	62 1/2	63 3/4	65 5/8	67 1/2	71 1/4	75
First	23	25 3/10	27 3/5	28 3/4	29 9/10	30 2/3	32 1/5	34 1/2	36 4/5	38 1/3	39 1/10	40 1/4	41 2/5	43 7/10	46
Second	15	16 1/2	18	18 3/4	19 1/2	20	21	22 1/2	24	25	25 1/2	26 1/4	27	28 1/2	30
Third	12 1/2	13 3/4	15	15 5/8	16 1/4	16 2/3	17 1/2	18 3/4	20	20 5/6	21 1/4	21 7/8	22 1/2	23 3/4	25
Fourth	7 1/2	8 1/4	9	9 3/8	9 3/4	10	10 1/2	11 1/4	12	12 3/4	13 1/8	13 1/2	14 1/4	14 1/4	15
Leg	144	158 2/5	172 4/5	180	187 1/5	192	201 3/5	216	230 2/5	240	244 4/5	252	259 1/5	273 3/5	288
Foot	102 1/2	112 3/4	123	128 1/8	133 1/4	136 2/3	143 1/2	153 3/4	164	170 5/6	174 1/4	179 3/8	184 1/2	194 3/4	205
Great Toe	19	20 9/10	22 4/5	23 3/4	24 7/10	25 1/3	26 3/5	28 1/2	30 2/5	31 2/3	32 3/10	33 1/4	34 1/5	36 1/10	38
Other Toes	8	8 4/5	9 3/5	10	10 2/5	10 2/3	11 1/5	12	12 4/5	13 1/3	13 3/5	14	14 2/5	15 1/5	16
Eye	80	88	96	100	104	106 2/3	112	120	128	133 1/3	136	140	144	152	160

Chapter 9: Non-schedule Awards

9.1 Introduction to Non-schedule Awards

Evaluation of non-schedule permanent partial disability (PPD-NSL) involves both medical and non-medical issues. For claims with a date of injury on or after March 13, 2007 (post-reform), the duration of PPD-NSL benefits is limited based on the claimant's loss of wage earning capacity. Loss of wage earning capacity is based on three types of input:

1. Medical impairment
2. Functional ability/loss
3. Non-medical/vocational factors (e.g. education, skills, age, literacy, etc.)

.

The first two inputs are medical evidence that is provided by the treating provider and the carrier consultant, when appropriate. Section 9.2 provides further guidance for medical professionals on how to evaluate and document impairment and functional loss. The third input is non-medical evidence that is presented by the parties as part of the evaluation of loss of wage earning capacity.

The ultimate determination of loss of wage earning capacity is a legal one. Section 9.3 provides direction on how to determine loss of wage earning capacity for those with PPD-NSL. Medical professionals should not express opinions on the ultimate issue of loss of wage earning capacity, but rather should provide information on the claimant's medical impairment, functional and exertional limitations, and other medical issues relevant to the judge's determination of loss of wage earning capacity.

9.2 Medical Impairment and Functional Assessment Guidelines

To be eligible for a PPD-NSL award, an injured worker must have a permanent medical impairment that is eligible for a non-schedule award (see Chapter 1.6) and have reached maximum medical improvement (See Chapter 1.2). The treating physician should perform an impairment and functional assessment when the claimant has reached MMI and has a permanent impairment or when directed by the Board to provide such an assessment. The results of the impairment and functional assessments should be recorded on the Doctor's Report of MMI/Permanent Impairment (Form C-4.3).

Impairment Evaluation

To evaluate and rate medical impairment, a medical professional should follow the steps set forth in Chapter 1.4 and apply the evaluation criteria contained in the appropriate tables. The physician should document the injured worker's diagnosis(es) and impairment ranking, including the body part(s) or system(s), the primary impairment table(s) used to rank the severity of the impairment, and the severity ranking(s). The severity rankings provided in chapters 11 to 16 are alphabetical (A-Z). For schedule injuries that are subject to classification and body parts that are not covered by impairment guidelines, the physician should follow chapter 17.

The physician should also state the medical basis for the impairment classification, including the relevant history, physical findings and diagnostic test results. The non-schedule impairment tables provide the relevant criteria that need to be documented to satisfy a particular classification of impairment. For body parts that would otherwise be subject to a schedule, the physician should document why classification is appropriate.

Functional Evaluation

For non-schedule permanent partial disability claims, the medical assessment of the injured worker's residual functional abilities and losses is a key component in a judge's determination of loss of wage

earning capacity. An individual's ability to perform physical activities in the workplace is an important determinant of what type of work he or she can do and the level of earnings he or she may achieve.

The physician's functional evaluation should include the following considerations and be recorded on the Doctor's Report of MMI/Permanent Impairment (Form C-4.3).

1. **At-injury job**: The physician should first document whether or not the injured worker is capable of performing the work activities of the at-injury job. To understand the major work requirements of the at-injury job, the physician should request a job description or other similar documentation from the employer and speak with the claimant about the job requirements. If the employer maintains that the injured worker is capable of performing the at-injury job, the employer must provide appropriate detail about the physical job requirements. The physician should document whether the claimant can perform the at-injury job requirements based on the best information available to the physician about the job requirements at the time of evaluation.

2. **Functional ability/restrictions:** On examination, the physician should **measure** the injured worker's performance and restrictions across a range of functional abilities, including dynamic abilities (lifting, carrying, pushing, pulling and grasping), general tolerances (walking, sitting and standing) and specific tolerances (climbing, bending/stooping, kneeling, and reaching). These abilities and restrictions, including specific weight and time limitations, should be recorded on the Form C-4.3. Alternatively, the physician may refer the injured worker to a physical or occupational therapist for completion of the functional measurements and, after the physician's review, incorporate them into the Form C-4.3.

3. **Exertional ability:** Finally, the physician should rate the injured worker's residual exertional capacity according to the standard classification system of Sedentary to Very Heavy. The exertional capacities relate to those activities that require lifting and/or pushing or pulling objects. The definitions of each category, which are derived from the Dictionary of Occupational Titles and used in the Social Security system, are as follows:[1]

   Sedentary: Exerting up to 10 pounds of force occasionally and/or a negligible amount of force frequently to lift, carry, push, pull or otherwise move objects, including the human body. Sedentary work involves sitting most of the time, but may involve walking or standing for brief periods of time. Jobs are sedentary if walking and standing are required only occasionally and all other sedentary criteria are met.

   Light: Exerting up to 20 pounds of force occasionally, and/or up to 10 pounds of force frequently and/or negligible amount of force constantly to move objects. Physical requirements are in excess of those for sedentary work. Even though the weight lifted may only be a negligible amount, a job should be rated light work: (1) when it requires walking or standing to a significant degree; or (2) when it requires sitting most of the time but entails pushing and/or pulling of arm or leg controls; and/or (3) when the job requires working at a production rate pace entailing the constant pushing and/or pulling of materials even though the weight of those materials is negligible.
   NOTE: The constant stress of maintaining a production rate pace, especially in an industrial setting, can be and is physically demanding of a worker even though the amount of force exerted is negligible.

   Medium: Exerting 20 to 50 pounds of force occasionally, and/or 10 to 25 pounds of force frequently, and/or greater than negligible up to 10 pounds of force constantly to move objects. Physical demand requirements are in excess of those for light work.

Heavy: Exerting 50 to 100 pounds of force occasionally, and/or 25 to 50 pounds of force frequently, and/or 10 to 20 pounds of force constantly to move objects. Physical demand requirements are in excess of those for medium work.

Very Heavy: Exerting in excess of 100 pounds of force occasionally, and/or in excess of 50 pounds of force frequently, and/or in excess of 20 pounds of force constantly to move objects. Physical demand requirements are in excess of those for heavy work.

4. **Psychiatric limitations:** For claims involving an established, permanent psychiatric impairment, the treating provider should document the impact of the psychiatric impairment on the claimant's ability to function in the workplace, including activities that are relevant to obtaining, performing and maintaining employment (e.g. personal hygiene and grooming, interpersonal relations, etc.)

5. **Other limitations:** The physician should also document other limitations caused by the permanent impairment(s) that impact the claimant's ability to function in the workplace. This includes any limitations caused by the medical condition or treatment, including prescription medication, that impact the claimant's ability to work.

6. **Payment**: A physician who fully completes an evaluation of permanent impairment, including a full evaluation of functional limitations, on a Form C-4.3 shall be entitled to payment for a Level 5 E&M consultation code (CPT 99245).

9.3 Loss of Wage Earning Capacity (Degree of Disability)

Loss of wage-earning capacity (LWEC) is the reduction in an injured worker's earning capacity due to a work-related injury or disease. The determination of LWEC establishes the maximum number of benefit weeks available in post-reform claims pursuant to WCL §15(3)(w) (Table 9.1).

Table 9.1. LWEC and Maximum PPD Benefit

LWEC	Max. weeks of PPD benefits
>0-15%	225 weeks
>15-30%	250 weeks
>30-40%	275 weeks
>40-50%	300 weeks
>50-60%	350 weeks
>60-70%	375 weeks
>70-75%	400 weeks
>75-80%	425 weeks
>80-85%	450 weeks
>85-90%	475 weeks
>90-95%	500 weeks
>95-99%	525 weeks

The degree of LWEC is also the level of disability used to calculate the weekly benefit rate. In non-schedule awards, the weekly benefit rate is two-thirds of the difference between one's average weekly wage (AWW) and wage earning capacity (WEC). WCL §15(3)(w). The difference between AWW and WEC is equivalent to LWEC (stated as a dollar amount). Thus, even if the claim is a pre-reform claim, the level of disability, or LWEC, is determined in order to calculate the weekly benefit rate.

Weekly benefit rate = 2/3 * LWEC ($) = 2/3 * LWEC (%) * AWW

Legal Determination of Loss of Wage Earning Capacity: The Board must establish a reasonable loss of wage earning capacity based on the facts in the case. The LWEC is determined based on medical evidence and vocational factors. Medical evidence includes the nature and degree of the work-related permanent physical and/or mental impairment and its impact on the claimant's functional abilities. The inquiry seeks to quantify how much earning power an injured worker has lost in light of his or her medical impairment, functional limitations, prior work history, education, skills, and aptitudes. There is no simple formula to determine loss of wage earning capacity. See Matter of Longley Jones Management Corp., 2012 NY Wrk Comp 60704882; Matter of Buffalo Auto Recovery, 2009 NY Wrk Comp 80703905.

Medical Issues

Medical Impairment

The analysis of loss of wage earning capacity begins with an evaluation as to whether an injured worker has a permanent medical impairment and, if so, the severity of that medical impairment. To qualify for benefits under WCL § 15(3)(w), an injured worker must have a permanent medical impairment that is not subject to a schedule award, as defined by these medical impairment guidelines. These guidelines enable a physician to assess and quantify the severity of the permanent medical impairment(s) in a manner that is objective and consistent.

Each category of impairment is assigned a severity ranking from A to Z. Impairment severity is based on the estimated impact of the condition on overall health and bodily function. The physician's role is to objectively assign the category of impairment that best fits the claimant at the time of MMI.

Chapter 18 translates each impairment's letter ranking into a severity category from the least severe (category 1) to the most severe (category 6). This allows for relative comparison of the likely impact on function and wage-earning capacity of different categories of impairment across body parts.

Although it is not uncommon for an injured worker to have a permanent impairment of more than one body part or system, the guidelines do not provide for a mathematical combination of medical impairments. Rather, one must consider the impact of each impairment on function and wage earning capacity to determine their cumulative effect.

Medical impairment cannot be directly translated into loss of wage-earning capacity. The impact of impairment on one's ability to perform specific job functions or maintain employment in a particular occupation varies depending on the type of impairment, the impacted work functions, and the job's functional requirements. In general, however, more severe impairments lead to greater losses of work opportunity and reduced earning capacities.

Functional Loss

In general, permanent medical impairment reduces earning capacity by restricting the worker's ability to perform certain work related activities or tasks or limits work environments. If the impairment does not prevent the worker from performing the essential functions of the pre-injury job, the worker may be able to return to his/her former employment and, therefore, have no or very limited loss of wage earning capacity, despite having a permanent impairment. In contrast, an injury that prevents an injured worker from returning to the former occupation or any similar type of work may result in a significant loss of earning capacity. This is especially true when the worker had high earnings at the pre-injury job but is now unable, by virtue of lack of education, transferable skills, literacy or other reasons, to qualify for employment with similar wages.

In accordance with the functional guidelines, the treating physician should measure and document the injured workers' ability to perform various work-related functions such as sitting, standing, walking, and overhead reaching, and whether there are restrictions as to how long and/or frequently such activities may be performed. The physician should also evaluate the individual's residual exertional capacity such as the ability to lift or carry weights. The exertional limitations are described according to a standard classification of physical demand requirements on a scale from Sedentary to Very Heavy.[2]

Generally, one who can only perform sedentary work has fewer job options than the same person who can perform light, medium or heavy work. Yet, the impact of one's exertional loss may vary considerably depending on the type of work that one previously performed and other factors such as education and transferable skills.

In addition to physical and exertional limitations, an injured worker may have other limitations, such as environmental restrictions that preclude work in particular occupations. The impact of such restrictions will be greater if the injured worker's previous employment requires such ability.

Vocational Issues

Education and Training

Education plays a significant role in a worker's ability to qualify for different occupations and level of income. The relationship between education and loss of wage earning capacity is complicated by the fact that the impact of education is also generally reflected in workers' pre-injury wages. Those with more education generally earn more than those with less education, both pre-injury and post-injury. Thus, in determining loss of wage earning capacity, it is important to evaluate the degree that educational achievement buffers or intensifies the impact of a medical impairment on a worker's earning capacity.

For example, an injured worker whose education and training qualifies him to perform work that, despite his disability, he is physically capable of doing, and that pays similarly to his pre-injury work, will have a smaller LWEC. In contrast, an injured worker whose injury prevents him from doing his former occupation and does not have the education or training to perform any comparably paid work will have a higher LWEC.

Skills

Prior work skills are often as important as formal education in an individual's qualification for employment. Someone who has only performed unskilled or semi-skilled work in the past is unlikely to qualify for skilled work post-injury. A worker who has performed skilled work may be able to find other skilled work within his functional limitations, though this depends on the nature of the worker's job skills.

A key consideration is whether the worker's skills are readily transferable to alternative employment. The transferability of skills from a prior occupation generally depends on the similarity of occupationally significant work activities among different jobs. The similarity can be measured by the level of similarity in the degree of skill involved, the tools and machines used, and the materials, products, processes or services involved.[3]

Age

The impact of age on wage earning capacity is complex. Age should be considered in the context of residual function, education, and work experience. Generally, advancing age may adversely impact a person's ability to obtain employment that involves work that is different from one's prior work experience or requires developing new skills.

Literacy and English Proficiency

The ability to read, write, and speak English fluently is a requirement for many occupations in New York. Those who have limited or no ability to read, write or speak English fluently may still qualify to perform manual labor and other work that does not require interaction with the public or involvement with written documents. Workers who are illiterate or have limited or no English proficiency and, by virtue of their impairment, are rendered unable to perform manual work may have a significant loss of earning capacity.

Other Considerations

Other factors may be considered in determining an injured worker's loss of earning capacity. The key consideration is whether the factor impacts the injured worker's ability to perform paid employment.

Chapter 10: Medical Impairment General Principles – Non-schedule

1. Before an impairment rating is considered, the patient must reach maximum medical improvement (MMI). It is important to note that the right to appropriate medical treatment for the claim related injury or illness does not terminate upon a patient reaching MMI.

2. Classification should not occur until MMI has been reached. For purposes of these Guidelines, in cases that do not involve surgery or fractures, MMI cannot be determined prior to 6 months from the date of injury or disablement, unless otherwise agreed upon by the parties. Nothing in these Guidelines is intended to prevent an application for reclassification if the medical condition worsens.

3. Inclusion of a condition in these Medical Impairment Guidelines shall not be used as evidence that the condition is or is not work related in any particular case.

4. Objective tests, where listed in these Guidelines, generally carry more weight than subjective symptoms. The performance of objective tests should be determined by the patient's clinical condition. Inclusion of objective tests as criteria in these Medical Impairment Guidelines does not imply that the tests should be performed.

5. Medical impairment is generally predictive of residual functional ability/loss. Medical impairment cannot be directly translated to loss of wage earning capacity (LWEC).

6. Assistive devices (such as canes, crutches, wheelchairs) are not taken into account in determining medical impairment but may be considered in the assessment of residual functional ability/loss.

7. Severity ranking within a specific Impairment Table is generally predictive of the expected functional loss from the medical impairment.

8. These Guidelines cite standards of medical-scientific literature that may make reference to categories of persons based on physiological differences; this does not result in discriminatory determination of loss of wage earning capacity.

9. Nothing in these Guidelines is intended to determine whether an injury is a "grave injury" under Section 11 of the Workers' Compensation Law.

Chapter 11: Spine and Pelvis

11.1: Soft Tissue Spine Conditions

Table 11.1: Soft Tissue Spine Conditions - Non Surgically Treated

1. Table 11.1 requires a minimum duration of six months of symptoms from the time of the injury to the impairment rating and no surgical intervention.

2. The appropriate spine injury table (Table 11.1: Soft Tissue Spine Conditions - Non-Surgically Treated, or Table 11.2: Surgically Treated Spine Conditions, or Table 11.3: Vertebral Fractures) should be chosen for determining impairment to a given spinal region.

3. All references to symptoms and findings must be related to and consistent with the specific documented workplace injury. A history of workplace injury encompasses acute, repetitive or episodic events.

4. Severity rankings are from "A" (the least severe medical impairment) to "Z" (the most severe medical impairment) for the Medical Impairment Classes within a Table.

5. The severity ranking is generally predictive of the functional outcome for each Class relative to the other Classes within a Table.

6. Please state diagnosis(es) at time of impairment rating:

7. The medical impairment ranking is not to be used as a direct translation to loss of wage earning capacity.

Table 11.1: Soft Tissue Spine Conditions - Non Surgically Treated

Medical Impairment Class	**Severity Ranking**		
	Cervical	Thoracic	Lumbar
Class 1. Medically documented injury with: • no symptoms; • no clinical findings.	**None**	**None**	**None**
Class 2. Medically documented injury with all of the following: • recurrence/persistence of symptoms; • no objective clinical findings consistent with spinal pathology; • no correlative imaging findings.	A	A	A
Class 3. Medically documented injury with all of the following: • recurrence/persistence of symptoms; • no objective clinical findings consistent with spinal pathology; • correlative imaging findings.	B	B	B

Class 4. Medically documented injury with: • recurrence/persistence of symptoms; **and** • (a) weakness in myotomal distribution and/or sensory changes in dermatomal distribution; **or** • (b) tension/compression signs; **or** • (c) objective clinical findings*. The symptoms and findings must be consistent with: • spinal pathology **and** • correlative imaging findings **or** • correlative electro-diagnostic findings as described in the radiculopathy chart (Table 11.4)	C-H See Tables S11.4, S11.5, and S11.7 for determining placement within range.** (This excludes adjustments for multiple roots and root avulsion.)	C-G See Tables S11.4 and S11.7 for determining placement within range.** (This excludes adjustments for multiple roots and root avulsion.)	D-J See Tables S11.4, S11.6 and S11.7 for determining placement within range.** (This excludes adjustments for multiple roots and root avulsion.)
* *Objective clinical findings* mean atrophy or reflex changes. ** Use Tables S11.4, S11.5 and S11.6 as appropriate to determine the number of points associated with the identified radiculopathy. Then use Table S11.7 to determine the letter that corresponds to the number of points. This letter is the Severity Ranking within the radiculopathy range.			

Non-category: Medically documented injury event with subjective symptoms, with objective clinical findings consistent with spinal pathology and no correlative findings on imaging (such as x-rays, non-contrast MRI). Further objective testing is indicated to identify the underlying pathology. Pending such testing, a finding of MMI should be deferred.

Table 11.2: Surgically Treated Spine Conditions

1. The appropriate spine injury schedule (Table 11.1: Soft Tissue Spine Conditions – Non Surgically Treated, or Table 11.2: Surgically Treated Spine Conditions, or Table 11.3: Vertebral Fractures) should be chosen for determining impairment to a given spinal region.

2. All references to symptoms and findings must be related to and consistent with the specific documented workplace injury. A history of workplace injury encompasses acute, repetitive or episodic events.

3. Severity rankings are from "A" (the least severe medical impairment) to "Z" (the most severe medical impairment) for the Medical Impairment Classes within a Table.

4. The severity ranking is generally predictive of the functional outcome for each Class relative to the other Classes within a Table.

5. Please state diagnosis(es) at time of impairment rating.

6. The medical impairment ranking is not to be used as a direct translation to loss of wage earning capacity.

Table 11.2: Surgically Treated Spine Conditions

Medical Impairment Class	Severity Ranking		
	CERVICAL	**THORACIC**	**LUMBAR**
Class 1. Medically documented injury with all of the following: • related surgical intervention(s); • no residual symptoms*; • no post-surgical clinical findings.	None	None	None
Class 2. Medically documented injury with all of the following: • related surgical intervention(s); • residual symptoms*; • no objective residual clinical findings**; • no post-surgical imaging findings that can account for the symptoms.	A	A	A
Class 3. Medically documented injury with all of the following: • related surgical intervention(s); • residual symptoms*; • no objective residual clinical findings**; • post-surgical imaging findings that can account for the symptoms.	B	B	B

Table 11.2: Surgically Treated Spine Conditions			
Medical Impairment Class	**Severity Ranking**		
	CERVICAL	**THORACIC**	**LUMBAR**
Class 4. Medically documented injury with all of the following: • related surgical intervention(s); • residual symptoms; • one or more residual findings of: (a) weakness in myotomal distribution and/or sensory changes in dermatomal distribution; **or** (b) tension/compression signs; **or** (c) objective clinical findings.** Symptoms and findings must be consistent with: • post-surgical imaging findings that can account for the symptoms; **or** • post-surgical correlative electro-diagnostic findings as described in the radiculopathy chart (Table 11.4)	C-H See Tables S11.4, S11.5 and S11.7 for determining placement within range.*** (This excludes adjustments for multiple roots and root avulsion)	C-G See Tables S11.4 and S11.7 to determine placement within range*** (This excludes adjustments for multiple roots and root avulsion)	D-J See Tables S11.4, S11.6 and S11.7 to determine placement within range.*** (This excludes adjustments for multiple roots and root avulsion)
Class 5. Complications related to surgery: • symptoms consistent with the complications and **with either**: • clinical findings; **or** • imaging findings and/or lab work consistent with post-surgical consequences; does not include commonly seen post-surgical changes.	Ranking may be adjusted according to clinical circumstances.		

* *Residual symptoms* refers to symptoms from the original condition and not from post-operative complications covered in Table 11.2, Class 5, Complications Related to Surgery.
***Objective clinical findings* mean atrophy or reflex changes.
***Use Tables S11.4, S11.5 and S11.6 as appropriate to determine the number of points associated with the identified radiculopathy. Then use Table S11.7 to determine the letter that corresponds to the number of points. This letter is the Severity Ranking within the radiculopathy range.

11.2: Vertebral Fractures

Table 11.3: Vertebral Fractures

The impairments listed below are the same with or without surgery, unless otherwise indicated.

1. In the event of multiple fracture patterns to the same spinal region, the rater is to use only the highest rating from Table 11.3(a), 11.3(b) or 11.3(c). For spinal cord injury, the rater should use Table 11.8.

2. Non-adjacent fractures at distinctly different areas may be rated separately. Accompanying impairments to other organ systems are calculated separately.

3. The appropriate spine injury schedule (Table 11.1: Soft Tissue Spine Conditions – Non Surgically Treated, Table 11.2: Surgically Treated Spine Conditions, or Table 11.3: Vertebral Fractures) should be chosen for determining impairment to a given spinal region.*

4. All references to symptoms and findings must be related to and consistent with the specific documented workplace injury.

5. Severity rankings are from "A" (the least severe medical impairment) to "Z" (the most severe medical impairment) for the Medical Impairment Classes within a Table.

6. The severity ranking is generally predictive of the functional outcome for each Class relative to the other Classes within a Table.

7. **The medical impairment ranking is not to be used as a direct translation to loss of wage earning capacity.**

*** FRACTURE PATTERNS**: 11.3(a) Stable Compression/Burst Fracture Pattern; 11.3(b) Translation/Rotation Fracture Pattern (including PLC integrity); and 11.3 (c) Distraction Fracture Pattern (including PLC integrity)[4 5]

Table 11.3(a): Stable Compression/Burst Fracture Pattern

The impairments listed below are the same with or without surgery.

1. Pre-existing compression fracture should be rated only when there is objective evidence of an aggravation (i.e. permanent worsening of a prior condition) by the new injury or accident. Such objective evidence will usually require supportive imaging studies.

2. Severity rankings are from "A" (the least severe medical impairment) to "Z" (the most severe medical impairment) for the Medical Impairment Classes within a Table.

3. The severity ranking is generally predictive of the functional outcome for each Class relative to the other Classes within a Table.

4. Please state diagnosis(es) at time of impairment rating.

5. **The medical impairment ranking is not to be used as a direct translation to loss of wage earning capacity.**

Table 11.3(a): Stable Compression/Burst Fracture Pattern

Medical Impairment Class	Severity Ranking		
	CERVICAL	THORACIC	LUMBAR
Class 1. Medically documented injury with all of the following: • imaging finding(s) of healed compression fracture(s); • no residual symptoms; • no clinical findings.	None	None	None
Class 2(a). Medically documented injury with all of the following: • imaging finding(s) of healed compression fracture(s); • residual symptoms consistent with the healed compression fracture(s); • no residual clinical findings of spinal deformity), ROM limitation, or weakness.	A	A	A
Class 2(b). For compression fractures of two or more consecutive vertebrae, the severity ranking is increased by one letter for each additional vertebrae with ≥20 % compression.			

Table 11.3(a): Stable Compression/Burst Fracture Pattern			
Medical Impairment Class	**Severity Ranking**		
	CERVICAL	**THORACIC**	**LUMBAR**
Class 3(a). Medically documented injury with all of the following: • imaging finding(s) of healed compression fracture(s) with compression percentage less than or equal to 50%; • residual symptoms consistent with the healed fracture(s); • residual clinical findings consistent with the healed fracture(s). Clinical findings are one or more of the following: • spinal deformity; • ROM limitation; • sensory changes; • weakness.	B	B	B
Class 3(b). Medically documented injury with all of the following: • imaging finding(s) of healed compression fracture(s) with compression fracture percentage greater than 50%; • residual symptoms consistent with the healed fracture(s); • residual clinical findings consistent with the healed fractures. Clinical findings are one or more of the following: • spinal deformity; • ROM limitation; • sensory changes; • weakness.	C	C	C

Table 11.3(a): Stable Compression/Burst Fracture Pattern			
Medical Impairment Class	**Severity Ranking**		
	CERVICAL	**THORACIC**	**LUMBAR**
Class 4. Medically documented injury with all of the following: • imaging finding(s) of healed compression fracture(s) with compression percentage >50%; • residual symptoms consistent with the healed fracture(s); • clinical neurologic findings consistent with radiculopathy. Clinical neurologic findings consistent with radiculopathy are one or more of the following: • weakness in myotomal distribution and/or sensory changes in dermatomal distribution; **or** • tension/compression signs; **or** • objective clinical findings.* Symptoms and findings must be consistent with: • post-fracture imaging findings that can account for the symptoms; **or** • post-fracture correlative electro-diagnostic findings of fibrillation potentials and/ or positive sharp waves seen in at least 2 muscles in the distribution of a nerve root. (Table S11.4)	C-H See Tables S11.4, S11.5 and S11.7** to determine placement within range. (This excludes adjustments for multiple roots and root avulsion.)	C-G See Tables S11.4 and S11.7** to determine placement within range. (This excludes adjustments for multiple roots and root avulsion.)	D-J See Tables S11.4, S11.6 and S11.7** to determine placement within range. (This excludes adjustments for multiple roots and root avulsion.)
Class 5. Medically documented injury with all the following: • imaging finding(s) of healed compression fracture(s); • residual symptoms consistent with the healed fracture(s); • clinical neurologic findings consistent with spinal cord or cauda equina injury.***	*** See Spinal Cord Injury Table 11.8		
*_Objective clinical findings_ mean atrophy or reflex changes. **Use Tables S11.4, S11.5 and S11.6 as appropriate to determine the number of points associated with the identified radiculopathy. Then use Table S11.7 to determine the letter that corresponds to the number of points. This letter is the Severity Ranking within the radiculopathy range.			

Note: For discordant pain intensity, see Chapter 16, Pain.

Table 11.3(b):Translation/Rotation Fracture Pattern (including PLC integrity)

Typified by unilateral and bilateral dislocations, facet fracture dislocations, pars fractures with vertebral subluxation (traumatic spondylolisthesis).[6]

The impairments listed below are the same with or without surgery.

1. For compression/burst fractures, refer to Table 11.3(a).

2. Severity rankings are from "A" (the least severe medical impairment) to "Z" (the most severe medical impairment) for the Medical Impairment Classes within a Table.

3. The severity ranking is generally predictive of the functional outcome for each Class relative to the other Classes within a Table.

4. Please state diagnosis(es) at time of impairment rating.

5. **The medical impairment ranking is not to be used as a direct translation to loss of wage earning capacity.**

Table 11.3(b):Translation/Rotation Fracture Pattern (including PLC integrity)

Medical Impairment Class	Severity Ranking		
	CERVICAL	THORACIC	LUMBAR
Class 1. Medically documented injury with all of the following: • imaging finding(s) of healed fracture(s); • no residual symptoms; • no clinical findings.	None	None	None
Class 2. Medically documented injury with all of the following: • imaging finding(s) of healed displaced or non-displaced fracture(s); • residual symptoms consistent with the healed fracture(s); • no residual clinical findings of spinal deformity (kyphosis, scoliosis), tenderness, ROM limitation, sensory changes, or weakness.	A	A	A

Table 11.3(b):Translation/Rotation Fracture Pattern (including PLC integrity)			
Medical Impairment Class	**Severity Ranking**		
	CERVICAL	**THORACIC**	**LUMBAR**
Class 3. Medically documented injury with all of the following: • imaging finding(s) of healed displaced or non-displaced fracture(s) with residual symptoms consistent with the healed fracture(s); • residual clinical findings consistent with the healed fracture(s). Clinical findings are one or more of the following: • spinal deformity; • ROM limitation; • sensory changes; • weakness.	C	C	C
Class 4(a). Medically documented injury with all of the following: • imaging finding(s) of healed displaced or non-displaced fracture(s); • residual symptoms consistent with the healed fracture(s); • clinical neurologic findings consistent with radiculopathy. Clinical neurologic findings consistent with radiculopathy are one or more of the following: • weakness in myotomal distribution and/or sensory changes in dermatomal distribution; **or** • tension/compression signs; **or** • objective clinical findings.* Symptoms and findings must be consistent with: • post-fracture imaging findings that can account for the symptoms; **or** • post-fracture correlative electro-diagnostic findings of fibrillation potentials and/ or positive sharp waves seen in at least 2 muscles in the distribution of a nerve root.	C-H See Tables S11.4, S11.5 and S11.7** to determine placement within range. (This excludes adjustments for multiple roots and root avulsion.)	C-G See Tables S11.4 and S11.7** for determining placement within range. (This excludes adjustments for multiple roots and root avulsion.)	D-J See Tables S11.4, S11.6 and S11.7** for determining placement within range. (This excludes adjustments for multiple roots and root avulsion.)
Class 4(b). Displaced spinal fractures/dislocations at two or more levels, **add** the following to the severity rating for radiculopathy.	C	C	C

Table 11.3(b):Translation/Rotation Fracture Pattern (including PLC integrity)			
Medical Impairment Class	**Severity Ranking**		
	CERVICAL	**THORACIC**	**LUMBAR**
Class 5. Medically documented injury with all of the following: • imaging finding(s) of healed displaced or non-displaced fracture(s); • residual symptoms consistent with the healed fracture(s); • clinical neurologic findings consistent with spinal cord or cauda equina injury.***	***See Table 11.8: Spinal Cord Injury		
*_Objective clinical findings_ mean atrophy or reflex changes. **Use Tables S11.4, S11.5 and S11.6 as appropriate to determine the number of points associated with the identified radiculopathy. Then use Table S11.7 to determine the letter that corresponds to the number of points. This letter is the Severity Ranking within the radiculopathy range.			

Note: For discordant pain intensity, see Chapter 16: Pain

Table 11.3(c): Distraction Fracture Pattern (including PLC integrity)

Rostral spinal column becomes separated from posterior element. Fractures may be present. Kyphotic deformities. Often very unstable fractures. Angulation frequent at time of injury.[7] [8]

The impairments listed below are the same with or without surgery.

1. Severity rankings are from "A" (the least severe medical impairment) to "Z" (the most severe medical impairment) for the Medical Impairment Classes within a Table.

2. The severity ranking is generally predictive of the functional outcome for each Class relative to the other Classes within a Table.

3. Please state diagnosis(es) at time of impairment rating.

4. The medical impairment ranking is not to be used as a direct translation to loss of wage earning capacity.

Table 11.3(c): Distraction Fracture Pattern (including PLC Integrity)

Medical Impairment Class	Severity Ranking		
	CERVICAL	THORACIC	LUMBAR
Class 1. Medically documented injury with all of the following: • imaging finding(s) of healed fracture(s); • no residual symptoms; • no clinical findings.	None	None	None
Class 2. Medically documented injury with all of the following: • imaging finding(s) of healed displaced or non-displaced fracture(s); • residual symptoms consistent with the healed fracture(s); • no residual clinical findings of spinal deformity, ROM limitation, sensory changes, or weakness.	A	A	A

Table 11.3(c): Distraction Fracture Pattern (including PLC Integrity)			
Medical Impairment Class	**Severity Ranking**		
	CERVICAL	**THORACIC**	**LUMBAR**
Class 3**.** Medically documented injury with all of the following: • imaging finding(s) of healed displaced or non-displaced fracture(s) with residual symptoms consistent with the healed fracture(s); • residual clinical findings consistent with the healed fracture(s). Clinical findings are one or more of the following: • spinal deformity; • ROM limitation; • sensory changes; • weakness.	C	C	C
Class 4(a). Medically documented injury with all of the following: • imaging finding(s) of healed displaced or non-displaced fracture(s); • residual symptoms consistent with the healed fracture(s); • clinical neurologic findings consistent with radiculopathy. Clinical neurologic findings consistent with radiculopathy are one or more of the following: • weakness in myotomal distribution and/or sensory changes in dermatomal distribution; **or** • tension/compression signs; **or** • objective clinical findings.* Symptoms and findings must be consistent with: • post-fracture imaging findings that can account for the symptoms; **or** • post-fracture correlative electro-diagnostic findings of fibrillation potentials and/or positive sharp waves seen in at least 2 muscles in the distribution of a nerve root.	C-H See Tables S11.4, S11.5 and S11.7** to determine placement within range. (This excludes adjustments for multiple roots and root avulsion.)	C-G See Tables S11.4 and S11.7** for determining placement within range. (This excludes adjustments for multiple roots and root avulsion.)	D-J See Tables S11.4, S11.6 and S11.7** for determining placement within range. (This excludes adjustments for multiple roots and root avulsion.)

Table 11.3(c): Distraction Fracture Pattern (including PLC Integrity)			
Medical Impairment Class	**Severity Ranking**		
	CERVICAL	**THORACIC**	**LUMBAR**
Class 4(b). Displaced spinal fractures/dislocations at two or more levels, **add** the following to the severity rating for radiculopathy.	C	C	C
Class 5. Medically documented injury with all of the following: • imaging finding(s) of healed displaced or non-displaced fracture(s); • residual symptoms consistent with the healed fracture(s); • clinical neurologic findings consistent with spinal cord or cauda equina injury.***	***See Table 11.8: Spinal Cord Injury		
*_Objective clinical findings_ mean atrophy or reflex changes. **Use Tables S11.4, S11.5 and S11.6 as appropriate to determine the number of points associated with the identified radiculopathy. Then use Table S11.7 to determine the letter that corresponds to the number of points. This letter is the Severity Ranking within the radiculopathy range.			

Note: For discordant pain intensity, see Chapter 16: Pain.

11.3: Supplementary Tables: Radiculopathy Criteria[9]

Table S11.4: Radiculopathy Criteria

Residual radicular pain >6 months after surgery is usually investigated with post-operative imaging.

Table S11.4: Radiculopathy Criteria		
Objective Testing	**Documented Objective Findings at the Time of Rating**	**Score**
Imaging	Findings of: • significant disc abnormalities that displace nerve tissue **and/or** • bony/mechanical nerve root encroachment evident on imaging. These imaging findings must correlate with the clinical picture.	Yes/No Yes = 16 No=0
EMG Abnormalities	Findings of: • fibrillation potentials **and/or** • positive sharp waves • seen in at least 2 muscles in the distribution of the involved nerve root(s).*	Yes/No Yes = 6 No=0

Table S11.4: Radiculopathy Criteria		
Objective Testing	**Documented Objective Findings at the Time of Rating**	**Score**
Muscle Involvement	Findings of: • objective muscle weakness **and/or** • muscle atrophy. Unilateral muscle atrophy shown: • by obtaining bilateral circumferential measurements of the calf, thigh, arm or forearm or by inspection of the hand or foot muscles; • with a recording at a specified distance from bony landmarks (such as medial malleolus, anterior superior iliac spine, medial or lateral epicondyle). • differences of less than 2 centimeters in measurement of the two limbs at the same level can be a normal variation, especially if the lesser measurement is on the non-dominant side. • symmetric muscle bulk and strength are expected unless the patient has a relatively long-standing neurologic impairment or disorder of the extremity muscle or joint. An alternative method for detecting atrophy can be sequential measurements over time, providing measurements are taken at the same distance from bony landmarks as above.	Yes/No ***Yes*** = 6-20. See Table 11.4(a) to determine value within range. ***No***=0 ***For muscle atrophy, Yes/No.*** ***Yes*** = 6. ***No***=0.
Sensory Involvement	Findings, as determined by the clinical examination, imaging studies and/or electrodiagnostic testing, of: • reproducible alteration of sensation (sharp/dull, light touch) consistent with specific dermatomal distribution; **and** • dermatomal distribution of sensory disturbances consistent with the location of the spinal lesion.	Yes/No Yes = 4-6 See Table 11.4(b) to determine value within range) No=0

Table S11.4: Radiculopathy Criteria		
Objective Testing	**Documented Objective Findings at the Time of Rating**	**Score**
Reflex Changes	Requires: • loss of/or significantly diminished deep tendon reflexes (biceps-tricepsbrachioradialis-patellar-or ankle jerk) as compared to the reactive non-affected side. • a difference of one or more grades in the reflex response between the two sides is significant. Reflexes: • 0 Absent • + Present but diminished • ++ Normal • +++ Increased but not necessarily pathological	Reflexes (0 to +++) Absent = 6 Present but diminished = 4 Normal = 0 (++, +++)
Tension-Compression Signs	• Spurling's Sign** • Straight Leg Raise*** • Femoral Stretch****	Yes/No Yes = 4

*Electrodiagnostic Verification of Radiculopathy: Unequivocal electrodiagnostic evidence of acute nerve root pathology includes the presence of multiple sharp waves or fibrillation potentials in muscles innervated by one nerve root. However, the skills of the person performing and interpreting the study are critical. Electromyography (EMG) should be performed only by a licensed MD/DO qualified by reason of education, training and experience in these procedures who is in attendance while the procedure is being performed. EMG does not detect all compressive radiculopathies and cannot determine the cause of the nerve root pathology. On the other hand, EMG can detect non-compressive radiculopathies, which are not identified by imaging studies. Interpretation must be in accordance with the published guidelines of the American Association of Electrodiagnostic Medicine.[10]

** Spurling's Sign is defined as pain in the distribution of a cervical nerve root that is produced by simultaneous neck extension, ipsilateral rotation, and axial compression.

***Straight Leg Raise is defined as pain in the distribution of the L5 or S1 lumbar nerve root that is produced when the ipsilateral hip is flexed from 30 degrees to 70 degrees, while the knee remains in full extension.

****Femoral stretch is defined as a pain in the distribution of the L2-L3-L4 nerve root that is produced when the patient is prone, the involved knee is flexed and the hip extended.

Table S11.4(a). Motor Deficits: Categories for Determining Impairment Due To Loss of Function Resulting From Nerve Disorders (Upper or Lower Extremity Value)[11] [12]

Grade	Description of Muscle Function	Motor Deficit
0	No contractions	20
1	Slight contraction and no movement	20
2	Active movement (range of motion as determined by passive measurement) with gravity eliminated	18
3	Active movement (range of motion as determined by passive measurement) against gravity (without resistance)	6
4	Active movement (range of motion as determined by passive measurement) against gravity with some resistance	0
5	Active movement (range of motion as determined by passive measurement) against gravity with full resistance (no deficit)	0

Table S11.4(b): Sensory Deficits: Categories For Determining Impairment Due To Nerve Root Disorders (Severity Multiplier)[13]

The dermatomal distribution of sensory disturbances should be consistent with the location of the spinal lesion as determined by clinical examination, imaging studies and/or electrodiagnostic testing.

	Description of Sensory Loss	Sensory Deficit
Anesthesia	Total sensory loss	6
Compromised	Diminished or altered sensation	4
Normal	No loss of sensation	0

Note: For each additional root in the same spinal region (cervical or thoracic or lumbar), the Severity Ranking shall be increased by one letter per level, up to a maximum of 3 letters.

For root avulsion established by history, physical exam and proper imaging, the Severity Class shall be L for the non-dominant side and M for the dominant side; and for a flail limb (complete lower motor neuron paralysis of a limb), P for the non-dominant side and Q for the dominant side.

Table S11.5: Spinal Nerve Root Impairment Affecting the Upper Extremity

Nerve Root Impaired	Sensory Deficit	Weakness
C5	0	10
C6	6	10
C7	6	10
C8	4	12
T1	0	12

Table S11.6: Spinal Nerve Root Impairment Affecting the Lower Extremity

Nerve Root Impaired	Sensory Deficit	Weakness
L3	0	12
L4	4	24
L5	4	16
S1	6	18

Table S11.7: Radiculopathy Severity Rankings

To determine placement within the range of severity rankings for radiculopathy, follow these steps:

1. Determine the number of points from Tables S11.4(a), S11.4(b), S11.5 and S11.6, as applicable.
   a. Cervical: Tables S11.4(a), S11.4(b) and S11.5
   b. Thoracic: Tables S11.4(a) and S11.4(b)
   c. Lumbar: Tables S11.4(a), S11.4(b) and S11.6

2. From either Table S11.7(a) (for cervical or thoracic injury) or Table S11.7(b) (for lumbar injury) below, determine the letter that corresponds to the number of points. This letter is the severity ranking.

Table S11.7(a): Points for Cervical and Thoracic Radiculopathy

Severity Ranking	Cervical	Thoracic
C	0	0
D	4-16	4-16
E	17-32	17-32
F	33-48	33-48
G	49-64	49-64
H	65-80	-

Table S11.7(b): Points for Lumbar Radiculopathy

Severity Ranking	Lumbar
D	0
E	4-16
F	17-32
G	33-48
H	49-64
I	65-80
J	81-92

11.4: Spinal Cord Injury

Table 11.8: Spinal Cord Injury

The impairments listed below are the same with or without surgery.

1. This table refers to functional, not anatomic, levels of spinal cord injury.
2. Motor and sensory levels should be documented per ASIA Worksheet, Table S11.9.
3. Severity rankings are from "A" (the least severe medical impairment) to "Z" (the most severe medical impairment) for the Medical Impairment Classes within a Table.
4. The severity ranking is generally predictive of the functional outcome for each Class relative to the other Classes within a Table.
5. Please state diagnosis(es) at time of impairment rating.
6. **The medical impairment ranking is not to be used as a direct translation to loss of wage earning capacity.**

Table 11.8: Spinal Cord Injury			
Medical Impairment Class	**Severity Ranking**		
Class 1(a). Medically documented injury with all of the following: • clinical neurologic findings consistent with lumbar level spinal cord injury. Clinical neurologic findings consistent with a lumbar level injury include one or more of the following (incomplete injury*): • paraparesis (may include cauda equina); • motor weakness consistent with lumbar cord segmental level; • sensory deficit consistent with lumbar cord segmental level; sensory testing is required to establish the lumbar cord sensory injury level; • lower motor neuron findings including hypotonicity, areflexia, or atrophy. Complete the ASIA Worksheet (Table S11.9).			**Lumbar Incomplete** L1 K L2 L3 L4 E L5 D

Table 11.8: Spinal Cord Injury			
Medical Impairment Class	**Severity Ranking**		
Class 1(b). Medically documented injury with all of the following: • clinical neurologic findings consistent with lumbar level spinal cord injury. Clinical neurologic findings consistent with a lumbar level injury include one or more of the following (complete injury**): • paraplegia (may include cauda equina) • motor weakness consistent with lumbar cord segmental level; • sensory deficit consistent with lumbar cord segmental level; sensory testing is required to establish the lumbar cord sensory injury level; • lower motor neuron findings including hypotonicity, areflexia or atrophy. Complete the ASIA Worksheet (Table S11.9)			**Lumbar Complete** L1 N L2 L3 L4 F L5 E
Class 2(a). Medically documented injury with all of the following: • clinical neurologic findings consistent with thoracic level spinal cord injury. Clinical neurologic findings consistent with a thoracic level injury include one or more of the following (incomplete injury*): • paraparesis; • motor weakness consistent with thoracic cord segmental level; • sensory deficit consistent with thoracic cord segmental level; sensory testing is required to establish the thoracic cord sensory injury level; • upper motor neuron findings including: spasticity, hyperreflexia, Babinski sign, or clonus. • lower motor neuron findings including hypotonicity, areflexia or atrophy; • autonomic hyperreflexia. Complete the ASIA Worksheet (Table S11.9)		**Thoracic Incomplete** T1 W T2 T3 T4 Q T5 T6 T7 T8 N T9 T10 T11 K T12	

Table 11.8: Spinal Cord Injury			
Medical Impairment Class	**Severity Ranking**		
Class 2(b). Medically documented injury with all of the following: • clinical neurologic findings consistent with thoracic level spinal cord injury. Clinical neurologic findings consistent with a thoracic level injury include one or more of the following (complete injury**): • paraplegia; • motor weakness consistent with thoracic cord segmental level; • sensory deficit consistent with thoracic cord segmental level; sensory testing is required to establish the thoracic cord sensory injury level; • upper motor neuron findings including: spasticity, hyperreflexia, Babinski sign, or clonus. • lower motor neuron findings including hypotonicity, areflexia or atrophy; • autonomic hyperreflexia. Complete ASIA Worksheet (Table S11.9).		**Thoracic Complete** T1 X T2 T3 T T4 T5 T6 T7 Q T8 T9 T10 T11 N T12	
Class 3(a). Medically documented injury with all of the following: • clinical neurologic findings consistent with cervical level spinal cord injury. Clinical neurologic findings consistent with a cervical level injury include one or more of the following (incomplete injury*): • quadriparesis; • motor weakness consistent with cervical cord segmental level • sensory deficit consistent with cervical cord segmental level; sensory testing is required to establish the cervical cord sensory injury level; • upper motor neuron findings including: spasticity, hyperreflexia, Hoffman sign, Babinski sign, or clonus. • lower motor neuron findings including hypotonicity, areflexia or atrophy; • autonomic hyperreflexia. Complete ASIA Worksheet (Table S11.9).	**Cervical Incomplete** C1 C2 Z C3 C4 C5 Z C6 Y C7 W C8-T1 W		

Table 11.8: Spinal Cord Injury			
Medical Impairment Class	**Severity Ranking**		
Class 3(b). Medically documented injury with all of the following: • clinical neurologic findings consistent with cervical level spinal cord injury. Clinical neurologic findings consistent with a cervical level injury include one or more of the following (complete injury**): • quadriplegia; • motor deficit consistent with cervical cord segmental level; • sensory deficit consistent with cervical cord segmental level; sensory testing is required to establish the cervical cord sensory injury level; • upper motor neuron findings including: spasticity, hyperreflexia, Hoffman sign, Babinski sign, or clonus. • lower motor neuron findings including hypotonicity, areflexia or atrophy; • autonomic hyperreflexia. Complete the ASIA Worksheet (Table S11.9).	**Cervical Complete** C1 C2 Z C3 C4 C5 Z C6 Y C7 Y C8-T1 X		
***Incomplete cord injury** means the preservation of motor or sensory function below the level of injury, including the lowest sacral segments. (Preservation of voluntary anal sphincter contraction or peri-anal sensation). ****Complete spinal cord injury** means that there is no sensory or motor function preserved in the lowest sacral segment (S4-S5).			

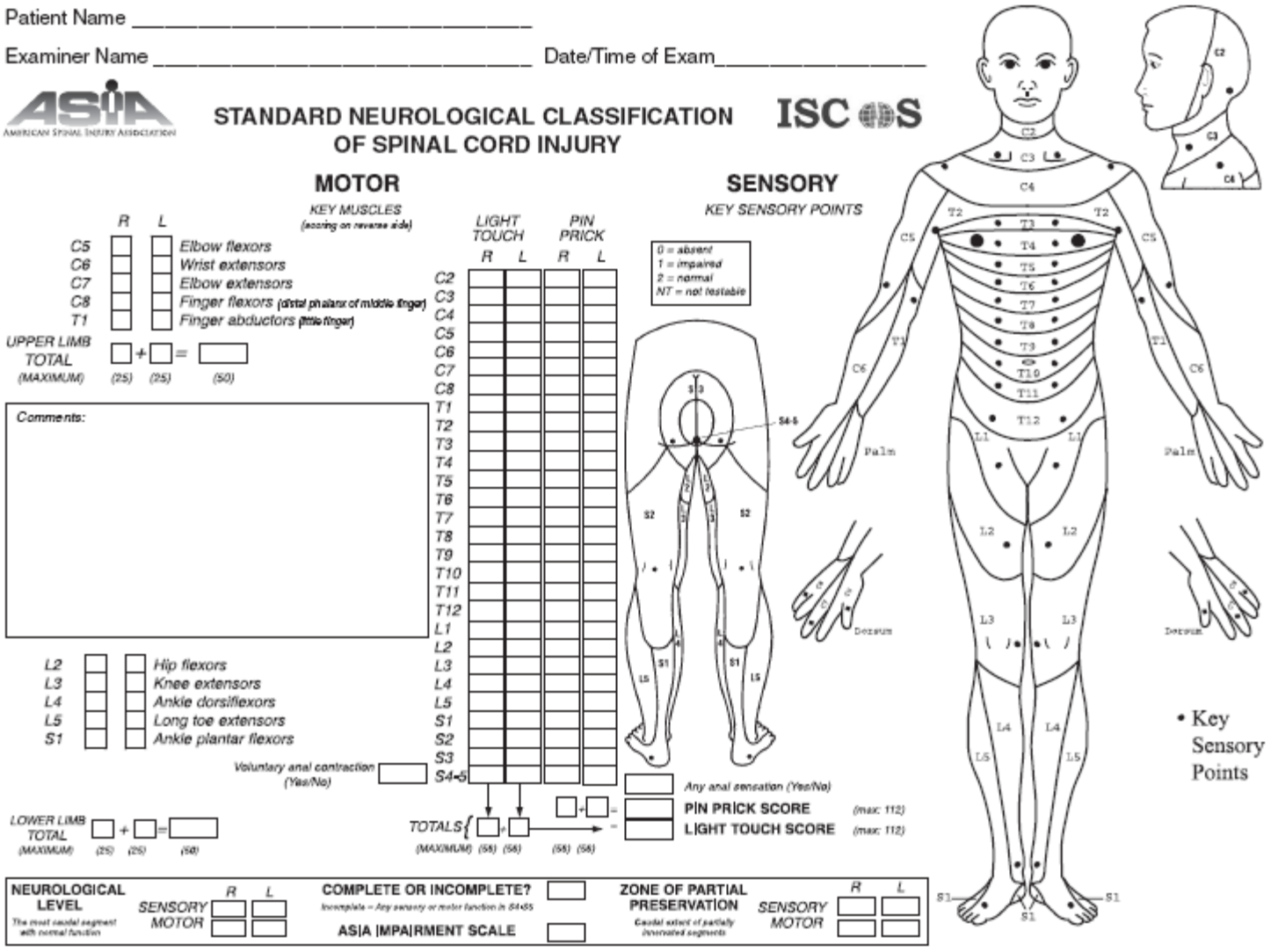
Table S11.9: Standard Neurological Classification of Spinal Cord Injury Worksheet (ASIA Worksheet)[14]

1. The ASIA Worksheet should be used to document the neurologic findings associated with a spinal cord injury. The total point scores for Motor and Sensory on the ASIA Worksheet are not used in the Spinal Cord Injury Table and need not be calculated.

2. The following steps should be used to document the neurological findings, using the appropriate Worksheet sections:
   - determine the sensory levels for right and left sides
   - determine motor levels for right and left sides (see Number 3 below)
   - determine the neurological level
   - determine whether the injury is complete or incomplete

3. To document motor levels/findings, use the muscle grading system below.

Grade	Description
0	No contractions
1	Slight contraction and no movement
2	Active movement (range of motion as determined by passive measurement) with gravity eliminated
3	Active movement (range of motion as determined by passive measurement) against gravity (without resistance)
4	Active movement (range of motion as determined by passive measurement) against gravity with some resistance
5	Active movement (range of motion as determined by passive measurement) against gravity with full resistance (No deficit)


Patient Name _____
Examiner Name _____ Date/Time of Exam_____
STANDARD NEUROLOGICAL CLASSIFICATION OF SPINAL CORD INJURY
ISCOS
MOTOR
KEY MUSCLES (scoring on reverse side)
R L
C5 Elbow flexors
C6 Wrist extensors
C7 Elbow extensors
C8 Finger flexors (distal phalanx of middle finger)
T1 Finger abductors (little finger)
UPPER LIMB TOTAL (MAXIMUM) (25) + (25) = (50)
Comments:
L2 Hip flexors
L3 Knee extensors
L4 Ankle dorsiflexors
L5 Long toe extensors
S1 Ankle plantar flexors
Voluntary anal contraction (Yes/No)
LOWER LIMB TOTAL (MAXIMUM) (25) + (25) = (50)
LIGHT TOUCH
PIN PRICK
R L R L
C2 C3 C4 C5 C6 C7 C8 T1 T2 T3 T4 T5 T6 T7 T8 T9 T10 T11 T12 L1 L2 L3 L4 L5 S1 S2 S3 S4-5
TOTALS (MAXIMUM) (56) (56) (56) (56)
SENSORY
KEY SENSORY POINTS
0 = absent
1 = impaired
2 = normal
NT = not testable
Any anal sensation (Yes/No)
PIN PRICK SCORE (max: 112)
LIGHT TOUCH SCORE (max: 112)
NEUROLOGICAL LEVEL
The most caudal segment with normal function
SENSORY MOTOR R L
COMPLETE OR INCOMPLETE?
Incomplete = Any sensory or motor function in S4-S5
ASIA IMPAIRMENT SCALE
ZONE OF PARTIAL PRESERVATION
Caudal extent of partially innervated segments
SENSORY MOTOR R L
Palm
Dorsum
• Key Sensory Points

11.5: Pelvis

Table 11.10: The Pelvis

1. Severity rankings are from "A" (the least severe medical impairment) to "Z" (the most severe medical impairment) for the Medical Impairment Classes within a Table.

2. The severity ranking is generally predictive of the functional outcome for each Class relative to the other Classes within a Table.

3. Please state diagnosis(es) at time of impairment rating.

4. The medical impairment ranking is not to be used as a direct translation to loss of wage earning capacity.

Table 11.10: The Pelvis

Medical Impairment Class	Severity Ranking
Class 1. Medically documented injury with: • imaging finding(s) of healed non-displaced or displaced fracture(s) or dislocation(s) • with or without surgery • no residual symptoms • no clinical findings	None
Class 2(a). Sacrum Medically documented injury with all of the following: • imaging finding(s) of healed, non-displaced or displaced sacral fracture(s) • residual symptoms • clinical findings consistent with the healed fracture(s) Clinical findings are gait dysfunction **and** One or more of the following neurologic findings: • reflex abnormalities in the bulbocavernosus, or anal wink reflexes • sensory loss in a dermatomal distribution • urinary or anal sphincter dysfunction* (decreased anal sphincter tone on rectal exam) • bowel and/or bladder** dysfunction without incontinence	C

Table 11.10: The Pelvis	
Medical Impairment Class	**Severity Ranking**
Class 2(b). Sacrum Medically documented injury with all of the following: • imaging finding(s) of healed, non-displaced or displaced sacral fracture(s) • residual symptoms • clinical findings consistent with the healed fracture(s) Clinical findings are gait dysfunction **and** One or more of the following neurologic findings: • saddle anesthesia • urinary and/or fecal incontinence secondary to sacral nerve injury	I
Class 3. Symphysis Pubis Medically documented injury with all of the following: • imaging finding(s) of pubic symphysis separation or displacement • residual symptoms • clinical findings consistent with the separation or displacement Clinical findings are one or more of the following: • asymmetry or deformity • tenderness • pain over symphysis pubis on provocative testing • gait dysfunction	A
Class 4. Coccyx Medically documented injury with all of the following: • imaging finding(s) of healed, non-displaced or displaced coccyx fracture(s) • residual symptoms • clinical findings consistent with the healed fracture(s) Clinical findings are one or both of the following: • tenderness elicited upon provocative exam • reproduction of pain by mobilization of coccyx on rectal exam	A

Table 11.10: The Pelvis	
Medical Impairment Class	**Severity Ranking**
Class 5. Sacroiliac Joint Dysfunction Medically documented injury with all of the following: • imaging finding(s) of healed displaced sacroiliac fracture(s) involving the sacroiliac joint or dislocation of the sacroiliac joint • residual symptoms • clinical findings consistent with the healed fracture(s) or dislocation Clinical findings are one or more of the following: • deformity • tenderness • pain elicited upon provocative testing -positive Patrick's sign *** -positive Gaenslen's sign**** • gait dysfunction	A-C
Class 6. Ramus/Rami Medically documented injury with all of the following: • imaging finding(s) of healed, non-displaced or displaced single ramus, or bilateral and/or superior and inferior rami fracture(s) • residual symptoms • clinical findings consistent with the fracture(s) Clinical findings are one or more of the following: • deformity • leg-length discrepancy of $\geq$ one inch identified by measurement and a positive Galeazzi test***** • gait dysfunction • positive Patrick sign***	A-B
Class 7. Ilium Medically documented injury with the following: • imaging finding(s) of healed, non-displaced or displaced iliac fracture(s) • residual symptoms • may have clinical findings consistent with the fracture(s) and correlated with residual symptoms Clinical findings may be one or more of the following: • deformity • leg-length discrepancy of $\geq$ one inch identified by measurement and a positive Galeazzi test***** • gait dysfunction • range of motion limitation • disuse atrophy	B-C

Table 11.10: The Pelvis	
Medical Impairment Class	**Severity Ranking**
Class 8. Ischium Medically documented injury with all of the following: • imaging finding(s) of healed, non-displaced or displaced ischium fracture(s) • residual symptoms • clinical findings consistent with the fracture(s) Clinical findings are one or more of the following: • tenderness • gait dysfunction • straight leg raise limited by pain in area of injury • positive Patrick sign*** • MRI-partial or complete avulsion hamstring tendon	B-C
Class 9. Acetabulum Medically documented injury with all of the following: • imaging finding(s) of acetabular fracture(s) • residual symptoms • clinical findings consistent with the fracture(s) Clinical findings are one or more of the following: • limited range of motion • gait dysfunction • positive Patrick sign***	Evaluate based on restricted range of motion (ROM) of hip joint (LE) Schedule Loss

* Sphincter EMG will demonstrate the presence of denervation.

** Bladder dysfunction should be corroborated with bladder function studies, including ultrasound or catheterization to measure residual volumes and/or cystometry.

*** Patrick sign: Knee on affected side is flexed to 90 degrees and the foot on the affected side rests on the opposite knee. While the examiner holds the pelvis firm against the exam table, the affected hip is externally rotated by pushing the knee on the affected side laterally toward the exam table. Pain during this maneuver is considered a positive test.

**** Gaenslen's sign: The patient is supine with the painful side as close as possible to the edge of the examining table or projecting beyond it. To stabilize this position and immobilize the lumbar spine, the patient flexes the knee and hip of the contralateral leg and draws the leg as close to the torso as possible. The examiner then passively hyperextends the other leg (the one not in contact with the table). If there is dysfunction in the sacroiliac (SI) joint, hyperextension of the leg will lead to motion in the SI joint causing pain or exacerbation of existing pain.

***** Galeazzi test: The patient is supine with the knees flexed 90 degrees and the soles of the feet flat on the examining table. The examiner evaluates the position of both knees from the end of the table and from the side. Normally both knees are at the same level. Where one knee is higher than the other, either the tibia on that side is longer or the contralateral side is shorter. Where one knee projects farther forward than the other, either that femur is longer or the contralateral femur is shorter.

Chapter 12: Respiratory

12.1: Pneumoconioses and other Occupational Respiratory Diseases (other than Asthma)

Table 12.1: Pneumoconioses and other Occupational Respiratory Diseases (other than Asthma)

1. Radiographic or pathology findings are required to establish the diagnosis of pneumoconiosis.
2. The severity of radiographic changes does not influence the degree of impairment.
3. For rating objective pulmonary test results, see Table S12.7, entitled Severity of Pulmonary Function Test Abnormality. To identify the predicted and lower limits of normal (LLN) values for FEV1 and FVC, see Tables S12.8(a), S12.8(b), S12.9(a) and S12.9(b) and for predicted DLco values see Table S12.10(a) and S12.10(b).
4. For evaluating degree of dyspnea, see Table S12.13: Dyspnea Evaluation Questionnaire.
5. In the event that objective tests (spirometry or diffusing capacity [DLco]) indicate different impairment categories, use the more severe category. If the degree of dyspnea indicates a less severe impairment category than the objective test results, then the objective test results control the selection of the impairment category. If the degree of dyspnea indicates a more severe impairment category than the objective test results, then a cardiopulmonary exercise test is indicated. If the cardiopulmonary exercise test yields a VO2 max less than 84% of predicted, then the severity class is increased by one level from what the result would have been if determined by the original objective test results. See Table S12.11 and Table S12.12 and the related example of the impact of the cardiopulmonary exercise test on category placement.
6. Findings on physical examination of the lung have not been included as criteria in the impairment categories since they have not been demonstrated to predict function.
7. Severity rankings are from "A" (the least severe medical impairment) to "Z" (the most severe medical impairment) for the Medical Impairment Classes within a Table.
8. The severity ranking is generally predictive of the functional result for each Class relative to the other Classes within a Table.
9. Please state diagnosis(es) at time of impairment rating.

The medical impairment ranking is not to be used as a direct translation to loss of wage earning capacity.

Table 12.1: Pneumoconioses and other Occupational Respiratory Diseases (other than Asthma)	
Medical Impairment Class	**Severity Ranking**
Class 1. Medically documented workplace exposure with all of the following: • no symptoms • abnormal x-ray findings that can be medically attributed to (correlated with) the exposure **and** • normal pulmonary function tests **or** • no prior PFT data available or no loss of function in excess of age effect.	None
Class 2. Medically documented workplace exposure with all of the following: • no symptoms • normal pulmonary function tests • loss of pulmonary function: FEV1 in excess of age effect (Table S12.6).	None
Class 3. Medically documented workplace exposure with all of the following: • mild dyspnea • normal pulmonary function tests, including spirometry, DLco and exercise testing.	A
Class 4. Medically documented workplace exposure with: • mild dyspnea **and** • abnormal pulmonary function tests as follows: (a) normal spirometry and lung volumes with one of the following (b) DLco $\geq$60% predicted but <80% predicted **or** (c) oxygen desaturation with exercise $\geq$20 mmHg decrease in PaO2 and/or $\geq$4% decrease in SaO2 **or** (d) abnormal cardiopulmonary stress test (exercise test) showing impairment of pulmonary function.	D

Table 12.1: Pneumoconioses and other Occupational Respiratory Diseases (other than Asthma)	
Medical Impairment Class	**Severity Ranking**
Class 5. Medically documented workplace exposure with: • mild dyspnea **and** • abnormal pulmonary function tests (a) FEV1 >70% but less than LLN **or** (b) DLco ≥40% predicted but <80% predicted.	E
Class 6. Medically documented workplace exposure with: • moderate dyspnea **and** • abnormal pulmonary function tests (a) FEV1 >70% predicted but less than LLN **or** (b) DLco ≥40% predicted but <80% predicted.	G
Class 7. Medically documented workplace exposure with: • moderate dyspnea **and** • abnormal pulmonary function tests (a) FEV1 60-69% predicted **or** (b) DLco ≥40% predicted but <80% predicted.	I
Class 8. Medically documented workplace exposure with: • moderate dyspnea, **and** • abnormal pulmonary function tests (a) FEV1 50-59% predicted **or** (b) DLco ≥40% predicted but <80% predicted.	L
Class 9. Medically documented workplace exposure with: • moderately severe dyspnea **and** • abnormal pulmonary function tests (a) FEV1 60-69% predicted **or** (b) DLco ≥40% predicted but <80% predicted.	M

Table 12.1: Pneumoconioses and other Occupational Respiratory Diseases (other than Asthma)	
Medical Impairment Class	**Severity Ranking**
Class 10. Medically documented workplace exposure with: • moderately severe dyspnea **and** • abnormal pulmonary function tests (a) FEV1 50-59% predicted **or** (b) DLco ≥40% predicted but <80% predicted.	O
Class 11. Medically documented workplace exposure with: • severe dyspnea **and** • abnormal pulmonary function tests (a) FEV1 50-59% predicted **or** (b) DLco ≥40% predicted but <80% predicted.	R
Class 12. Medically documented workplace exposure with • severe dyspnea **and** • abnormal pulmonary function tests (a) FEV1 50-59% predicted **or** (b) DLco <40% predicted.	T
Class 13. Medically documented workplace exposure with: • severe dyspnea **and** • abnormal pulmonary function tests (a) FEV1 35-49% predicted **or** (b) DLco <40% predicted.	V
Class 14. Medically documented workplace exposure with: • severe dyspnea **and** • abnormal pulmonary function tests (a) FEV1 <35% predicted **or** (b) DLco <40 % predicted.	X

Table 12.1: Pneumoconioses and other Occupational Respiratory Diseases (other than Asthma)	
Medical Impairment Class	**Severity Ranking**
Class 15. Medically documented workplace exposure with: • very severe dyspnea **and** • abnormal pulmonary function tests (a) FEV1 35-49% predicted **or** (b) DLco <40 % predicted.	Y
Class 16. Medically documented workplace exposure with: • very severe dyspnea **and** • abnormal pulmonary function tests (a) FEV1<35% predicted **or** (b) DLCO <40 % predicted.	Z

12.2: Asthma

Table 12.2: Asthma[15]

1. For rating objective pulmonary test results, see Table S12.7 entitled Severity of Pulmonary Function Abnormality. To identify the predicted and lower limits of normal (LLN) values for FEV1 and FVC, see Tables S12.8(a), S12.8(b), S12.9(a), and S12.9(b).

2. In order to be rated for asthma, there should be a diagnostic workup that confirms the diagnosis of asthma. To establish a diagnosis of asthma, the clinician should determine that all of the following are present:
   i. There is a compatible history of episodic symptoms. Asthma symptoms include cough, sputum, wheeze, chest tightness, or breathlessness and are usually worse at night.
   ii. Airflow obstruction that is at least partially reversible, either spontaneously or after treatment OR the presence of airway hyper responsiveness to methacholine or histamine in the absence of airflow limitation
      a. Spirometry is used to demonstrate airflow obstruction. Significant reversibility is defined as an increase in FEV1 or FVC of $\geq$ 12% AND of $\geq$ 200 ml from baseline measure after inhalation of a short acting B-agonist and/or a trial of corticosteroids**.**[16]
      b. Airway hyper responsiveness is considered present when the PC_{20} is less than 16 mg/ml of methacholine[17] (PC_{20} is the provocative concentration of methacholine that causes a 20% fall in FEV1 values from baseline.) and
   iii. Alternative diagnoses are excluded.

3. Work-related asthma is the broad term that refers to asthma that is induced (occupational asthma) or exacerbated (work aggravated/exacerbated) by inhalation exposures at work.

4. Occupational asthma (OA) can be (1) de novo asthma or (2) recurrence of previously quiescent asthma, induced either by sensitization to a specific substance or a chemical at work (sensitizer-induced OA) or by exposure to an inhaled irritant at work (irritant-induced asthma).

5. Work aggravated/exacerbated asthma refers to pre-existing asthma that is made worse by inhalation exposure to airborne irritants or allergens at the workplace.[18]

6. If an injured worker does not meet all the necessary requirements for any one Medical Impairment Class, then in determining the appropriate Class, objective tests should be given greater weight than other criteria.

7. Severity rankings are from "A" (the least severe medical impairment) to "Z" (the most severe medical impairment) for the Medical Impairment Classes within a Table.

8. The severity ranking is generally predictive of the functional result for each Class relative to the other Classes within a Table.

9. Please state diagnosis(es) at time of impairment rating.

10. **The medical impairment ranking is not to be used as a direct translation to loss of wage earning capacity.**

Table 12.2: Asthma	
Medical Impairment Class	**Severity Ranking**
Class 1(a). Intermittent Asthma Symptoms: • ≤2 days/week **or** • nighttime awakening because of asthma symptoms ≤2x /month, **and all of the following:** Degree of interference with normal activity due to asthma symptoms: • no interference Rescue medication need: Short-acting beta-2 agonist for symptom control (but NOT for prevention of exercise induced bronchospasm) • ≤2 days/week. Lung Function: • normal FEV1 between exacerbations, • FEV1 >80% predicted, • normal FEV1/FVC between exacerbations. Exacerbations: • 0-1 x /year exacerbations requiring systemic oral corticosteroids.	A
Class 1(b). Intermittent Asthma Symptoms: • ≤2 days/week, **or** • nighttime awakening because of asthma symptoms ≤2x /month, **and all of the following:** Interference with normal activity because of asthma symptoms: • No interference Rescue medication need: Short-acting beta-2 agonist for symptom control (but NOT for prevention of exercise induced bronchospasm) • ≤2 days/week Lung Function: • Normal FEV1 between exacerbations, • FEV1 >80% predicted, • Normal FEV1/FVC between exacerbations. Exacerbations : • ≥2x /year requiring systemic oral corticosteroids.	B

Table 12.2: Asthma	
Medical Impairment Class	**Severity Ranking**
Class 2(a). Persistent Mild Asthma Symptoms: • >2 days/week but not daily, **or** • nighttime awakening because of asthma symptoms 3 – 4x /month, **and all of the following:** Degree of interference with normal activity because of asthma symptoms: • Minor limitation of normal activity. Rescue medication need: Short-acting beta-2 agonist for symptom control (but NOT for prevention of exercise induced bronchospasm): • >2 days/week but not daily **and** • not more than 1x on any day. Lung Function: • FEV1 >80% predicted **and** • FEV1/FVC normal between exacerbations. Exacerbations : 0-1x /year requiring systemic oral corticosteroids.	D

Table 12.2: Asthma	
Medical Impairment Class	**Severity Ranking**
Class 2(b). Persistent Mild Asthma Symptoms: • >2 days/week but not daily, **or** • nighttime awakening because of asthma symptoms 3 – 4x /month, **and all of the following:** Degree of interference with normal activity because of asthma symptoms: • Minor limitation of normal activity. Rescue medication need: Short-acting beta-2 agonist for symptom control (but NOT for prevention of exercise induced bronchospasm) • >2 days/week but not daily, **and** • not more than 1x on any day. Lung Function: • FEV1 >80% predicted **and** • FEV1/FVC normal between exacerbations. Exacerbations : • ≥2 x/year requiring systemic oral corticosteroids.	F
Class 3. Persistent Moderate Asthma Symptoms: • daily symptoms **or** • nighttime awakening because of asthma symptoms > 1 x/week, but not nightly **and of the following** Degree of interference with normal activity because of asthma symptoms: • some limitation of normal activity. Rescue medication need: Short-acting beta-2 agonist for symptom control (but **not** for prevention of exercise induced bronchospasm) • not more than 1x /day. Lung Function: • FEV1 between exacerbations >60% but <80% predicted, **or** • FEV1/FVC reduced by <5% of predicted. Exacerbations : • ≥ 1x/year requiring systemic oral corticosteroids.	L

Table 12.2: Asthma	
Medical Impairment Class	**Severity Ranking**
Class 4. Severe Persistent Symptoms: • symptoms throughout the day **or** • nightly awakening because of asthma symptoms **and all of the following:** Degree of interference with normal activity because of asthma symptoms: • extremely limited normal activity. Rescue medication need: Short-acting beta-2 agonist for symptom control (but NOT for prevention of exercise induced bronchospasm) • several times per day. Lung Function: • FEV1 between exacerbations <60% predicted, **or** • FEV1/FVC reduced by ≥5% predicted between exacerbations. Exacerbations : • ≥ 1x/year requiring systemic oral corticosteroids.	R
Class 5. Severe Persistent Symptoms: • symptoms throughout the day **or** • nightly awakening because of asthma symptoms **and all of the following:** Degree of interference with normal activity because of asthma symptoms: • extremely limited normal activity. Rescue medication need: Short-acting beta-2 agonist for symptom control (but NOT for prevention of exercise induced bronchospasm) • several times per day. Lung Function: • FEV1 between exacerbations <35% predicted, Exacerbations: • ≥ 1x/year requiring systemic oral corticosteroids	Z

Note: Current treatment recommendations state that patients with Occupational Sensitizer-Induced Asthma should **not** return to work in jobs that may result in exposure to the identified causing agent, even if patients are asymptomatic.

Table S12.3: Examples of Potential Causes of Asthma from Sensitizers[19]
This list is illustrative of substances which can cause asthma and is not complete.
1. Animals and birds (including their parts, bedding, and waste) 2. Seafood (e.g., crab, shrimp) and fish 3. Insects (e.g., cockroaches) and insect parts 4. Plant parts, including wood and grain dusts, vegetable gums, and baking flour 5. Pharmaceuticals and enzyme powders (e.g., detergents and dough additives) 6. Diisocyanates (e.g., in glues, coatings, paints) 7. Anhydrides (in epoxy, resins, plastics) 8. Amines (in shellac, lacquer, hairdressing, paint, plastics, resins) 9. Solder fluxes, colophony 10. Metal dusts and salts (e.g., platinum, nickel, cobalt, chromium)

Table S12.4: Examples of Potential Causes of Asthma from Irritants
This list is illustrative of substances which can cause asthma and is not complete.
1. Chlorine 2. Ammonia 3. Sulfur dioxide 4. Nitrogen oxides 5. Phosgene 6. Smoke 7. High level irritant dust

12.3: Lung Cancer

Table 12.5: Lung Cancer
All persons with lung cancer are severely impaired at diagnosis in the anticipation that treatment of cancer will result in temporary significant impairment. At re-evaluation one year after diagnosis is established, if the patient is found to be free of all evidence of tumor, that person is evaluated according to criteria listed in Table 12.1**.** If there is still evidence of tumor, the patient is considered severely or totally impaired.

12.4: Respiratory Test Standards

Table S12.6: Fifth Percentile Values of % FEV1 Loss by Test Interval (years) and Gender[20]

Test Interval, Years	% FEV1 loss/year	
	Men	Women
1	- 10.4	- 10.6
2	- 6.1	- 6.4
3	- 4.6	- 4.8
4	- 3.8	- 4.0
5	- 3.2	- 3.6

To determine loss of pulmonary function in excess of aging process:

1. For comparisons between tests performed within 1-to-5 years-time-span

a. Subtract the most recent measured FEV1 value in milliliters available for comparison from the initial FEV1 value in milliliters.

b. Divide the value obtained in "a" by the initial FEV1 value in milliliters and multiply the result by 100. This provides loss of % FEV1 over the time interval considered for comparison.

c. Divide the value obtained in "b" by the number of years between the two tests considered for comparison. This provides loss of % FEV1 per year.

d. Compare the loss of %FEV1/yr obtained with the %FEV1/yr in Table 12.6, above. If the value obtained in "c" is in excess of the value noted in the table for the corresponding time-interval, the loss of pulmonary function is in excess of the aging process.

Examples:
(i). 47-year-old male worker with a history of exposure to silica-containing dust while working for a company since the age of 25. Initial pulmonary function test done in 2004 revealed an FEV1 of 2,580 ml. A follow up test done in 2009 revealed an FEV1 of 2,140 ml. Is the loss in pulmonary function due to the aging process only?

a. Most recent FEV1 – initial FEV1: (2,140) – (2,580) = - 440 ml
b. -440/2,580 = - 0.1705 x 100 = - 17.05%, loss of pulmonary function over 5 years
c. -17.05/5 = -3.41%/year
d. As per comparison with the reference Table 12.2, a loss of 3.41%/year is in excess of 3.2%/year; therefore, this is considered a loss of pulmonary function in excess of that due to the aging process.

(ii). 35-year-old male worker followed up for exposure to dust at work. Initial pulmonary function tests at age 30 revealed an FEV1 of 4,390 ml. Follow up tests done at age 33 revealed an FEV1 of 4,220. Is the loss in pulmonary function due to the aging process only?

a. Most recent FEV1 – initial FEV1: (4,220) – (4,390) = –170 ml
b. – 170/4,390 = –0.0387 x 100 = –3.87%, loss of pulmonary function over 3 years.
c. –3.87/3 = –1.29%/year
d. As per comparison with the reference Table 12.2, a loss of 1.29% over a three-year interval is less than 4.6%; therefore, this is considered aging-related loss of pulmonary function.

2. For comparisons of PFTs over time intervals longer than 5 years[21] [22]

a. Subtract the most recent FEV1 value in milliliters from the initial FEV1 value in milliliters and divide by the number of years. This reflects loss of FEV1 in ml/yr.
b. A loss of FEV1 in excess of 50 ml/yr is considered a loss of pulmonary function in excess of the aging effect.

3. For comparisons of PFTs for time intervals of less than 1 year[23]

For tests performed in intervals of less than one year, a change in FEV1 of greater than 7.1% is considered a loss of pulmonary function in excess of age.

4. General rules, comparability of pulmonary function tests[24] [25]

Specific recommendations developed by the American Thoracic Society and other professional organizations to ensure accurate and reproducible measurements when using spirometers and spirometry testing have been developed and should be followed when performing PFTs and evaluating changes over time.

Table S12.7: Severity of Pulmonary Function Test Abnormality[26]

Table S12.7(a) Degree of Severity of Any Spirometric Abnormality Based on Decrease in FEV1[27]

Degree of severity	FEV1 % predicted
Mild	>70%
Moderate	60-69%
Moderately severe	50-59%
Severe	35-49%
Very Severe	<35%

Table S12.7(b) Degree of Severity of Decrease in Diffusing Capacity[28]

Degree of severity	DLco % predicted
Mild	> 60% and < 80%
Moderate	40-60%
Severe	< 40%

Diffusing capacity should be altitude-adjusted and hemoglobin-adjusted.

Diffusing Capacity:[29]

- Altitude adjusted DLco = measured DLco x [1 x 0.0035 (PAO^2 –120)], or
- Altitude adjusted DLco = measured DLco x [1 x 0.0031 (PiO^2 –150)],
- Estimated $PiO^2 = 0.21(PB – 47)$
- Hemoglobin-adjusted DLco = observed DLco (10.22 + Hb)/1.7 Hb for adolescent and adult male
- Hemoglobin-adjusted DLco = observed DLco (9.38 + Hb)/1.7 Hb for children under 15 and women[30]

Table S12.8(a): Prediction and Lower Limits of Normal Equations for Spirometric Parameters for Male Subjects[31]

Subjects	Intercept	Age	Age^2	Ht_{PRD} $(cm)^{2*}$	Ht_{LLN} $(cm)^{2*}$	R^2
Caucasian <20 yr of age						
FEV_1	-0.7453	-0.04106	0.004477	0.00014098	0.00011607	0.8510
FEV_6	-0.3119	-0.18612	0.009717	0.00018188	0.00015323	0.8692
FVC	-0.2584	-0.20415	0.010133	0.00018642	0.00015695	0.8668
PEF	-0.5962	-0.12357	0.013135	0.00024962	0.00017635	0.7808
FEF_{25-75}	-1.0863	0.13939		0.00010345	0.00005294	0.5601
Caucasian ≥20 yr of age						
FEV_1	0.5536	-0.01303	-0.000172	0.00014098	0.00011607	0.8510
FEV_6	0.1102	-0.00842	-0.000223	0.00018188	0.00015323	0.8692
FVC	-0.1933	0.00064	-0.000269	0.00018642	0.00015695	0.8668
PEF	1.0523	0.08272	-0.001301	0.00024962	0.00017635	0.7808
FEF_{25-75}	2.7006	-0.04995		0.00010345	0.00005294	0.5601.
African-American <20 yr of age						
FEV_1	-0.7048	-0.05711	0.004316	0.00013194	0.00010561	0.8080
FEV_6	-0.5525	-0.14107	0.007241	0.00016429	0.00013499	0.8297
FVC	-0.4971	-0.15497	0.007701	0.00016643	0.00013670	0.8303
PEF	-0.2684	-0.28016	0.018202	0.00027333	0.00018938	0.7299
FEF_{25-75}	-1.1627	0.12314		0.00010461	0.00004819	0.4724
African-American ≥20 yr of age						
FEV_1	0.3411	-0.02309		0.00013194	0.00010561	0.8080
FEV_6	-0.0547	-0.02114		0.00016429	0.00013499	0.8297
FVC	-0.1517	-0.01821		0.00016643	0.00013670	0.8303
PEF	2.2257	-0.04082		0.00027333	0.00018938	0.7299
FEF_{25-75}	2.1477	-0.04238		0.00010461	0.00004819	0.4724

Table S12.8(a): Prediction and Lower Limits of Normal Equations for Spirometric Parameters for Male Subjects[31]

Subjects	Intercept	Age	Age^2	Ht_{PRD} $(cm)^{2*}$	Ht_{LLN} $(cm)^{2*}$	R^2
Mexican-American <20 yr of age						
FEV_1	-0.8218	-0.04248	0.004291	0.00015104	0.00012670	0.8536
FEV_6	-0.6646	-0.11270	0.007306	0.00017840	0.00015029	0.8657
FVC	-0.7571	-0.09520	0.006619	0.00017823	0.00014947	0.8641
PEF	-0.9537	-0.19602	0.014497	0.00030243	0.00021833	0.7530
FEF_{25-75}	-1.3592	0.10529		0.00014473	0.00009020	0.5482
Mexican-American ≥20 yr of age						
FEV_1	0.6306	-0.02928		0.00015104	0.00012670	0.8536
FEV_6	0.5757	-0.02860		0.00017840	0.00015029	0.8657
FVC	0.2376	-0.00891	-0.000182	0.00017823	0.00014947	0.8641
PEF	0.0870	0.06580	-0.001195	0.00030243	0.00021833	0.7530
FEF_{25-75}	1.7503	-0.05018		0.00014473	0.00009020	0.5482

*Ht_{PRD} coefficient is used for prediction equation and Ht_{LLN} is used (replaces Ht_{PRD}) for the lower limit of normal equation. Lung function parameter = $b_0 + b_1 + * age + b_2 * age^2 = b_3 * height^2$

Table S12.8(b): Prediction and Lower Limits of Normal Equations for Spirometric Parameters for Female Subjects[32]

Subjects	Intercept	Age	Age ^{2}	Ht $_{PRD}$ (cm)^{2*}	Ht $_{LLN}$ (cm)^{2*}	R^2
Caucasian <18 yr of age						
FEV_1	-0.8710	0.06537		0.00011496	0.00009283	0.7494
FEV_6	-1.1925	0.06544		0.00014395	0.00011827	0.7457
FVC	-1.2082	0.05916		0.00014815	0.00012198	0.7344
PEF	-3.6181	0.60644	-0.016846	0.00018623	0.00012148	0.5559
FEF_{25-75}	-2.5284	0.52490	-0.015309	0.00006982	0.00002302	0.5005
Caucasian ≥18 yr of age						
FEV_1	0.4333	-0.00361	-0.000194	0.00011496	0.00009283	0.7494
FEV_6	-0.1373	0.01317	-0.000352	0.00014395	0.00011827	0.7457
FVC	-0.3560	0.01870	-0.000382	0.00014815	0.00012198	0.7344
PEF	0.9267	0.06929	-0.001031	0.00018623	0.00012148	0.5559
FEF_{25-75}	2.3670	-0.01904	-0.000200	0.00006982	0.00002302	0.5005
African-American <18 yr of age						
FEV_1	-0.9630	0.05799		0.00010846	0.00008546	0.6687
FEV_6	-0.6370	-0.04243	0.003508	0.00013497	0.00010848	0.6615
FVC	-0.6166	-0.04687	0.003602	0.00013606	0.00010916	0.6536
PEF	-1.2398	0.16375		0.00019746	0.00012160	0.4736
FEF_{25-75}	-2.5379	0.43755	-0.012154	0.00008572	0.00003380	0.3787
African-American ≥18 yr of age						
FEV_1	0.3433	-0.01283	-0.000097	0.00010846	0.00008546	0.6687
FEV_6	-0.1981	0.00047	-0.000230	0.00013497	0.00010848	0.6615
FVC	-0.3039	0.00536	-0.000265	0.00013606	0.00010916	0.6536
PEF	1.3597	0.03458	-0.000847	0.00019746	0.00012160	0.4736
FEF_{25-75}	2.0828	-0.03793		0.00008572	0.00003380	0.3787

Table S12.8(b): Prediction and Lower Limits of Normal Equations for Spirometric Parameters for Female Subjects[32]

Subjects	Intercept	Age	Age ^{2}	Ht $_{PRD}$ (cm)^{2*}	Ht $_{LLN}$ (cm)^{2*}	R^2
Mexican-American <18 yr of age						
FEV_1	-0.9641	0.06490		0.00012154	0.00009890	0.7268
FEV_6	-1.2410	0.07625		0.00014106	0.00011480	0.7208
FVC	-1.2507	0.07501		0.00014246	0.00011570	0.7103
PEF	-3.2549	0.47495	-0.013193	0.00022203	0.00014611	0.4669
FEF_{25-75}	-2.1825	0.42451	-0.012415	0.00009610	0.00004594	0.4305
Mexican-American ≥18 yr of age						
FEV_1	0.4529	-0.01178	-0.000113	0.00012154	0.00009890	0.7268
FEV_6	0.2033	0.00020	-0.000232	0.00014106	0.00011480	0.7208
FVC	0.1210	0.00307	-0.000237	0.00014246	0.00011570	0.7103
PEF	0.2401	0.06174	-0.001023	0.00022203	0.00014611	0.4669
FEF_{25-75}	1.7456	-0.01195	-0.000291	0.00009610	0.00004594	0.4305

*Ht $_{PRD}$ coefficient is used for prediction equation and Ht $_{LLN}$ is used (replaces Ht $_{PRD}$) for the lower limit of normal equation. Lung function parameter = $b_0 + b_1 + * \text{age} + b_2 * \text{age}^2 = b_3 * \text{height}^2$

Table S12.9(a): Prediction and Lower Limits of Normal Equations for FEV1/FEV6 % and FEV1/FVC % for Male Subjects[33]

Subjects	Intercept $_{PRD*}$	Age	Intercept $_{LLN*}$	R^2
Caucasian				
FEV_1/FEV_6 %	87.340	-0.1382	78.372	0.2151
FEV_1/FVC %	88.066	-0.2066	78.388	0.3448
African-American				
FEV_1/FEV_6 %	88.841	-0.1305	78.979	0.0937
FEV_1/FVC %	89.239	-0.1828	78.822	0.1538
Mexican-American				
FEV_1/FEV_6 %	89.388	-0.1534	80.810	0.1711
FEV_1/FVC %	90.024	-0.2186	80.925	0.2713

*Intercept $_{PRD}$ is used for prediction equation and Intercept $_{LLN}$ is used (replaces Intercept $_{PRD}$) for the lower limit of normal equation. Lung function parameter = $b_0 + b_1 *$ age.

Table S12.9(b): Prediction and Lower Limits of Normal Equations for FEV1/FEV6 % and FEV1/FVC % for Female Subjects[34]

Subjects	Intercept $_{PRD*}$	Age	Intercept $_{LLN*}$	R^2
Caucasian				
FEV_1/FEV_6 %	90.107	-0.1563	81.307	0.3048
FEV_1/FVC %	90.809	-0.2125	81.015	0.3955
African-American				
FEV_1/FEV_6 %	91.229	-0.1558	81.396	0.1693
FEV_1/FVC %	91.655	-0.2039	80.978	0.2284
Mexican-American				
FEV_1/FEV_6 %	91.664	-0.1670	83.034	0.2449
FEV_1/FVC %	92.360	-0.2248	83.044	0.3352

*Intercept $_{PRD}$ is used for prediction equation and Intercept $_{LLN}$ is used (replaces Intercept $_{PRD}$) for the lower limit of normal equation. Lung function parameter = $b_0 + b_1 *$ age.

Table S12.10(a): DLCO Reference Equations for Men[35]

Reference No.	N	Equation	r2	SEE	Smoking Status
96	84	6.8-0.238A+15.5 BSA	*	5.04	*
45	227	0.325H-0.200A-17.6	*	5.10	*
102	*	$3.75V_A$-0.153A+19.93	*	*	*
98†	123	0.410H-0.210A-26.31	0.60	4.82	NS
83	74	0.1646H-0.229A+12.9113	0.46	4.84	NS
101	80	0.441H-0.1936A-31.3822	0.32	5.79	NS
99	71	0.3551H-0.2741A-11.3527	0.67	4.57	NS
4	‡	0.3319H-0.1971A-18.006	0.79	4.21	*
119	194	0.3674H-0.1961A-21.8982	0.45	4.40	NS

Definitions: V_A = alveolar volume in L STPD; H = height in cm; A = age in years; W = weight in kg; BSA = body surface area; ECCS = European Community for Coal and Steel; NS = nonsmokers; ES = ex-smokers; r2 = coefficient of determination; SEE= standard of error of the estimate. Estimates of regression variability are listed under SEE regardless of how the author labeled the variability.
*Information not available in reference.
† Adjusted to a standard hemoglobin concentration of 14.6 g/dl.
‡ Summary equations from several studies.

Table S12.10(b): DLCO Reference Equations for Women[36]

Reference No.	N	Equation	r2	SEE	Smoking Status
96	51	0.5-0.117A+15.5BSA	*	5.04	*
120	41	0.212H-0.156A-2.66	*	3.69	*
102	*	$5.38V_A$-0.083A+7.72	*	*	*
98§	122	0.256H-0.144A-8.36	0.56	3.57	NS
83	159	0.1602H-0.1111A+2.2382	0.54	3.95	NS+ES
101	291	0.1569H-0.0677A+5.0767	0.09	4.31	NS
99	99	0.1872H-0.1460A+3.8821	0.38	4.50	NS
4	‡	0.2441H-0.1463A-8.20	0.44	3.49	*
119	167	0.1369H-0.1233A+0.0917W+1.8879	0.37	2.91	NS

Definitions: V_A = alveolar volume in L STPD; H = height in cm; A = age in years; W = weight in kg; BSA = body surface area; ECCS = European Community for Coal and Steel; NS = nonsmokers; ES = ex-smokers; r2 = coefficient of determination; SEE= standard of error of the estimate. Estimates of regression variability are listed under SEE regardless of how the author labeled the variability.
*Information not available in reference.
‡ Summary equations from several studies.
§ No adjustment for hemoglobin (Hb) concentration; average Hb for the study population was 13.3g/dl.

Table S12.11: Selected Reference Values for Maximal Incremental Cycle Exercise Test[37]

Variables	Equations*
V_{O2} ml/min, male	W x [50.75 – 0.372 (A)]
V_{O2} ml/min, female	(W + 43) x [22.78 – 0.17 (A)]
HR, beats/min	210 x 0.65 (A) †
O_2 pulse, ml/beat	Predicted V_{O2} max/predicted HR max
V_E/MVV, %	~72 $\pm$ 15
AT, L/min (V_{O2})	> 40% V pred

Definitions: AT = Anaerobic threshold; HR = heart rate; V_E = minute ventilation; V_{O2} = oxygen uptake.
**Age* (A): years; *height* (H): centimeters; *weight* (W): kilograms.
Predicted weight men: 0.79 x H – 60.7. Predicted weight women: 0.65 x H – 42.8. When actual weight > predicted, the predicted weight should be used in the equations. Wasserman and colleagues introduced new corrections factors which have not yet been published in peer reviewed journals.
† See Lange-Andersen and coworkers

Table S12.12: Suggested Normal Guidelines for Interpretation of Cardiopulmonary Exercise Testing Results

Maximum or peak cardiopulmonary responses except for anaerobic threshold and V_E/VC_{O2} at AT[38]

Variables	Criteria of Normality
V_{O2} max or V_{O2} peak	>84% predicted
Anaerobic threshold	>40% V_{O2} max predicted; wide range of normal (40-80%)
Heart rate (HR)	HR max >90% age predicted
Heart Rate Reserve (HRR)	HRR<15 beats/min
Blood Pressure	<220/90
O_2 pulse (V_{O2}/HR)	>80%
Ventilatory reserve (VR)	MW – V_E max: >11 L or V_E max/MVV x 100: <85%. Wide normal range: 72 $\pm$ 15%
Respiratory frequency (f_R)	<60 breaths/min
V_E/VC_{O2} (at AT)	<34
V_D/V_T	<0.28; <0.30 for age > 40 years
P_{aO2}	>80 mm Hg
P $(_{A-a})$ O_2	<35 mm Hg

To determine the impact of Cardiopulmonary Exercise Test on category placement in Pneumoconioses Schedule:

Example: Patient complains of moderate dyspnea. Spirometry test results are normal, with FVC, FEV1 and FEV1/FVC values above Lower Limits of Normal (LLN). Diffusing capacity is normal, measured at 85% of predicted. Post-exercise oxygen saturation decreased by 2% as compared to baseline values, a non-significant decrease. Cardiopulmonary exercise test yielded a VO2 max of 70% predicted. All of the studies conformed to technical standards of quality as per recommendations.

Category Placement
This patient reports a degree of dyspnea that indicates a more severe impairment category than his spirometry and diffusing capacity test results. Therefore, this patient fulfills the criteria for cardiopulmonary exercise test evaluation. Result of this test showed an abnormally low VO2 max.

By "objective tests," this patient would be classified in category 4. However, since the degree of dyspnea is worse than that category and the exercise test result is abnormal, patient would be finally classified within category 5, i.e., one level above from what the result would have been if determined by the original "objective" test results.

Table S12.13: Dyspnea Evaluation Questionnaire[39]	
Mild	Do you have to stop for breath when hurrying on level ground or up a slight hill?
Moderate	Do you have to walk more slowly on level ground than people of your age because of breathlessness?
Moderately Severe	Do you have to stop for breath when walking more than 100 yards (length of football field) at your own pace on level ground?
Severe	Do you ever have to stop for breath after walking less than 100 yards or a few minutes on level ground?
Very Severe	Are you too breathless to leave the house or breathless after dressing or undressing?

Table S12.14: Normal FEV1/FVC (%)[40]	
Age in Years	**%**
8-19	**85**
20-39	**80**
40-50	**75**
60-80	**70**

Chapter 13: Cardiovascular

Cardiovascular impairment guidelines are forthcoming.

Chapter 14: Skin

Table 14.1: Skin[41]

1. This table does not apply to facial disfigurement as governed by statute.

2. Skin conditions eligible for an impairment rating may not be clinically evident at the time of the impairment examination. However, if there is objective evidence that the condition is relapsing or recurrent in the context of work place exposure, the condition may be eligible for impairment rating. The need to wear protective equipment that is standard in the work place does not, in and of itself, imply an impairment.

3. Severity rankings are from "A" (the least severe medical impairment) to "Z" (the most severe medical impairment) for the Medical Impairment Classes within a Table.

4. The severity ranking is generally predictive of the functional result for each Class relative to the other Classes within a Table.

5. Please state diagnosis(es) at time of impairment rating

6. The medical impairment ranking is not to be used as a direct translation to loss of wage earning capacity.

Medical Impairment Class	Severity Ranking
Class 1. Objective findings of skin disorder may be present or absent but there is no or minimal limitation in daily activities in the workplace. Subjective complaints may be present or absent.	0
Class 2. Objective findings of skin disorder are present and there is discomfort and minimal limitation in the performance of daily activities in the workplace.	A-C
Class 3. Objective findings of skin disorder are present and there is limitation in some daily activities in the workplace, including avoidance of and protective measures against certain chemical or physical agents. Intermittent symptomatic treatment is required.	G-J
Class 4. Objective findings of skin disorder are present and there is limitation in many or most daily activities in the workplace, including avoidance of and protective measures against certain chemical or physical agents. Continuous symptomatic treatment is required.	O-R
Class 5. Objective findings of skin disorder are present and there is limitation in all daily activities in the workplace, including avoidance of and protective measures against certain chemical or physical agents. Continuous symptomatic treatment is required.	U-Z

Chapter 15: Brain

Table 15.1: Brain[42]

1. Impairment for injuries that have resulted in damage to the brain is determined based upon a medical opinion which applies or describes the following criteria:

a) The residuals included in this Table must be a direct result of organic injury to the brain. For example, emotional or behavioral disturbances must result directly from injury to the brain. Emotional disturbances which are reactive to other residuals, but which are not directly organically based, such as frustration or depressed mood about memory deficits or work limitations, are not included under these criteria and must be addressed separately.

b) The distinctions between Classes are intended to reflect, at their most fundamental level, the impact of the residuals on two domains: impairment of activities of daily living and, by implication, impairment of the ability to function in the workplace.

2. Medical impairment for injuries resulting in motor (i.e. hemiplegia or hemiparesis) and/or sensory losses due to craniocerebral trauma should be determined by the effect on ADLs and, by implication, the ability to function in the workplace, as reflected in the fundamental intent of the class.

3. As used in this table, Episodic Neurologic Disorders refers to and includes any of the following, where symptoms may be episodic:
   a) Any type of seizure disorder;
   b) Vestibular disorder, including disturbances of balance or sensorimotor integration;
   c) Neuro-ophthalmologic or oculomotor visual disorder, such as diplopia;
   d) Headaches

4. Levels in this table are based on the *Rancho Los Amigos Scale-Revised,* 1999.

5. Nothing is these guidelines is intended to define whether an injury is a "grave injury" under Section 11, Workers' Compensation Law

6. Severity rankings are from "A" (the least severe medical impairment) to "Z" (the most severe medical impairment) for the Medical Impairment Classes within a Table.

7. The severity ranking is generally predictive of the functional outcome for each Class relative to the other Classes within a Table.

8. Please state diagnosis(es) at time of impairment rating.

9. The medical impairment ranking is not to be used as a direct translation to loss of wage earning capacity.

Table 15.1: Brain	
Medical Impairment Class	**Severity Ranking**
Class 1. No residual symptoms. No clinical finding	None
Class 2. The fundamental intent of this Class is as follows: there are "nuisance" level residual effects of head injury, which may slightly impact the manner in which ADLs are performed, or the subjective ease of performance, but remains fully independent in all activities of daily living. Cognition: Functions at the equivalent of *Rancho Los Amigos Scale-Revised* level of 9 or 10 (e.g. is alert and oriented; behavior is appropriate and is able to recall and integrate past and recent events). Is independent in activities of daily living. If there are cognitive or memory deficits, they are no more than minimal or "nuisance" level and do not materially impair activities of daily living or the type of work that may be performed. Language: If there is a language deficit, it is no more than minimal (e.g. language comprehension or production might be less than normal, but it is adequate for daily living). Emotions/Behavior: If there are emotional disturbances, fatigue, or lethargy, they are minimal and occur only transiently during stressful situations and events. Sleep/Alertness: If there are episodic sleep disturbances, fatigue, or lethargy, they are minimal (e.g. any sleeping irregularity, fatigue, or lethargy does not interfere with daily living). Episodic Neurologic Disorders: If there is an episodic neurologic deficit, it is completely controlled and does not interfere with daily living.	**A-C**

Table 15.1: Brain	
Medical Impairment Class	**Severity Ranking**
Class 3. The fundamental intent of this Class is as follows: independent in all activities of daily living, but may require significant adaptations or modifications in normal patterns or means of activities of daily living in order to achieve ADL-independence. Cognition: Functions at the equivalent *Rancho Los Amigos Scale-Revised* level of 8 (e.g. is alert and oriented; behavior is appropriate and is able to recall and integrate past and recent events). Can perform all activities of daily living independently, but due to mild cognitive or memory deficits, may need to use compensatory strategies or devices such as multiple written reminders, alarms or digital devices; or may sometimes require more time than normal to complete activities of daily living; or may use occasional reminders, prompts, or minor assistance by others as a compensatory strategy, but is not dependent on others. For example, can manage all transactions independently if necessary, and is not fundamentally dependent for this activity, but may ask a spouse to double-check financial transactions for errors. The cognitive or memory deficits limit ability to perform some types of functions, for example, mild attention deficits may preclude work in a busy, multi-tasking environment. Language: Language deficit is mild (e.g. language comprehension or production might occasionally interfere with daily living or limit the ability to perform some types of functions in the workplace. Emotion/Behavior: Emotional or behavioral disturbances or personality changes are mild. While they may be disproportionate to the stress or situation, they do not significantly impair ability to relate to others, or to live with others. They may limit some types of functions, for example, irritability may preclude jobs with high public contact. Sleep/Alertness: Episodic sleep disturbances, fatigue, or lethargy are mild (e.g. any sleeping irregularity, fatigue, or lethargy only occasionally interferes with daily living). Sleep disturbance, or mild or episodic fatigue or lethargy, may limit the ability to perform some types of functions for example, shift work or commercial driving. Episodic Neurologic Disorders: Any episodic neurologic deficit not completely controlled, and results in limits in ADL performance and some types of functions in the workplace, but still independent in ADLs. For example, headaches may intermittently interfere with daily living; diplopia which worsens with fatigue may cause driving restrictions; vestibular symptoms may limit ability to operate industrial machinery or avoid heights.	**F-L**

Table 15.1: Brain	
Medical Impairment Class	**Severity Ranking**
Class 4. The fundamental intent of this Class is as follows: not completely independent in all ADLs, and requires some type of supervision, assistance, or guidance from another person at some times for some aspects of ADLs. Cognition: Functions at the equivalent of *Rancho Los Amigos Scale-Revised* level of 7 (e.g. is alert and oriented, behavior is appropriate but has mild to moderate impaired judgment or mild to moderate, functionally significant cognitive or memory deficits). Judgment, cognitive, or memory deficits result in impairment sufficient so that assistance or supervision is regularly required in order to perform some activities of daily living. Language: Language deficit is mild to moderate (e.g. language comprehension or production deficits frequently interfere with activities of daily living.). Emotions/Behavior: Emotional or behavioral disturbances or personality changes are moderate, disproportionate to the stress or situation, are present at all times and significantly impair the ability to relate to others or to live with others. Sleep/Alertness: Episodic sleep disturbances, fatigue, or lethargy are moderate. They frequently interfere with daily living. Episodic Neurologic Disorders: If there is an episodic neurologic deficit, it is not completely controlled. It markedly interferes with daily living. Cannot operate industrial machinery.	**Q-S**
Class 5. The fundamental intent of this Class is as follows: (a) Basically dependent on others for most aspects of ADLs, although may not need direct supervision at all times **or** (b) Requires assistance and supervision to perform all activities of daily living. Total supervision is required. Cognition: Functions at the equivalent of *Rancho Los Amigos Scale-Revised* level of 4-6 (e.g. impaired judgment or significant memory deficit, such that assistance and supervision are needed to perform most activities of daily living. or behavior is inappropriate, confused, not reliably oriented to time and place; may be agitated and has a severe memory deficit). Language: Language deficit is moderate to severe (e.g. language comprehension is often impaired; language production is often inappropriate or unintelligible). Emotions/Behavior: Emotional or behavioral disturbances or personality changes are moderate to severe, disproportionate to the stress or situation, are present at all times, require supervision, or seriously limit ability to live with others. Sleep/Alertness: Episodic sleep disturbances, fatigue, or lethargy are moderate-severe (e.g. they require supervision for daily living). Episodic Neurologic Disorders: If there is an episodic neurologic deficit, it is of such severity and constancy that activities must be limited and supervised. Needs to live in a supervised setting such as a foster home, care facility, or supervised semi-independent residence.	**W-Z**
Class 6. Functions at the equivalent of *Rancho Los Amigos Scale-Revised* level of 1-3. Comatose or responses to stimuli are localized, inconsistent or delayed.	**Z**

Chapter 16: Pain

Table 16.1: Pain

1. The other impairment Tables take into account a range of expected severity and duration of pain and those Tables cover all but a few individuals. This Table is designed for those individuals with extraordinary severe persistent painful conditions. Examples of such conditions include, but are not limited to, headaches following severe head trauma or skull fractures, and CRPS fulfilling the criteria. (Table 16.2)

and

2. Extent to which pain symptoms can reasonably be accepted as consistent with the objective medical evidence. However, subjective pain statements will not alone establish disability; there must be a related history with medical and laboratory findings supporting a medical condition which could reasonably be expected to produce the pain.

Please state diagnosis(es) at time of impairment rating including the condition(s) responsible for the pain symptoms.

A "yes or no" designation is not to be used as a direct translation to loss of wage earning capacity.

Medical Impairment Ranking	
A: Extraordinary severe persistent pain with all of the following: (a) Reasonable medical basis for the pain; (b) Consistency of pain over time and situation; (c) Consistency with anatomy and physiology; (d) A Pain Disability Questionnaire (PDQ) (Table S16.2(a) in English or Table S16.2(b) in Spanish) score of at least 101 at the time of classification for the impairment rating; **and** (e) Does not exhibit behavior that is inconsistent with the pain symptoms	**Yes** or **No**

Table S16.2: CRPS Diagnostic Criteria[43]

CRPS-I (RSD) general definition: a painful condition that develops after an initiating noxious event, not limited to the distribution of a single peripheral nerve. The syndrome shows variable progression over time.

In CRPS-II (Causalgia), a specific nerve is involved and pain is within the distribution of the damaged nerve.

To make the clinical diagnosis, the following criteria must be met:

1. Continuing pain, which is disproportionate to any inciting event.

2. Must report at least one symptom in three of the four following categories:
(a) Sensory: Reports of hyperesthesia and /or allodynia
(b) Vasomotor: Reports of temperature asymmetry and/or skin color changes and/or color asymmetry.
(c) Sudomotor/Edema: Reports of edema and/or sweating changes and/or sweating asymmetry.
(d) Motor/Trophic: Reports of decreased range of motion and/or motion and/or motor dysfunction (weakness, tremor, dystonia) and/or trophic changes (hair, nail, skin)

3. Must display at least one sign at time of evaluation in two or more of the following categories:
(a) Sensory: Evidence of hyperalgesia and/or allodynia
(b) Vasomotor: Evidence of temperature asymmetry (>1 degree centigrade) and/or skin color changes and/or symmetry
(c) Sudomotor/Edema: Evidence of edema and/or sweating changes and/or sweating asymmetry
(d) Motor/Trophic: Evidence of decreased range of motion and/or motor dysfunction (weakness, tremor, dystonia) and/or trophic changes (hair, nail, skin)

4. There is no other diagnosis that better explains the signs and symptoms.

Table S16.2(a): Pain Disability Questionnaire (PDQ)[44]

Patient Name _____ Date _____

Instructions: This survey asks your views about how your pain now affects how you function in everyday activities. This information will help you and your doctor know how you feel and how well you are able to do your daily tasks at this time.

Please answer every question by making an "X" along the line to show how much your pain problem has affected you (from having no problems at all to having the most severe problems you can imagine).

1. Does your pain interfere with your normal work inside and outside the home?
]_____]_____]_____]_____]_____]
Work normally — Unable to work at all

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

3. Does your pain interfere with your traveling?
]_____]_____]_____]_____]_____]
Travel anywhere I like — Only travel to see doctors

4. Does your pain affect your ability to sit or stand?
]_____]_____]_____]_____]_____]
No problems — Cannot sit/stand at all

5. Does your pain affect your ability to lift overhead, grasp objects, or reach for things?
]_____]_____]_____]_____]_____]
No problems — Cannot do at all

6. Does your pain affect your ability to lift objects off the floor, bend, stoop, or squat?
]_____]_____]_____]_____]_____]
No problems — Cannot do at all

7. Does your pain affect your ability to walk or run?
]_____]_____]_____]_____]_____]
No problems — Cannot walk/run at all

8. Has your income declined since your pain began?
]_____]_____]_____]_____]_____]
No decline — Lost all income

9. Do you have to take pain medication every day to control your pain?
]_____]_____]_____]_____]_____]
No medication needed — On pain medication throughout the day

10. Does your pain force you to see doctors much more often than before your pain began?
]_____]_____]_____]_____]_____]
Never see doctors — See doctors weekly

Table S16.2(a): Pain Disability Questionnaire (PDQ)[44]

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

12. Does your pain interfere with recreational activities and hobbies that are important to you?

]_____]_____]_____]_____]_____]_____]

No interference Total interference

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

14. Do you now feel more depressed, tense, or anxious than before your pain began?

]_____]_____]_____]_____]_____]_____]

No depression/tension Severe depression/tension

15. Are there emotional problems caused by your pain that interfere with your family, social and or work activities?

]_____]_____]_____]_____]_____]_____]

No problems Severe problems

Table S16.2(b): Pain Disability Questionnaire (PDQ) Scoring Instructions[45]

Every 1.5 cm = 1 increment

0 1 2 3 4 5 6 7 8 9 10
]_____]_____]_____]_____]_____]_____]

If an "X" is exactly on the line between one number and the next, then it is scored as the lower number. If the "X" is one millimicron over into the next increment, then score "up". Score a value for each line, and sum the total for all 15 lines. If the patient has put 2 "X's" on the line, use the point that is halfway between the two points as the item score. For example, if an "X" is marked at 2 and an "X" at 6, one would score this particular item a 4.

The PDQ is made up of two factors: a Functional Status Component and a Psychosocial Component. To differentiate these two components, one must separate the scores.

A) Functional Status Component: Total the scores for items 1, 2, 3, 4, 5, 6, 7, 12 and 13 (maximum = 90)
B) Psychosocial Component: Total the scores for items 8, 9, 10, 11, 14, and 15 (maximum = 60)
C) Total PDQ Score: Total of the scores of all items (should equal to Functional Status Score + Psychosocial Component Score).

Blank Items: If some lines are left blank, they should be pro-rated. To do this, one must first determine whether the item is part of the Functional Status or Psychosocial Component. Then, one would calculate the total component score and divide by the number of component items answered to obtain a mean. This mean score would then be added to each item left blank for that particular component. For example, if a patient leaves question 5 blank, one would calculate the total for the Functional Status Component. Suppose that the 8 items answered sum to 48. One would then divide 48 by the number of items answered. In this case, 8 were answered, so the mean item score for the Functional Status Component is 6. One would then add 6 to the Functional Status Component, which for this example would be 54. When computing the total PDQ score, this of course, adds 6 points as well.

The same is true for the Psychosocial Component, although one must be careful because there are only 6 items comprising this component. For example, if the same patient mentioned above also leaves question 14 blank, one would have to pro-rate this item for the Psychosocial Component. If the remaining 5 questions for the Psychosocial Component are answered and sum to 30, we would have a mean item score of 6 for the Psychosocial Component. Again, one would add 6 points to the Psychosocial Component Total. Now, the Psychosocial Component will equal 36, and the total of the Functional Status and Psychosocial Components equals a total PQD of 90.

Table S16.2(c): Pain Disability Questionnaire (PDQ)-Spanish Language

CUESTIONARIO DE INCAPACIDAD POR DOLOR (PDQ)
NOMBRE: _____ # DE ID: _____ FECHA: _____

Favor de leer:
Este cuestionario le pregunta su opinion sobre la manera en que su dolor ahora afecta cómo usted realiza sus actividades diarias. Esta información le ayudará a usted y a su médico determinar hasta que punto puede desempeñar sus actividades físicas diarias.

Por favor responda a todas las preguntas marcando una "x" sobre la línea para indicar cuánto le ha afectado su problema de dolor (desde no tener ningún problema hasta experimentar los problemas más graves que una persona pueda imaginarse).

ASEGURESE DE CONSTESTAR TODAS LAS PREGUNTAS.

1. Interfiere su dolor con el trabajo normal dentro y fuera de su hogar?
]_____]_____]_____]_____]_____]
Trabajo normalmente — No puedo trabajar

2. Interfiere su dolor con el cuidado personal (tal como bañarse, vestirse, etc.)?
]_____]_____]_____]_____]_____]
Me puedo cuidar por si mismo — Necesito ayuda con todo mi cuidado personal

3. Interfiere su dolor con sus viajes?
]_____]_____]_____]_____]_____]
No puedo viajar — Viajo a donde quiero

4. Su dolor afecta la capacidad de sentarse o pararse?
]_____]_____]_____]_____]_____]
Ningún problema — No puedo hacerlo

5. Su dolor afecta la capacidad de levanter objetos sobre su cabeza, para sujetar o alcanzar objetos?
]_____]_____]_____]_____]_____]
Ningún problema — No puedo hacerlo

6. Interfiere el dolor con la habilidad de levantar objetos del piso, agacharse, doblarse o ponerse en cuchillas?
]_____]_____]_____]_____]_____]
Ningún problema — No puedo hacerlo

7. Su dolor afecta la capacidad de caminar o corer?
]_____]_____]_____]_____]_____]
Ningún problema — No puedo hacerlo

8. Disminuyeron sus ingresos desde que comenzó el dolor?
]_____]_____]_____]_____]_____]
No disminuyeron — No tengo ingresos

Table S16.2(c): Pain Disability Questionnaire (PDQ)-Spanish Language

9. Necesita tomar medicamento para el dolor diariamente?

]_____]_____]_____]_____]_____]_____]

No necesito medicamento para el dolor — Tomo medicamentos para el dolor todo el día

10. El dolor le obliga a visitar médicos con más frecuencia que antes de que comenzara?

]_____]_____]_____]_____]_____]_____]

Nunca visito médicos — Visito médicos cada semana

11. Interfiere su dolor con la capacidad de ver a las personas importantes para usted con la frecuencia que usted quisiera?

]_____]_____]_____]_____]_____]_____]

Ningún problema — Nunca las veo

12. Su dolor interfiere con actitividades recreativas y los pasatiempos que son importantes para usted?

]_____]_____]_____]_____]_____]_____]

Ningún problema — No puedo hacerlo

13. Necesita la ayuda de sus familiares y amigos para realizar sus actividades o tareas diarias (incluyendo el trabajo dentro y fuera de su hogar)?

]_____]_____]_____]_____]_____]_____]

Nunca necesito ayuda — Necesito ayuda continuamente

14. Se siente más deprimido, tenso o ansioso que antes de que comenzara su dolor?

]_____]_____]_____]_____]_____]_____]

No depresión/tensión — Depresión/tensión severa

15. Experimenta usted problemas emocionales a causa de su dolor que interfieren con actividades familiares, sociales o laborales?

]_____]_____]_____]_____]_____]_____]

Ningún problema — Problemas severos

Chapter 17: Other Injuries and Occupational Diseases (Default Guideline)

1. For a system or body part that is not covered by another impairment guideline (Chapters 11- 16), the physician should document:
   - the worker's relevant medical history,
   - physical findings, objective test results, and
   - the nature and severity of the permanent impairment(s).

2. Tables 17.1, 17.2 and 17.3 provide some additional information about specific medical conditions that are not addressed in Chapters 11 through 16. The impairment evaluation of these conditions should reflect the elements noted above.

Table 17.1: Surgical Disorders – Hernia and Organ Excision

Hernia

1. There should be a history of trauma, lifting or pulling.
2. Review the medical records, surgeon's reports, operative reports and physical exam.
3. All hernias which remain symptomatic following repair or multiple repairs are considered partial disabilities for a period of one to two years.
4. Hernias, recurrent or not, which are symptomatic and require wearing a truss, may after two years be classified permanent partial disability.
5. Cases that are successfully repaired and asymptomatic are given no disability.

Surgical Excision of Vital Organs

Surgical excision (partial or total) of vital organs, usually following a history of trauma, such as excision of a spleen, removal of one kidney, partial excision of the liver, partial excision of lung tissue and /or lobectomy, and orchiectomy are classified permanent partial disability.

Table 17.2: Vascular Disease of the Extremities

1. Listed below are clinical findings that an examining physician should consider in the vascular examination of the extremities:
   - Claudication
   - Pain at rest
   - Trophic changes
   - Ulceration
   - Gangrene
   - Loss of extremity
   - Raynaud's
   - Disease of veins
   - Disorders of the lymphatics
2. Vascular diseases of the extremities are rarely seen as work-related.
3. If seen, they are almost always preexisting conditions and aggravated by an injury or trauma to the extremity.
4. The examining physician's guide in deciding whether to give a schedule loss of use or classification depends upon the severity of symptoms, physical findings and response to medical and surgical treatment.
5. Amputation of an extremity with good result and no complications should be given a schedule loss of use.
6. Cases with chronic ulcers, chronic phlebitis, stasis dermatitis, gangrene and osteomyelitis are classified permanent partial or total disability.

Table 17.3: Work-related Post-traumatic Neurosis; Post-traumatic Stress Disorder and Other Causally Related Psychiatric Conditions

1. Such cases should have psychiatric and psychological evaluations and opinions, as well as psychological and/or neuro-psychological testing
2. The impairment evaluation should include the impact of the psychiatric impairment on functional ability, including activities of daily living.

Chapter 18: Medical Impairment Severity Crosswalk

Table 18.1: Medical Impairment Severity Crosswalk

As stated in the Introduction to the Non-Schedule Awards of these Guidelines, Medical Impairment Classes are organized by degree of impairment severity. Each Class has a severity ranking assigned to it that is generally reflective of the expected functional status for each Class relative to other Classes within a Chapter. Severity rankings are from "A" (the least severe medical impairment) to "Z" (the most severe medical impairment) for the Classes within a given Chapter. In principle, the severity rankings for the Classes of one chapter should not be compared to the rankings in other Chapters. For example, a "D" ranking in the Spine and Pelvis Chapter is not intended to imply that a "D" ranking in the Respiratory Chapter is of equal severity. For purposes of qualitative comparison, Table 18.1: Medical Impairment Severity Cross Walk, is intended to allows for some degree of comparison between rankings of different Classes and Chapters.

Table 18.1: Medical Impairment Severity Crosswalk

Relative Severity Class	0 No impairment	1	2	3	4	5	6 Total
Chapter 11: Spine and Pelvis (Tables 11.1, 11.2 and 11.3)							
Cervical	Class 1	A-C	D-E	F-G	H		N/A
Thoracic	Class 1	A-C	D-E	F-G			N/A
Lumbar	Class 1	A-B, D	E-F	G-H	I-J		N/A
Table 11.8: Spinal Cord Injury							
Lumbar-incomplete				D-E	K		
Lumbar Complete					E-F	N	
Thoracic incomplete					K-N	Q	W
Thoracic Complete						N-T	X
Cervical incomplete							W-Z
Cervical Complete							X-Z

Table 18.1: Medical Impairment Severity Crosswalk							
Relative Severity Class	0 No impairment	1	2	3	4	5	6 Total
Table 11.10: Pelvis							
Relative Severity Class	0	1	2	3	4	5	6 Total
Sacrum				C	I		
Symphysis Pubis		A					
Coccyx		A					
S-I joint		A	B-C				
Ramus/Rami		A	B				
Ilium		B	C				
Ischium		B	C				
Acetabulum-SLU							
Chapter 12: Respiratory							
Pneumocon-ioses/Non-asthma	Class 1 & 2	A	D, E, G	I, L, M	O, R	T, V	X, Y, Z
Asthma	-------	A-B	D, F	L	R	-----	Z
Chapter 13: Cardiovascular							
	Forthcoming						
Chapter 14: Skin							
	Class 1	A-C	-------	G-J	-------	O-R	U-Z
Chapter 15: Brain							
	Class 1	A-C	-------	F-L	-------	Q-S	W-Z

Chapter 19: Glossary

1. Spinal pathology
Abnormality or disease of the spinal components (e.g., vertebrae, soft tissues, intervertebral discs, spinal cord and spinal nerves) demonstrated by elements such as physical exam, imaging, lab work and other diagnostic studies and resulting in conditions including but not limited to vertebral fracture, herniated disc, radiculopathy, spinal stenosis or spondylolisthesis.

2. Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs)
The tasks of everyday life. These activities include eating, dressing, getting into or out of a bed or chair, taking a bath or shower, and using the toilet. Instrumental activities of daily living are activities related to independent living and include preparing meals, managing money, shopping, doing housework, and using a telephone.

3. Medically documented, as used in the Spine and Pelvis Impairment Tables (Tables 11.1, 11.2, 11.3, 11.8 and 11.10)
Written information contained or provided in any medical report, whether in outline or narrative form that documents circumstances pertaining to a work-related injury or disease and the services provided. This includes, but is not limited to clinical notes, test results, consultative reports and operative reports.

4. Medical Impairment
A deviation, loss, or loss of use of any body structure or function in an individual with a health condition, disorder or disease as defined in these Impairment Tables.

5. Functional Impairment
Restriction in or lack of ability to perform a physical or cognitive activity due to a medically diagnosed impairment.

6. Maximum Medical Improvement (MMI)
An assessed condition of a claimant based on medical judgment that (a) the claimant has recovered from the work injury to the greatest extent that is expected and (b) no further improvement in his/her condition is reasonably expected. A finding of maximum medical improvement is a standard precondition for determining the permanent disability level of a claimant. The need for palliative or symptomatic treatment does not preclude a finding of MMI. In cases that do not involve surgery or fractures, MMI cannot be determined prior to 6 months from the date of injury or disablement, unless otherwise agreed to by the parties.

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