

Workers' Compensation Guidelines for Determining Impairment

First Edition, September 1, 2017

PREFACE

In April 2017, Governor Andrew M. Cuomo signed into law the 2017-2018 Executive Budget which contained several significant pieces of workers' compensation reform. Included in the reforms was Workers' Compensation Law (WCL) § 15(3)(x), which requires new Permanency Impairment Guidelines ("Guidelines") to be adopted by January 1, 2018. The new Guidelines cover determinations of permanency under WCL § 15(3)(a) through (v), which are also known as scheduled loss of use.

This document represents the Workers' Compensation Board's ("Board's") proposed Guidelines. Publication in the State Register commences a 45-day comment period (which expires on Monday, October 23, 2017). The Guidelines, along with regulations necessary to implement the Guidelines, are available on the Board's website (<http://www.wcb.ny.gov>).

The publication of these proposed Guidelines on September 1, 2017, allows for a full and robust public comment period, and ensures that the regulatory process (including, if needed, a re-publication and second public comment period) can conclude prior to the mandatory implementation of new Guidelines by January 1, 2018.

The Board strongly encourages the public, injured workers, employers, self-insured employers, insurance carriers, third-party administrators, attorneys, medical providers, and labor and business organizations to provide comment. The Board will evaluate all comments received, and will consider necessary revisions as the process advances.

The Board is committed to the timely and successful implementation of Guidelines that are, as the legislation states, "reflective of advances in modern medicine that enhance healing and result in better outcomes" [WCL § 15(3)(x)]. It should be noted that these are *proposed* Guidelines, which are not in effect.

We look forward to receiving your comments.

ACKNOWLEDGEMENTS

The Board wishes to acknowledge the tremendous effort and significant contribution of the New York State Society of Orthopaedic Surgeons, which served as the Board's consultant in developing the initial draft permanent impairment guidelines, with special mention to Jeffrey Lozman, MD, John DiPreta, MD, and Executive Director, Babette Grey. On August 15, 2017, the Board, together with the Orthopaedic Society, conferred and consulted with a group of key stakeholders and their medical experts, as set forth in the 2017 legislation (WCL § 15[3][x]).

Also, thank you to the members of the stakeholder group, specifically the New York AFL-CIO, NYS Business Council, Medical Society of the State of New York, New York State Insurance Fund, Zurich Insurance on behalf of the insurance carriers, NYS Osteopathic Medical Society, NY Self-Insurance Association, and the New York City Law Department. We thank all of the participants for their substantive and constructive feedback to the initial draft. We look forward to their continued feedback during the public comment period on these proposed guidelines and the associated regulations.

TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION	<u>1</u>
1.1 Background and History	1
1.2 Nature of Schedule Loss of Use Awards	2

1.3 Amenability	3
1.4 Using the Schedule Loss of Use Impairment Guidelines	5
1.5 Medical Assessment	6
1.5.1 Role of Examining Medical Providers and Independent Medical Examiners	6
1.5.2 Medical Impairment Evaluation	6
1.5.3 Range of Motion	7
1.5.4 Muscle Strength	8
1.5.5 Pain	8
1.6 Claimant Intake Form and Medical Assessment	10
1.7 Board Determination of Schedule Loss of Use	10
1.8 Prior Schedule Loss of Use Award	11
1.9 WCL § 15(3)(v)	11

CHAPTER 2: UPPER EXTREMITY - DIGITS

12

2.1 Objectives for Determining Impairment for Digits	12
2.2 Methods Available to Assess Permanent Impairment	12
2.3 Maximum Rating of Body Part	12
2.4 Thumb Range of Motion	13
2.4.1 IP Joint – Interphalangeal Joint	13
2.4.2 MCP – Metacarpophalangeal Joint	13
2.4.3 CMC – Carpal-metacarpal Joint	13
2.5 Thumb Strength	15
2.6 Thumb Pain	16
2.7 Finger Range of Motion	17
2.7.1 Metacarpophalangeal (MCP) Joint - Range of Motion	17
2.7.2 Proximal Interphalangeal (PIP) Joint - Range of Motion	17
2.7.3 Distal Interphalangeal (DIP) Joint - Range of Motion	17
2.8 Finger Strength	18
2.9 Finger Pain	19
2.10 Loss of % Range of Motion Multiple Digits	20

2.11 Multiple Digits - Strength.....	20
2.12 Multiple Digits - Pain	21
2.13 Special Condition Based Impairment	21
2.14 Amputation	23
2.14.1 Amputation, Digit – Single Digit	23
2.14.2 Amputation, Digit – Multiple Digits	23

CHAPTER 3: UPPER EXTREMITY - HAND AND WRIST

24

3.1 Objectives for Determining Impairment for Hand and Wrist	24
3.2 Methods Available to Assess Permanent Impairment	24
3.3 Hand & Wrist Impairment	25

3.4 Range of Motion Impairment	25
3.5 Muscle Strength	26
3.6 Pain	27
3.7 Special Condition Based Impairment	27
3.8 Amputation	27
CHAPTER 4: UPPER EXTREMITY – ELBOW	28
4.1 Objectives for Determining Impairment for Elbow	28
4.2 Methods Available to Assess Permanent Impairment	28
4.3 Elbow Range of Motion	30
4.4 Elbow Strength	31
4.5 Elbow Pain	32
4.6 Elbow - Amputation	32
CHAPTER 5: UPPER EXTREMITY - SHOULDER	33
5.1 Objectives for Determining Impairment for Shoulder	33
5.2 Methods Available to Assess Permanent Impairment	33
5.3 Shoulder Range of Motion	35
5.4 Shoulder Strength	37
5.5 Shoulder Pain	38
5.6 Special Condition Based Impairment	38
5.7 Amputation - Shoulder	38
CHAPTER 6: LOWER EXTREMITY – HIP AND FEMUR	39
6.1 Objectives for Determining Impairment for Hip and Femur	39
6.2 Methods Available to Assess Permanent Impairment	39
6.3 Hip Range of Motion	40
6.4 Hip Strength	42
6.5 Hip Pain	43
6.6 Special Condition Based Impairment	43
6.7 Hip Amputation	43
CHAPTER 7: LOWER EXTREMITY - KNEE AND TIBIA	44
7.1 Objectives for Determining Impairment for Knee and Tibia	44
7.2 Methods Available to Assess Permanent Impairment	44
7.3 Knee Range of Motion	46
7.4 Knee Strength	46
7.5 Knee Pain	47
7.6 Special Condition Based Impairment	48
7.7 Knee Amputation.....	48
CHAPTER 8: LOWER EXTREMITY - ANKLE AND FOOT	49
8.1 Objectives for Determining Impairment for Ankle and Foot.....	49

8.2 Methods Available to Assess Permanent Impairment	49
8.3 Ankle and Foot Range of Motion	50
8.4 Ankle and Foot Muscle Strength	51
8.5 Ankle and Foot Pain	52
8.6 Special Condition Based Impairment.....	52
8.7 Ankle and Foot Amputation	53

CHAPTER 9: LOWER EXTREMITY: GREAT AND LESSER TOES

54

9.1 Objectives for Determining Impairment for Great and Lesser Toes	54
9.2 Methods Available to Assess Permanent Impairment	54
9.3 Maximum Rating of Body Part	55
9.4 Single Toe Impairment	55
9.5 Great Toe Impairment	55
9.5.1 Range of Motion of the Great Toe	55
9.5.2 Great Toe Strength	57
9.5.3 Great Toe Pain	58
9.6 Lesser Toes Impairment	59
9.6.1 Lesser Toe Range of Motion	59

9.6.2 Lesser Toe Strength	59
9.6.3 Lesser Toe Pain	60
9.7 Multiple Toe Injuries	61
9.8 Amputation	61

CHAPTER 10: PERIPHERAL NERVE INJURIES AND COMPRESSION NEUROPATHIES 62

10.1 Objectives for Determining Impairment for Peripheral Nerve Injuries and Compression Neuropathies	62
10.2 Methods Available to Assess Permanent Impairment	62
10.3 Range of Motion	65
10.4 Strength	65
10.5 Sensation	67
10.6 Pain.....	67
10.7 Special Condition Based Impairment	68

CHAPTER 11: VISUAL SYSTEM / AUDITORY SYSTEM / FACIAL SCARS AND DISFIGUREMENT

70

11.1 Introduction - Visual System	70
11.1.1 Criteria and Methods for Evaluating Permanent Impairment	70
11.2 Introduction - Auditory System	73
11.2.1 Occupational Loss of Hearing.....	73
11.2.2 Traumatic Loss of Hearing	73
11.3 Facial Scars and Disfigurement	74

Chapter 1: Introduction

1.1 Background and History

Permanent injuries are generally viewed as either a “schedule loss of use” award pursuant to Workers' Compensation Law (WCL) §15(3)(a-t) or “classification” pursuant WCL §15(3)(w). These Guidelines, as described below, pertain solely to the rendering of schedule loss of use awards.

1996 Guidelines

In 1983, the New York State Legislature established a Temporary State Commission on Workers' Compensation and Disability Benefits to study and evaluate the systems of the New York State Workers' Compensation Board (Board). The Commission recommended that the Board publish uniform medical guidelines for the evaluation of functional impairments, to inform the general public, and medical and legal practitioners. Thus, in June 1996, the Board published Impairment Guidelines.

2012 Guidelines

In 2007, workers' compensation reform legislation established durational limitations on non-schedule permanent partial disability awards based on a claimant's loss of wage-earning capacity (LWEC). The 2012 Guidelines were thus developed to provide methods for evaluation of non-schedule permanent partial disabilities, and new sections were added for functional evaluation and the evaluation of loss of wage earning capacity.

The 2012 Guidelines retained the 1996 Guidelines with respect to Schedule Loss of Use.

2017 Guidelines

Legislation enacted in April 2017 [WCL§15(3)(x)] directed the Board to consult with “representatives of labor, business, medical providers, insurance carriers, and self-insured employers regarding revisions to permanency impairment guidelines, including permitting review and comment by such representatives' chosen medical advisors...”, to adopt revised guidelines for the evaluation of medical impairment and determination of permanency with respect to injuries which are amenable to a schedule loss of use award pursuant to paragraphs (a) through (v) of subdivision 3 of section 15 of the WCL. As the law directs, these guidelines are to be “...reflective of advances in modern medicine that enhance healing and result in better outcomes.” [WCL§15(3)(x)]

The Board retained the New York State Society of Orthopaedic Surgeons as its medical consultant. The Board conferred and consulted with the stakeholders and their medical advisors, who reviewed the draft, and offered feedback. Following a review of that input, the Board prepared the guidelines for publication as directed by law.

These Guidelines establish the methodology for evaluation of medical impairment, i.e. the permanent residual physical deficit as it exists at the time of maximum medical improvement. The finding of permanency is to be made by the Board, based on the evidence of the permanent medical impairment's measured impact on the earning power of the disabled claimant.

These revised permanency Guidelines, contained herein, supersede those sections of the Board's 2012 Impairment Guidelines concerning medical evaluation of injuries amenable to a

schedule loss of use (subchapter 1.5 and chapters 2, 3 and 4 of the 2012 Guidelines), as well as any other provisions of the 2012 Impairment Guidelines which are inconsistent with these Guidelines. The methodology from the 2012 Guidelines involving the visual system, loss of hearing, and facial scars and disfigurement, are placed herein as Chapter 11, in three sections, and are considered part of the 2018 Impairment Guidelines.

WCL § 15(3)(x) provides that "[a]s of January first, two thousand eighteen the 2012 permanency Guidelines pertaining to paragraphs a through v of subdivision three of section fifteen of this article are repealed, and shall have no effect. The Board shall train adjudication and other staff to ensure timely and effective implementation." As such, any schedule loss of use determinations made by the Board on and after January 1, 2018 shall be in accordance with these Guidelines.

1.2 Nature of Schedule Loss of Use Awards

Unlike awards for non-schedule permanent impairments, schedule loss of use awards are independent of the time a claimant actually loses from work, and are determined by the Workers' Compensation Law Judge (WCLJ), or, if agreed to, by a conciliator, based on a statutorily prescribed formula calculated as a number of weeks of compensation. Schedule loss of use awards are only made for permanent impairments of an extremity, permanent loss of vision or hearing, or permanent facial disfigurement, as provided in Workers' Compensation Law Section 15. The table of weeks by Percentage Loss of Use of Body Part is available in the 2012 Impairment Guidelines (see page 43).

A schedule loss of use award is not intended to compensate a claimant for an injury sustained or for pain and suffering. Rather, a schedule award compensates a claimant for the permanent loss of earning power resulting from the permanent residual physical deficit. See, e.g., *Matter of Police Department*, 2017 NY Wrk Comp G1028651 (Full Board), *Matter of Marhoffer v Marhoffer*, 220 NY 543 (1917), *Matter of Lamantia v. Midland El. Co., Inc.*, 59 A.D.3d 892 (2009). Further, a schedule award "is not allocable to any particular time frame" [*Matter of Miller v North Syracuse Cent. School Dist.*, 1 AD3d 691 (2009)]. Ultimately, the amount of a schedule loss of use award is a factual determination made by the Board based on (1) medical evidence of permanent residual physical deficit which is consistent with these Guidelines, and (2) the impact on the claimant's earning power. In addition to the schedule set forth in WCL §15(3)(a-t), a claimant who experiences a protracted healing period is entitled to additional compensation as set forth in WCL §15(4-a).

1.3 Amenability

A schedule loss of use award based on an injury to an extremity cannot be made unless the following requirements have been met:

- A. The claimant has reached maximum medical improvement, which occurs (a) when the claimant has recovered from the injury to the greatest extent that is expected and (b) no further improvement in his or her condition is reasonably expected. The need for palliative or symptomatic treatment does not preclude a finding of maximum medical improvement.
- B. There is a permanent impairment of one or more extremity listed in paragraphs (a) through (l) of subdivision 3 of section 15 of the Workers' Compensation Law.
- C. The impairment involves permanent residual physical deficits to soft tissue, bone, sensation, dexterity and power, and may also include atrophy, scarring, deformity, mobility defects and shortening.
- D. If the same accident results in multiple injuries, either directly or consequentially, one or more of which may not be the subject of a schedule award (e.g., back, neck, head, depression), all non-schedulable injuries have reached maximum medical improvement and are found by the medical provider to have fully resolved, with medical evidence that no permanent residual impairment exists. Note: Where there is permanent residual impairment in any non-schedulable injury site, the claim may be amenable to classification rather than schedule loss of use.
- E. The permanent impairment of an extremity is not amenable to a permanent partial disability classification pursuant to paragraph (w) of subdivision 3 of section 15 of the Workers' Compensation Law.

Examples of permanent impairments of the extremities which are not amenable to a schedule award, and should result in permanent partial disability classification, include:

- 1. Progressive and severe painful conditions of the major joints of the extremities such as the shoulders, elbows, hips and knees with one or more of the following:
 - a. Objective findings of acute or persistent 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; and/or
 - c. Minimal or no improvement after all modalities of medical and surgical treatment have been exhausted.
- 2. Persistent painful condition of an extremity commonly affecting the distal extremities such as the hands and feet, with one or more of the following:

- a. Complex regional pain syndrome (reflex sympathetic dystrophy), Sudeck's atrophy or persistent painful extremity syndrome;
 - b. Objective findings or persistent swelling, atrophy, dysesthesias, hypersensitivity or changes of skin color and temperature such as mottling;
 - c. X-ray evidence of osteoporosis; and/or
 - d. Minimal or no reported improvement after claimant has undergone all modalities of persistent pain treatment.
3. Mal-union of the long bones.
 4. Aseptic necrosis of the head of the femur or other bones.
 5. Severe and persistent instability of the knee joint or other major joints.
 6. Advanced Paget's Disease.
 7. Tumors.
 8. Caisson's Disease involving the joints.
 9. Persistent 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.
 13. If a medical provider renders an opinion on permanent impairment of an extremity which includes an assessment of residual pain of three or greater on a scale of zero to five, the medical provider should strongly consider whether the claimant may have a related underlying condition that has yet to be resolved.
 14. In the event of multiple injuries from the same accident or disablement, where there is an assessment of residual pain of three or greater in any of the sites, the medical provider should strongly consider whether the claimant may have a related underlying condition that has yet to be resolved.
 15. Where the injury results in multiple schedules to major members, with two or more significant schedule awards loss of use, the Board may consider medical evidence that the multiple major member schedule constitutes ongoing systemic injury which is more appropriate for classification.

To pursue a non-schedule permanent partial disability determination, parties may submit separate impairment evaluations, and the Board will separately adjudicate the question of non-schedule permanency.

1.4 Using the Schedule Loss of Use Impairment Guidelines

These Guidelines are designed to be used by medical providers to assess and render a medical opinion with regard to a claimant's permanent residual physical deficit, which the Board will consider when determining whether a schedule loss of use award is appropriate and the amount of the award. These Guidelines are divided into sections by the part of the body being assessed: Chapter 2: Digits; Chapter 3: Hand and Wrist; Chapter 4: Elbow; Chapter 5: Shoulder; Chapter 6: Hip and Femur; Chapter 7: Knee and Tibia; Chapter 8: Ankle and Foot; Chapter 9: Toes; Chapter

The structure of these Guidelines is different from the Board's 2012 Impairment Guidelines in several ways. The majority of injuries will be assessed based on the permanent residual impairment. Injuries are placed in one of three categories (Category A, Category B, and Category C) based on the permanent residual physical deficit that has or is expected to occur based on the severity of the injury. Each category has a minimum and maximum impairment percentage [e.g., Category A (0-30%), Category B (30-60%), Category C (60-90%), with cases of significant amputations at or near total loss (100%)]. Within each category, the medical evidence of impairment and its impact on earning power is determined by the Board. Digit and wrist injuries are measured differently, given their elevated occupational significance. The method of evaluation of evidence of how the injury impacts the claimant's loss of earning power, is set forth in subchapter 1.6 below.

Medical providers evaluating a claimant located in New York, and medical providers located in New York who perform evaluations, must be authorized by the Workers' Compensation Board. For medical providers outside of New York, any evaluation performed must comport with these Guidelines, including the use of any forms prescribed by the Chair.

1.5 Medical Assessment

1.5.1 Role of Examining Medical Providers and Independent Medical Examiners

Medical providers shall provide their professional opinion of the claimant's medical condition and permanent residual physical deficit at the time of maximum medical improvement based on the criteria set forth in these Guidelines. It is the responsibility of the medical provider to submit medical evidence that the Board will consider in making a legal determination as to schedule loss of use.

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

1.5.2 Medical Impairment Evaluation

In order to prepare a report on permanent impairment, the medical provider should:

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, validating if necessary with tools such as QuickDash, etc.
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.
6. Prepare and attest to a medical opinion on impairment, which should consist of the following elements:
 - a. Whether claimant is at maximum medical improvement.
 - b. Whether the claimant's injury is permanent, and amenable to schedule (see 1.3, above).
 - c. Identification of the injury(ies) in terms of severity or category as appropriate.
 - d. For each injury, unless a special condition exists, the applicable category of injury is selected. The medical provider then measures the permanent residual physical deficit with respect to:
 - (1) range of motion (impairment of gait and deformity may also be assessed if expressly provided in the Guidelines for particular diagnosis);
 - (2) strength and
 - (3) pain.In addition to considering range of motion, strength, and pain, the Guidelines for peripheral nerve injuries and compression neuropathies (Chapter 10), including finger injuries, also permit consideration for loss of sensation.

1.5.3 Range of Motion

Whenever possible, any impairment of the range of motion of an injured extremity should be assessed in contrast to the claimant's uninjured contralateral limb.

• **Range of Motion measurement procedure:**

- o Measure active, unassisted range of motion while the claimant is exerting full effort.
- o Goniometric measurements are the preferred method for impairment evaluation.
- o Each range of motion measurement should be repeated three times. The three values for each motion should be within 10° of each other. Record the highest measurement of the three values. If the three measurements within a set are not within 10° of each other, use the highest value for rating purposes and report the values as inconsistent (e.g., shoulder flexion is measured as 90°, 80° and 78°, use 90° for rating purposes and report the other measurements as inconsistent).
- o Range of motion is measured starting from the defined 0° Measurement Position. The 0° Measurement Position is specified for each joint and plane of motion at the beginning of the relevant joint section.
- o Measure and record the values for range of motion for each affected plane of the joint.
- o Ankylosis is the fixation of a joint due to disease, injury or surgery. The range of ankylosis of a joint impairment rating is described in the respective section of each joint. This value is assigned in lieu of all other range of motion or ankylosis values for that joint.

1.5.4 Muscle Strength

After evaluating range of motion, the medical provider should assess for muscle strength and atrophy using the contralateral extremity where appropriate.

Table 1.5.4 Muscle Strength

Grade	Definition	Points
5	Active movement against gravity with full resistance (normal strength, no deficit)	0
4	Active movement against gravity with some resistance (mild weakness)	1
3	Active movement against gravity without resistance (significant weakness, able to overcome gravity)	2
2	Active movement with gravity eliminated (significant weakness, unable to overcome gravity)	3
1	Slight contraction and no active movement (muscle twitch only)	4
0	No contractions (paralysis, no muscle twitch)	5

- **Muscle atrophy** should be used to adjust the strength score when the muscle strength measurement results seem inconsistent with expected findings. Atrophy is identified by measuring the maximum limb area circumferences at equal distances from a palpable permanent residual physical deficit for both limbs. If swelling and varicosities are identified, atrophy may be falsely perceived.

- o Record the landmark, the distance between the landmark and the measurement point, and the circumference of the body part.
- o Asymmetry of > 2 cm in the lower limb or \geq 1 cm in the upper limb is considered

the minimum criteria for rating of atrophy. If measures are not possible (e.g. atrophy of the thenar muscles or shoulder), describe these findings within the physical exam.

1.5.5 Pain

The WCL does not provide benefits for pain and suffering. However, residual pain may affect a claimant's ability to function and, therefore, should be considered when determining the overall award. Residual pain should only be considered in assessing a claimant's impairment percentage when (1) the pain is persistent and is not expected to improve with time, and (2) the claimant is also found to have permanent residual physical deficit with respect to range of motion or strength. If an injury does not result in impairments of range of motion or strength, no additional impairment percentage may be added to the minimum impairment percentage for the injury based upon pain alone.

A schedule loss of use award compensates a claimant for the permanent loss of earning power resulting from the permanent residual physical deficit that an injury causes, and is not intended to compensate a claimant for pain and suffering. Therefore, residual pain caused by an injury should only be considered when determining a claimant's impairment insofar as the pain impairs his or her functional abilities. If a medical provider assesses an increased impairment percentage based on residual pain, the practitioner must include a detailed explanation of how the residual pain impairs the claimant's functional abilities. Any finding of impairment relating to pain should be supported by documented reporting of a claimant's level of pain throughout the course of treatment. The medical provider's impairment finding should not be based solely on the claimant's subjective reporting, without consideration of how the pain impairs his or her functional abilities.

When a medical provider renders an opinion on the impairment of an extremity which includes an assessment of residual pain of three or greater on a scale of zero to five, the provider should strongly consider finding the injury to be amenable to a permanent partial disability classification, rather than a schedule award. Regardless of the conclusion of the medical experts concerning whether an injury is amenable to a schedule award, rather than a permanent partial disability classification, when there is medical evidence in the record of residual pain of three or greater on a scale of zero to five, the Board may nonetheless conclude that the injury is not amenable to a schedule award.

Table 1.5.5 Pain

Pain Rating	Points
No pain or pain does not influence ability to perform job.	0
Pain that occasionally influences ability to perform job.	1
Pain that requires modification of job functions; but allows task specific work to be accomplished.	2
Pain that intermittently prevents the injured worker from performing the essentials of the job – the type of work that the injured worker was engaged in at the time of the accident.	3
Pain that consistently prevents one from performing the essentials of the job – the type of work that the injured worker was engaged in at the time of the accident.	4
Pain that prevents the injured worker from engaging in meaningful work, leisure or household duties.	5

1.6 Claimant Intake Form and Medical Assessment

The amount of a schedule loss of use award is a factual determination by the Board based on both the permanent residual physical deficit caused by the injury, and other evidence relevant to the claimant's prospective loss of earning power, including an SLU-1 Intake Form.

A claimant must complete the SLU-1 Intake Form prior to undergoing an impairment evaluation at the time of maximum medical improvement, with the assistance of counsel if claimant is represented. The claimant will provide it to his/her medical provider at the time of the impairment examination so the treating medical provider can complete the remaining information.

1.7 Board Determination of Schedule Loss of Use

Upon submission of medical evidence of permanency, the Board will, in its discretion:

- Approve, if proper, a proposed stipulation of the parties (12 NYCRR Part 312);
- Approve, if proper, a formal stipulation of the parties (12 NYCRR §300.5);
- Propose a conciliation decision, that becomes final if no timely objection is received;
- Approve a waiver agreement per WCL § 32;
- Direct off calendar development of the record as appropriate and issue a reserved decision; or
- Resolve a dispute through the formal hearing process.

Where the WCLJ makes a formal decision on the record, other than by agreement or stipulation of the parties, findings may include resolution of the following issues:

- Maximum medical improvement;
- Amenability to a schedule loss of use;
- Proper categorization of severity of injury(ies) as indicated by the opining medical provider(s);
- Permanent residual physical deficit as measured by the opining medical provider(s);
and
- Level of permanent impact on earning power.

A schedule loss of use is a legal determination that sets forth a percentage loss of use, based upon the evidence in the file, reflective of the judgment of the Board as to the permanent impact on the claimant's earning power. Impact on earning power is not analogous to, or based upon, 'loss of wage earning capacity', or 'wage earning capacity', as those terms are utilized with respect to determinations of classifications per WCL § 15(3)(w), and § 15(5-a), respectively.

To ensure that the schedule loss of use award appropriately considers the claimant's loss of earning power, the Board has the discretion to add an additional value of up to 15% to the

impairment finding, not to exceed 100% of the affected body part. When more than one digit is involved, the loss of earning power may be added to the combined impairment value (not to exceed the value of a hand).

The Board's final determination of a schedule loss of a major member that is based on evaluation of more than one site of injury (for example, a single accident results in a leg injury that includes impairment to a foot and a knee), will include only one evaluation of measurable impact on earning power, in addition to the aggregate medical impairment.

1.8 Prior Schedule Loss of Use Award

A claimant who previously received a schedule loss of use award may receive a schedule award for the same extremity based on a subsequent injury. The later schedule loss of use award should be based on the claimant's current permanent residual physical deficit, assessed pursuant to these Guidelines, with a credit given for the prior schedule award, regardless of whether the prior schedule award was assessed based on these Guidelines, or earlier impairment Guidelines. Example: Prior schedule award of 10% of the leg based on a knee injury. After a subsequent work-related knee injury has reached maximum medical improvement, claimant is found to have an overall 25% schedule loss of use of the leg. Claimant is awarded an additional 15% schedule loss of use of the leg.

1.9 WCL § 15(3)(v)

Enabling legislation for these Guidelines set forth that they are applicable to permanency determinations "pertaining to paragraphs a through v of [15(3)]". In the event of a finding or additional compensation under WCL § 15(3)(v), the statute directs that "[s]uch additional compensation shall be determined in accordance with paragraph w of this subdivision." The appellate division, third department has held that the durational caps set forth in WCL § 15(3)(w) apply to WCL § 15(3)(v). *Matter of Mancini v Office of Children & Family Servs.*, ___ AD3d ___ (2017), 2017 NY Slip Op 05284. As such, findings under § 15(3)(v) are subject to durational caps.

Chapter 2: Upper Extremity - Digits

2.1 Objectives for Determining Impairment for Digits

Today's work place often requires significant use of computers and other hand functions that require a high level of finger and thumb motions. The Guidelines recognize that in the modern economy, with increased reliance on computers and other technology, digits have an elevated importance. Today a claimant with a digit injury may experience a more significant impact on his/her earning potential.

The objective of any assessment system should be ease of use to obtain a reproducible result that accurately reflects the permanent residual physical deficit a claimant suffered as a result of his/her injury. To the degree possible, the assessment should be based on objective findings determined by the history and physical examination, as well as the results of any appropriate diagnostic testing.

2.2 Methods Available to Assess Permanent Impairment

Determination of the degree of permanent residual physical deficit should be performed at the time of maximum medical improvement, the point at which no further healing is expected. Maximum medical improvement should be determined based on the outcome of the clinical course of treatment, the medical provider's expertise and any further treatment options available to the claimant. When evaluating the level of permanent residual physical deficit, the medical provider should consider expected/normal values and the contralateral extremity where appropriate. The duration of time from the injury to maximum medical improvement may vary but in most cases is one year from the injury or last surgery.

The severity of the permanent residual physical deficit is not based on the mechanism of injury. It reflects the permanent residual physical deficit at the time of maximum medical improvement and may include physical damage to bone, muscles, cartilage, tendons, nerves, blood vessels, and other tissues.

The medical provider will determine permanent residual physical deficit associated with the range of motion, muscle strength and pain¹. The result represents the medical provider's assessment of the claimant's permanent residual impairment. This value will be utilized by the Board, in conjunction with the loss of earning power, to determine the final schedule loss of use award.

2.3 Maximum Rating of Body Part

These Guidelines are to be used for evaluating permanent residual physical deficits of the thumb and fingers. Single digit loss/impairment must be determined based on the impairment to the digit alone and not as part of the hand. When multiple digit impairments are considered together in one comprehensive rating, the total impairment cannot exceed 100% of the next largest major member. Therefore, the loss of multiple digits, resulting in conversion to a hand impairment, may not exceed 100% schedule loss of use of the hand. The value of the range of motion, pain and

¹ Special condition based impairments are calculated differently (see below).

strength cannot exceed the value of an amputation at the same joint or, if multiple joints are affected, 100% of the digit(s).

The conversion of digits to hand is shown in Table 2.3 below.

Table 2.3 Digit Conversion to Hand

Digit Conversion to Hand		
Digit/Finger	Digit (Statutory Weeks)	Hand

Thumb	75	31%
Index	46	19%
Middle	30	12%
Ring	25	10%
Little	15	6%

2.4 Thumb Range of Motion

The thumb works in conjunction with other fingers to reach, grasp or grip and manipulate objects. Thumb opposition and adduction are required for pinch, precision and some power grips. The three range of motion areas related to the thumb are measured as follows:

2.4.1 IP Joint – Interphalangeal Joint

RANGE OF MOTION - 0° Measurement Position:

The hand is supine, palm up; the thumb is placed in resting position closest to the axis of the index metacarpal bone. Measure the angle as the IP joint is flexed over the palm of the hand or hyperextended radially.

2.4.2 MCP – Metacarpophalangeal Joint

RANGE OF MOTION - 0° Measurement Position:

The hand is supine, palm up; the thumb is placed in resting position closest to the axis of the index metacarpal bone. Measure the angle as the MCP joint is flexed over the palm of the hand or hyperextended radially.

2.4.3 CMC – Carpal-metacarpal Joint

RANGE OF MOTION - 0° Measurement Position:

CMC Radial abduction:

For CMC joint radial abduction: the hand is in a supine position, palm up; the thumb is placed in resting position closest to the axis of the index metacarpal bone. Measure the

angle between the ulnar border of the thumb metacarpal and radial border of the index metacarpal upon full radial abduction of the thumb.

CMC joint adduction (measured from the thumb MP to 5th MP, 2-10 cm)

For CMC joint palmar adduction: the hand and forearm rest on the ulnar side in mid-position between supination and pronation; the thumb is placed in resting position closest to the axis of index metacarpal bone. Measure the angle of the thumb between the thumb and index metacarpals as the thumb is adducted over the palm.

Opposition (the ability to bring the tip out of the plane of the palm)

For CMC opposition: the hand is in a supine position, palm up; the thumb is placed opposite to the axis of the middle finger metacarpal so that the distal phalanx is parallel to the palm. Measure the largest possible distance in cm from the flexor crease of the thumb IP joint to the distal palmar crease over the mid axis of the middle finger metacarpal.

Table 2.4(a) Normal Thumb Range of Motion

(Maximum Digital Impairment)	Normal Range of Motion
IP	0°-80°
MCP	0°-60°
CMC radial abduction	0°-50°
CMC adduction	Thumb MP to 5 th , 2-10 cm
Opposition	Tip to plane of the palm

Table 2.4(b) Impairment Due to Loss of Thumb Motion

Joint/motion	Mild loss (60-90% range of motion)	Moderate loss (30-60% range of motion)	Severe loss (<30% range of motion)	Ankylosis
IP	5%	15%	35%	30-45%
MCP	10%	20%	45%	40-50%
CMC radial abduction	2%	3%	6%	5-10%
CMC adduction	4%	7%	12%	10-20%
Opposition	9%	15%	27%	25-35%

Notes:

1. The impairment at each thumb joint is calculated and, for those affected joints, the impairment values are added together to obtain the total thumb impairment. Total impairment cannot exceed 100% of the thumb.
2. For ankylosis, the lower number is for joints in the position of function and the higher numbers are for fused joints in suboptimal positions.

2.5 Thumb Strength

After deficits in thumb range of motion have been identified (on a per joint basis), points may be identified related to the strength of the overall thumb (not individual joints) utilizing the table below.

Muscle strength is assessed on a five-grade / five-point scale. Muscle strength should be determined based on examination of the global muscle strength and loss in any plane of motion can be used to determine the overall muscle strength impairment modification. Comparison to contralateral extremity is used as the reference, when appropriate. Atrophy should be considered when findings on strength are inconsistent with expectations. Weakness with any range of motion is assigned points based on scale below with maximum score of five points.

Table 2.5 Thumb Strength

Grade	Definition	Points
5	Active movement against gravity with full resistance (normal strength, no deficit)	0
4	Active movement against gravity with some resistance (mild weakness)	1
3	Active movement against gravity without resistance (significant weakness, able to overcome gravity)	2
2	Active movement with gravity eliminated (significant weakness, unable to overcome gravity)	3
1	Slight contraction and no active movement (muscle twitch only)	4
0	No contractions (paralysis, no muscle twitch)	5

2.6 Thumb Pain

A modification for pain should be for chronic pain that is not likely to improve. However, the provider must consider historical reports of pain throughout the course of treatment. Thumb pain should be considered for the thumb as a whole, not on an individual joint basis. Pain is rated on a maximum scale of five points as indicated below.

Table 2.6 Thumb Pain

Pain Rating	Points
No pain or pain does not influence ability to perform job.	0
Pain that occasionally influences ability to perform job.	1
Pain that requires modification of job functions; but allows task specific work to be accomplished.	2
Pain that intermittently prevents the injured worker from performing the essentials of the job – the type of work that the injured worker was engaged in at the time of the accident.	3

Pain that consistently prevents one from performing the essentials of the job – the type of work that the injured worker was engaged in at the time of the accident.	4
Pain that prevents the injured worker from engaging in meaningful work, leisure or household duties.	5

2.7 Finger Range of Motion

The index through the small finger each have three joints, the metacarpophalangeal (MCP joint), the proximal interphalangeal (PIP) and the distal interphalangeal (DIP). The MCP joint enables finger flexion and extension and is important for both grip and pinch activities.

2.7.1 Metacarpophalangeal (MCP) Joint - Range of Motion

0. Measurement Position

Hand prone, fingers extended horizontal with palm and wrist. Measure the angle between the metacarpal bone and the first phalanx as the MCP joint is flexed towards the palm or extended towards the dorsum of the hand.

2.7.2 Proximal Interphalangeal (PIP) Joint - Range of Motion

0. Measurement Position

Flexion: Hand prone, fingers extended horizontal with palm and wrist. Measure the angle between the metacarpal bone and the first phalanx as the PIP joint is flexed towards the palm.

Extension: Hand prone, PIP joints fully flexed. Measure the angle as the PIP joint is extended towards horizontal position of the fingers.

2.7.3 Distal Interphalangeal (DIP) Joint - Range of Motion

0. Measurement Position

Flexion: Hand prone, fingers extended horizontal with palm and wrist. Measure the angle between the metacarpal bone and the first phalanx as the DIP joint is flexed towards the palm.

Extension: Hand prone, DIP joints fully flexed. Measure the angle as the DIP joint is extended towards horizontal position of the fingers.

Table 2.7.3(a) Normal Finger Range of Motion

Finger Joint (Maximum Digital Impairment)	Normal Range of Motion
DIP (45%)	0° Extension 70° Flexion
PIP (80%)	0° Extension 100° Flexion -20° Extension

Table 2.7.3(b) Impairment Due to Loss of Finger Motion

Joint / Motion		Mild Loss (60-90% range of motion)	Moderate Loss (30-60% range of motion)	Severe Loss (<30% range of motion)	Ankylosis
DIP (45%)	0° Extension	5%	10%	30%	30-45%
	70° Flexion	10%	25%	40%	
PIP (80%)	0° Extension	5%	15%	60%	50-80%
	100° Flexion	20%	40%	55%	
MCP (100%)	-20° Extension	10 %	35 %	90%	45-90%
	90° Flexion	10-20%	35%	50%	

Notes:

1. Add the impairment for any affected joint, but the total impairment cannot exceed 100% loss of the individual digit.
2. Ankylosis total depends on whether the joint is ankylosed in the position of function (lower value) or in a suboptimal position (higher value).

2.8 Finger Strength

After deficits in finger range of motion have been identified (on a per joint basis), points may be identified for the strength of the overall finger (not individual joints) utilizing the table below.

Muscle strength is assessed on a five-grade / five-point scale. Muscle strength should be determined based on examination of the global muscle strength and loss in any plane of motion can be used to determine the overall muscle strength impairment modification. Comparison to contralateral extremity is used as the reference, when appropriate. Atrophy should be considered when findings on strength are inconsistent with expectations. Weakness with any range of motion is assigned points based on scale below with maximum score of five points.

Table 2.8 Finger Strength

Grade	Definition	Points
5	Active movement against gravity with full resistance (normal strength, no deficit)	0
4	Active movement against gravity with some resistance (mild weakness)	1
3	Active movement against gravity without resistance (significant weakness, able to overcome gravity)	2
2	Active movement with gravity eliminated (significant weakness, unable to overcome gravity)	3
1	Slight contraction and no active movement (muscle twitch only)	4
0	No contractions (paralysis, no muscle twitch)	5

2.9 Finger Pain

A modification for pain should be for chronic pain that is not likely to improve. However, the provider must consider historical reports of pain throughout the course of treatment. Finger pain should be considered for the finger as a whole, not on an individual joint basis. Pain is rated on a maximum scale of five points as indicated below.

Table 2.9 Finger Pain

Pain Rating	Points
No pain or pain does not influence ability to perform job.	0
Pain that occasionally influences ability to perform job.	1
Pain that requires modification of job functions; but allows task specific work to be accomplished.	2
Pain that intermittently prevents the injured worker from performing the essentials of the job – the type of work that the injured worker was engaged in at the time of the accident.	3
Pain that consistently prevents one from performing the essentials of the job – the type of work that the injured worker was engaged in at the time of the accident.	4
Pain that prevents the injured worker from engaging in meaningful work, leisure or household duties.	5

2.10 Loss of % Range of Motion Multiple Digits

The digits are weighted for their relative importance within the hand. This relative weighting allows two or more digit impairments to be expressed as a hand impairment as indicated below.

Table 2.10 Digit Weighting for Loss of % Range of Motion of Multiple Digits

Digit/Finger	Hand Weighting Factor
Thumb	0.31
Index	0.19
Middle	0.16
Ring	0.10
Little	0.06

Loss of % range of motion of multiple digits is rated according to the following procedure:

- Rate each individual digit as indicated above.
- Multiply the impairment rating for each digit by the relative hand weighting factor according to the table above.
- Add all the converted digit values to produce an overall hand impairment value.
- Determine if Table 2.1.3(b) Multiple Digit Multiplier should be applied.
- Total overall impairment value cannot exceed 100% of the value of the hand.

2.11 Multiple Digits - Strength

After deficits in finger range of motion have been identified (on a per joint basis across multiple fingers), points may be identified for overall digit strength of the overall finger (not individual joints) utilizing the table below.

Table 2.11 Multiple Digits - Strength

Grade	Definition	Points
5	Active movement against gravity with full resistance (normal strength, no deficit)	0
4	Active movement against gravity with some resistance (mild weakness)	1
3	Active movement against gravity without resistance (significant weakness, able to overcome gravity)	2
2	Active movement with gravity eliminated (significant weakness, unable to overcome gravity)	3
1	Slight contraction and no active movement (muscle twitch only)	4
0	No contractions (paralysis, no muscle twitch)	5

2.12 Multiple Digits - Pain

A modification for pain should be for chronic pain that is not likely to improve. However, the provider must consider historical reports of pain throughout the course of treatment. Pain should be considered for the whole digit, not on an individual joint basis. Pain is rated on a maximum scale of five points as indicated below.

Table 2.12 Multiple Digits - Pain

Pain Rating	Points
-------------	--------

No pain or pain does not influence ability to perform job.	0
Pain that occasionally influences ability to perform job.	1
Pain that requires modification of job functions; but allows task specific work to be accomplished.	2
Pain that intermittently prevents the injured worker from performing the essentials of the job – the type of work that the injured worker was engaged in at the time of the accident.	3
Pain that consistently prevents one from performing the essentials of the job – the type of work that the injured worker was engaged in at the time of the accident.	4
Pain that prevents the injured worker from engaging in meaningful work, leisure or household duties.	5

2.13 Special Condition Based Impairment

The following conditions are stand-alone ratings and no other impairment points are added unless otherwise noted.

1. Dupuytren's contracture: Permanent deformity due to Dupuytren's contracture is assessed according to the ankylosis rating for the affected joint and digit. When the condition affects more than one digit, convert to a hand impairment and determine whether table 2.13(b) should be applied.
2. Trigger Finger
 - o Mild (pre-triggering): pain, history of catching that is not demonstrable on clinical examination, tenderness (5%).
 - o Moderate A: pain, demonstrable catching but with the ability to actively extend the digit maintained (10%).
 - o Moderate B: demonstrable locking in which passive extension is required or in which claimant is unable to actively flex (15%).
 - o Severe (contracture): demonstrable catching, with a fixed flexion contracture of the PIP joint (25%).
3. Mallet finger (Range 0-10%).

4. Boutonniere Injury (Range 0-10%).
5. Digit fractures based on residual deformity and symptoms (Range 0-10%).
6. Loss of the ulnar digital nerve of the thumb, the radial digital nerve of the index finger or the radial nerve of the middle finger is rated at 50% impairment of the respective digit.
7. Loss of the radial digital nerve of the thumb, or the ulnar digital nerve of the index, middle, ring or small finger is rated at 25% impairment of the respective digit.
8. Instability of the joint due to dislocation or ligament injury is given an additional 5% impairment value.
9. Complete sensory loss digit is equal to 50% of the value of an amputation of a digit. Partial sensory loss is prorated, see table below.

Table 2.13(a) Sensory Loss of a Digit

Digit	Maximum Sensory Loss Value		
	Loss at the DIP	Loss at the PIP (IP)	Loss at the MP

Thumb	N/A	25%	50%
Index, middle	25%	50%	50%
Ring, small	25%	50%	50%

Note: Sensory loss is best tested with Semmes-Weinstein monofilament test.

10. When two or more digits are affected, and the impairment of one is at least 50%, the overall impairment value of the hand will be multiplied by the factor below, as applicable, not to exceed 100% impairment of the hand. If the thumb is > 50% impaired, use the thumb factor.

Table 2.13(b) Multiple Digit – Multiplier

	Finger > 50%	Thumb >50%
Two or More Digits	1.10	1.25

2.14 Amputation

2.14.1 Amputation, Digit – Single Digit

Table 2.14.1 Amputation of a Digit

	Loss at the DIP	Loss at the PIP (IP)	Loss at the MP
Thumb	NA	50%	100%
Index	50%	100%	100%
Middle	50%	100%	100%
Ring	50%	100%	100%
Small	50%	100%	100%

Notes:

1. Single digit loss must be determined based on the impairment to the digit alone, and not as part of the hand.
2. Amputations distal to the DIP (IP) or between the joints are interpolated on a linear basis.
3. Amputations with a more proximal loss of motion should have the values combined, not to exceed 100% loss of the digit.
4. Loss of the thumb at the CMC joint is 60% of the hand.

2.14.2 Amputation, Digit – Multiple Digits

Amputation of multiple digits should have the values converted to a hand impairment, and the values added together.

Table 2.14.2 Amputation, Multiple Digits

Digit	Loss at DIP		Loss at PIP (IP)		Loss at MP	
	% Digit	% Hand	% Digit	% Hand	% Digit	% Hand
Thumb	NA	NA	50%	16%	100%	31%
Index	50%	9%	100%	19%	100%	19%
Middle	50%	8%	100%	16%	100%	16%
Ring	50%	5%	100%	10%	100%	10%
Small	50%	3%	100%	6%	100%	6%

Notes:

1. Amputations distal to the DIP (IP) or between the joints are interpolated on a linear basis.
2. Full or partial amputation of multiple digits should have the values converted to a hand impairment and the values added together to obtain a total % hand impairment and determine whether table 2.13(b) should be applied.

Chapter 3: Upper Extremity - Hand and Wrist

3.1 Objectives for Determining Impairment for Hand and Wrist

The hand and wrist are an integral part of the finger and thumb motion. In addition, the wrist acts as a bridge between the associated structures of the hand and the forearm. The wrist enables the hand to perform complex flexion/extension and radial/ulnar movements.

The objective of any assessment system should be ease of use to obtain a reproducible result that accurately reflects the permanent residual physical deficit a claimant suffered as a result of his/her injury. To the degree possible, the assessment should be based on objective findings determined by the history and physical examination, as well as the results of any appropriate diagnostic testing.

3.2 Methods Available to Assess Permanent Impairment

Determination of the degree of permanent residual physical deficit should be performed at the time of maximum medical improvement, the point at which no further healing is expected. Maximum medical improvement should be determined based on the outcome of the clinical course of treatment, the medical provider's expertise and any further treatment options available to the claimant. When evaluating the level of permanent residual physical deficit, the medical provider should consider expected/normal values and the contralateral extremity where appropriate. The duration of time from the injury to maximum medical improvement may vary but in most cases is one year from the injury or last surgery.

The severity of the permanent residual physical deficit is not based on the mechanism of injury. It reflects the permanent residual physical deficit at the time of maximum medical improvement and may include physical damage to bone, muscles, cartilage, tendons, nerves, blood vessels and other tissues of the hand and wrist.

The medical provider will determine permanent residual physical deficit associated with the range of motion, muscle strength and pain. These values are added to the base percentage associated with the selected category of residual impairment. The result represents the medical provider's assessment of the claimant's permanent residual impairment. This value will be utilized by the Board, in conjunction with the loss of earning power, to determine the final schedule loss of use award.

NOTE: Certain conditions such as carpal tunnel syndrome are addressed in Chapter 10

3.3 Hand & Wrist Impairment

Normal hand function requires:

- A full-length, opposable thumb
- Full length index, middle, ring and small fingers
- Normal, active range of motion of the joints
- Muscle function, both extrinsic and intrinsic
- Normal, pain free sensation at the digit tips
- Normal vascular supply

3.4 Range of Motion Impairment

Loss of wrist extension, flexion, radial and ulnar deviation and pronation and supination are measured as follows:

0° and Measurement Position:

- For flexion (palmar flexion), extension (dorsiflexion) and radial/ulnar deviation: forearm pronated in a horizontal position and palm is down. Measure the angle between the 0° position and full palmar flexion, dorsiflexion, radial and ulnar deviation.
- For pronation/supination: forearm in mid position between pronation and supination, palm facing the midline of the body with the elbow flexed at 90° degrees. Measure the angle between the 0° position and full pronation and supination of the wrist.

Table 3.4 Wrist Joint Range of Motion Deficits (Degrees) and Hand Impairment Level

	Normal Range of Motion	Mild loss (60-90% Range of Motion)	Moderate loss (30-60% Range of Motion)	Severe loss (<30% Range of Motion)	Ankylosis
Extension/Flexion	70° extension	7.5%	15%	25%	30-40%
	80° flexion	7.5%	12.5%	20%	
Radial/Ulnar Deviation	20° radial	7.5%	17.5%	25%	25-35%
	30° ulnar	7.5%	17.5%	25%	
Pronation/Supination	80° pronation	7.5%	17.5%	25%	25-35%
	90° supination	7.5%	17.5%	25%	

When using Table 3.4, the medical provider should measure range of motion in each direction

the larger deficit. If the claimant has deficits in all three range of motion categories, the impairment shall be based on the two categories where the claimant has the largest deficits.

Total impairment may not exceed 100% of the hand.

3.5 Muscle Strength

Muscle strength is assessed on a five-grade/five-point scale. Muscle strength should be determined based on examination of the global muscle strength and loss in any plane of motion can be used to determine the overall muscle strength impairment modification. Comparison to contralateral extremity is used as the reference, when appropriate. Atrophy should be considered when findings on strength are inconsistent with expectations. Weakness with any range of motion is assigned points based on a scale below with maximum score of five points.

Table 3.5 Muscle Strength

Grade	Definition	Points
5	Active movement against gravity with full resistance (normal strength, no deficit)	0
4	Active movement against gravity with some resistance (mild weakness)	1
3	Active movement against gravity without resistance (significant weakness, able to overcome gravity)	2
2	Active movement with gravity eliminated (significant weakness, unable to overcome gravity)	3
1	Slight contraction and no active movement (muscle twitch only)	4
0	No contractions (paralysis, no muscle twitch)	5

3.6 Pain

A modification for pain should be for persistent pain that is not likely to improve. However, the medical provider must consider historical reports of pain throughout the course of treatment. Pain is rated on a maximum scale of five points as indicated below.

Table 3.6 Pain

Pain Rating	Points
No pain or pain does not influence ability to perform job.	0
Pain that occasionally influences ability to perform job.	1
Pain that requires modification of job functions; but allows task specific work to be accomplished.	2
Pain that intermittently prevents the claimant from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	3
Pain that consistently prevents claimant from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	4
Pain that prevents claimant from engaging in meaningful work, leisure or household duties.	5

3.7 Special Condition Based Impairment

The following conditions are stand-alone ratings and no other impairment points are added unless otherwise noted.

- De Quervain's Tenosynovitis with or without surgical release:

De Quervain's Tenosynovitis	Degree of Impairment of Hand		
	Mild	Moderate	Severe
	7.5%	12.5%	20%

- Carpal or distal radius fracture with residual deformities and symptoms (0-10% impairment of the hand).
- Triangular fibrocartilage complex (TFCC) – with or without surgery 10-15% impairment value.

3.8 Amputation

A complete loss of thumb at the CMC joint is considered to be a 60% impairment of the hand. An amputation at the wrist joint equals a 100% impairment of the hand.

Chapter 4: Upper Extremity – Elbow

4.1 Objectives for Determining Impairment for Elbow

The elbow plays an important role in positioning the hand and wrist to allow for functional use of the upper extremity. The most important function of the elbow joint is to position the hand, either moving the hand away from the body (elbow extension), towards the body (elbow flexion) or in a more precise hand movement (supination/pronation). The degree of impairment is dependent on many factors including the residual permanent residual physical deficit, outcome of any treatment and potential sequela from the injury or subsequent treatments.

The objective of any assessment system should be ease of use to obtain a reproducible result that accurately reflects the permanent residual physical deficit a worker suffered as a result of his/her injury. To the degree possible, the assessment should be based on objective findings determined by the history and physical examination, as well as the results of any appropriate diagnostic testing.

4.2 Methods Available to Assess Permanent Impairment

Determination of the degree of permanent residual physical deficit should be performed at the time of maximum medical improvement, the point at which no further healing is expected. Maximum medical improvement should be determined based on the outcome of the clinical course of treatment, the medical provider's expertise and any further treatment options available to the claimant. When evaluating the level of permanent residual physical deficit, the medical provider should consider expected/normal values and the contralateral extremity where appropriate. The duration of time from the injury to maximum medical improvement may vary but in most cases is one year from the injury or last surgery.

The severity of the permanent residual physical deficit is not based on the mechanism of injury. It reflects the permanent residual physical deficit at the time of maximum medical improvement and may include physical damage to bone, muscles, cartilage, tendons, nerves, blood vessels, and other tissues.

The severity of the permanent residual physical deficit associated with the injury has been categorized: Category A (0-30%); Category B (30-60%); Category C (60-100%). Using the table below, the medical provider should select the claimant's injury to determine the appropriate range of impairment. If the claimant's particular injury is not listed in the table, the medical provider may select the condition listed in the table that is most similar at the time of evaluation.

The medical provider will determine permanent residual physical deficit associated with the range of motion, muscle strength and pain. These values are added to the base percentage associated with the selected category of residual impairment. The result represents the medical provider's assessment of the claimant's permanent residual impairment. This value will be utilized by the Board, in conjunction with the loss of earning power, to determine the final schedule loss of use award.

Table 4.2 Categorization of Residual Impairment

Categorization of Residual Impairment: Elbow		
Category A	Category B	Category C
<ul style="list-style-type: none"> • Lateral epicondylitis • Medial epicondylitis • Extra-articular fracture healed • Simple intra-articular fracture healed 	<ul style="list-style-type: none"> • Complex intra-articular fracture • Moderate heterotrophic ossification with sequela 	<ul style="list-style-type: none"> • Fracture dislocation (terrible triad) • Arthrodesis or severe heterotopic ossification • Joint replacement with poor outcome

- Elbow dislocation with minimal residual laxity
- Limited heterotrophic ossification without sequela
- Biceps/triceps tendon rupture with healing or successful repair
- Collateral ligament tear without significant laxity
- Dislocation
- Joint replacement with very good outcome
- Bursitis
- Tendonitis
- Complete biceps/triceps rupture with complications
- Extra-articular fracture with complications and/or sequela.
- Joint replacement with good outcome

0-30% Impairment

30-60% Impairment

60-90% Impairment

Note: For nerve related conditions around the elbow (brachial plexopathy, etc., Axillary nerve palsy) please refer to the section on peripheral neuropathy

4.3 Elbow Range of Motion

The range of motion should be assessed based on comparison to expected/normal and the claimant's contralateral extremity, when appropriate.

Add the scores for range of motion, for a maximum of five points.

Table 4.3(a) Flexion / Extension

	Elbow Flexion / Extension	Points
Normal	< 10% loss compared to contralateral extremity or 130° arc of motion	0
Minor loss	10 - 30% loss compared to contralateral extremity or 100-130° arc of motion	0.5
Moderate loss	31 - 60% loss compared to contralateral extremity or 60-100° arc of motion	1.5
Significant loss > 60	> 60% loss compared to contralateral extremity or < 60° arc of motion	2.5

Table 4.3(b) Supination / Pronation

	Elbow Flexion / Extension	Points
Normal	< 10% loss compared to contralateral extremity or 160° arc of motion	0
Minor loss	10 - 40% loss compared to contralateral extremity or 120 - 160° arc of motion	0.5
Moderate loss	41 - 80% loss compared to contralateral extremity or 90 - 120° arc of motion	1.5
Significant loss > 80%	> 80% loss compared to contralateral extremity or < 90° arc of motion	2.5

4.4 Elbow Strength

Muscle strength is assessed on a five-grade / five-point scale. Muscle strength should be determined based on examination of the global muscle strength of the elbow and loss in any plane of motion can be used to determine the overall muscle strength impairment modification. Comparison to contralateral is used as the reference, when appropriate. Atrophy should be considered when findings on strength are inconsistent with expectations. Weakness with any range of motion is assigned points based on scale below with maximum score of five points.

Table 4.4 Elbow Strength

Grade	Definition	Points
5	Active movement against gravity with full resistance (normal strength, no deficit)	0
4	Active movement against gravity with some resistance (mild weakness)	1
3	Active movement against gravity without resistance (significant weakness, able to overcome gravity)	2
2	Active movement with gravity eliminated (significant weakness, unable to overcome gravity)	3
1	Slight contraction and no active movement (muscle twitch only)	4
0	No contractions (paralysis, no muscle twitch)	5

4.5 Elbow Pain

A modification for pain should be for persistent pain that is not likely to improve. However, the medical provider must consider historical reports of pain throughout the course of treatment. Pain is rated on a maximum scale of five points as indicated below.

Table 4.5 Elbow Pain

Pain Rating	Points
No pain or pain does not influence ability to perform job.	0
Pain that occasionally influences ability to perform job.	1
Pain that requires modification of job functions; but allows task specific work to be accomplished.	2
Pain that intermittently prevents the claimant from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	3
Pain that consistently prevents claimant from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	4
Pain that prevents claimant from engaging in meaningful work, leisure or household duties.	5

4.6 Elbow - Amputation

Amputation at the shoulder or elbow joint to any point proximal to the elbow equals 100% loss of use of arm.

Chapter 5: Upper Extremity - Shoulder

5.1 Objectives for Determining Impairment for Shoulder

The shoulder and elbow play important roles in positioning the hand in space to allow for functional use of the upper extremity. Injury can result in significant limitations and ability to perform work responsibilities.

The objective of any assessment system should be ease of use to obtain a reproducible result that accurately reflects the permanent residual physical deficit a worker suffered as a result of his/her injury. To the degree possible, the assessment should be based on objective findings determined by the history and physical examination, as well as the results of any appropriate diagnostic testing.

5.2 Methods Available to Assess Permanent Impairment

Determination of the degree of permanent residual physical deficit should be performed at the time of maximum medical improvement, the point at which no further healing is expected. Maximum medical improvement should be determined based on the outcome of the clinical course of treatment, the medical provider's expertise and any further treatment options available to the claimant. When evaluating the level of permanent residual physical deficit, the medical provider should consider expected/normal values and the contralateral extremity where appropriate. The duration of time from the injury to maximum medical improvement may vary but in most cases is one year from the injury or last surgery.

The severity of the permanent residual physical deficit is not based on the mechanism of injury. It reflects the residual physical deficit at the time of maximum medical improvement and may include physical damage to bone, muscles, cartilage, tendons, nerves, blood vessels, and other tissues.

The severity of the permanent residual physical deficit associated with the injury has been categorized: Category A (0-30%), Category B (30-60%), Category C (60-100%). Using the table below, the medical provider should select the claimant's injury to determine the appropriate range of impairment. If the claimant's particular injury is not listed in the table, the medical provider may select the condition listed in the table that is most similar at the time of evaluation.

The medical provider will determine permanent residual physical deficit associated with the range of motion, muscle strength and pain. These values are added to the base percentage associated with the selected category of residual impairment. The result represents the medical provider's assessment of the claimant's permanent residual impairment. This value will be utilized by the Board, in conjunction with the loss of earning power, to determine the final schedule loss of use award.

Table 5.2 Categorization of Residual Impairment

Categorization of Residual Impairment: Shoulder

Category A	Category B	Category C
<ul style="list-style-type: none"> • Impingement/Bursitis or Tendonitis • Rotator cuff – partial tear or complete tear of 1 or 2 tendons • Simple fracture (clavicle, scapula, humerus) • Long head biceps tendon rupture/tendonitis • Acromioclavicular joint separation • Sternoclavicular joint dislocation • Adhesive capsulitis • Dislocation simple – no recurrence of instability • Labral tear • Superior labral tear (SLAP) • Shoulder replacement with very good outcome 	<ul style="list-style-type: none"> • Dislocation with recurrent instability and associated injury (labral/rotator cuff tear) • Labral tear or SLAP tear with recurrent instability and associated injury (labral / rotator cuff tear) • Rotator cuff tear complete (3 or more tendons complete tearing) • Simple fracture (clavicle, scapula, humerus) with significant shortening or overriding fragments • Acromioclavicular separation (with residual significant scapular dyskinesis and displacement) • Sternoclavicular joint separation (posterior) with residual thoracic involvement • Post traumatic arthritis or avascular necrosis • Shoulder replacement with good/fair outcome 	<ul style="list-style-type: none"> • Complex fracture (clavicle, scapula, humerus) • Shoulder replacement with poor outcome
0-30% Impairment	30-60% Impairment	60-90% Impairment

5.3 Shoulder Range of Motion

The range of motion should be assessed based on comparison to expected/normal and the claimant's contralateral extremity, when appropriate.

Add scores for each range of motion, for a maximum of five points.

Table 5.3(a) Shoulder Forward Elevation

	Shoulder Forward Elevation	Points
Normal	< 10° loss compared to contralateral shoulder or >160°	0
Minor loss	10 - 50° loss compared to contralateral shoulder or 130-160°	0.5
Significant loss > 50	° loss compared to contralateral shoulder or < 130°	1

Table 5.3(b) Shoulder Abduction (elevation in plane of scapula)

	Shoulder Abduction	Points
Normal	< 10° loss compared to contralateral shoulder or >160°	0
Minor loss	10 - 50° loss compared to contralateral shoulder or 130-160°	0.5
Significant loss > 50	° loss compared to contralateral shoulder or < 130°	1

Table 5.3(c) Shoulder Adduction 0 Degrees

	Shoulder Adduction 0 Degrees	Points
Normal	< 10° loss compared to contralateral shoulder or > 50°	0
Minor loss	10 - 30° loss compared to contralateral shoulder or 20-50°	0.5
Significant loss > 30	° loss compared to contralateral shoulder or < 20°	1

Table 5.3(d) Shoulder Internal Rotation 0 Degrees

	Shoulder Rotation 0 Degrees	Points
Normal	within 2 spinous levels of contralateral	0

Minor loss	shoulder or > T12 within 3 - 5 spinous levels of contralateral shoulder or L5-T12	0.5
Significant loss	loss of more than 5 spinous levels contralateral shoulder or < L5	1

Table 5.3(e) External Rotation 90 Degrees

	Shoulder Rotation 90 Degrees	Points
Normal	< 10° loss compared to contralateral shoulder or > 80°	0
Minor loss	10 - 30° loss compared to contralateral shoulder or 50 - 80°	0.5
Significant loss	> 30° loss compared to contralateral shoulder or < 50°	1

5.4 Shoulder Strength

Muscle strength is assessed on a five-grade / five-point scale. Muscle strength should be determined based on examination of the global muscle strength and loss in any plane of motion can be used to determine the overall muscle strength impairment modification. Comparison to contralateral extremity is used as the reference, when appropriate. Atrophy should be considered when findings on strength are inconsistent with expectations.

Weakness is assigned points based on scale below with maximum score of five points.

Table 5.4 Shoulder Strength

Grade	Definition	Points
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5	Active movement against gravity with full resistance (normal strength, no deficit)	0
4	Active movement against gravity with some resistance (mild weakness)	1
3	Active movement against gravity without resistance (significant weakness, able to overcome gravity)	2
2	Active movement with gravity eliminated (significant weakness, unable to overcome gravity)	3
1	Slight contraction and no active movement (muscle twitch only)	4
0	No contractions (paralysis, no muscle twitch)	5

5.5 Shoulder Pain

A modification for pain should be for persistent pain that is not likely to improve. However, the medical provider must consider historical reports of pain throughout the course of treatment. Pain is rated on a maximum scale of five points as indicated below.

Table 5.5 Shoulder Pain

Pain Rating	Points
No pain or pain does not influence ability to perform job.	0
Pain that occasionally influences ability to perform job.	1
Pain that requires modification of job functions; but allows task specific work to be accomplished.	2
Pain that intermittently prevents the claimant from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	3
Pain that consistently prevents one from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	4
Pain that prevents the claimant from engaging in meaningful	

5.6 Special Condition Based Impairment

When two or more conditions (as designated by a “•” in Table 5.2) from Category A have been diagnosed, the impairment value shall start at 10%, to be applied once to include all conditions. The medical provider may then add range of motion, muscle strength and pain, as appropriate, to arrive at the overall shoulder impairment (these measures may only be applied once).

5.7 Amputation - Shoulder

Amputation at the shoulder or elbow joint to any point proximal to the elbow equals 100% loss of use of arm.

Chapter 6: Lower Extremity – Hip and Femur

6.1 Objectives for Determining Impairment for Hip and Femur

The hip joint with surrounding structures enables us to perform daily activities of walking, stair climbing and running. The hip is a ball and socket joint located where the femur meets the pelvis. The ball-and socket construct gives a wide range of motion to the hip second only to the shoulder.

The objective of any assessment system should be ease of use to obtain a reproducible result that accurately reflects the permanent residual physical deficit a claimant suffered as a result of his/her injury. To the degree possible, the assessment should be based on objective findings determined by the history and physical examination, as well as the results of any appropriate diagnostic testing.

6.2 Methods Available to Assess Permanent Impairment

Determination of the degree of permanent residual physical deficit should be performed at the time of maximum medical improvement, the point at which no further healing is expected. Maximum medical improvement should be determined based on the outcome of the clinical course of treatment, the medical provider's expertise and any further treatment options available to the claimant. When evaluating the level of permanent residual physical deficit, the medical provider should consider expected/normal values and the contralateral extremity where appropriate. The duration of time from the injury to maximum medical improvement may vary but in most cases is one year from the injury or last surgery.

The severity of the permanent residual physical deficit is not based on the mechanism of injury. It reflects the permanent residual physical deficit at the time of maximum medical improvement and may include physical damage to bone, muscles, cartilage, tendons, nerves, blood vessels, and other tissues.

The severity of the permanent residual physical deficit associated with the injury has been

categorized: Category A (0-30%), Category B (30-60%), Category C (60-100%). Using the table below, the medical provider should select the claimant's injury to determine the appropriate range of impairment. If the claimant's particular injury is not listed in the table, the medical provider may select the condition listed in the table that is most similar at the time of evaluation.

The medical provider will determine permanent residual physical deficit associated with the range of motion, muscle strength and pain². These values are added to the base percentage associated with the selected category of residual impairment. The result represents the medical provider's assessment of the claimant's permanent residual impairment. This value will be utilized by the Board, in conjunction with the loss of earning power, to determine the final schedule loss of use award.

² Special condition based impairments are calculated differently (see below).

Table 6.2 Categorization of Residual Impairment

Categorization of Residual Impairment: Hip and Femur		
Category A	Category B	Category C
<ul style="list-style-type: none"> • Greater trochanteric bursitis • Labral tear • Hamstring avulsion / tear • Gluteus medius tear • Bursitis • Hip replacement with very good outcome 	<ul style="list-style-type: none"> • Labral tear (significant two quadrant labral tear) • Post traumatic arthritis or avascular necrosis • Moderate fracture (Femoral neck, nondisplaced intertrochanteric) • Moderate fracture (Spiral, oblique and/or transverse fractures of the femoral shaft without comminution) • Hip replacement with good/fair outcome 	<ul style="list-style-type: none"> • Complex fracture (displaced or comminuted intertrochanteric fractures, subtrochanteric fractures, femoral shaft fractures with comminution) • Post traumatic arthritis or avascular necrosis (requiring joint replacement) • Traumatic dislocation with recurring instability • Hip replacement with poor outcome
0-30% Impairment	30-60% Impairment	60-90% Impairment

6.3 Hip Range of Motion

Range of motion is evaluated by the medical provider at the time of maximal medical improvement. The degree of impairment should be assessed based on a comparison to the claimant's contralateral extremity, where appropriate.

Add scores for each range of motion, for a maximum of five points.

Table 6.3(a) – Flexion

	Hip Flexion Range of Motion	Points
Normal	120° - 90°	0
Minor Loss	89° - 45°	1
Moderate Loss	44° - 25°	2
Significant Loss	< 25°	3

Table 6.3(b) – Abduction

	Hip Abduction Range of Motion	Points
Normal	< 10° loss compared to contralateral hip or > 40°	0
Significant Loss	< 30° loss compared to contralateral hip or < 20°	1

Table 6.3(c) – Adduction

	Hip Adduction Range of Motion	Points
Normal	< 10° loss compared to contralateral hip or > 20°	0
Significant Loss	< 20° loss compared to contralateral hip or < 0°	1

6.4 Hip Strength

Muscle strength is assessed on a five-grade / five-point scale. Muscle strength should be determined based on examination of the global muscle strength and loss in any plane of motion can be used to determine the overall muscle strength impairment modification. Comparison to contralateral extremity is used as the reference, when appropriate. Atrophy should be considered when findings on strength are inconsistent with expectations. Weakness with any range of motion is assigned points based on scale below with maximum score of five points.

Table 6.4 – Hip Strength

Grade	Definition	Points
5	Active movement against gravity with full resistance (normal strength, no deficit)	0
4	Active movement against gravity with some resistance (mild weakness)	1
3	Active movement against gravity without resistance (significant weakness, able to overcome gravity)	2
2	Active movement with gravity eliminated (significant weakness, unable to overcome gravity)	3
1	Slight contraction and no active movement (muscle twitch only)	4
0	No contractions (paralysis, no muscle twitch)	5

6.5 Hip Pain

A modification for pain should be for persistent pain that is not likely to improve with time or further treatment. Care must be taken to consider historical reports of pain throughout the course of treatment. Pain is rated on a maximum scale of five points as indicated below.

Table 6.5 – Hip Pain

Pain Rating	Points
No pain or pain does not influence ability to perform job.	0
Pain that occasionally influences ability to perform job.	1
Pain that requires modification of job functions; but allows task specific work to be accomplished.	2
Pain that intermittently prevents the claimant from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	3
Pain that consistently prevents one from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	4
Pain that prevents the claimant from engaging in meaningful work, leisure or household duties	5

6.6 Special Condition Based Impairment

The following conditions are stand-alone ratings and no other impairment points are added unless otherwise noted.

1. Full ankylosis of the hip represents 80% of the leg.
2. Injuries resulting in changes to gait or leg length may have up to a maximum of five points added to the overall impairment value.

6.7 Hip Amputation

Amputation at the hip or knee joint to any point proximal to the knee equals 100% loss of use of leg.

Chapter 7: Lower Extremity - Knee and Tibia

7.1 Objectives for Determining Impairment for Knee and Tibia

The knee functions to support the body weight and enable the body to be lowered to the ground with knee flexion and raised with knee extension. Knee function enables ambulation and its

rotational abilities enable the body to twist.

The objective of any assessment system should be ease of use to obtain a reproducible result that accurately reflects the permanent residual physical deficit a claimant suffered as a result of his/her injury. To the degree possible, the assessment should be based on objective findings determined by the history and physical examination, as well as the results of any appropriate diagnostic testing.

7.2 Methods Available to Assess Permanent Impairment

Determination of the degree of permanent residual physical deficit should be performed at the time of maximum medical improvement, the point at which no further healing is expected. Maximum medical improvement should be determined based on the outcome of the clinical course of treatment, the medical provider's expertise and any further treatment options available to the claimant. When evaluating the level of permanent residual physical deficit, the medical provider should consider expected/normal values and the contralateral extremity where appropriate. The duration of time from the injury to maximum medical improvement may vary but in most cases is one year from the injury or last surgery.

The severity of the permanent residual physical deficit is not based on the mechanism of injury. It reflects the permanent residual physical deficit at the time of maximum medical improvement and may include physical damage to bone, muscles, cartilage, tendons, nerves, blood vessels, and other tissues.

The severity of the permanent residual physical deficit associated with the injury has been categorized: Category A (0-30%), Category B (30-60%), Category C (60-100%). Using the table below, the medical provider should select the claimant's injury to determine the appropriate range of impairment. If the claimant's particular injury is not listed in the table, the medical provider may select the condition listed in the table that is most similar at the time of evaluation.

The medical provider will determine permanent residual physical deficit associated with the range of motion, muscle strength and pain³. These values are added to the base percentage associated with the selected category of residual impairment. The result represents the medical provider's assessment of the claimant's permanent residual impairment. This value will be utilized by the Board, in conjunction with the loss of earning power, to determine the final schedule loss of use award.

³ Special condition based impairments are calculated differently (see below).

Table 7.2 - Categorization of Residual Impairment

Categorization of Residual Impairment: Knee and Tibia

Category A	Category B	Category C
<ul style="list-style-type: none"> • Meniscal tear • ACL tear • PCL tear • Bursitis • Tendonitis • Isolated fibular shaft 	<ul style="list-style-type: none"> • Knee post traumatic arthritis or avascular necrosis • Meniscal tear (greater than 60%) meniscus resection • Moderate fracture (patella, tibial plateau, tibial shaft fractures, with or without comminution) 	<ul style="list-style-type: none"> • Complex fracture • Supracondylar femur fractures, displaced or comminuted tibial plateau fractures, tibial shaft fractures with comminution, concomitant tibia and fibula (tib/fib fractures)

fracture	• Knee replacement with good/fair outcome	• Traumatic dislocation and multi ligament instability of knee post treatment
• Chondral defects		
• Patella dislocation		• Knee replacement with poor outcome
• Knee replacement with very good outcome		
0-30% Impairment	30-60% Impairment	60-90% Impairment

7.3 Knee Range of Motion

The range of motion should be assessed based on comparison to expected/normal and the claimant's contralateral extremity, when appropriate.

Table 7.3 – Flexion

	Knee Flexion Range of Motion	Points
Normal	105° -120°	0
Minor Loss 1	91° – 105°	1
Minor Loss 2	80° – 89°	2
Moderate Loss 1	70° – 79°	3
Moderate Loss 2	60° – 69°	4
Significant loss	< 59°	5

Note: For claimants with a fixed flexion contracture of > 50° with otherwise normal motion: 3 points

7.4 Knee Strength

Muscle strength is assessed on a five-grade / five-point scale. Muscle strength should be determined based on examination of the global muscle strength and loss in any plane of motion can be used to determine the overall muscle strength impairment modification. Comparison to contralateral extremity is used as the reference, when appropriate. Atrophy should be considered when findings on strength are inconsistent with expectations. Weakness with any range of motion is assigned points based on scale below with maximum score of five points.

Table 7.4 – Knee Strength

Grade	Definition	Points
5	Active movement against gravity with full resistance (normal strength, no deficit)	0
4	Active movement against gravity with some resistance (mild weakness)	1
3	Active movement against gravity without resistance (significant weakness, able to overcome gravity)	2
2	Active movement with gravity eliminated (significant weakness, unable to overcome gravity)	3
1	Slight contraction and no active movement (muscle twitch only)	4
0	No contractions (paralysis, no muscle twitch)	5

7.5 Knee Pain

A modification for pain should be for persistent pain that is not likely to improve. However, the medical provider must consider historical reports of pain throughout the course of treatment. Pain is rated on a maximum scale of five points as indicated below.

Table 7.5 – Knee Pain

Pain Rating	Points
No pain or pain does not influence ability to perform job.	0
Pain that occasionally influences ability to perform job.	1

Pain that requires modification of job functions; but allows task specific work to be accomplished.	2
Pain that intermittently prevents the claimant from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	3
Pain that consistently prevents one from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	4
Pain that prevents the claimant from engaging in meaningful work, leisure or household duties.	5

7.6 Special Condition Based Impairment

The following conditions are stand-alone ratings and no other impairment points are added unless otherwise noted.

1. Instability of the knee with or without surgery, resulting from multiple causes including ligament laxity or others, is given up to an additional 5% impairment depending on severity.
2. Recurrent patella dislocation with or without surgery: Compare with the contralateral knee. If surgery was performed, evaluate after a minimum of twelve months after surgery. In symptomatic cases without surgery, with objective findings (see New York Knee Injury Medical Treatment Guidelines, section D.9), award a 15% impairment of the leg if no muscle atrophy is present and 30% impairment of the leg if there is muscle atrophy.

7.7 Knee Amputation

Amputation at or above the knee joint equals 100% impairment of the leg.

Amputation at six inches or more below the knee joint equals 95% impairment of the leg.

For amputation of the lower extremity with a non-functional prosthesis with residual symptoms and complications, such as neuroma, phantom pain and persistent ulcers, consider classification.

Chapter 8: Lower Extremity - Ankle and Foot

8.1 Objectives for Determining Impairment for Ankle and Foot

The ankle is a mortise joint formed by the distal tibia and fibula that provides lower limb stability and facilitates ambulation through movement of the foot. The foot acts during the gait cycle as both a shock absorber during heel strike and rigid platform during toe off. Dorsiflexion of the ankle is required to climb and descend stairs while plantarflexion serves to elevate the body and depress pedals to operate vehicles or machinery.

The objective of any assessment system should be ease of use to obtain a reproducible result that accurately reflects the permanent residual physical deficit a worker suffered as a result of his/her injury. To the degree possible, the assessment should be based on objective findings determined by the history and physical examination, as well as the results of any appropriate diagnostic testing.

8.2 Methods Available to Assess Permanent Impairment

Determination of the degree of permanent residual physical deficit should be performed at the time of maximum medical improvement, the point at which no further healing is expected. Maximum medical improvement should be determined based on the outcome of the clinical course of treatment, the medical provider's expertise and any further treatment options available to the claimant. When evaluating the level of permanent residual physical deficit, the medical provider should consider expected/normal values and the contralateral extremity where appropriate. The duration of time from the injury to maximum medical improvement may vary but in most cases is one year from the injury or last surgery.

The severity of the permanent residual physical deficit is not based on the mechanism of injury. It reflects the permanent residual physical deficit at the time of maximum medical improvement and may include physical damage to bone, muscles, cartilage, tendons, nerves, blood vessels, and other tissues.

The severity of the permanent residual physical deficit associated with the injury has been categorized: Category A (0-30%), Category B (30-60%), Category C (60-100%). Using the table below, the medical provider should select the claimant's injury to determine the appropriate range of impairment. If the claimant's particular injury is not listed in the table, the medical provider may select the condition listed in the table that is most similar at the time of evaluation.

The medical provider will determine permanent residual physical deficit associated with the range of motion, muscle strength and pain⁴. These values are added to the base percentage associated with the selected category of residual impairment. The result represents the medical provider's assessment of the claimant's permanent residual impairment. This value will be utilized by the Board, in conjunction with the loss of earning power, to determine the final schedule loss of use award.

⁴ Special condition based impairments are calculated differently (see below).

Table 8.2 – Categorization of Expected Residual Impairment: Ankle and Foot

Categorization of Residual Impairment: Foot and Ankle		
Category A	Category B	Category C
<ul style="list-style-type: none"> • Metatarsal fracture • Ankle with instability • Achilles tendinitis • Peroneal tendinitis • Plantar fasciitis • Posterior tibial tendinitis • Weber A ankle fracture • Talus Fracture Hawkins 1 • Achilles rupture 	<ul style="list-style-type: none"> • Lisfranc fracture • Post traumatic arthritis moderate • Moderate deformity of foot/ankle • Minimally displaced/nondisplaced calcaneus fracture – Sanders 1 & 2 • Talar dome injury • Pilon fracture – Ruedi - Allgower Type 1 & 2 • Weber B ankle fracture • Talus Fracture Hawkins 2 	<ul style="list-style-type: none"> • Displaced calcaneus fracture (Sanders 3 & 4) • Pilon fracture – Ruedi - Allgower Type 3 • Complex ankle fracture • Severe deformity foot/ankle • Weber C ankle fractures • Talus Fracture Hawkins 3 & 4
0-30% Impairment	30-60% Impairment	60-90% Impairment

8.3 Ankle and Foot Range of Motion

The ankle is a complex joint whose function is to contribute to the lower limb stability, and enables ambulation along with other leg and foot movements. The foot functions both as a flexible foundation to accommodate irregular or rough surfaces and as a rigid support during regular walking. Foot dorsiflexion (extension) is required to descend stairs and foot plantar flexion is required to elevate the body from the ground or depress pedals.

Range of Motion:

- 0° and Measurement Position: Foot perpendicular to the leg.
- Measure the angle between the 0° position and full foot plantar flexion and dorsiflexion.

Table 8.3 Ankle and Foot Range of Motion

Dorsiflexion (DF) – Compared to contralateral	
Normal Range of Motion	
Mild Deficit: 5° < contralateral	1 points
Moderate Deficit: 5-15° < contralateral	2.5 points
Severe Deficit: > 15° < contralateral	4 points
Plantar Flexion (PF) – Compared to contralateral	
Normal Range of Motion	
Mild Deficit: 5° < contralateral	1 points
Moderate Deficit: 5-15° < contralateral	2 points
Severe Deficit: > 15° < contralateral	3 points

Notes:

1. Deficits are additive to a maximum of five points
2. Ankylosis of ankle – up to a maximum of five points

8.4 Ankle and Foot Muscle Strength

Muscle strength is assessed on a five-grade / five-point scale. Muscle strength should be determined based on examination of the global muscle strength and loss in any plane of motion can be used to determine the overall muscle strength impairment modification. Comparison to contralateral extremity is used as the reference, when appropriate. Atrophy should be considered when findings on strength are inconsistent with expectations. Weakness with any range of motion is assigned points based on scale below with maximum score of five points.

Table 8.4 – Ankle and Foot Muscle Strength

Grade	Definition	Points
5	Active movement against gravity with full resistance (normal strength, no deficit)	0
4	Active movement against gravity with some resistance (mild weakness)	1
3	Active movement against gravity without resistance (significant weakness, able to overcome gravity)	2
2	Active movement with gravity eliminated (significant weakness, unable to overcome gravity)	3
1	Slight contraction and no active movement (muscle twitch only)	4
0	No contractions (paralysis, no muscle twitch)	5

8.5 Ankle and Foot Pain

A modification for pain should be for persistent pain that is not likely to improve. However, the medical provider must consider historical reports of pain throughout the course of treatment. Pain is rated on a maximum scale of five points as indicated below.

Table 8.5 – Ankle and Foot Pain

Pain Rating	Points
No pain or pain does not influence ability to perform job.	0
Pain that occasionally influences ability to perform job.	1
Pain that requires modification of job functions; but allows task specific work to be accomplished.	2
Pain that intermittently prevents the claimant from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	3
Pain that consistently prevents one from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	4
Pain that prevents the claimant from engaging in meaningful work, leisure or household duties.	5

8.6 Special Condition Based Impairment

The following conditions are stand-alone ratings and no other impairment points are added unless otherwise noted.

1. Tarsal Tunnel Syndrome equals 20% impairment of foot
2. Morton's Neuroma equals 15% impairment of foot
3. Instability of the ankle with or without surgery, resulting from multiple causes including ligament laxity or others, is given an additional 5% impairment.

8.7 Ankle and Foot Amputation

Amputation of the entire foot may result in an overall impairment to the leg. The level of impairment may exceed the above percentages, given other factors, based on documented supporting evidence.

Table 8.7 – Ankle and Foot Amputation

To Convert From Ankle/Foot to Leg			
	Foot (Weeks)	Leg Value	Maximum Leg Value
Ankle	205	71%	90%
Foot	205	71%	75%

Notes:

1. At level of ankle = 90% impairment of leg
2. Trans metatarsal amputation = 75% impairment of leg

Chapter 9: Lower Extremity: Great and Lesser Toes

9.1 Objectives for Determining Impairment for Great and Lesser Toes

The toes, particularly the great toe, provides stability during regular walking and facilitates stance. They also provide support when standing on the toes for elevated reaching. When more than one toe is injured, it may be considered as an overall impact on the foot.

The objective of any assessment system should be ease of use to obtain a reproducible result that accurately reflects the permanent residual physical deficit a claimant suffered as a result of his/her injury. To the degree possible, the assessment should be based on objective findings determined by the history and physical examination, as well as the results of any appropriate diagnostic testing.

9.2 Methods Available to Assess Permanent Impairment

Determination of the degree of permanent residual physical deficit should be performed at the time of maximum medical improvement, the point at which no further healing is expected. Maximum medical improvement should be determined based on the outcome of the clinical course of treatment, the medical provider's expertise and any further treatment options available to the claimant. When evaluating the level of permanent residual physical deficit, the medical provider should consider expected/normal values and the contralateral extremity where appropriate. The duration of time from the injury to maximum medical improvement may vary but in most cases is one year from the injury or last surgery.

The severity of the permanent residual physical deficit is not based on the mechanism of injury.

It reflects the permanent residual physical deficit at the time of maximum medical improvement and may include physical damage to bone, muscles, cartilage, tendons, nerves, blood vessels, and other tissues.

The medical provider will determine permanent residual physical deficit associated with amputation (if applicable), the range of motion, muscle strength and pain. The result represents the medical provider's assessment of the claimant's permanent residual impairment. This value will be utilized by the Board, in conjunction with the loss of earning power, to determine the final schedule loss of use award.

9.3 Maximum Rating of Body Part

These Guidelines are to be used for evaluating permanent residual physical deficit of the great and lesser toes. Single toe loss/impairment must be determined based on the impairment to the great or lesser toe alone and not as part of the foot. When multiple digit impairments are considered together in one comprehensive rating, the total impairment cannot exceed 100% of the next largest major member. Therefore, the loss of multiple toes, resulting in conversion to a foot impairment, may not exceed 100% schedule loss of use of the foot.

Table 9.3 Maximum Weeks per Toe Conversion to Foot

	To convert from toe to foot	
	Digit (Statutory Weeks)	Foot Value
Great Toe	38	19%
Lesser Toes	16	8%

9.4 Single Toe Impairment

If an injury results in permanent impairment of a single digit, the medical provider should determine the level of impairment based on the condition at maximum medical improvement. For example, if there is an amputation, the digit impairment should be evaluated based on the level of amputation (see Section 9.8 Amputation). For amputation injuries, range of motion, strength and pain are not evaluated. For non-amputation injuries, the level of impairment will be measured by the residual permanent change in the range of motion.

9.5 Great Toe Impairment

The great toe provides stability during regular walking and facilitates unilateral stance. Extension of the toe provides significant support when standing on the toes for elevated reaching. It has two major joints:

- MTP - Metatarsophalangeal joint
- IP - Interphalangeal Joint

9.5.1 Range of Motion of the Great Toe

0° and Measurement Position: Toe fully extended at the same plane as the foot. Measure the angle between the 0° position and full joint range of motion as indicated.

Table 9.5.1(a) Great Toe - Range of Motion - MTP Joint

MTP Joint - Compared to contralateral

Normal ROM Dorsiflexion	
Mild Deficit: 5-10° < contralateral	1 points
Moderate Deficit: 11-45° < contralateral	2 points
Severe Deficit: > 45° < contralateral	3 points
Normal ROM Plantar Flexion	
Mild Deficit: 5-10° < contralateral	0 points
Moderate Deficit: 11-25° < contralateral	0.5 points
Severe Deficit: > 25° < contralateral	1.5 points

Table 9.5.1(b) Great Toe - Range of Motion - IP Joint

IP Joint - Compared to Contralateral

Normal ROM	
Mild Deficit: 5-10° < contralateral	.5 points
Moderate Deficit: 11-45° < contralateral	1 points
Severe Deficit: > 45° < contralateral	2 points

To determine the level of impairment of the great toe, the maximum value is highest impairment value of the affected joints (MTP or IP), not to exceed five points.

Sum of the range of motion scores may not exceed five points.

Complete ankylosis of great toe at IP joint is valued at four points.

Complete ankylosis of great toe at the MTP joint is valued at five points.

9.5.2 Great Toe Strength

Muscle strength is assessed on a five-grade / five-point scale. Muscle strength should be determined based on examination of the global muscle strength and loss in any plane of motion can be used to determine the overall muscle strength impairment modification. Comparison to contralateral extremity is used as the reference, when appropriate. Atrophy should be considered when findings on strength are inconsistent with expectations. Weakness with any range of motion is assigned points based on scale below with maximum score of five points.

Table 9.5.2 Great Toe - Strength

Grade	Definition	Points
5	Active movement against gravity with full resistance (normal strength, no deficit)	0
4	Active movement against gravity with some resistance (mild weakness)	1
3	Active movement against gravity without resistance (significant weakness, able to overcome gravity)	2
2	Active movement with gravity eliminated (significant weakness, unable to overcome gravity)	3
1	Slight contraction and no active movement (muscle twitch only)	4
0	No contractions (paralysis, no muscle twitch)	5

9.5.3 Great Toe Pain

A modification for pain should be for persistent pain that is not likely to improve. However, the medical provider must consider historical reports of pain throughout the course of treatment. Pain is rated on a maximum scale of five points as indicated below.

Table 9.5.3 Great Toe - Pain

Pain Rating	Points
No pain or pain does not influence ability to perform job.	0
Pain that occasionally influences ability to perform job.	1
Pain that requires modification of job functions; but allows task specific work to be accomplished.	2
Pain that intermittently prevents the claimant from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	3
Pain that consistently prevents one from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	4
Pain that prevents the claimant from engaging in meaningful work, leisure or household duties.	5

9.6 Lesser Toes Impairment

9.6.1 Lesser Toe Range of Motion

Range of motion is measured in relation to corresponding metatarsal. Always compare to contralateral side when appropriate.

Table 9.6.1 Lesser Toes Range of Motion

MTP Joint - Compared to Contralateral	
Normal ROM	0 points
Mild Deficit: +30 to -30 °	1 points
Moderate Deficit: +20 to -20 °	3 points
Severe Deficit: 0° Fixed Maximum Flexion	5 points
PIP Joint - Compared to Contralateral	
Normal ROM	0 points
Mild Deficit: Fixed at 20°	1 points
Moderate Deficit: Fixed at 30°	3 points
Severe Deficit: Fixed at 40° < contralateral	5 points
DIP Joint - Compared to contralateral	
Normal ROM 0-45 °	0 points
Mild Deficit: 10° deficit	0 points
Moderate Deficit: 20° deficit	1 points
Severe Deficit: Fixed in deformity	2 points
Complete Ankylosis of Lesser Toes	5 point maximum

When determining the impairment of the lesser toes, the MTP, PIP, and DIP joints of lesser toes can only be a maximum of five points. To determine the level of impairment of the Lesser Toe, the maximum value is determined by the impairment value of the worst deformity of the largest affected joint (MTP, PIP, or DIP) if multiple joints are affected.

9.6.2 Lesser Toe Strength

Muscle strength is assessed on a five-grade / five-point scale. Muscle strength should be determined based on examination of the global muscle strength and loss in any plane of motion can be used to determine the overall muscle strength impairment modification. Comparison to contralateral extremity is used as the reference, when appropriate. Atrophy should be considered when findings on strength are inconsistent with expectations. Weakness with any range of motion is assigned points based on scale below with maximum score of five points.

Table 9.6.2 Lesser Toe - Strength

Grade	Definition	Points
5	Active movement against gravity with full resistance (normal strength, no deficit)	0
4	Active movement against gravity with some resistance (mild weakness)	1

3	Active movement against gravity without resistance (significant weakness, able to overcome gravity)	2
2	Active movement with gravity eliminated (significant weakness, unable to overcome gravity)	3
1	Slight contraction and no active movement (muscle twitch only)	4
0	No contractions (paralysis, no muscle twitch)	5

9.6.3 Lesser Toe Pain

A modification for pain should be for persistent pain that is not likely to improve. However, the medical provider must consider historical reports of pain throughout the course of treatment. Pain is rated on a maximum scale of five points as indicated below.

Table 9.6.3 Lesser Toe - Pain

Pain Rating	Points
No pain or pain does not influence ability to perform job.	0
Pain that occasionally influences ability to perform job.	1
Pain that requires modification of job functions; but allows task specific work to be accomplished.	2
Pain that intermittently prevents the claimant from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	3
Pain that consistently prevents one from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	4
Pain that prevents the claimant from engaging in meaningful work, leisure or household duties.	5

9.7 Multiple Toe Injuries

Injuries to multiple toes may be added together but cannot exceed 100% of the foot.

9.8 Amputation

Amputation, Great and Lesser Toes – Single and Multiple Digit(s)

Table 9.8(a) – Toe Amputation

Toe	Loss at the DIP (or distal to IP joint)	Loss at PIP (IP) (or at IP joint)	Loss at the MTP
	% Digit	% Digit	% Digit
Great Toe	n/a	50%	100%
Lesser Toe	25%	50%	100%

The loss of multiple toes may result in conversion to a foot impairment. The loss of great toe plus three toes may not exceed 100% impairment of the foot.

Table 9.8(b) – Multiple Toe Conversion to Foot

	To Convert from Toes to Foot Toes (Weeks)	Foot
Great Toe	38	19%
Lesser Toes	16	8%

Chapter 10: Peripheral Nerve Injuries and Compression Neuropathies

10.1 Objectives for Determining Impairment for Peripheral Nerve Injuries and Compression Neuropathies

Permanent residual physical deficit can be the result of neurological injuries that are complex to evaluate and may result in heightened sensory conditions. Therefore, they are considered separately in this chapter, rather than their associated body parts.

The objective of any assessment system should be ease of use to obtain a reproducible result that accurately reflects the permanent residual physical deficit a worker suffered as a result of his/her injury. To the degree possible, the assessment should be based on objective findings determined by the history and physical examination, as well as the results of any appropriate diagnostic testing.

10.2 Methods Available to Assess Permanent Impairment

Determination of the degree of permanent residual physical deficit should be performed at the time of maximum medical improvement, the point at which no further healing is expected. Maximum medical improvement should be determined based on the outcome of the clinical course of treatment, the medical provider's expertise and any further treatment options available to the claimant. When evaluating the level of permanent residual physical deficit, the medical provider should consider expected/normal values and the contralateral extremity where. The duration of time from the injury to maximum medical improvement may vary but in most cases is one year from the injury or last surgery.

The severity of the permanent residual physical deficit is not based on the mechanism of injury. It reflects the permanent residual physical deficit at the time of maximum medical improvement and may include physical damage to bone, muscles, cartilage, tendons, nerves, blood vessels, and other tissues.

The severity of the permanent residual physical deficit associated with the injury has been categorized: Category A (0-30%), Category B (30-60%), Category C (60-100%). Using the table below, the medical provider should select the claimant's injury to determine the appropriate range of impairment. If the claimant's particular injury is not listed in the table, the medical provider may select the condition listed in the table that is most similar at the time of evaluation.

The medical provider will determine permanent residual physical deficit associated with the range of motion, muscle strength, sensory and pain. These values are added to the base percentage associated with the selected category of residual impairment. The result represents the medical provider's assessment of the claimant's permanent residual impairment. This value will be utilized by the Board, in conjunction with the loss of earning power, to determine the final schedule loss of use award.

⚠ Special condition based impairments are calculated differently (see below).

Table 10.2 – Categorization of Injuries: Peripheral Nerve, Plexopathies and Compression (Entrapment Neuropathies)

Categorization of Residual Impairment: Peripheral Nerve, Plexopathies and Compression (Entrapment Neuropathies)

Category A	Category B	Category C
• Benign Thoracic Outlet Syndrome [A]	• Benign Thoracic Outlet Syndrome [A] ***	• True Thoracic Outlet Syndrome requiring intervention/rib resection [A]
• Lateral Femoral Cutaneous Nerve Mononeuropathy (Meralgia Paresthetica) [LE] **	• Spinal Accessory Nerve Palsy [A] **	
	• Long Thoracic Nerve Palsy [A] **	
• Peroneal Nerve Palsy [LE] **	• Peroneal Nerve Palsy [LE] **/**	

[A]: Eligible for arm impairment
 [LE]: Eligible for lower extremity impairment

** See Special Conditions (Chapter 10.7)

*** with residual weakness, atrophy and impaired motor or sensory function

Description of Categorization of Residual Impairments

Category A

Peripheral neuropathy involving pain, mild range of motion and sensory deficits. Minimal functional and strength deficits without atrophy.

Category B

Peripheral neuropathy involving pain and more involved or persistent range of motion deficits. More pronounced functional impairment with permanent sensory deficits, decreased strength, and obvious atrophy showing no recovery. Consideration should be given to delay final determination of impairment or to apply if needed for reevaluation to make permanent impairment evaluation after two years following date of injury or most recent surgical intervention.

Category C

Profound functional limitation due to pain, permanent sensory deficit, and loss of end motor unit innervation as evidenced by severe strength deficits and profound atrophy. Strong consideration should be given to delay final determination of impairment or to apply if needed for reevaluation to make final adjustment after two years following date of injury or most recent surgical intervention.

Unless otherwise indicated, factors affecting additional degrees of impairment within a category are Range of Motion, Strength, Sensation and Pain. The presence of atrophy is already involved in the initial categorization of the injury into the Category B or Category C.

10.3 Range of Motion

The range of motion should be assessed based on comparison to expected/normal and the claimant's contralateral extremity, when appropriate. See applicable chapter for range of motion evaluation for specific body part.

Table 10.3 - Range of Motion

Chapter	Body Part
4	Elbow
5	Shoulder
6	Hip / Femur
7	Knee / Tibia
8	Ankle / Foot
9	Toes

10.4 Strength

Muscle strength is assessed on a five-grade / five-point scale. Muscle strength should be determined based on examination of the global muscle strength and loss in any plane of motion can be used to determine the overall muscle strength impairment modification. Comparison to contralateral extremity is used as the reference, when appropriate. Atrophy should be considered when findings on strength are inconsistent with expectations. Weakness with any range of motion is assigned points based on scale below with maximum score of five points.

Approved strength tests to be documented with contralateral measurement recorded if appropriate. These measurements should be rated on a scale of one to five per below.

Table 10.4(a) – Strength Testing and Observation

Diagnosis	Strength Testing and Observation
Carpal Tunnel Syndrome	Grip, Thumb Abduction Strength Elbow: Flexion/Extension
Cubital Tunnel Syndrome	Hand: Grip, Thumb opposition/apposition strength, Cross-finger test, Wartenberg Sign, Froment Sign, Ulnar clawing Elbow: Flexion, Extension, Pronation, Supination
Pronator Syndrome	Hand: Grip, Thumb opposition to index Elbow: Flexion, Extension, Pronation, Supination
PIN Compression	Hand: Digital and Thumb Extension, Wrist Extension
TOS/Brachial Plexopathy	Thorough evaluation requires strength measurements of Shoulder, Elbow, Wrist, and Hand
All other diagnosis should use strength testing consistent with the individual extremity in previous chapters.	

Table 10.4(b) Strength

Grade	Definition	Points
5	Active movement against gravity with full resistance (normal strength, no deficit)	0
4	Active movement against gravity with some resistance (mild weakness)	1
3	Active movement against gravity without resistance (significant weakness, able to overcome gravity)	2
2	Active movement with gravity eliminated (significant weakness, unable to overcome gravity)	3
1	Slight contraction and no active movement (muscle twitch only)	4
0	No contractions (paralysis, no muscle twitch)	5

10.5 Sensation

When applicable, sensation points are determined in accordance with the following table, for a maximum of five points.

Table 10.5 Loss of Sensation

Loss of Sensation	Points
3-5 mm	0
6-8 mm	2
9-15 mm	4
>15 mm or absent	5

10.6 Pain

A modification for pain should be for persistent pain that is not likely to improve. However, the medical provider must consider historical reports of pain throughout the course of treatment. Pain is rated on a maximum scale of five points as indicated below.

Table 10.6 Pain

Pain Rating	Points
No pain or pain does not influence ability to perform job.	0
Pain that occasionally influences ability to perform job.	1
Pain that requires modification of job functions; but allows task specific work to be accomplished.	2
Pain that intermittently prevents the claimant from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	3
Pain that consistently prevents one from performing the essentials of the job – the type of work that the claimant was engaged in at the time of the accident.	4
Pain that prevents the claimant from engaging in meaningful work, leisure or household duties.	5

10.7 Special Condition Based Impairment

The following are stand-alone ratings and no other impairment points are added unless otherwise noted.

1. Spinal Accessory Nerve Palsy & Long Thoracic Nerve Palsy: Impairment of the arm is appropriate for these conditions. Initial degree of impairment is a Category B (30-60% impairment). These conditions however, are only eligible for pain, range of motion and strength impairment values within Category B.
2. Lateral Femoral Cutaneous Nerve Mononeuropathy (Meralgia Paresthetica): Of

primary importance in evaluating this condition is ensuring to the highest degree of certainty possible that this is an isolated condition consistent with a mononeuropathy of the lateral femoral cutaneous nerve. Lumbar spine pathology contributions must be excluded. This condition is only eligible for pain and sensation impairment values. Maximum degree of impairment of the leg for this condition is therefore 10%.

3. Peroneal Nerve Palsy: Initial degree of impairment is categorized as Category A or Category B. The medical provider should only evaluate pain and sensory values related to this condition within Category A. Within Category B, the medical provider should evaluate pain, range of motion and strength. The medical provider should evaluate range of motion and strength of the foot and ankle in accordance with the foot/ankle impairment Guidelines.
4. Carpal Tunnel (Median Nerve) - Syndrome, with or without surgery, is a 10-20% impairment of the hand. If symptoms persist and condition becomes disabling, consider classification.
5. Cubital Tunnel (Ulnar Nerve) Syndrome, with or without surgery, is a 10-20% impairment of the hand, where symptoms present at the wrist; or a 10-20% impairment of the arm where symptoms present at the elbow. If symptoms persist and condition becomes disabling, consider classification.
6. Pronator Teres Syndrome (anterior interosseous) is a 10-20% impairment of the hand. If symptoms persist and condition becomes disabling, consider classification.
7. Posterior interosseous is a 10-20% impairment of the hand, where findings present at the wrist; or a 10-20% impairment of the arm where findings present at the elbow. If findings persist and condition becomes disabling, consider classification.
8. Brachial Plexus
 - The Brachial plexus nerve network originates from nerve roots in the cervical and upper thoracic regions and provides sensation and motor function to the shoulders and arms. Brachial plexopathies, even after a rib resection, usually lend themselves to a final adjustment after a two-year period.
 - Complete brachial plexopathy is given a SLU of the arm.
 - Upper brachial plexopathy affects the biceps, deltoid, supinator longus, brachialis, supraspinatus, infraspinatus and rhomboid muscles. 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 SLU of the arm.
- Lower brachial plexopathy may result in weakness and wasting of the small muscles of the hand and is usually given a SLU of the hand.
 - Brachial plexus ratings are based on the location of the injury to the nerve and the severity of sensory and motor findings.
 - To determine impairment rate, evaluate strength and sensory loss independently. Add sensory and strength ratings to determine the final impairment. Sensory and strength impairment should be evaluated with objective measurements using tables 10.4 and 10.4(b). The impairment values should then be used to find the overall impairment rate per table 10.7 below.

Table 10.7 Brachial Plexus

Brachial Plexus Lesion Location	Strength and Sensory Loss Categories of the Arm or Hand					
	Strength 1	Strength 2	Strength 3-5	Sensory 2	Sensory 4	Sensory 5
	Upper (C5, 6)	15%	25%	50%	7.5%	15%

Middle (C7)	10%	15%	40%	3%	5%	7.5%
Lower (C8, T1)	15%	30%	70%	7%	12%	20%
Complete (C5 through T1)	16%	50%	95%	15%	45%	90%

9. Overarching considerations: In all cases, the medical provider must differentiate the described compression neuropathies from cervical spine pathology, thoracic outlet compression, Parsonage-Turner Syndrome, Mononeuritis, Diabetic Neuropathy, alcoholism and other contributing systemic conditions such as hypothyroidism/metabolic disorders. In assessing impairment due to a compression neuropathy, the medical provider must be cognizant of unrelated intra-articular pathology and tendinopathy/tenosynovitis conditions that may contribute to pain, limitation in range of motion and decreased strength.

Chapter 11: Visual System / Auditory System / Facial Scars and Disfigurement

11.1 Introduction - Visual System

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.

11.1.1 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 five 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 11.1.1(a) for uncorrected or corrected visual loss (in the injured eye) whichever is greater.

Table 11.1.1(a) - Visual Loss

Visual Acuity	Schedule %	Visual Acuity	Schedule %
20/20	0	20/30 + 2 or 3	27.5
20/20-1	5	20/40	50
20/20-2	7.5	20/40+2	45
20/20-3	10	20/40+3	40
20/20-4	15	20/40-1 or 2	51.5
20/25	20	20/40-3	55
20/25-1	22.5	20/50	60
20/25-2	25	20/60	65
20/30	33.3	20/70	70
20/30-1	35	20/70-1 or 20/70-2	75
20/30-2	37.5	Over 75%	100%
20/30+1	30		

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 11.1.1(b).
- (2) Determine the percentage loss to schedule according to Table 11.1.1(c)

Figure 11.1.1(b) 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 11.1.1(c) 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)

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

$$100-y\% = \% \text{Loss to Schedule for Eye}$$

Determining Schedule for Diplopia

Do red glass test, charting magnitude of diplopia within 30 degree field and calculate according to Table 11.1.1(d). 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 11.1.1(d) 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

11.2 Introduction - Auditory System

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.

11.2.1 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 claimant's hearing level is 41 dB, he/she would have a hearing loss of 24 percent in that ear.

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

11.2.2 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 32.5 %.

11.3 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.