SCHEDULE A

PERMANENT IMPAIRMENT RATING

This document is a general summation of established practices, and scheduled ratings used by the Workers Compensation Board of Manitoba for the evaluation of permanent impairments other than hearing loss.

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(For Impairment of Hearing see Schedule B)

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1. INTRODUCTION TO THE SCHEDULE

The Permanent Impairment Rating Schedule ("Schedule A") is a means to determine ("rate") the permanent impairment of whole body function ("impairment") after a workplace injury, for the purpose of calculating a financial benefit in accordance with Sections 4(9) and 38 of *The Workers Compensation Act of Manitoba*.

An impairment is a significant deviation, loss, or loss of use of any body structure or body function in a person with a workplace injury or occupational disease.

Permanent impairment from a workplace injury or occupational disease is evaluated for the following deficits:

- loss of a part of the body;
- loss of mobility of a joint(s);
- loss of function of any organ(s) of the body identified in the Schedule; and
- cosmetic disfigurement of the body.

An impairment is considered permanent when, in the opinion of the WCB, the condition to be rated has reached maximum medical improvement (MMI) (see section 2.5). The exception to this relates to terminal occupational cancers, when the evaluation of permanent impairment will take place as soon as possible after the diagnosis has been made.

Permanent impairment is evaluated by the WCB through medical examination of the injured worker or by review of the medical information documented on the claim file.

The permanent impairment evaluation ("PPI evaluation") leads to a permanent impairment rating ("PPI Rating") that is administratively converted into a financial impairment benefit. This benefit has been historically termed a "PPI Award" or "PPI Benefit".

2. RATING METHODS

2.1 CATEGORIES

There are two categories of PPI ratings: 1) Scheduled ratings, which include measured ratings and judgment ratings; and 2) Unscheduled ratings. Both categories result in a PPI Rating that is administratively converted into a PPI Benefit.

a. Scheduled ratings:

   i. Measured PPI ratings are determined by the WCB using a specific measurement method according to the Schedule and its appendices.

   ii. Judgment

   Judgment PPI ratings are determined by the WCB according to the Schedule and its appendices when impairment of body function does not lend itself to formal measurement, such as cosmetic disfigurement.

b. Unscheduled ratings:

Unscheduled ratings may be used by the WCB when:

i. strict adherence to the Schedule rating would create an injustice;

ii. it is determined that an impairment exists that is not covered by the Schedule; or

iii. the clinical examination or medical file assessment does not allow for the determination of a valid impairment rating by the WCB.

For unscheduled ratings, information from other sources, such as the American Medical Association's *Guides to the Evaluation of Permanent Impairment* ("AMA Guides") may be used. In such cases, the impairment rating must be reviewed and approved by the WCB Director responsible or their designate. The WCB will document the case and explain the justification for the non-scheduled rating.

2.2 DETERMINING A RANGE OF MOTION IMPAIRMENT

The impairment rating for loss of range of motion resulting from direct injury or related surgical procedures will be determined by the WCB, through clinical examination or assessment of the medical information on file, based on the loss of active guided movement of the affected joint(s).

For the loss of movement to be ratable using the Schedule (a "Scheduled rating"), the WCB must be satisfied that the end-feel at end range of the best attainable active guided movement was valid.

2.3 METHOD FOR RATING OF MULTIPLE INJURIES

Where an injured worker has more than one impairment, the final PPI rating is determined by:

a) if applicable, apportioning the rating between a pre and/or co-existing condition and the WCB accepted injury (see section 2.4); and

b) if applicable, using an enhancement factor (see sections 3.4 and 4.4); and

c) using the Combined Values Chart (see Appendix "A").

The total PPI Rating for loss of function of an extremity cannot exceed the PPI Rating for amputation of that extremity at the applicable level.

2.4 PRE-EXISTING AND CO-EXISTING CONDITIONS

Policy 44.10.20.10, *Pre-existing Conditions*, describes a pre-existing condition as any medical condition the worker had prior to their workplace injury.

The fact that the worker has a pre-existing condition does not disentitle them to compensation for their workplace injury.

If a worker has a pre-existing condition and the WCB determines they have suffered an impairment, the worker is eligible for an impairment rating based on the difference between the total rating and the rating assigned to the pre-existing condition. The WCB will assign a fair rating to the pre-existing condition based on the best information available.

The degree of a worker's impairment (impairment rating) is determined by the WCB in accordance with this policy, Schedules A and B and the *Pre-existing Conditions* policy.

The presence of a co-existing condition will be treated in the same manner as a pre-existing condition when determining the impairment rating. A co-existing condition is a medical condition that occurs after the date of the workplace injury.

2.5 DEFINITIONS

a. “active guided ROM” - The examinee moves the region to be examined on their own (active movement), with guidance of the movement by the examiner, to include an assessment of end-feel at end range of movement.

b. "bilateral body part" - the same body part on the other side; for example, the left hand is the bilateral body part of the right hand. "Symmetric", "mirror", "opposite" and "contralateral" are considered synonyms for "bilateral" in this Schedule.

c. ""end-feel” - the sensation imparted to the examiner's hands at the end point of joint range of motion. The end-feel varies according to the joint, due to limiting structure or tissue at the particular joint. Types of normal end-feels include bone-on-bone, springy block, and capsular.

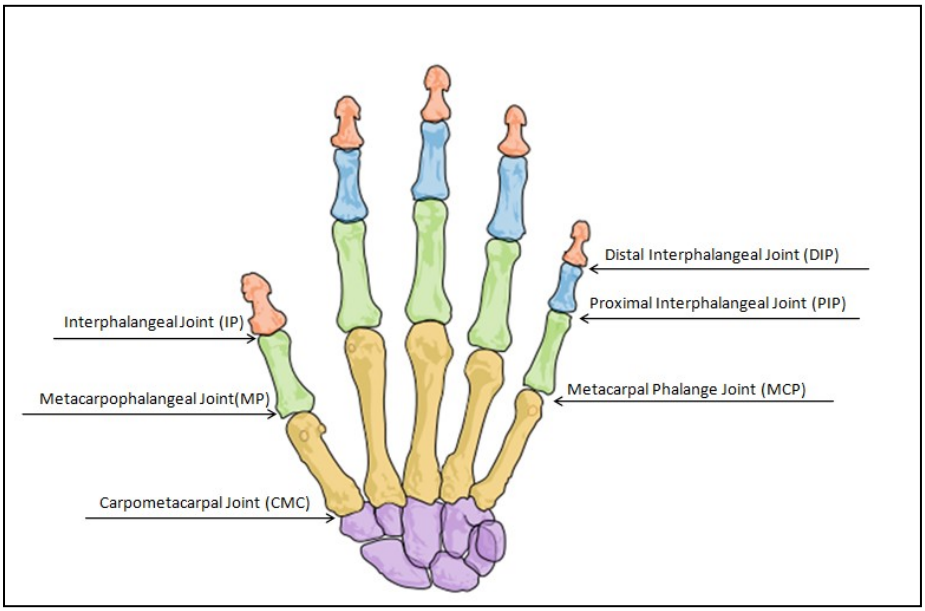
d. “empty end-feel” - the absence of an end-feel during range of motion examination.

e. "expected range of motion (ROM)" -

   The expected ROM is the measured active guided ROM of the **non-injured symmetric** joint. This value is compared to the measured active guided ROM of the affected side. The difference is the loss of ROM of the injured joint.

   When the symmetric joint is rendered abnormal by pre or co-existing injury or disease, the expected ROM becomes that value listed in the Schedule. For example, if the symmetric body part has been amputated, the WCB consults the Schedule to determine the "expected ROM when bilateral comparison is not possible". This value is compared to the measured ROM of the affected side. The difference is the loss of ROM of the injured joint.

f. finger and thumb joints - the MCP, PIP and DIP joints of the fingers, and the CMC, MCP, and IP joints of the thumb, as shown on the following diagram:



g. "maximum medical improvement" - the point of recovery, as determined by the WCB, when a medical condition is well stabilized and unlikely to change substantially in the following year with or without medical treatment.

h. "measured ROM" - the valid range of motion, as determined through examination, of an injured body part.

i. "Schedule or Schedule A" - this document, which is formally called "The Workers Compensation Board of Manitoba Permanent Impairment Rating Schedule A".

j. "Schedule B" - this document, which is formally called "The Workers Compensation Board of Manitoba Permanent Impairment Rating Schedule B- Hearing Loss".

3. RATABLE UPPER EXTREMITY IMPAIRMENTS

3.1 UPPER EXTREMITY: LOSS OF MOVEMENT

The impairment rating for loss of range of motion resulting from direct injury or related surgical procedures will be determined by the WCB, through clinical examination or assessment of the medical information on file, based on the loss of active guided movement of the affected joint(s).

For the loss of movement to be ratable using the Schedule (a "Scheduled rating"), the WCB must be satisfied that the end-feel at end range of the best attainable active guided movement was valid.

3.2 UPPER EXTREMITY: METHODOLOGY FOR DETERMINING THE IMPAIRMENT RATING FOR LOSS OF RANGE OF MOTION

3.2.1 MEASUREMENT

Active guided range of motion will be measured to the nearest 5th degree increment. For example, a measurement of 60°, 61° or 62° will be recorded as 60°; a measurement of 63°, 64° or 65° will be recorded as 65°.

3.2.2 METHODOLOGY

TABLE 3-1 UPPER EXTREMITY ROM METHOD

Step 1	Measure the "Expected ROM" of the symmetric non-injured side. Record in 5° increments. When the symmetric body part is rendered abnormal by pre or co-existing injury or disease, refer to section 3.5 to determine the "Expected ROM", then continue with the steps below
Step 2	Determine the "Measured ROM" of the injured side. Record in 5° increments.
Step 3	Determine the difference between the Measured ROM and the Expected ROM.
Step 4	Multiply the difference by the Maximum Impairment Rating for the appropriate body part, as indicated in section 3.3
Step 5	The result is the PPI rating for loss of ROM.

3.3 UPPER EXTREMITY: MAXIMUM IMPAIRMENT RATING

TABLE 3-2 UPPER EXTREMITY MAX IMPAIRMENT RATING

Body Part	**Maximum PPI Rating**
Shoulder, ankylosed in a position of function	25.0%
Elbow, ankylosed in a position of function	20.0%
Forearm, complete loss of pronation and supination	10.0%
Wrist, ankylosed in a position of function	12.5%

3.4 UPPER EXTREMITY: MULTIPLE INJURIES- METHOD FOR APPLYING AN ENHANCEMENT FACTOR

A PPI Rating may be increased by an enhancement factor, to reflect the functional loss from injury(s) to symmetric structures; for example, both eyes (vision), both ears (hearing), both wrists, multiple finger injuries, or both knees. The result is termed an enhancement rating.

An enhancement factor is built into the impairment rating for injuries involving both eyes (vision), both ears (hearing) and multiple fingers. There is no enhancement factor between injuries involving the thumb and fingers.

For an enhancement factor to be applied in relation to an injury of a joint, the following criteria must be met:

1. A WCB accepted injury impaired a joint of the body; and
2. The symmetric joint is also impaired; and
3. The impaired symmetric joint was accepted by the WCB under the same WCB claim or another Manitoba WCB claim.

When the above criteria have been met, the impairment rating for each of the symmetric joints is determined individually, following which the lesser of the symmetrical impairment ratings is multiplied by an enhancement factor of 50%.

The resulting enhancement rating is then **combined with** any other impairment rating(s) attributed to the workplace injury in the following manner:

- If the impaired symmetric body parts arise from the same claim, the enhancement rating is combined with the other ratings on that claim;
- If the impaired symmetric body parts arise from different WCB Manitoba claims, the enhancement rating is combined with the impairment ratings on the most recent WCB Manitoba claim.

3.4.1 EXAMPLE: ENHANCEMENT

As a result of a single workplace injury, a worker sustained ankylosis of the left shoulder joint and disarticulation at the right shoulder. The total impairment is determined as follows:

	Injured Body Part	**PPI Rating**
Step 1	Ankylosis left shoulder (see Section 3.3, Table 3-2 Upper Extremity Max Rating)	25.0%
Step 2	Disarticulation right shoulder (see Section 3.6.1, Table 3-7 Upper Extremity - Amputations)	70.0%
Step 3	Enhancement - apply the criteria 1. Is there a WCB accepted injury that impairs a joint of the body? Yes; and 2. Is the symmetric joint also impaired? Yes; and 3. Has the impaired symmetrical joint been accepted under the same WCB claim or another Manitoba WCB claim? Yes. Given that the above criteria have been met, the rating for the lesser impairment is multiplied by 50% to arrive at the enhancement rating. In this case, multiply the 25% rating for ankylosis of the left shoulder by an enhancement factor of 50%. The result is an enhancement rating of 12.5%	12.5%
Step 4	The 12.5% enhancement rating is then **combined with** the other impairment ratings attributed to the workplace injury using the Combined Values Chart (see Appendix "A")	81.0%

3.5 UPPER EXTREMITY: EXPECTED RANGE OF ACTIVE GUIDED MOVEMENT WHEN SYMMETRIC COMPARISON IS NOT PRACTICAL

When the symmetric joint is rendered abnormal by pre or co-existing injury or disease, the "Expected ROM" is determined as follows:

TABLE 3-3 EXPECTED ROM - SHOULDER

Shoulder	**Expected ROM**
Forward Flexion	150^0
Backward Extension	40^0
Abduction	150^0
Adduction	30^0
Internal rotation (measured with shoulder joint abducted to 90° in the frontal plane).	40^0
External rotation (measured with shoulder joint abducted to 90° in the frontal plane).	90^0

TABLE 3-4 EXPECTED ROM - ELBOW

Elbow	**Expected ROM**
Flexion	150^0
Extension	0^0

TABLE 3-5 EXPECTED ROM - FOREARM

Forearm	**Expected ROM**
Pronation	90^0
Supination	90^0

TABLE 3-6 EXPECTED ROM - WRIST

Wrist	**Expected ROM**
Flexion	90^0
Extension	70^0
Radial deviation	20^0
Ulnar deviation	30^0

3.6 UPPER EXTREMITY: IMPAIRMENT ARISING FROM OTHER INJURIES

3.6.1 AMPUTATIONS

TABLE 3-7 UPPER EXTREMITY - AMPUTATIONS

Body Part	**PPI Rating**
Proximal third of humerus or disarticulation at shoulder	70%
Middle third of humerus	65%
Distal third of humerus to biceps insertion	60%
Biceps insertion to wrist (depending on usefulness of stump)	50% to 60%

An impairment rating for amputation includes any disfigurement and loss of symmetry associated with the injury.

3.6.2 DENERVATION

TABLE 3-8 UPPER EXTREMITY - DENERVATION

Body Part	**PPI Rating**
Median nerve, complete at elbow	40%
Median nerve, complete at wrist	20%
Ulnar nerve, complete at elbow	10%
Ulnar nerve, complete at wrist	8%

3.6.3 VASCULAR IMPAIRMENTS

Any impairment stemming from a vascular injury to an upper extremity will be rated in accordance with the American Medical Association's *Guides to the Evaluation of Permanent Impairment*.

3.7 UPPER EXTREMITY: FINGERS, THUMB AND HAND

For the purpose of this Schedule, the term "finger" is restricted to the index, middle, ring and little fingers. The thumb is considered separately and is not a "finger" in this document. The term "digit" includes both fingers and thumb.

The rating for amputation(s) or loss of movement of a finger, thumb or hand follows a four stage process:

1. determine which hand chart to use (see Section 3.7.1);
2. assign the appropriate percentage to each impaired **joint** (from lateral (thumb); to medial (little finger);
3. add the percentages together along each digit (from proximal to distal);
4. Combine the values for each impaired digit using the Combined Values Chart (see Appendix "A").

In all cases of impaired digits, work from the proximal to distal phalanx.

An impairment rating for amputation includes any disfigurement and loss of symmetry associated with the injury.

3.7.1 DETERMINE WHICH HAND CHART TO USE

If a single finger is involved, the single finger chart is used.

For multiple finger impairments (amputation and/or loss of movement), use the following process:

1. Determine which hand chart to use by counting the number of fingers with ratable impairments (either through amputation or loss of movement) at the MCP level. Then in all subsequent steps, refer to the hand chart that corresponds to that count for the MCP level;
2. Count the number of fingers with ratable impairments (either through amputation or loss of movement) at or proximal to the PIP joints. Then in all subsequent steps, refer to the hand chart that corresponds to that count for the PIP level;
3. Count the number of fingers with ratable impairments (either through amputation or loss of movement) at or proximal to the DIP joints. Then in all subsequent steps, refer to the hand chart that corresponds to that count for the DIP level.

For amputations or loss of movement of the thumb, use the Thumb Chart.

3.7.2 AMPUTATIONS:

Once the appropriate hand chart has been determined, the remaining stages for rating of amputation(s) of a finger, thumb or hand are as follows:

1. Draw a diagram of the hand and mark the finger MCP, PIP, DIP and thumb CMC, MCP and IP joints

2. In all cases, work from the proximal to distal phalanx;
3. For the MCP level, assign the values to the impaired joints using the appropriate hand chart determined in 3.7.1;
4. Proceed to the PIP then DIP joints. In a similar fashion, assign values to each impaired joint using the appropriate hand chart determined in 3.7.1.
5. For partial amputations of a phalanx, the impairment rating is the percentage of the phalanx affected by amputation times (x) the rating for amputation of the whole phalanx;
    - For example, in the event of a single finger injury and therefore use of the single finger chart, a 50% amputation of the index finger distal phalanx would be rated as 50% of the 2% distal phalanx rating. This would result in a 1% impairment rating;
6. Add the percentage values for each joint along each impaired digit from proximal to distal. List the sum totals for each digit.
7. Sort the ratings for the digits from smallest to largest (ascending order). Combine the individual ratings for each digit using the Combined Values Chart (see Appendix "A").

3.7.3 LOSS OF MOVEMENT:

Once the appropriate hand chart has been determined, the remaining stages for rating the loss of movement of a finger, thumb or hand are as follows:

1. If a joint is ankylosed in a non-functional position, and surgical correction cannot be done, the rating for loss of active guided finger range of motion may be equal to the rating for amputation at that finger joint;
2. If the joint is in a functional position, the rating for the loss of mobility is, at maximum, one-half of the amputation rating at that level.
3. Draw a diagram of the hand and mark the finger MCP, PIP, DIP and thumb CMC, MCP and IP joints
4. The detailed hand charts used for amputations (see 3.7.1) are also used for loss of active guided movement of the fingers and thumb.
5. In all cases, work from the proximal to distal phalanx;
6. For the MCP level, assign the values to the impaired joints using the appropriate hand chart determined in 3.7.1;
7. Proceed to the PIP then DIP joints. In a similar fashion, assign values to each impaired joint using the appropriate hand chart determined in 3.7.1
8. The impairment rating for loss of movement is proportional to the amount of movement that is lost.

9. Add the percentage values for each joint along each impaired digit from proximal to distal. List the sum totals for each digit.
10. Sort the ratings for the digits from smallest to largest (ascending order). Combine the individual ratings for each digit using the Combined Values Chart (see Appendix "A").

Step 1	Measure the "Expected ROM" of the contralateral non-injured finger or thumb. Record in 5^0 increments. When the symmetric joint is rendered abnormal by pre or co-existing injury or disease, refer to Table 3-9 to determine the "Expected ROM", then continue with the steps below
Step 2	Determine the "Measured ROM" of the injured finger or thumb.
Step 3	Determine the difference between the Measured ROM and the Expected ROM.
Step 4	When a finger or thumb joint is in a functional position, the rating for deficits of finger mobility is one-half of what it would be for an amputation at that level. If a finger or thumb joint is ankylosed in a non-functional position, and surgical correction cannot be done, the rating for loss of active guided range of motion may equal the rating for amputation at that joint.
Step 5	The result is the PPI Rating.

3.7.4 Fingers and Hand: Expected range of movement when symmetric comparison is not practical

When the symmetric joint is rendered abnormal by pre or co-existing injury or disease, the "Expected ROM" is determined as follows:

TABLE 3-9 PARTIAL ROM LOSS OF FINGERS - EXPECTED ROM OF FINGERS

Finger	**Metacarpal Phalange (MCP)**	**Proximal Interphalangeal Phalange (PIP)**	**Distal Interphalangeal Phalange (DIP)**
Index	90^0	100^0	70^0
Ring	90^0	100^0	70^0
Middle	90^0	100^0	70^0
Little	90^0	100^0	70^0

TABLE 3-10 PARTIAL ROM LOSS OF FINGERS - EXPECTED ROM OF THUMB

Thumb	**Carpometacarpal (C.M.C)**	**Metacarpophalangeal (MP)**	**Interphalangeal (IP)**
Thumb	45^0	60^0	80^0

3.7.5 EXAMPLE #1: FINGER AMPUTATIONS

The following amputations are noted:

Injured Digit	Level of impairment	Type of Injury
thumb	no injury	None
index finger	PIP and DIP joint	Amputation
middle finger	MCP, PIP and DIP joints	Amputation
ring finger	no injury	None
little finger	no injury	None

Step 1: The appropriate hand charts to use at each joint level are as follows:

Impaired joints	Number of joints	Hand chart to use
MCP joints	1 (middle)	Single Finger
PIP joints	2 (index + middle)	Two Fingers
DIP joints:	2 (index + middle)	Two Fingers
Thumb	No injury	n/a

Steps 2 and 3: From the appropriate hand charts, assign the percentage values to each impaired digit from proximal to distal, and add the percentage values along each impaired digit. List the sum totals for each digit.

Digit Injured	Level of impairment	Impairment Rating Percentage			Sum
		MCP	PIP	DIP	
thumb	no injury	-	-	-	-
index finger	PIP and DIP joint	-	3.0%	3.0%	6.0% (Value B)
middle finger	MCP, PIP and DIP joints	0.8%	2.4%	2.4%	5.6% (Value A)
ring finger	no injury	-	-	-	-
little finger	no injury	-	-	-	-

Step 4: Finally, use the Combined Values Chart (see Appendix "A") to determine the total impairment rating:

Value A	Value B	Method	Result
5.6 => round to 6.0%	6.0%	Use the Combined Values Chart	12.0%
Total PPI Rating Calculation			12.0%

3.7.6 EXAMPLE #2: FINGER AMPUTATION AND LOSS OF MOVEMENT

The following amputations and loss of finger movements are noted:

Digit	Level of impairment	Type of Injury
thumb	Distal phalanx	25% amputation
index finger	MCP joint	Loss of Movement (50% ROM loss at MCP level; no ROM loss at PIP or DIP)
middle finger	all three joints	Amputation
ring finger	all three joints	Amputation
little finger	DIP joint	Amputation

Step 1: The appropriate hand charts to use at each joint level are as follows:

Impaired joints	Number of joints	Hand chart to use
MCP	3 (index + middle + ring)	Three Fingers
PIP	3 (index + middle + ring)	Three Fingers
DIP	4 (all fingers)	Four Fingers
Thumb		Thumb chart

Steps 2 and 3: From the appropriate hand charts, assign the percentage to each impaired finger and thumb, and determine the sum for each finger and the thumb:

Digit	Level of impairment	Impairment Rating Percentage			Sum
		CMC	MCP	IP (25% amputation)	
thumb	Distal phalanx	0	0	= 0.25 x10%	2.5%

Digit	Level of impairment	Impairment Rating Percentage			Sum
		MCP	PIP	DIP	
index finger	MCP (loss of ROM)	Max rating for loss of ROM =1/2 the amputation rating or 0.5 x 2% = 1% For a 50% loss of ROM, the rating is ½ of 1%=0.5%	0	0	0.5%
middle finger	MCP, PIP and DIP joints	1.6% (Three finger chart)	3.2% (Three finger chart)	4.0% (Four finger chart)	8.8%
ring finger	MCP, PIP, DIP joints	1.2% (Three finger chart)	2.4% (Three finger chart)	3.0% (Four finger chart)	6.6%
little finger	DIP joints	0	0	2.0% (Four finger chart)	2.0%

Step 4: Lastly, sort the values in ascending order and combine using the Combined Values Chart (see Appendix "A") to determine the total impairment rating, as follows:

Total PPI Rating Calculation			
Impaired Digit	**Rating**	**Method**	**Combined Rating**
index finger	0.5%	-	0.5%
little finger	2.0%	Add Values Rule	2.5%
thumb	2.5%	Add Values Rule	5.0%
ring finger	6.6% => round to 7.0%	Use the Combined Values Chart	12.0%
middle finger	8.8% => round to 9.0%	Use the Combined Values Chart	20.0%
Total PPI Rating Calculation			**20.0%**

3.7.7 HAND AMPUTATIONS

The impairment rating for the loss of a hand is the combined value of the amputated fingers, thumb and hand structures.

For example, the rating for the loss of a hand distal to the wrist follows the four stage process above (section 3.7.2), including the metacarpal ratings, and then uses the Combined Values Chart (see Appendix "A").

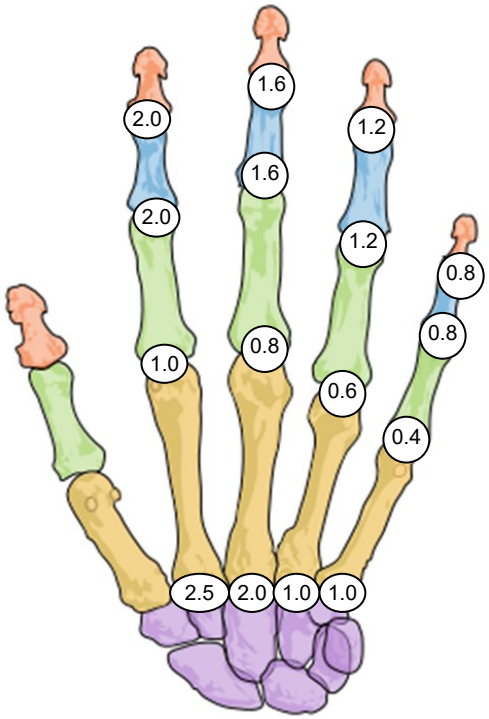
3.7.8 EXAMPLE #3: HAND AMPUTATION

If a hand is amputated distal to the wrist, the four finger hand chart and the thumb chart are used. Then the impairment ratings for each joint, as well as the metacarpals, are added together for each digit.

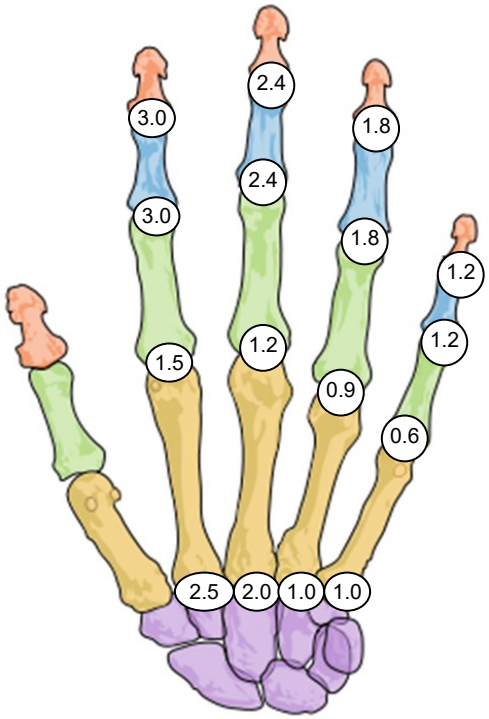
Digit Injured	**Level of impairment**	**Impairment Rating Percentage**				**Sum**
		Metacarpal	MCP	PIP	DIP	
thumb	Amputation	none	5%	5%	10%	20.0%
index finger	Amputation	2.5%	2.5%	5%	5%	15.0%
middle finger	Amputation	2.0%	2%	4%	4%	12.0%
ring finger	Amputation	1.0%	1.5%	3%	3%	8.5%
little finger	Amputation	1.0%	1%	2%	2%	6.0%

Lastly, sort the values in ascending order and combine using the Combined Values Chart (see Appendix "A") to determine the total impairment rating, as follows:

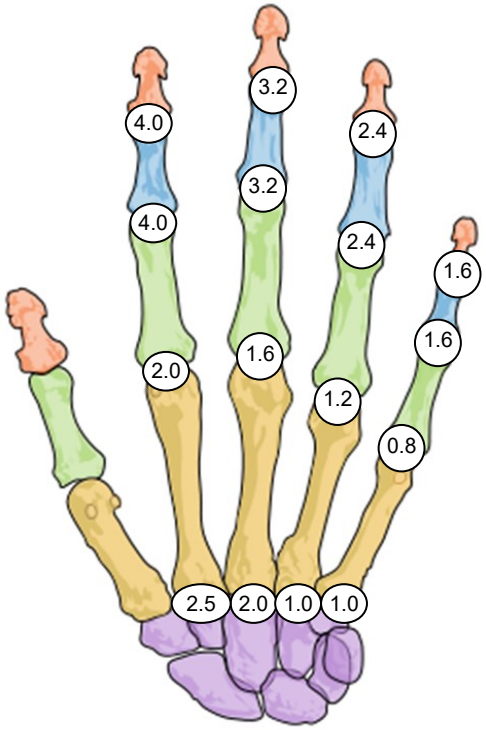
Total PPI Rating			
Impaired Digit	**Rating**	**Method**	**Combined Rating**
little finger	6.0%	-	6.0%
ring finger	8.5% => round to 9.0%	Use the Combined Values Chart	14.0%
middle finger	12.0%	Use the Combined Values Chart	24.0%
Index finger	15.0%	Use the Combined Values Chart	35.0%
thumb	20.0%	Use the Combined Values Chart	48.0%
Total PPI Rating			**48%**



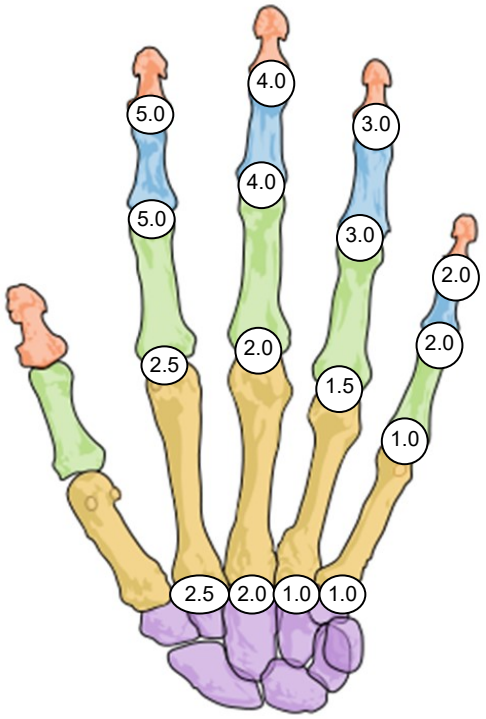
Single Finger



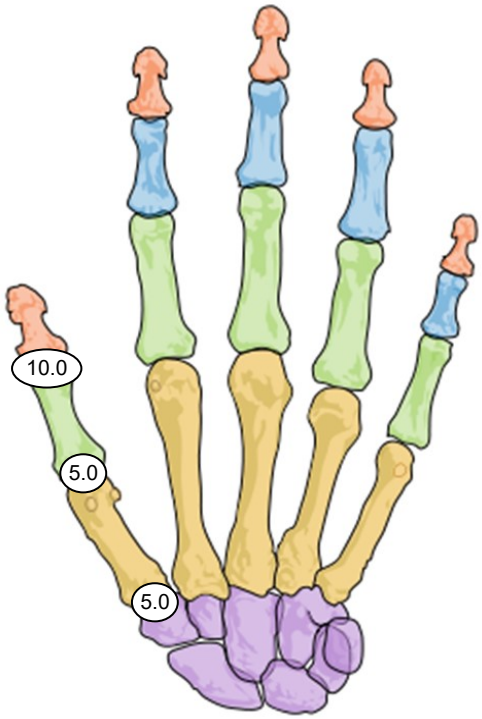
Two Finger



Three Finger



Four Finger



Thumb

4. LOWER EXTREMITY: RANGE OF MOVEMENT IMPAIRMENT

4.1 LOWER EXTREMITY: LOSS OF MOVEMENT

The impairment rating for loss of range of motion resulting from direct injury or related surgical procedures will be determined by the WCB, through clinical examination or assessment of the medical information on file, based on the loss of active guided movement of the affected joint(s).

For the loss of movement to be ratable using the Schedule (a "Scheduled rating"), the WCB must be satisfied that the end-feel at end range of the best attainable active guided movement was valid.

4.2 LOWER EXTREMITY: METHODOLOGY FOR DETERMINING RANGE OF MOTION

4.2.1 MEASUREMENT

Active guided range of motion will be measured to the nearest 5th degree increment. For example, a measurement of 60°, 61° or 62° will be recorded as 60°; a measurement of 63°, 64° or 65° will be recorded as 65°.

4.2.2 METHODOLOGY

TABLE 4-1 LOWER EXTREMITY METHOD

Step 1	Measure the "Expected ROM" of the symmetric non-injured side. Record in 5° increments. When the symmetric body part is rendered abnormal by pre or co-existing injury or disease, refer to section 4.5 to determine the "Expected ROM", then continue with the steps below.
Step 2	Determine the "Measured ROM" of the injured side. Record in 5° increments.
Step 3	Determine the difference between the Measured ROM and the Expected ROM.
Step 4	Multiply the difference by the Maximum Impairment Rating for the appropriate body part, as indicated in section 4.3.
Step 5	The result is the PPI rating for loss of ROM.

4.3 LOWER EXTREMITY: MAXIMUM IMPAIRMENT RATING

TABLE 4-2 LOWER EXTREMITY MAXIMUM IMPAIRMENT RATING

Body Part	**PPI Rating**
Hip, ankylosed in acceptable position	30.0%
Knee, ankylosed in acceptable position	25.0%
Ankle, ankylosed in acceptable position	15.0%
Great toe, ankylosis both joints	2.5%
Great toe, ankylosis distal joint	0.5%

4.4 LOWER EXTREMITY: MULTIPLE INJURIES - METHOD FOR APPLYING AN ENHANCEMENT FACTOR

A PPI Rating may be increased by an enhancement factor to reflect the functional loss from injury(s) to symmetric structures; for example, both eyes (vision), both ears (hearing), both wrists, multiple finger injuries, or both knees. The result is termed an enhancement rating.

An enhancement factor is built into the impairment rating for injuries involving both eyes (vision), both ears (hearing) and multiple fingers. There is no enhancement factor between injuries involving the thumb and fingers.

For an enhancement factor to be applied in relation to an injury of a joint, the following criteria must be met:

1. A WCB accepted injury impaired a joint of the body; and
2. The symmetric joint is also impaired; and
3. The impaired symmetric joint was accepted by the WCB under the same WCB claim or another Manitoba WCB claim.

When the above criteria have been met, the impairment rating for each of the symmetric joints is determined individually, following which the lesser of the symmetrical impairment ratings is multiplied by an enhancement factor of 50%.

The resulting enhancement rating is then **combined with** any other impairment rating(s) attributed to the workplace injury in the following manner:

- If the impaired symmetric body parts arise from the same claim, the enhancement rating is combined with the other ratings on that claim; or
- If the impaired symmetric body parts arise from different WCB Manitoba claims, the enhancement rating is combined with the impairment ratings on the most recent WCB Manitoba claim.

4.5 LOWER EXTREMITY: EXPECTED RANGE OF MOVEMENT WHEN SYMMETRIC COMPARISON IS NOT PRACTICAL

When the symmetric joint is rendered abnormal by pre or co-existing injury or disease, the "Expected ROM" is determined as follows:

TABLE 4-3 EXPECTED ROM - HIP

Hip	**ROM Degrees**
Flexion	100^0
Extension	30^0
Abduction	40^0
Adduction	20^0
Internal Rotation	40^0
External Rotation	50^0

TABLE 4-4 EXPECTED ROM - KNEE

Knee	**ROM Degrees**
Flexion	140^0
Extension	0^0

TABLE 4-5 EXPECTED ROM - ANKLE

Ankle	**ROM Degrees**
Dorsiflexion	20^0
Plantarflexion	40^0
Inversion	30^0
Eversion	20^0

4.6.1 AMPUTATIONS

TABLE 4-6 LOWER EXTREMITY AMPUTATIONS

Body Part	Injury	PPI Rating
Hip	Hip disarticulation or short stump requiring ischial bearing prosthesis	65.0%
Thigh	Thigh, site of election	50.0%
Knee	End bearing or short below-knee stump not suitable for conventional B.K. prosthesis	45.0%
Leg	Leg, suitable for B.K. prosthesis	35.0%
Leg	Leg, at ankle, end bearing	25.0%
Foot	Through foot	10% to 25%
Toes	All toes, total amputation	5.0%
Toe	Great toe, both phalanges	2.5%
Toe	Great toe, one phalanx	1.0%
Toes	Toes, other than great, each	0.5%

Knee	Patellectomy with femoral damage plus quadriceps graft repair (50% loss of knee joint function)	15.0%
Knee	Patellectomy with no quadriceps repair necessary and/or no damage to femur (30% loss of knee joint function)	8.0%

An impairment rating for amputation includes any disfigurement and loss of symmetry associated with the injury.

4.6.2 KNEE INSTABILITY

Body Part	Injury	PPI Rating
Knee	Instability not interfering with occupational or recreational function	1%
Knee	Instability that interferes with occupational or recreational function	3%
Knee	Instability that limits most occupational or recreational function	5%

4.6.3 ANATOMICAL SHORTENING OF THE LEG

Shortening of the leg will be determined by measurement via bony landmarks or radiologic assessment.

TABLE 4-7 LOWER EXTREMITY ANATOMICAL SHORTENING OF LEG

Anatomical Loss	PPI Rating
1" (2.5 cm)	1.5%
1.5" (4 cm)	3.0%
2" (5 cm)	6.0%
3" (7.5 cm)	15.0%

4.6.4 DENERVATION

TABLE 4-8 LOWER EXTREMITY DENERVATION

Body Part	PPI Rating
Peroneal nerve, complete	12.0%

4.6.5 VASCULAR IMPAIRMENTS

Any impairment stemming from a vascular injury to a lower extremity will be rated in accordance with the American Medical Association's *Guides to the Evaluation of Permanent Impairment*.

5. SPINE

The criteria used to determine the impairment rating for the spine, whether resulting from direct injury or related surgical procedures, involves measurement of active guided spinal mobility. For this purpose, the spine is divided into the cervical and the thoracolumbar regions.

For the loss of movement to be ratable using the Schedule (a "Scheduled rating"), the WCB must be satisfied that the end-feel at end range of the best attainable active guided movement was valid.

The impairment rating for partial loss of spinal movement is:

i. proportional to the percentage of movement that is lost for combined spinal flexion, extension, lateral flexion, and rotation compared to standard ROM's (see Table 5-1 below), multiplied by

ii. the percentage of the assigned ratings for complete immobility (see Table 5-3 below).

TABLE 5-1 SPINE - CERVICAL

Cervical Region	
Forward flexion	45^0
Backward extension	45^0
Right lateral flexion	45^0
Left lateral flexion	45^0
Right rotation	80^0
Left rotation	80^0

TABLE 5-2 SPINE - THORACIC & LUMBAR

Combined Thoracic & Lumbar Regions	
Forward flexion	90^0
Backward extension	30^0
Right lateral flexion	30^0
Left lateral flexion	30^0
Right rotation	30^0
Left rotation	30^0

TABLE 5-3 SPINE - LOSS OF MOVEMENT

Spinal Loss Of Movement	
Complete loss of total spine mobility	60.0%
Complete loss of cervical spine mobility	30.0%
Complete loss of thoracic and lumbar spine mobility	30.0%

6. PELVIC REGION

The sequelae of fractures in the pelvic region (including rami, ilium, innominate, symphysis, sacrum, coccyx, and acetabulum) that result in a decreased range of movement, primarily of the hip, may be rated in accordance with the relative loss of active guided mobility of the hip.

7. CAUDA-EQUINA LESION

Refer to impairment of the nervous system.

8. JAW

Impairment ratings in regard to injury of the temporo-mandibular joint are intended to reflect primarily loss of movement and/or function, but may include consideration for some degree of cosmetic deformity.

TABLE 8-1 JAW

Internal derangement, temporo-mandibular joint	up to 10.0%
Loss of mandibular protrusion	2.0%
Malocclusion, (improper bite) TPD	1.5%

9. DISFIGUREMENT

When a worker is permanently disfigured as a result of an injury, the WCB may determine that the disfigurement be considered a permanent impairment to which the worker is entitled to an impairment benefit.

Disfigurement is an altered or abnormal appearance. This may be an alteration of color, shape, or structure, or a combination of these.

The rating for disfigurement is done by the WCB and the degree of disfigurement is determined on a judgmental basis. The maximum rating for disfigurement, in extreme cases, is 25%. Typical ratings for disfigurement are between 1 and 5%.

In order to maintain consistency in ratings for disfigurement, and to make the ratings as objective as possible, the WCB will make reference to a folio of disfigurement ratings established in previous cases.

Contractures resulting in loss of range of motion should be rated in accordance with the sections on Upper Extremity Impairments (section 3) and Lower Extremity Impairments (section 4).

10. REPRODUCTIVE AND URINARY SYSTEM

10.1 LOSS OF GONADS AND STERILITY

Gonad refers to testis or ovary. Loss of a gonad is considered as a disfigurement and rated at 2%. The loss of two gonads is rated at 10% and this includes an enhancement of 1%, and 5% for loss of fertility.

TABLE 10-1 REPRODUCTIVE AND URINARY

Loss of one gonad	2.0%
Loss of one gonad; and resultant sterility (2% and 5%)	7.0%
Loss of two gonads; and resultant sterility (2%, 2%, 1% & 5%)	10%
Direct Trauma or Neurological Damage resulting in Impotence (following Urologists report)	Up to 10%
Loss of one kidney	10.0%

11. HEMOPOIETIC AND LYMPHATIC SYSTEM

TABLE 11-1 SPLEEN

Loss of Spleen	1.0%

12. GASTRO-INTESTINAL SYSTEM

TABLE 12-1 BOWEL

Partial loss of bowel	1.0%

13. IMPAIRMENT OF SPECIAL SENSES

13.1 SENSE OF SMELL

TABLE 13-1 SMELL

Loss of sense of smell (including impairment of sense of taste)	2.5%

13.2 IMPAIRMENT OF VISION

TABLE 13-2 IMPAIRMENT OF VISION

Enucleation	18.0%
Total loss of vision in one eye	16.0%
Cataract (Impairment to be rated on visual acuity basis using the partial visual loss schedule)	12.0%
Aphakia of one eye (without correction)	20.0%
Double aphakia (without correction)	
Phakia and double aphakia - following artificial lens implant or other corrective measure (impairment to be rated on visual acuity basis using the partial visual loss schedule with an appropriate allowance to cover loss of accommodation)	% of impairment as applicable
Hemianopia, right field	25.0%
Hemianopia, left field	25.0%
Bitemporal hemianopia	30.0%
Binasal hemianopia	24.0%
Diplopia, all fields	10.0%
Scotomata, depending on location and extent up to	16.0%

13.3 PARTIAL VISION LOSS

TABLE 13-3 PARTIAL VISION LOSS

20/30	0%
20/40	1.0%
20/50	2.0%
20/60	4.0%
20/80	6.0%
20/100	8.0%
20/200	14.0%
Less than 20/200	16.0%
Note: *Snellen's test for distance after correction with conventional lenses*	
Iridectomy with corrected vision	1.0 to 2.0%
Dry eyes needing artificial tears	2.0%

13.4 LOSS OF ACCOMMODATION

TABLE 13-4 LOSS OF ACCOMMODATION (UP TO 5.0%)

The disability allowance to cover loss of accommodation will be based on the age of the claimant. This adjustment accounts for the natural deterioration of the eyes ability to accommodate with age.	
40 years and under	5.0%
41-45	4.0%
46-50	3.0%
51-55	2.0%
56-60	1.0%

13.5 TABLES OF PERMANENT IMPAIRMENT CONCERNING LOSS OF VISION IN ONE EYE OR BOTH FOLLOWING CORRECTION

TABLE 13-5 LOSS OF VISION

Loss of sight in one eye	16.0%
Enucleation	18.0%
Loss of sight in both eyes	100%

TABLE 13-6: SNELLEN SCALE

	20/30 6/9	20/40 6/12	20/50 6/15	20/60 6/18	20/80 6/24	20/100 6/30	20/200 6/60	20/400 6/120	Blind
20/30 6/9	0	1	2	4	6	8	12	14	16
20/40 6/12	1	6.3	7.3	9.3	11.3	13.3	17.3	19.3	21.3
20/50 6/15	2	7.3	12.5	14.5	16.5	18.5	22.5	24.5	26.5
20/60 6/18	4	9.3	14.5	25	27	29	33	35	37
20/80 6/24	6	11.3	16.5	27	37.5	39.5	43.5	45.5	47.5
20/100 6/30	8	13.3	18.5	29	39.5	50	54	56	58
20/200 6/60	12	17.3	22.5	33	43.5	54	75	77	79
20/400 6/120	14	19.3	24.5	35	45.5	56	77	87.5	89.5
Blind	16	21.3	26.5	37	47.5	58	79	89.5	100

The permanent impairment shall always be following optical correction with spectacles. If one eye is enucleated, add 2% to the degree of permanent impairment obtained since the loss of sight in one eye is 16% and the enucleation is 18%. When a one-eyed claimant loses their other eye, the degree of permanent impairment shall be rated at 100%.

14. IMPAIRMENT OF HEARING

See Schedule B.

15. VIBRATION-INDUCED WHITE FINGER DISEASE

The evaluation is performed by the WCB and a judgment rating is assigned based on symptoms and objective findings as outlined by the WCB. The following is a simple classification system for percentage of impairment. The combined tables should be used to establish the total impairment when the condition is bilateral.

1.	Confirmed diagnosis of Vibration Induced White Finger Disease. No clinical or investigative objective evidence of arterial occlusion as tested by either Allen's test, digital pressures, or angiography.	1%
2.	Confirmed diagnosis of Vibration Induced White Finger Disease with clinical or investigative objective evidence of arterial occlusion as tested by either Allen's test, abnormal digital pressures, or angiography.	5%
3.	Confirmed diagnosis of Vibration induced White Finger Disease of a severe nature with digital atrophic changes or gangrene. The rating will be judged in accordance with the WCB's assessment based on a percentage of impairment of the whole hand.	up to 50%

16. NERVOUS SYSTEM

Determination of impairment is based on clinical findings indicative of brain or spinal cord damage, or peripheral nervous system injuries other than those specifically rated elsewhere in the Schedule.

The percentages of multiple impairments are combined by using the Combined Values Chart, and the overall residual impairment rating resultant from a particular injury cannot exceed 100%.

16.1 SPINAL CORD - BRAIN

TABLE 16-1 SPINAL CORD - BRAIN

Quadriplegia	up to 100%
Paraplegia	up to 100%
Hemiplegia	up to 100%
Cauda Equina Lesion	up to 25%

Paraparesis and hemiparesis may be rated on the combined values of associated loss of functions, as derived from the American Medical Association's *Guides to the Evaluation of Permanent Impairment*.

16.2 NERVOUS SYSTEM: STATION AND GAIT

TABLE 16-2 STATION AND GAIT

Ability to stand and walk, but has difficulty with elevation, steps and distances	5 to 15%
Ability to stand, but walking limited to level surfaces	20 to 30%
Ability to stand but cannot walk	35 to 45 %
Ability to stand with difficulty, and cannot walk	50 to 60%
Cannot stand without prosthesis or help	65%

16.3 NERVOUS SYSTEM: UPPER EXTREMITIES

TABLE 16-3 NERVOUS SYSTEM - UPPER EXTREMITIES

Can use extremity for self care, grasping and holding; but has difficulty with finger dexterity	0 to 5%
Complete loss of digital dexterity	10 to 15%
Can use extremity with difficulty	20 to 25%
Cannot use extremity	30 to 40%

16.4 NERVOUS SYSTEM: URINARY BLADDER FUNCTION

TABLE 16-4 NERVOUS SYSTEM - URINARY

Impaired urgency	0 to 5%
Good reflex activity and no voluntary control	10 to 15%
No reflex or voluntary control	20 to 30%

16.5 NERVOUS SYSTEM: ANORECTAL FUNCTION

TABLE 16-5 NERVOUS SYSTEM - ANORECTAL FUNCTION

Reflex regulation but no voluntary control	5 to 10%
No reflex regulation or voluntary control	10 to 15%

16.6 NERVOUS SYSTEM: SEXUAL FUNCTION

TABLE 16-6 NERVOUS SYSTEM - SEXUAL FUNCTION

Sterility	5%
Impotence	Up to 10%

16.7 NERVOUS SYSTEM: POSTURAL VERTIGO

TABLE 16-7 NERVOUS SYSTEM - POSTURAL VERTIGO

up to 10%

17. BRAIN

17.1 ORGANIC BRAIN SYNDROME

Defects may include defects in orientation; ability to understand concepts; memory; judgment; and decision process.

TABLE 17-1 ORGANIC BRAIN SYNDROME

Impairment of complex integrated cerebral functions, ability to carry out activities of daily living	0 to 10%
Ability to carry out most activities of daily living with some difficulty	10 to 15%
Ability to carry out most activities but requires some supervision and/or direction	15 to 25%
Ability to carry out most activities with continuous supervision	35 to 40%
Activities limited to directed care under confinement	60 to 70%
Inability to care for self in any situation	85 to 100%

17.2 EPISODIC NEUROLOGICAL DISORDERS (SEIZURES)

The criteria for evaluating such neurological disorders as syncope and epilepsy and based on the frequency, severity and duration of attacks as they affect performance of daily activities.

TABLE 17-2 SEIZURES

Slight severity and under control of medication	0 to 5%
Slight severity and sufficiently under control to perform most activities	5 to 10%
Moderate severity and frequency, but can perform most activities	10 to 15%
Sufficiently severe to interfere and restrict many daily activities	20 to 30%
Such severity and constancy to limit activities to supervised or protected situations	50 to 70%
Totally incapacitating in terms of daily activities	85 to 100%

17.3 DENERVATION

TABLE 17-3 DENERVATION

Peroneal nerve, complete	12%
Median nerve, complete at elbow	40%
Median nerve, complete at wrist	20%
Ulnar nerve, complete at elbow	10%
Ulnar nerve, complete at wrist	8%

17.4 HORNER'S SYNDROME

The syndrome is the result of a disruption of the sympathetic pathways of the brachial plexus at the C7 level, and the clinical features are:

a) partial ptosis (drooping of upper eyelid)

b) miosis (small pupil)

c) anhydrosis (lack of sweating)

d) apparent enophthalmos (depression of eyeball into socket)

TABLE 17-4 HORNER'S SYNDROME

1.0%

18. MYOCARDIAL INFARCTION - IMPAIRMENT RATING

The impairment rating of cardiac function following a workplace injury will be determined by the WCB, through clinical examination or assessment of the medical information on file in accordance with the following parameters:

- Sub-section (not numbered) titled "Methodology for Determining the Grade in an Impairment Class", pages 50 - 51, in the American Medical Association's *Guides to the Evaluation of Permanent Impairment*, *Sixth Edition,* Fourth Printing: October 2014 (including Table 4-4 on page 50);
- The following table on classification of patient symptoms:

TABLE 18-1: THE NEW YORK HEART ASSOCIATIONS (NYHA) FUNCTIONAL CLASSIFICATION OF SYMPTOMS

Class	Patient Symptoms
I	No limitations of physical activity. Ordinary physical activity does not cause undue fatigue, palpitation, dyspnea (shortness of breath).
II	Slight limitation of physical activity. Comfortable at rest. Ordinary physical activity results in fatigue, palpitation, dyspnea (shortness of breath).
III	Marked limitation of physical activity. Comfortable at rest. Less than ordinary activity causes fatigue, palpitation, or dyspnea.
IV	Unable to carry on any physical activity without discomfort. Symptoms of heart failure at rest. If any physical activity is undertaken, discomfort increases.
Footnote:	Reprinted with permission © 1994, American Heart Association, Inc.

- Regarding myocardial infarction, the following Table 18-2 titled "Criteria for Rating Permanent Impairment due to Myocardial Infarction" (as modified from Table 4-7, page 59, in the American Medical Association's *Guides to the Evaluation of Permanent Impairment*, *Sixth Edition,* Fourth Printing: October 2014).

TABLE 18-2: CRITERIA FOR RATING PERMANENT IMPAIRMENT DUE TO MYOCARDIAL INFARCTION

Myocardial Infarction					
CLASS	**Class 0**	**Class 1**	**Class 2**	**Class 3**	**Class 4**
WHOLE PERSON IMPAIRMENT RATING (%)[a]	0	2%-10%	11%-23%	24%-40%	45%-65%
SEVERITY GRADE (%)		2 4 6 8 10 (A B C D E) (Minimal)	11 14 17 20 23 (A B C D E) (Mild)	24 28 32 36 40 (A B C D E) (Moderate)	45 50 55 60 65 (A B C D E) (Severe)
HISTORY	Asymptomatic No medication	Asymptomatic on continuous treatment or occasional, mild HF symptoms on treatment NYHA class I	Mild HF symptoms on therapy or intermittent moderate HF symptoms on treatment NYHA class II	Moderate HF symptoms on therapy or intermittent severe HF symptoms on treatment NYHA class III	Severe symptoms of HF at rest or intermittent HF decompensation on treatment NYHA Class IV
PHYSICAL FINDINGS [b]	Normal physical exam	Minimal signs of HF	Mild signs of HF	Moderate signs of HF	Severe signs of HF
OBJECTIVE TEST RESULTS **(Key Factor)**	Normal EF (EF ≥ 55%)	Minimally impaired LV function (EF 51-54%)	Mildly impaired LV function (EF 41-50%)	Moderately impaired LV function (EF 30-40%)	Severely impaired LV function (EF <30%)

Footnotes:

Definitions:

- NYHA indicates New York Heart Association;
- HF indicates heart failure;
- LV indicates left ventricular;
- EF indicates ejection fraction.
- JVD indicates jugular venous distension.

[a] If all 3 factors are class 4, the impairment rating is 65%.

[b] For example, rales, JVD, S_3, and peripheral edema.

Any burden of treatment associated with impairment of cardiac function is accounted for in the existing impairment rating and must not be the basis for an additional impairment rating.

19. RESPIRATORY (INDUSTRIAL LUNG DISEASES) - IMPAIRMENT RATING

The impairment rating of respiratory function following a workplace injury will be determined by the WCB, through clinical examination or assessment of the medical information on file in accordance with the following sections of the American Medical Association's *Guides to the Evaluation of Permanent Impairment*, *Sixth Edition,* Fourth Printing: October 2014:

- Section 5.5, pages 86 - 87 (including Table 5-3 on page 86);
- Regarding pulmonary dysfunction, the following Table 19-1 titled "Criteria for Rating Permanent Impairment due to Pulmonary Dysfunction" (as modified from Table 5-4, page 88, in the American Medical Association's *Guides to the Evaluation of Permanent Impairment*, *Sixth Edition,* Fourth Printing*:* October 2014).
- Regarding occupational asthma, the following Table 19-2 titled " Impairment Classification of Dyspnea" (as modified from Table 5-1, page 79, in the American Medical Association's *Guides to the Evaluation of Permanent Impairment*, *Sixth Edition,* Fourth Printing*:* October 2014);
- Regarding occupational asthma, the following Table 19-3 titled "Criteria for Rating Permanent Impairment due to Asthma" (as modified from Table 5-5, page 90, in the American Medical Association's *Guides to the Evaluation of Permanent Impairment*, *Sixth Edition,* Fourth Printing*:* October 2014);
- Section 5.11, pages 93 - 95;

TABLE 19-1: CRITERIA FOR RATING PERMANENT IMPAIRMENT DUE TO PULMONARY DYSFUNCTION

Pulmonary Dysfunction [a]					
CLASS	**Class 0**	**Class 1**	**Class 2**	**Class 3**	**Class 4**
WHOLE PERSON IMPAIRMENT RATING (%)	0	2%-10%	11%-23%	24%-40%	45%-65%
SEVERITY GRADE (%)		2 4 6 8 10 (A B C D E) (Minimal)	11 14 17 20 23 (A B C D E) (Mild)	24 28 32 36 40 (A B C D E) (Moderate)	45 50 55 60 65 (A B C D E) (Severe)
HISTORY	No current symptoms ***and/or*** intermittent Dyspnea that does not require treatment	Dyspnea controlled with intermittent or continuous treatment ***or*** intermittent, mild Dyspnea despite continuous treatment	Constant mild Dyspnea despite continuous treatment ***or*** intermittent, moderate Dyspnea despite continuous treatment	Constant moderate Dyspnea despite continuous treatment ***or*** intermittent, severe Dyspnea despite continuous treatment	Constant severe Dyspnea despite continuous treatment ***or*** intermittent, extreme Dyspnea despite continuous treatment
PHYSICAL FINDINGS	No current signs of disease	Physical findings not present with continuous treatment ***or*** intermittent, mild physical findings	Constant mild physical findings despite continuous treatment ***or*** intermittent, moderate findings	Constant moderate physical findings despite continuous treatment ***or*** intermittent, severe findings	Constant severe physical findings despite continuous treatment ***or*** intermittent, extreme findings
OBJECTIVE TESTS (Key Factor)					
FVC	FVC ≥80% of predicted ***and***	FVC between 70% and 79% of predicted ***or***	FVC between 60% and 69% of predicted ***or***	FVC between 50% and 59% of predicted ***or***	FVC below 50% predicted ***or***
FEV_1	FEV_1 ≥ 80% of predicted ***and***	FEV_1 between 65% and 79% of predicted ***or***	FEV_1 between 64% and 55% of predicted ***or***	FEV_1 between 45% and 54% of predicted ***or***	FEV_1 below 45% of predicted ***or***
FEV_1/FVC (%)	FEV_1,/FVC(%) > lower limits of normal and/or >75% of predicted ***and***				
DLco	DLco ≥75% of predicted ***or***	DLco between 65% and 74% of predicted ***or***	DLco between 55% and 64% of predicted ***or***	DLco between 45% and 54% of predicted ***or***	DLco below 45% of predicted ***or***
VO_2 max	>25 mL/(kg min) **Or** >7.1 METs	between 22 and 25 mL/(kg min) ***or*** 6.1-7.1 METs	between 21 and 18 mL/kg min) ***or*** 5.1-6.0 METs	between 17 and 15 mL/(kg min) ***or*** 4.3-5.0 METs	15 mL/(kg min) ***or*** <4.3 METs

Footnote:

[a] FVC indicates forced vital capacity; FEV_1, forced expiratory volume in the first second; DLco diffusion capacity for carbon monoxide; VO_2 max, maximum oxygen consumption; and METs, metabolic equivalents (multiples of resting oxygen uptake).

TABLE 19-2: IMPAIRMENT CLASSIFICATION OF DYSPNEA

Severity [a]	**Definitions and Questions**
Mild	Do you have to walk more slowly on level ground than people of your age because of breathlessness?
Moderate	Do you have to stop for breath when walking at your own pace on level ground?
Severe	Do you ever have to stop for breath after walking about 90 m (100 yd) or for a few minutes on level ground?
Very Severe	Are you too breathless to leave the house, or breathless on dressing or undressing?

Footnote:

[a] The person's lowest level of physical activity and exertion that produces breathlessness denotes the severity of dyspnea.

TABLE 19-3: CRITERIA FOR RATING PERMANENT IMPAIRMENT DUE TO ASTHMA

Asthma					
CLASS	**Class 0**	**Class 1**	**Class 2**	**Class 3**	**Class 4**
WHOLE PERSON IMPAIRMENT RATING (%)	0	2%-10%	11%-23%	24%-40%	45%-65%
SEVERITY GRADE (%)		2 4 6 8 10 (A B C D E) (Minimal)	11 14 17 20 23 (A B C D E) (Mild)	24 28 32 36 40 (A B C D E) (Moderate)	45 50 55 60 65 (A B C D E) (Severe)
CLINICAL PARAMETERS (MINIMUM MEDICATION NEED, FREQUENCY OF ATTACKS, ETC)	No medication required	Occasional bronchodilator use (not daily use)	Daily low-dose inhaled steroid (<500 mcg per day of beclomethasone or equivalent)	Daily medium or high-dose (500 to 1000 mcg per day) inhaled steroid and/or short periods of systemic steroids and a long acting bronchodilator. Daily use of steroids, systematic and inhaled, and daily use of maximum bronchodilators	Asthma not controlled by treatment
MAXIMUM POSTBRONCHO-DILATORFEB, FEV_1 PERCENTAGE PREDICTED[a, b]	>80%	70%-80%	60%-69%	50%-59%	<50%
OBJECTIVE TESTS FOR DEGREE OF AIRWAY HYPERRESPON-SIVENESS PC_{20} mg/mL[a]	≥6	<6 - >3	3 - >0.5	0.5 - 0.25	0.24 - 0.125

Footnotes:

[a] The "key" factor PC_{20} indicates and measures the degree of airway hyperresponsiveness. Alternatively, the postbronchodilator FEV_1 percentage predicted is used as a Key factor.

[b] Percent predicted FEV_1, after albuteral therapy

Any burden of treatment associated with impairment of respiratory function is accounted for in the existing impairment rating and must not be the basis for an additional impairment rating.

20. MENTAL HEALTH - IMPAIRMENT RATING

The impairment rating of psychological function following a mental health diagnosis that has been accepted by the WCB will be determined by the WCB through clinical examination or assessment of the medical information on file.

The impairment rating will be determined in accordance with specific scales, methods, tables and scores from the American Medical Association's *Guides to the Evaluation of Permanent Impairment*, *Sixth Edition,* Fourth Printing: October 2014, Chapter 14, "Mental and Behavioral Disorders".

The scales utilized in determining a psychological impairment rating are as follows:

- Brief Psychiatric Rating Scale (BPRS) - an instrument for assessing the presence and severity of symptoms and signs in an individual with a mental health illness.
- Global Assessment of Functioning Scale (GAF) - a rating scale for evaluating overall symptoms, occupational function, and social function.
- Psychiatric Impairment Rating Scale (PIRS) - a measuring system of different areas of function in individuals diagnosed with a psychological condition.

The method for determining the impairment rating is outlined in section 20.2 below.

Tables that must be completed for each step of the impairment rating process are listed in Section 20.2 below and reproduced in Sections 20.3, 20.4 and 20.5 and 20.6 below.

20.1 BASIC CONSIDERATIONS:

1. Whether there is one or more mental health diagnoses, there is only one impairment rating.

2. An impairment rating by itself does not indicate whether an individual can work or not.

3. The existence of a pre-existing mental health condition will not negate an injured worker's entitlement to an impairment rating arising from a WCB accepted mental health diagnosis.

4. When evaluating impairment associated with a mental health condition, the examiner is obligated to consider what portion of the impairment is due to the WCB accepted mental health diagnosis versus the portion attributable to a pre-existing mental health condition. The worker is eligible for an impairment rating based on the difference between the total rating and the rating assigned to the pre-existing mental health condition. The WCB will assign a rating to the pre-existing mental health condition based on the best information available.

5. When practical, the WCB will assign a rating for the pre-existing condition based on the Schedules of policy 44.90.10 or other impairment schedules (e.g. the American Medical Association (AMA) Guides to the Evaluation of Permanent Impairment). If this is not possible, the WCB will determine the impairment rating for the pre-existing condition as follows:

    i. A pre-existing mental health condition that is determined to be minor will be assigned a 0% impairment rating;

    ii. A pre-existing mental health condition that is determined to be major, as described below, will be assigned an impairment rating equivalent to 50% of the total mental health impairment rating.

    A pre-existing condition is considered to be major for the purpose of the impairment rating if:

    i. The current impairment of psychological function was/is significantly affected by the pre-existing condition; or

    ii. The WCB has determined that the workplace injury enhanced the pre-existing condition; or; or

    iii. The WCB has determined that the pre-existing condition contributed to the workplace injury.

    The presence of a co-existing condition will be treated the same as a pre-existing condition for the purpose of the PPI determination.

20.2 METHOD:

The WCB's Mental Health impairment rating will be made in accordance with the following parameters from the American Medical Association's *Guides to the Evaluation of Permanent Impairment, Sixth Edition,* Fourth Printing: October 2014, on pages 357 - 360 (AMA Guides):

Step One: Complete the Brief Psychiatric Rating Scale

- Complete Table 20-1, "Brief Psychiatric Rating Scale" (BPRS Form); then,
- Determine the PBRS Score from Table 20-2, "Impairment Score from the Brief Psychiatric Rating Scale" (BPRS).

Step Two: Complete the Global Assessment of Functioning Scale

- Complete Table 20-3, "Impairment Score from the Global Assessment of Functioning Scale" (GAF), and then determine the GAF Impairment Score from the same Table 20-3;

Step Three: Complete the Psychiatric Impairment Rating Scales

- Complete Tables 20-4 to Table 20-9 inclusive; then,
- List the scores from the above Tables in ascending order; then,
- Select the two middle scores from the above list and add them together; then,
- Determine the PIRS Impairment Score in Table 20-10.

Step Four: Determine the Final Rating of Mental Health Impairment

- List the BPRS, GAF, and PIRS Impairment Scores in Table 20-11; then,
- Determine the Final Rating as the middle value of the BPRS, GAF, and PIRS impairment scores.

TABLE 20-1: BRIEF PSYCHIATRIC RATING SCALE (BPRS FORM)

BPRS Form[a]								
Symptom Construct[b]		**Scoring[c]**						
1	Somatic concern	1	2	3	4	5	6	7
2	Anxiety	1	2	3	4	5	6	7
3	Depression	1	2	3	4	5	6	7
4	Suicidality	1	2	3	4	5	6	7
5	Guilt	1	2	3	4	5	6	7
6	Hostility	1	2	3	4	5	6	7
7	Elevated Mood	1	2	3	4	5	6	7
8	Grandiosity	1	2	3	4	5	6	7
9	Suspiciousness	1	2	3	4	5	6	7
10	Hallucinations	1	2	3	4	5	6	7
11	Unusual thought content	1	2	3	4	5	6	7
12	Bizarre behavior	1	2	3	4	5	6	7
13	Self-neglect	1	2	3	4	5	6	7
14	Disorientation	1	2	3	4	5	6	7
15	Conceptual disorganization	1	2	3	4	5	6	7
16	Blunted affect	1	2	3	4	5	6	7
17	Emotional withdrawal	1	2	3	4	5	6	7
18	Motor retardation	1	2	3	4	5	6	7
19	Tension	1	2	3	4	5	6	7
20	Uncooperativeness	1	2	3	4	5	6	7
21	Excitement	1	2	3	4	5	6	7
22	Distractibility	1	2	3	4	5	6	7
23	Motor hyperactivity	1	2	3	4	5	6	7
24	Mannerisms and posturing	1	2	3	4	5	6	7
a	BPRS indicates Brief Psychiatric Rating Scale							
b	Construct items 1 to 14 are rated on the basis of the individual's self-report.							
	Note that items 7, 12, and 13 are also rated on the basis of observed behavior.							
	Construct items 5 to 24 are rated on the basis of observed behavior and speech. Sum the total of the 24 scores.							
c	Scores:							
	1 - not present	2 - very mild						
	3 - mild	4 - moderate						
	5 - moderately severe	6 - severe						
	7 - extremely severe							

TABLE 20-2: IMPAIRMENT SCORE FROM THE BRIEF PSYCHIATRIC SCALE (BPRS)

Impairment Score from the Brief Psychiatric Rating Scale (BPRS)	
BPRS Summed Score	**BPRS Impairment Score**
24-30	0%
31-35	5%
36-40	10%
41-45	15%
46-50	20%
51-60	30%
61-70	40%
71-168	50%

TABLE 20-3: IMPAIRMENT SCORE FROM THE GLOBAL ASSESSMENT OF FUNCTIONING SCALE (GAF)

Impairment Score from the Global Assessment of Functioning Scale (GAF)		
GAF	**Description**	**GAF Impairment Score**
91-100	No symptoms, superior functioning in a wide range of activities, life's problems never seem to get out of hand, is sought out by others because of his or her many positive qualities	0%
81-90	Absent or minimal symptoms (eg, mild anxiety before an exam); good functioning in all areas, interested and involved in a wide range of activities, socially effective, generally satisfied with life, no more than everyday problems or concerns (eg, an occasional argument with family members)	0%
71-80	If symptoms are present, they are transient and expectable reactions to psychosocial stressors (eg, difficulty concentrating after family argument); no more than slight impairment in social, occupational, or school functioning (eg, temporarily falling behind in school work)	0%
61-70	Some mild symptoms (eg, depressed mood and mild insomnia) **or** some difficulty in social, occupational, or school functioning (eg, occasional truancy, or theft within the household), but generally functioning pretty well, has some meaningful interpersonal relationships	5%
51-60	Moderate symptoms (eg, flat affect and circumstantial speech, occasional panic attacks) **or** moderate difficulty in social, occupational, or school functioning (eg, few friends, conflicts with coworkers)	10%
41-50	Serious symptoms (eg, suicidal ideation, severe obsessional rituals, frequent shoplifting) **or** any serious impairment in social, occupational, or school functioning (eg, no friends, unable to keep a job)	15%

31-40	Some impairment in reality testing or communication (eg, speech is at times illogical, obscure, or irrelevant) **or** major impairment in several areas, such as work or school, family relations, judgment, thinking, or mood (eg, depressed adult avoids friends, neglects family, and is unable to work)	20%
21-30	Behavior is considerably influenced by delusions or hallucinations **or** serious impairment in communication or judgment (eg, sometime incoherent, acts grossly inappropriately, suicidal preoccupation) **or** inability to function in almost all areas (eg, stays in bed all day; no job, home or friends)	30%
11-20	Some danger of hurting self or others (eg, suicide attempts without clear expectation of death, frequently violent, manic excitement) **or** occasionally fails to maintain minimal personal hygiene (eg, smears feces) **or** gross impairment in communication (eg, largely incoherent or mute)	40%
1-10	Persistent danger of severely hurting self or others (eg, recurrent violence) **or** persistent inability to maintain minimal personal hygiene **or** serious suicidal act with clear expectation of death	50%

TABLE 20-4: SELF CARE, PERSONAL HYGIENE, AND ACTIVITIES OF DAILY LIVING

Self-Care, Personal Hygiene, and Activities of Daily Living	
1	No deficit, or minor deficit attributable to the normal variation in the general population.
2	Mild impairment. Able to live independently; looks after self adequately, although may look unkempt occasionally; sometimes misses a meal or relies on take-out food.
3	Moderate impairment. Can't live independently without regular support. Needs prompting to shower daily and wear clean clothes. Does not prepare own meals, frequently misses meals. Family member or community nurse visits (or should visit) 2-3 times per week to ensure minimum level of hygiene and nutrition.
4	Severe impairment. Needs supervised residential care.
5	Totally impaired. Needs assistance with basic functions, such as feeding and toileting.

TABLE 20-5: ROLE FUNCTIONING, SOCIAL AND RECREATIONAL ACTIVITIES

Role Functioning, Social and Recreational Activities	
1	No deficit, or minor deficit attributable to the normal variation in the general population. Regularly participates in social activities that are age, sex and culturally appropriate. May belong to clubs or associations and is actively involved with these.
2	Mild impairment. Occasionally goes out to such events without needing a support person, but does not become actively involved (e.g. dancing, cheering favorite team).
3	Moderate impairment. Rarely goes out to such events, and mostly when prompted by family or close friend. Will not go out without a support person. Not actively involved, remains quiet and withdrawn.
4	Severe impairment. Never leaves place of residence. Tolerates the company of family member or close friend but will go to a different room or place when others come to visit family or flat mate/roommate.
5	Totally impaired. Cannot tolerate living with anybody, extremely uncomfortable when visited by close family member.

TABLE 20-6: TRAVEL

Travel	
1	No deficit, or minor deficit attributable to the normal variation in the general population. Can travel to new environments without supervision.
2	Mild impairment. Can travel without support person but only in a familiar area such as local shops or a neighbor.
3	Moderate impairment. Cannot travel away from own residence without support person. Problems may be due to excessive anxiety or cognitive impairment.
4	Severe impairment. Finds it extremely uncomfortable to leave own residence even with a trusted person.
5	Totally impaired. May require 2 or more persons to supervise when travelling.

TABLE 20-7: INTERPERSONAL RELATIONSHIPS

Interpersonal Relationships	
1	No deficit, or minor deficit attributable to the normal variation in the general population. No difficulty in forming and sustaining relationships (e.g. partner, close friendships lasting years).
2	Mild impairment. Existing relationships strained. Tension and arguments with partner or close family member, loss of some friendships.
3	Moderate impairment. Previously established relationships severely strained, evidence by periods of separation or domestic violence. Spouse, relative, or community services looking after children.
4	Severe impairment. Unable to form or sustain long term relationships. Pre-existing relationships ended (e.g. lost partner, close friends). Unable to care for dependents (e.g. own children, elderly parent).
5	Totally impaired. Unable to function in society. Living away from populated areas, actively avoiding social contact.

TABLE 20-8: CONCENTRATION, PERSISTENCE, AND PACE

Concentration, Persistence, and Pace	
1	No deficit, or minor deficit attributable to the normal variation in the general population.
2	Mild impairment. Can undertake a basic retraining course or a standard course of education or training at a slower pace. Can focus on intellectually demanding tasks for up to 30 minutes, then feels fatigued or develops headache.
3	Moderate impairment. Unable to read more than newspaper articles. Finds it difficult to follow complex instructions.
4	Severe impairment. Can read only a few lines before losing concentration. Difficulties following simple instructions. Concentration deficits obvious even during brief conversation. Unable to live alone or needs regular assistance from relatives or community services.
5	Totally impaired. Needs constant supervision and assistance in an institutional setting.

TABLE 20-9: RESILIENCE AND EMPLOYABILITY

Resilience and Employability	
1	No deficit, or minor deficit attributable to the normal variation in the general population. Can work full time. Duties and performance are consistent with the injured worker's education and training. Able to cope with the normal demands of the job.
2	Mild impairment. Can work full time but with modifications, or can work in the same position a reduced number of hours per week.
3	Moderate impairment. Cannot work at all in same position. May be able to work in a less stressful occupation.
4	Severe impairment. Cannot sustain work over time in any position.
5	Totally impaired. Cannot work at all.

TABLE 20-10: IMPAIRMENT SCORE FROM THE PSYCHIATRIC IMPAIRMENT RATING SCALE (PIRS)

Impairment Score from the Psychiatric Impairment Rating Scale (PIRS)	
Sum of PIRS Middle Scores	**PIRS Impairment Score**
2	0%
3	5%
4	10%
5	15%
6	20%
7	30%
8	40%
9 - 10	50%

20.6 STEP FOUR: DETERMINE THE FINAL RATING OF MENTAL HEALTH IMPAIRMENT

TABLE 20-11: FINAL RATING OF MENTAL HEALTH IMPAIRMENT

List GAF, BPRS, GAF and PIRS impairment scores, and determine the Final Rating	
Based on the results in steps 1 to 3, list the BPRS, GAF and PIRS Impairment Scores above in the blanks below.	
BPRS Impairment Score	
GAF Impairment Score	
PIRS Impairment Score	
MIDDLE value = Final Rating	
The Final Rating of Mental Health Impairment is the middle value of the BPRS, GAF, and PIRS impairment scores.	

21. APPENDIX "A" - COMBINED VALUES CHART

To combine the values of two or more impairment ratings, use the following process:

First, use the Add Values Rule as follows:

- sort the values in ascending order;
- add the values that are less than 5.0%, without rounding, until the sum of 5.0 is reached;
- once the sum of 5.0 is reached or exceeded, proceed to combining the result with the remaining values in accordance with the following instructions.

Second, round values as follows:

- sort the values in ascending order (including the result from the Add Value Rule);
- round the values (including the result from the Add Value Rule) greater than 5.0% to whole numbers.

Third, use the Combined Values Chart as follows:

- To combine any two impairment values:
  - locate the larger value on the vertical axis and the smaller value on the horizontal axis;
  - The Combined Value is at the intersection of the row and column.
- To combine three or more impairment values:
  - select the first two and find their combined value;
  - use the above result and the third value to locate the combined value of all three values;
  - repeat this process indefinitely, the final value in each instance being the combination of all the previous values;
  - in each step of this process, the larger impairment value must be identified at the side of the chart.

21.1 EXAMPLE 1: COMBINED VALUES CHART

To combine 1.2%, 6.2%, 1.8%, 8.6%, 2.3% ratings:

First, sort the values in ascending order.

Impaired Body Part	Rating Value - sorted in ascending order
Ankle	1.2%,
Knee	1.8%,
Elbow	2.3%
Shoulder	6.2%
Hand	8.6%

Then add the values that are less than 5.0% until the sum of 5.0 is reached or exceeded:

Value A	Value B	Method	Result	Notes
1.2%	1.8%	1.2 + 1.8	3.0%	Add Values Rule
3.0%	2.3%	3.0 + 2.3	5.3%	Add Values Rule
5.3%	n/a	n/a	5.3%	Stop: 5.0 has been reached or exceeded.

Second, sort the result from the Add Value Rule and the remaining values in ascending order. Then round the values to whole numbers.

Rating Value	Rounded Value
5.3%	5.0%
6.2%	6.0%
9.6%1	10.0%

Third, insert the values into the Combined Values Chart (larger value on the vertical axis) and determine the result at each stage:

Value A	Value B	Method	Result	Notes
6%	5%	Use the Combined Values Chart	11%	Combine Values Chart
11%	10%	Use the Combined Values Chart	20%	Combine Values Chart
Total impairment rating		**20%**		

Fourth, repeat this process as necessary. The final value at each step is the combination of all the previous ratings.

Please refer to the Combined Values Chart on the next three pages.

21.2 APPENDIX "A" - COMBINED VALUES CHART - PAGE ONE

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

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

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

1	2																																																
2	3	4																																															
3	4	5	6																																														
4	5	6	7	8																																													
5	6	7	8	9	10																																												
6	7	8	9	10	11	12																																											
7	8	9	10	11	12	13	14																																										
8	9	10	11	12	13	14	14	15																																									
9	10	11	12	13	14	14	15	16	17																																								
10	11	12	13	14	15	15	16	17	18	19																																							
11	12	13	14	15	15	16	17	18	19	20	21																																						
12	13	14	15	16	16	17	18	19	20	21	22	23																																					
13	14	15	16	16	17	18	19	20	21	22	23	23	24																																				
14	15	16	17	17	18	19	20	21	22	23	23	24	25	26																																			
15	16	17	18	18	19	20	21	22	23	24	24	25	26	27	28																																		
16	17	18	19	19	20	21	22	23	24	24	25	26	27	28	29	29																																	
17	18	19	19	20	21	22	23	24	24	25	26	27	28	29	29	30	31																																
18	19	20	20	21	22	23	24	25	25	26	27	28	29	29	30	31	32	33																															
19	20	21	21	22	23	24	25	25	26	27	28	29	30	30	31	32	33	34	34																														
20	21	22	22	23	24	25	26	26	27	28	29	30	30	31	32	33	34	34	35	36																													
21	22	23	23	24	25	26	27	27	28	29	30	30	31	32	33	34	34	35	36	37	38																												
22	23	24	24	25	26	27	27	28	29	30	31	31	32	33	34	34	35	36	37	38	38	39																											
23	24	25	25	26	27	28	28	29	30	31	31	32	33	34	35	35	36	37	38	38	39	40	41																										
24	25	26	26	27	28	29	29	30	31	32	32	33	34	35	35	36	37	38	38	39	40	41	41	42																									
25	26	27	27	28	29	30	30	31	32	33	33	34	35	36	36	37	38	39	39	40	41	42	42	43	44																								
26	27	27	28	29	30	30	31	32	33	33	34	35	36	36	37	38	39	39	40	41	42	42	43	44	45	45																							
27	28	28	29	30	31	31	32	33	34	34	35	36	36	37	38	39	39	40	41	42	42	43	44	45	45	46	47																						
28	29	29	30	31	32	32	33	34	34	35	36	37	37	38	39	40	40	41	42	42	43	44	45	45	46	47	47	48																					
29	30	30	31	32	33	33	34	35	35	36	37	38	38	39	40	40	41	42	42	43	44	45	45	46	47	47	48	49	50																				
30	31	31	32	33	34	34	35	36	36	37	38	38	39	40	41	41	42	43	43	44	45	45	46	47	48	48	49	50	50	51																			
31	32	32	33	34	34	35	36	37	37	38	39	39	40	41	41	42	43	43	44	45	45	46	47	48	48	49	50	50	51	52	52																		
32	33	33	34	35	35	36	37	37	38	39	39	40	41	42	42	43	44	44	45	46	46	47	48	48	49	50	50	51	52	52	53	54																	
33	34	34	35	36	36	37	38	38	39	40	40	41	42	42	43	44	44	45	46	46	47	48	48	49	50	50	51	52	52	53	54	54	55																
34	35	35	36	37	37	38	39	39	40	41	41	42	43	43	44	45	45	46	47	47	48	49	49	50	51	51	52	52	53	54	54	55	56	56															
35	36	36	37	38	38	39	40	40	41	42	42	43	43	44	45	45	46	47	47	48	49	49	50	51	51	52	53	53	54	55	55	56	56	57	58														
36	37	37	38	39	39	40	40	41	42	42	43	44	44	45	46	46	47	48	48	49	49	50	51	51	52	53	53	54	55	55	56	56	57	58	58	59													
37	38	38	39	40	40	41	41	42	43	43	44	45	45	46	46	47	48	48	49	50	50	51	51	52	53	53	54	55	55	56	57	57	58	58	59	60	60												
38	39	39	40	40	41	42	42	43	44	44	45	45	46	47	47	48	49	49	50	50	51	52	52	53	54	54	55	55	56	57	57	58	58	59	60	60	61	62											
39	40	40	41	41	42	43	43	44	44	45	46	46	47	48	48	49	49	50	51	51	52	52	53	54	54	55	55	56	57	57	58	59	59	60	60	61	62	62	63										
40	41	41	42	42	43	44	44	45	45	46	47	47	48	48	49	50	50	51	51	52	53	53	54	54	55	56	56	57	57	58	59	59	60	60	61	62	62	63	63	64									
41	42	42	43	43	44	45	45	46	46	47	47	48	49	49	50	50	51	52	52	53	53	54	55	55	56	56	57	58	58	59	59	60	60	61	62	62	63	63	64	65	65								
42	43	43	44	44	45	45	46	47	47	48	48	49	50	50	51	51	52	52	53	54	54	55	55	56	57	57	58	58	59	59	60	61	61	62	62	63	63	64	65	65	66	66							
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21.3 APPENDIX "A" - COMBINED VALUES CHART - PAGE TWO

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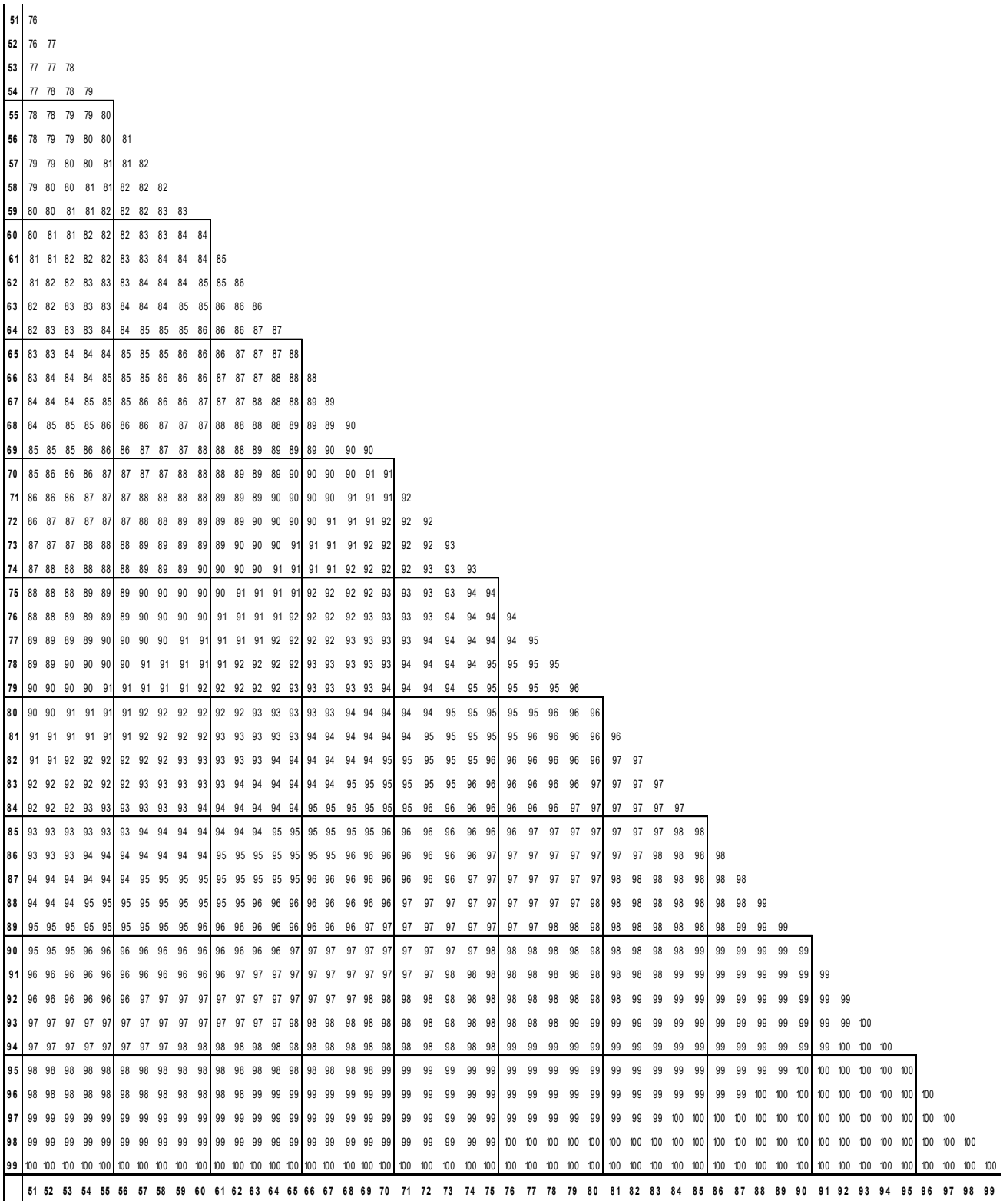

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85	93	93	93	93	93	93	94	94	94	94	94	94	94	95	95	95	95	95	95	96	96	96	96	96	96	96	97	97	97	97	97	97	97	98	98										
86	93	93	93	94	94	94	94	94	94	94	95	95	95	95	95	95	95	96	96	96	96	96	96	96	97	97	97	97	97	97	97	98	98	98	98										
87	94	94	94	94	94	94	95	95	95	95	95	95	95	95	95	96	96	96	96	96	96	96	96	97	97	97	97	97	97	98	98	98	98	98	98	98									
88	94	94	94	95	95	95	95	95	95	95	95	95	96	96	96	96	96	96	96	96	97	97	97	97	97	97	97	97	98	98	98	98	98	98	98	98	99								
89	95	95	95	95	95	95	95	95	95	96	96	96	96	96	96	96	96	96	97	97	97	97	97	97	97	97	98	98	98	98	98	98	98	98	98	99	99	99							
90	95	95	95	96	96	96	96	96	96	96	96	96	96	96	97	97	97	97	97	97	97	97	97	97	98	98	98	98	98	98	98	98	98	99	99	99	99	99	99						
91	96	96	96	96	96	96	96	96	96	96	96	97	97	97	97	97	97	97	97	97	97	97	98	98	98	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99					
92	96	96	96	96	96	96	97	97	97	97	97	97	97	97	97	97	97	97	98	98	98	98	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99				
93	97	97	97	97	97	97	97	97	97	97	97	97	97	97	98	98	98	98	98	98	98	98	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	100			
94	97	97	97	97	97	97	97	97	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	100	100	100	
95	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	100	100	100	100	100	100		
96	98	98	98	98	98	98	98	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	100	100	100	100	100	100	100	100	
97	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	100	100	100	100	100	100	100	100	100	100	100	100	100	100
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99	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

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