

Section 3: Musculoskeletal—Upper Extremities

THUMB

TABLE 1
IMPAIRMENT DUE TO ABNORMAL MOTION AND ANKYLOSIS
OF THE INTERPHALANGEAL JOINT OF THE THUMB

Abnormal Motion

Average range of FLEXION-EXTENSION is 80 degrees

Value to total range of joint motion is 100%

Flexion from neutral position (0°) to:	Degrees of Joint Motion		% Impairment of Thumb
	LOST	RETAINED	
0°.....	80.....	0.....	45
10°.....	70.....	10.....	39
20°.....	60.....	20.....	34
30°.....	50.....	30.....	28
40°.....	40.....	40.....	23
50°.....	30.....	50.....	17
60°.....	20.....	60.....	11
70°.....	10.....	70.....	6
80°.....	0.....	80.....	0

Ankylosis

Joint ankylosed at:	% Impairment of Thumb
0°.(neutral position).....	45
10°.....	43
20°.....	40
30°.....	38
*40°.....	35
50°.....	45
60°.....	55
70°.....	65
80°.(full flexion).....	75

*position of function

**TABLE 2
IMPAIRMENT DUE TO
ABNORMAL MOTION AND ANKYLOSIS OF THE
METACARPOPHALANGEAL JOINT OF THE THUMB**

Abnormal Motion

Average range of FLEXION-EXTENSION is 60 degrees
Value to total range of joint motion is 100%

Flexion from neutral position (0°) to:	Degrees of Joint Motion		% Impairment of Thumb
	LOST	RETAINED	
0°.....	60.....	0.....	55
10°.....	50.....	10.....	46
20°.....	40.....	20.....	37
30°.....	30.....	30.....	27
40°.....	20.....	40.....	18
40°.....	10.....	50.....	9
60°.....	0.....	60.....	0

Ankylosis

Joint ankylosed at:	% Impairment of Thumb
0° (neutral position).....	55
10°.....	49
*20°.....	43
30°.....	52
40°.....	61
50°.....	70
60° (full flexion).....	80

*position of function

**TABLE 3
IMPAIRMENT DUE TO
ABNORMAL MOTION AND ANKYLOSIS OF THE
CARPOMETACARPAL JOINT OF THE THUMB**

Abnormal Motion

Average range of FLEXION-EXTENSION is 45 degrees

Flexion from neutral position (0°) to:	Degrees of Joint Motion		% Impairment of Thumb
	LOST	RETAINED	
0°.....	15.....	0.....	15
10°.....	5.....	10.....	5
15°.....	0.....	15.....	0

Extension From Neutral Position (0°) to:

0°.....	30.....	0.....	15
10°.....	20.....	10.....	10
20°.....	10.....	20.....	5
30°.....	0.....	30.....	0

Ankylosis

Joint Ankylosed At:

0° (neutral position).....	30
10°.....	55
15° (full Extension).....	80

Joint Ankylosed At:

0° (neutral Position).....	30
10°.....	47
20°.....	63
30° (full Extension).....	80



TABLE 4
RELATIONSHIP OF IMPAIRMENT OF
THE THUMB TO IMPAIRMENT OF THE HAND*

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

*Impairment of the hand contributed by the thumb may be rounded to the nearest 5 percent only when it is the sole impairment involved.

Consult Table 18 for converting hand impairment to upper-extremity impairment.

FINGERS

**TABLE 5
IMPAIRMENT DUE TO ABNORMAL
MOTION AND ANKYLOSIS OF THE DISTAL
INTERPHALANGEAL JOINT OF ANY FINGER**

Abnormal Motion

Average range of FLEXION-EXTENSION is 70 degrees
Value to total range of joint motion is 100%

Flexion from neutral position (0°) to:	Degrees of Joint Motion		% Impairment of Finger
	LOST	RETAINED	
0°.....	70.....	0.....	45
10°.....	60.....	10.....	38
20°.....	50.....	20.....	32
30°.....	40.....	30.....	26
40°.....	30.....	40.....	19
50°.....	20.....	50.....	13
60°.....	10.....	60.....	6
70°.....	0.....	70.....	0

Ankylosis

Joint ankylosed at:	% Impairment of Finger
0° (neutral position).....	45
10°.....	41
20°.....	38
30°.....	34
*40°.....	30
50°.....	35
60°.....	40
70° (full flexion).....	45

*position of function

**TABLE 6
IMPAIRMENT DUE TO ABNORMAL
MOTION AND ANKYLOSIS OF THE PROXIMAL
INTERPHALANGEAL JOINT OF ANY FINGER**

Abnormal Motion

Average range of FLEXION-EXTENSION is 100 degrees
Value to total range of joint motion is 100%

Flexion from neutral position (0°) to:	Degrees of Joint Motion		% Impairment of Finger
	LOST	RETAINED	
0°.....	100.....	0.....	60
10°.....	90.....	10.....	54
20°.....	80.....	20.....	48
30°.....	70.....	30.....	42
40°.....	60.....	40.....	36
50°.....	50.....	50.....	30
60°.....	40.....	60.....	24
70°.....	30.....	70.....	18
80°.....	20.....	80.....	12
90°.....	10.....	90.....	6
100°.....	0.....	100.....	0

Ankylosis

Joint ankylosed at:	% Impairment of Finger
0° (neutral position).....	60
10°.....	58
20°.....	55
30°.....	53
*40°.....	50
50°.....	55
60°.....	60
70°.....	65
80°.....	70
90°.....	75
100° (full flexion).....	80

*position of function

**TABLE 7
IMPAIRMENT DUE TO ABNORMAL
MOTION AND ANKYLOSIS OF THE
METACARPOPHALANGEAL JOINT OF ANY FINGER**

Abnormal Motion

Average range of FLEXION-EXTENSION is 90 degrees

Value to total range of joint motion is 100%

Flexion from neutral position (0°) to:	Degrees of Joint Motion		% Impairment of Finger
	LOST	RETAINED	
0°.....	90.....	0.....	55
10°.....	80.....	10.....	49
20°.....	70.....	20.....	43
30°.....	60.....	30.....	37
40°.....	50.....	40.....	31
50°.....	40.....	50.....	24
60°.....	30.....	60.....	18
70°.....	20.....	70.....	12
80°.....	10.....	80.....	6
90°.....	0.....	90.....	0

Ankylosis

Joint ankylosed at:

0° (neutral position).....	55
10°.....	52
20°.....	48
30°.....	45
*40°.....	54
50°.....	63
60°.....	72
70°.....	82
80°.....	91
90° (full flexion).....	100

*position of function

TABLE 8
RELATIONSHIP OF IMPAIRMENT OF THE DIGITS
TO IMPAIRMENT OF THE HAND

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

Note: Impairment of the hand contributed by a digit may be rounded to the nearest 5 percent only when it is the sole impairment involved.

WRIST JOINT

**TABLE 9
IMPAIRMENT DUE TO ABNORMAL MOTION AND
ANKYLOSIS OF THE WRIST JOINT—EXTENSION**

Abnormal Motion

Average range of EXTENSION-FLEXION is 130 degrees
Value to total range of joint motion is 70%

Extension from neutral position (0°) to:	Degrees of Joint Motion		% Impairment of Upper Extremity
	LOST	RETAINED	
0°.....	60.....	0.....	10
10°.....	50.....	10.....	8
20°.....	40.....	20.....	6
30°.....	30.....	30.....	5
40°.....	20.....	40.....	3
50°.....	10.....	50.....	2
60°.....	0.....	60.....	0

Ankylosis

Joint ankylosed at:		
0° (neutral position).....		30
10°.....		28
20°.....		27
*30°.....		25
40°.....		47
50°.....		68
60° (full extension).....		90

*position of function

**TABLE 10
IMPAIRMENT DUE TO ABNORMAL MOTION
AND ANKYLOSIS OF THE WRIST JOINT—FLEXION**

Abnormal Motion

Average range of EXTENSION-FLEXION is 130 degrees
Value to total range of joint motion is 70%

Flexion from neutral position (0°) to:	Degrees of Joint Motion		% Impairment of Upper Extremity
	LOST	RETAINED	
0°.....	70.....	0.....	11
10°.....	60.....	10.....	10
20°.....	50.....	20.....	8
30°.....	40.....	30.....	6
40°.....	30.....	40.....	5
50°.....	20.....	50.....	3
60°.....	10.....	60.....	2
70°.....	0.....	70.....	0

Ankylosis

Joint ankylosed at:	
0° (neutral position).....	30
10°.....	39
20°.....	47
30°.....	56
40°.....	64
50°.....	73
60°.....	81
70° (full flexion).....	90

**TABLE 11
 IMPAIRMENT DUE TO ABNORMAL MOTION
 AND ANKYLOSIS OF THE WRIST JOINT—RADIAL/ULNAR DEVIATION**

Abnormal Motion

Average range of RADIAL-ULNAR DEVIATION (adduction-abduction) is 50 degrees
 Value to total range of joint motion is 30%

Radial deviation from neutral position (0°) to:	Degrees of Joint Motion		% Impairment of Upper Extremity
	LOST	RETAINED	
0°.....	20.....	0.....	4
10°.....	10.....	10.....	2
20°.....	0.....	20.....	0

**Ulnar deviation from
neutral position (0°) to:**

0°.....	30.....	0.....	5
10°.....	20.....	10.....	4
20°.....	10.....	20.....	2
30°.....	0.....	30.....	0

Ankylosis

Joint ankylosed at:

*0 (neutral position).....	30
10°.....	60
20° (full radial deviation).....	90

Joint ankylosed at:

*0° (neutral position).....	30
10°.....	50
20°.....	70
30° (full ulnar deviation).....	90

*position of function

ELBOW JOINT

**TABLE 12
IMPAIRMENT DUE TO ABNORMAL MOTION AND ANKYLOSIS
OF THE ELBOW JOINT—FLEXION/EXTENSION**

Abnormal Motion

Average range of FLEXION-EXTENSION is 150 degrees
Value to total range of joint motion is 60%

Retained Active Flexion of:	% Impairment of Upper Extremity
0°.....	39
10°.....	36
20°.....	34
30°.....	31
40°.....	29
50°.....	26
60°.....	23
70°.....	21
80°.....	18
90°.....	16
100°.....	13
110°.....	10
120°.....	8
130°.....	5
140°.....	3
150°.....	0
Extension to:	
0° (neutral position).....	0
10°.....	2
20°.....	4
30°.....	6
40°.....	8
50°.....	10
60°.....	12
70°.....	14
80°.....	16
90°.....	18
100°.....	20
110°.....	22
120°.....	24
130°.....	26
140°.....	28
150°.....	30

Ankylosis

Joint ankylosed at:	
0° (neutral position).....	65
10°.....	64
20°.....	62
30°.....	61
40°.....	59
50°.....	58
60°.....	56
70°.....	55
80°.....	53
90°.....	52
100°.....	50
110°.....	59
120°.....	68
130°.....	77
140°.....	86
150° (full flexion).....	95

*position of function

In the case of bilateral ankylosis of the elbows, position of function would not necessarily be the same for both elbows; however, the corresponding impairment of the whole person can be computed by using the above figures and the conversion figures on UPPER EXTREMITY Conversion Tables.

**TABLE 13
 IMPAIRMENT DUE TO ABNORMAL MOTION AND ANKYLOSIS
 OF THE ELBOW JOINT—PRONATION/SUPINATION**

Abnormal Motion

Average range of ROTATION is 160 degrees
 Value to total range of joint motion is 40%

Pronation from neutral position (0°) to:	Degrees of Joint Motion		% Impairment of Upper Extremity
	LOST	RETAINED	
0°.....	80.....	0.....	13
10°.....	70.....	10.....	11
20°.....	60.....	20.....	10
30°.....	50.....	30.....	8
40°.....	40.....	40.....	7
50°.....	30.....	50.....	5
60°.....	20.....	60.....	3
70°.....	10.....	70.....	2
80°.....	0.....	80.....	0

**Supination from
neutral position (0°) to:**

0°.....	80.....	0.....	13
10°.....	70.....	10.....	11
20°.....	60.....	20.....	10
30°.....	50.....	30.....	8
40°.....	40.....	40.....	7
50°.....	30.....	50.....	5
60°.....	20.....	60.....	3
70°.....	10.....	70.....	2
80°.....	0.....	80.....	0

Ankylosis

Joint ankylosed at:

0° (neutral position).....	65
10°.....	69
20°.....	73
30°.....	76
40°.....	80
50°.....	84
60°.....	88
70°.....	91
80° (full pronation/supination).....	95

SHOULDER JOINT

Flexion/Extension

**TABLE 14
IMPAIRMENT DUE TO ABNORMAL MOTION AND ANKYLOSIS OF THE
SHOULDER JOINT—FLEXION**

Abnormal Motion

Average range of FLEXION/EXTENSION is 190 degrees

Value to total range of joint motion is 33%

Flexion from neutral position (0°) to:	Degrees of Joint Motion		% Impairment of Upper Extremity
	LOST	RETAINED	
0°.....	150.....	0.....	16
10°.....	140.....	10.....	15
20°.....	130.....	20.....	14
30°.....	120.....	30.....	13
40°.....	110.....	40.....	12
50°.....	100.....	50.....	11
60°.....	90.....	60.....	9
70°.....	80.....	70.....	8
80°.....	70.....	80.....	7
90°.....	60.....	90.....	6
100°.....	50.....	100.....	5
110°.....	40.....	110.....	4
120°.....	30.....	120.....	3
130°.....	20.....	130.....	2
140°.....	10.....	140.....	1
150°.....	0.....	150.....	0

Ankylosis

Joint ankylosed at:

0° (neutral position).....	60
10°.....	53
20°.....	47
*30°.....	40
40°.....	45
50°.....	50
60°.....	55
70°.....	60
80°.....	65
90°.....	70
100°.....	75
110°.....	80
120°.....	85
130°.....	90
140°.....	95
150° (full flexion).....	100

*position of function

TABLE 15
IMPAIRMENT DUE TO ABNORMAL MOTION
AND ANKYLOSIS OF THE SHOULDER JOINT—EXTENSION

Abnormal Motion

Average range of FLEXION/EXTENSION is 190 degrees
 Value to total range of joint motion is 33%

Flexion from neutral position (0°) to:	Degrees of Joint Motion		% Impairment of Upper Extremity
	LOST	RETAINED	
0°.....	40.....	0.....	4
10°.....	30.....	10.....	3
20°.....	20.....	20.....	2
30°.....	10.....	30.....	1
40°.....	0.....	40.....	0

Ankylosis

Joint ankylosed at:	
0° (neutral position).....	60
10°.....	70
20°.....	80
30°.....	90
40° (full extension).....	100

**TABLE 16
IMPAIRMENT DUE TO ABNORMAL MOTION AND ANKYLOSIS
OF THE SHOULDER JOINT—ABDUCTION-ADDUCTION**

Abnormal Motion

Average range of ABDUCTION-ADDUCTION is 180 degrees
Value to total range of joint motion is 33%

Abduction from neutral position (0°) to:	Degrees of Joint Motion		% Impairment of Upper Extremity
	LOST	RETAINED	
0°.....	150.....	0.....	17
10°.....	140.....	10.....	16
20°.....	130.....	20.....	14
30°.....	120.....	30.....	13
40°.....	110.....	40.....	12
50°.....	100.....	50.....	11
60°.....	90.....	60.....	10
70°.....	80.....	70.....	9
80°.....	70.....	80.....	8
90°.....	60.....	90.....	7
100°.....	50.....	100.....	6
110°.....	40.....	110.....	4
120°.....	30.....	120.....	3
130°.....	20.....	130.....	2
140°.....	10.....	140.....	1
150°.....	0.....	150.....	0

Adduction from neutral Position (0°) to:

0°.....	30.....	0.....	3
10°.....	20.....	10.....	2
20°.....	10.....	20.....	1
30°.....	0.....	30.....	0

Ankylosis

Joint ankylosed at:

0°.....	60
10°.....	56
20°.....	51
30°.....	47
40°.....	42
45°.....	40
50°.....	43
60°.....	49
70°.....	54
80°.....	60
90°.....	66
100°.....	71
110°.....	77
120°.....	83
130°.....	89
140°.....	94
150° (full abduction).....	100

Joint ankylosed at:

0° (neutral position).....	60
10°.....	73
20°.....	87
30° (full adduction).....	100

Internal/External Rotation

TABLE 17
IMPAIRMENT DUE TO ABNORMAL MOTION AND ANKYLOSIS
OF THE SHOULDER JOINT—ROTATION

Abnormal Motion

Average range of ROTATION is 130 degrees
 Value to total joint motion is 33%

Internal ROTATION from neutral position (0°) to:	Degrees of Joint Motion		% Impairment of Upper Extremity
	LOST	RETAINED	
0°.....	40.....	0.....	6
10°.....	30.....	10.....	5
20°.....	20.....	20.....	3
30°.....	10.....	30.....	2
40°.....	0.....	40.....	0

**External rotation from
neutral position (0°) to:**

0°.....	90.....	0.....	14
10°.....	80.....	10.....	12
20°.....	70.....	20.....	11
30°.....	60.....	30.....	9
40°.....	50.....	40.....	8
50°.....	40.....	50.....	6
60°.....	30.....	60.....	5
70°.....	20.....	70.....	3
80°.....	10.....	80.....	2
90°.....	0.....	90.....	0

Ankylosis

Joint ankylosed at:

0° (neutral position).....	60
10°.....	70
20°.....	80
30°.....	90
40° (full internal rotation).....	100

Joint ankylosed at:

0° (neutral position).....	60
10°.....	50
*20°.....	40
30°.....	49
40°.....	57
50°.....	66
60°.....	74
70°.....	83
80°.....	91
90 (full external rotation).....	100

*position of function

DISORDERS OF THE UPPER EXTREMITY

Derangements not previously described can contribute to impairments of the hand and upper extremity and should be considered in the final impairment determination. These include bone and joint disorders, presence of resection or implant arthroplasty, musculotendinous disorders, and loss of strength.

NOTE: *It must be stressed that impairments secondary to these disorders are usually rated by other parameters. The following disorders are to be rated only when other factors have not adequately rated the extent of impairment. Whether to consider these disorders separately is left to the discretion of the examiner.*

Table 18 shows relative impairment values for loss of function of the digits, hand, wrist, elbow, and shoulder due to the conditions described below and impairment values for the larger units. This table differs from figures 1 and 2 (p. 41), which show values for amputation at these levels.

TABLE 18
RELATIVE IMPAIRMENT VALUES

Units and Joints	Unit	Hand	% Impairment of	
			Upper Extremity	Whole Person
SHOULDER				
Glenohumeral	—	—	60	36
Acromioclavicular	—	—	30	18
ELBOW				
Entire elbow	—	—	70	42
Ulnohumeral	—	—	50	30
Proximal radioulnar	—	—	20	12
WRIST				
Entire wrist	—	—	60	36
Radiocarpal	—	—	40	24
Distal radioulnar	—	—	20	12
ENTIRE HAND	—	100	90	54
THUMB				
Entire thumb	100	40	36	22
CMC	75	30	27	16
MP	10	4	4	2
IP	15	6	5	3
INDEX OR MIDDLE				
Entire finger	100	20	18	11
MP	100	20	18	11
PIP	80	16	14	8
DIP	45	9	8	5
RING OR LITTLE				
Entire finger	100	10	9	5
MP	100	10	9	5
PIP	80	8	7	4
DIP	45	4	4	2

BONE AND JOINT DEFORMITIES

Joint Crepitation with Motion—Joint crepitation with motion can reflect synovitis or cartilage degeneration. The impairment degree is multiplied by the relative value of the joint (Table 18).

The evaluator must use judgment and avoid duplication of impairments when other findings, such as synovial hypertrophy, carpal collapse with arthritic changes, or limited motion are present. The latter findings may indicate a greater severity of the same underlying pathological process and take precedence over joint crepitation, which should not be rated in these instances.

Joint Crepitation Severity	% Joint Impairment*
Mild: Inconstant during active ROM**	10
Moderate: Constant during active ROM	20
Severe: Constant during passive ROM	30

*Use Table 18 (previous page) to find the relative value of each joint.

**ROM: Range of Motion

Joint Swelling due to Synovial Hypertrophy—*This condition would usually be rated through loss of motion and is to be considered for impairment only when there is full range of motion of the joint.* The percent of impairment is multiplied by the relative value of the joint (Table 18).

Joint Swelling Due to Synovial Hypertrophy	% Joint Impairment*
Mild	10
Moderate	20
Severe	30

*Use Table 18 to find the relative value of each joint.

Digit Lateral Deviation—The longitudinal alignment of each of the finger joints is measured in degrees during maximum active extension. Since lateral deviation at any level affects the longitudinal arch of the digit, deviation affects the entire digit. If lateral deviation is the *sole impairment*, it is multiplied by the relative value of the digit to the hand to calculate hand impairment (Table 18). If the digit has *other impairments*, the lateral deviation impairment value is *combined* with them using the Combined Values Chart, in Section 15.

Ulnar or Radial Deviation	% Digit Impairment*
Mild: Less than 10°	10
Moderate: 10° to 30°	20
Severe: Greater than 30°	30

*Use Table 18 to find the relative value of each digit.

Digit Rotational Deformity—Rotational Deformity of the distal, middle, or proximal phalanx is measured during maximum active flexion of the finger and expresses a malrotation of the normal axial alignment of the phalanx. Rotational deformity at any level affects the function of the entire digit, and the impairment percentage is applied to the entire digit. *If other impairments of the same digit are present, rotational-deformity impairment is combined* with them using the Combined Values Chart.

Rotational Deformity	% Digit Impairment*
Mild: Less than 15°	20
Moderate: 15° to 30°	40
Severe: Greater than 30°	60

*Use Table 18 to find the relative value of each digit.

Persistent Joint Subluxation and Dislocation—When persistent joint subluxation or dislocation results in restricted motion, impairment percentages are given for lack of motion in order to avoid duplication in the rating. If there is no restricted motion, the following table is used to determine the degree of joint impairment. The percentage of impairment is multiplied by the relative value of the joint (Table 18).

Persistent Joint Subluxation or Dislocation	% Digit Impairment
Mild: Can be completely reduced manually	20
Moderate: Cannot be completely reduced manually.....	40
Severe: Cannot be reduced.....	6

*Use Table 18 to find the relative value of each joint.

Joint Instability—Excessive passive joint motion is evaluated by comparing it with normal joint stability and graded according to the degree of severity. Then the percentage of impairment is multiplied by the relative value of the joint (Table 18). If other impairments of the same joint are present, the values are *combined* using the Combined Values Chart.

Joint Instability	% Joint Impairment
Mild: Less than 10°.....	20
Moderate: 10° to 20°.....	40
Severe: Greater than 20°.....	60

*Use Table 18 to find the relative value of each joint.

Wrist and Elbow Joint Lateral Deviation—These angles are measured with the wrist or elbow in maximum active extension. The degree of severity is multiplied by the relative value of the joint to the upper extremity to obtain upper extremity impairment due to lateral deviation (Table 18). If other impairments of the same joint are present, they are *combined* using the Combined Values Chart. After all impairments for either the wrist or elbow joint have been calculated, they are *combined* with any other upper-extremity impairment using the Combined Values Chart.

Lateral Deviation Severity	% Joint Impairment*
Mild: Less than 20°.....	10
Moderate: 20° to 30°.....	20
Severe: Greater than 30°.....	30

*Use Table 18 to find the relative value of the wrist and elbow joints.

Carpal Instability—Carpal instability patterns resulting from lunate or scaphoid pathology can be classified as mild, moderate, or severe, based on the severity of the radiographic findings (Table 19, below). The proximal carpal row represents half of the value of the wrist, or 30% of the upper extremity. Therefore the grades of mild (20%), moderate (40%), and severe (60%) represent upper- extremity impairments of 6%, 12%, and 18%, respectively. These values may be *combined* with other upper-extremity impairments due to wrist abnormalities using the Combined Values Chart.

In using Table 19, apply only the greatest impairment value determined by the radiographic findings. Do not combine or add the impairment values shown on Table 19. These radiographic parameters are to be used only when all other factors including range of motion and grip strength are normal.

**TABLE 19
IMPAIRMENT OF UPPER EXTREMITY
DUE TO CARPAL INSTABILITY PATTERNS**

Radiographic Findings	% Impairment of Upper Extremity		
	Mild (6%)	Moderate (12%)	Severe (18%)
Radioscaphoid angle (scaphoid).....	40°—59°.....	60°—70°.....	>70°
Radiolunate angle (lunate).....	<10°.....	10°—30°.....	>30°
Carpal height collapse.....	<5%.....	5%— 10%.....	>10%
Carpal translation.....	mild.....	moderate.....	severe
Arthritic changes.....	mild.....	moderate.....	severe

Arthroplasty—Simple resection arthroplasty is given 40% impairment of the joint value due to loss of function; implant arthroplasty is given 50% impairment of the joint value due to loss of function. Table 20 provides impairment ratings for the upper extremity for arthroplasty of specific joints, based on these values.

TABLE 20
IMPAIRMENTS OF UPPER EXTREMITY FOLLOWING
ARTHROPLASTY OF SPECIFIC BONES OR JOINTS

Level of Arthroplasty*	% Impairment of Upper Extremity	
	Resection Arthroplasty	Implant Arthroplasty
Shoulder	24	30
Total elbow	28	35
Radial head (isolated)	8	10
Total wrist	24	30
Ulnar head (isolated)	8	10
Proximal carpal row	12	15
Carpal bones	12	15
Thumb**		
Carpometacarpal	11	13
Metacarpophalangeal	1	2
Interphalangeal	2	3
Index of middle fingers***		
Metacarpophalangeal	7	9
Proximal interphalangeal	6	7
Distal interphalangeal	3	4
Ring or little fingers***		
Metacarpophalangeal	3	4
Proximal Interphalangeal	3	3
Distal Interphalangeal	2	2

* If more than one level is involved, combine from distal to proximal using the Combined Values Chart.

** If more than one thumb joint is involved, add impairments.

*** If more than one joint is involved in the same finger, combine impairments using the Combined Values Chart. If multiple digits are involved, add the impairment values for the digits.

Musculotendinous Impairments and Intrinsic Tightness—Intrinsic tightness in the hand may be demonstrated by a test described by Bunnell. Hyperextension of the metacarpophalangeal (MP) joint in a normal hand still allows passive flexion of the proximal interphalangeal (PIP) joint. If the intrinsic muscles are tight or contracted, the available stretch of these muscles is taken up by the hyperextended position of the MP joint, and passive flexion of the PIP joint will be difficult.

If there is already restriction in active range of motion at the MP or PIP joint, then no additional rating is given for intrinsic tightness.

Intrinsic tightness impairment is combined with other impairments of the same digit using the Combined Values Chart. Finger impairment is converted to hand impairment using Table 21.

Intrinsic Tightness Severity (Passive flexion of PIP Joint with MP Joints hyperextended)	% Digit Impairment*
Mild: PIP flexion 80° to 60°	20
Moderate: PIP flexion 59° to 20°	40
Severe: PIP flexion less than 20°	60

*Use Table 18 to find the relative value of each digit.

Constrictive Tenosynovitis—Impairment due to constrictive tenosynovitis is *combined* with other impairments of the digit using the Combined Values Chart. The digit impairment is converted to hand impairment with Table 21.

If there is already restriction in active range of motion, no additional rating is given for constrictive tenosynovitis.

Constrictive Tenosynovitis Severity	% Digit Impairment*
Mild: inconstant triggering during active ROM**	20
Moderate: Constant triggering during active ACM	40
Severe: Constant triggering during passive ROM	60

*Use Table 18 to find the relative value of each digit.

**ROM: Range of Motion

Extensor Tendon Subluxation at MP Joint—The severity of extensor tendon subluxation at the metacarpophalangeal (MP) joint is combined with other impairments of the same digit using the Combined Values Chart. The finger impairment is converted to hand impairment with Table 21.

When persistent extensor tendon subluxation results in restricted range of motion, impairment is given only for lack of motion.

Extensor Tendon Subluxation Severity	% Digit Impairment*
Mild: Ulnar subluxation on MP joint flexion only	10
Moderate: Reducible tendon subluxation in the intermetacarpal groove	20
Severe: Nonreducible tendon subluxation in the intermetacarpal groove	30

*Use Table 18 to find the relative value of each digit.

UPPER EXTREMITY—CONVERSION TABLES

TABLE 21—Relationship of Impairment of the Digits to Impairment of the Hand

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

Note: Impairment of the hand contributed by a digit may be rounded to the nearest 5 percent only when it is the *sole* impairment involved.

TABLE 22—Relationship of Impairment of the Thumb to Impairment of the Hand

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

NOTE: Impairment of the hand contributed by the thumb may be rounded to the nearest 5 percent only when it is the *sole* impairment involved. Consult Table 9 for converting hand impairment to upper-extremity impairment.

TABLE 23—Relationship of Impairment of the Hand to Impairment of the Upper Extremity

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

NOTE: Impairment of the upper extremity contributed by the hand may be rounded to the nearest 5 percent only when it is the *sole* impairment involved. Consult Table 20 for converting upper extremity impairment to whole person impairment.

TABLE 24—Relationship of Impairment of the Upper Extremity to Impairment of the Whole Person

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

NOTE: Impairment of the whole person contributed by the upper extremity may be rounded to the nearest 5 percent only when it is the *sole* impairment involved.

AMPUTATION—FINGER, THUMB, HAND, UPPER EXTREMITY

Figure 1. Impairment of upper extremity from amputation at various levels.

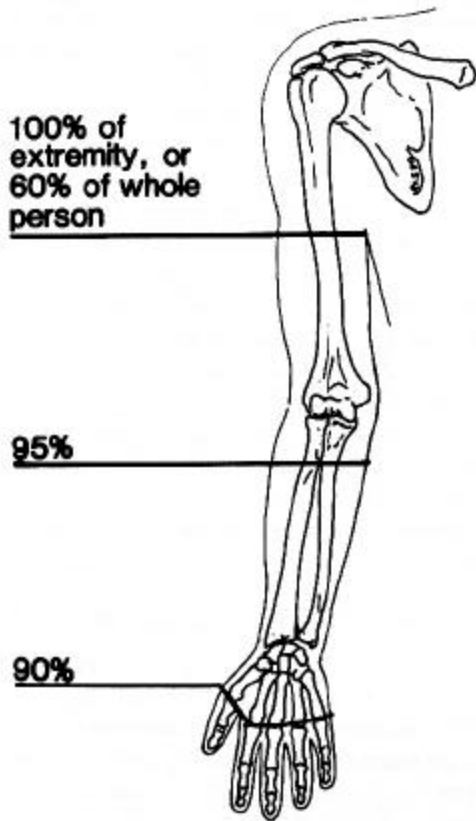


Figure 2. Impairments of the digits (percents outside digits and of hand (percents inside digits) for amputations at various levels.

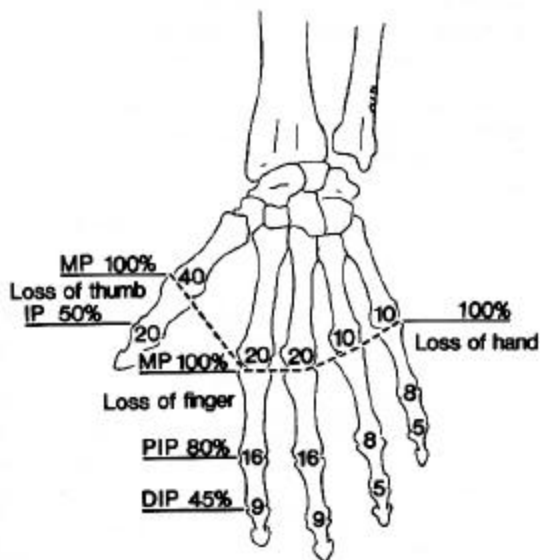


Figure 3. Impairment of finger due to amputation at various lengths (top scale) and total transverse sensory loss impairments correspond to 50% of amputation impairments.

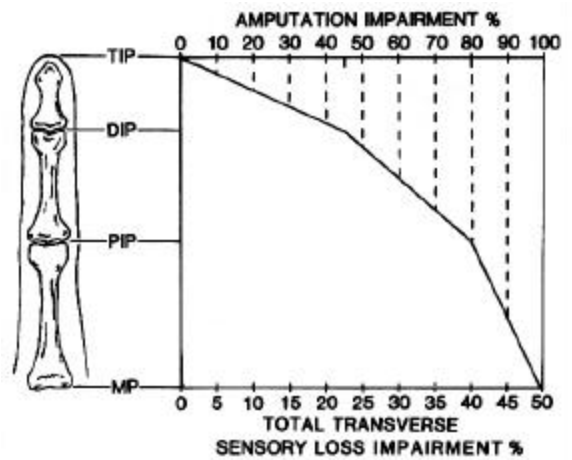


Figure 4. Impairment of thumb due to amputation at various levels (top scale) or total transverse sensory loss (bottom scale). Total transverse sensory loss impairments correspond to 50% amputation values.

