HAND IMPAIRMENT AND CARPAL TUNNEL SYNDROME

ROBERT B. WALKER, MD, MS, CIME
Essentials of Hand Impairment

Use Figure 1 (Page 16) as a workbook! (keeps you honest)

Amputation Value between elbow and metacarpophalangeal level is 95% of Upper Extremity (57% WPI)

Whole Hand: Thumb 40%; Index and Middle: 20% each; Ring and Little: 10% each

WV has separate Amputation values by Statute

Sensory separate for: thumb/fingers; radial and ulnar aspects of digital nerves

Separate maximum value for each palmar digital nerve and nerve branch
Statutory Impairments of Hand (Amputation)

§23-4-6. Classification of and criteria for disability benefits.

(1) If the injury results in the total loss by severance of any of the members named in this subdivision, the percentage of disability shall be determined by the percentage of disability, specified in the following table:

- The loss of a little or fourth finger (one phalanx) shall be considered a three percent disability.
- The loss of a little or fourth finger shall be considered a five percent disability.
- The loss of ring or third finger (one phalanx) shall be considered a three percent disability.
- The loss of ring or third finger shall be considered a five percent disability.
- The loss of middle or second finger (one phalanx) shall be considered a three percent disability.
Figure 1. Upper Extremity Impairment Evaluation Record Part 1 (Hand)

<table>
<thead>
<tr>
<th>Abnormality</th>
<th>Amputation</th>
<th>Surgery Date</th>
<th>Other Causes</th>
<th>Nerve Impairment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rest</td>
<td>Axial</td>
<td>Bifurcation</td>
<td>Nerve</td>
<td>Neural stimulation</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Radial</td>
<td>Axial</td>
<td>Bifurcation</td>
<td>Nerve</td>
<td>Neural stimulation</td>
</tr>
</tbody>
</table>

Legend:
- Axial: Axial
- Bifurcation: Bifurcation
- Nerve: Nerve
- Neural stimulation: Neural stimulation

**Note:** All tables and figures are based on data from Table 1A and Table 1B.
“OTHER”

Used with Table 18 (Page 58) if functionally significant (Pages 58-60)

- Crepitation
- Synovial Hypertrophy
- Lateral Deviation
- Rotational Deformity
- Persistent subluxation or dislocation
- Mediolateral Instability

Select Multiplier based on Severity; Multiply by Joint Value (Table 18).

Carpal Instability (Table 26, Page 61)

Arthroplasty (Table 27, Page 61).
“Other” (Continued)

Musculotendinous Impairments (Used with Table 18)

Intrinsic Tightness
Constrictive Tendonitis
Subluxation of Extensor Tendon
CARPAL TUNNEL ISSUES
Definitions: Carpal Tunnel Syndrome Vs. Median Nerve Injury

Carpal Tunnel Syndrome

Nerve Entrapment (Site)

Major Peripheral Nerves

Causalgia and Reflex Sympathetic Dystrophy

Severity
Methods of Derivation of Impairment

1. Table 16 (Page 57): If meets definition of “Entrapment Neuropathy”

2. Method described in Steps 1 – 7 on Page 56
1. Identify the nerve and level of injury
2. Rate sensory and motor severity (usually second category: 2 or 4)
3. Multiply severity factor (maximum % impairment by Grade (0.25)
4. For mixed nerves, combine; for multiple nerves, combine
5. Convert to WPI
Simplified Method: Using Table 16 (Page 57)

1. Simple and Allowed by the AMA Guides

2. Based on the Example on Page 56, injury must be extremely severe to justify more than the “mild” category (6% WPI): 60% strength loss was interpreted as “mild.”

3. May be “trumped” by the more detailed method (Accurate and Reliable)
Evidence of Motor Deficit

1. History consistent with weakness, clumsiness, limitation
2. Atrophy: thenar/hypothenar
3. Opposition gap
4. Estimation of grip strength (acceptable effort and curve).
5. “Tear Test (Ply Test)”
6. Electrodiagnostic Studies

Evidence of Sensory Deficit

1. Weber two-point discrimination
2. Consistent history
3. Electrodiagnostic Studies
Anatomy

Superiorly: transverse carpal ligament; Inferiorly: carpal bones

Accompanied by 9 flexor tendons

C6-C7-C8-T1: Rearranges in B. Plexus

C6-C7: Sensory (including thenar imminence)

C8-T1: Motor

Palmar cutaneous sensory nerve passes over the tunnel: Thenar area spared

Martin Gruber Anastomosis
Accuracy

Clinical Diagnosis

Phalen’s: Fair sensitivity and Specificity (70%)

Tinel’s: Bad (Low) sensitivity; same specificity

NCS: Bad sensitivity; Good specificity (>90%); Usually bilateral
Impairment

Pain related (sleep, driving, work)

Dropping Objects

Doorknobs, keys, jar lids, coins, buttoning

Weakness
Causes (?)

Associations
Anatomy (Genetic)
Hormonal
Edema
Motion
Medication
Diabetes
Obesity