## Background

Workers' Compensation Medical Protocols first became effective on January 1, 1996 as a result of legislative changes to Section 31-280 of the Workers' Compensation Act.

The Workers' Compensation Commission (WCC) uses these Medical Protocols to evaluate whether a particular treatment is reasonable and appropriate based on the diagnosis of a worker's injury or illness.

Revisions to various Medical Protocols reflect the latest changes in the medical field regarding new procedures, treatments, and diagnostic tests:

- Protocols for treatment of injuries to the cervical spine and lumbar spine were revised in 2012 and updated in 2013 and in 2015.
- Protocols for treatment of injuries to the knee were revised in 2015.
- Protocols for treatment of injuries to the hand, wrist, and elbow were revised in 2015.
- Protocols for treatment of injuries to the shoulder were revised in 2014.

Additionally, Opioid Management Protocols were created in 2012, because the WCC recognizes that some injured workers may require opioids to manage their acute and chronic pain. Proper opioid management is essential for the safe and efficient care of injured workers.

## New

In consultation with practitioners, insurers, and the Medical Advisory Panel, new Medical Protocols for Psychological Pain Assessment and Treatment became effective in 2016 to assist practitioners in effective pain management for injuries occurring within the workers' compensation arena.

Revisions to various Medical Protocols reflect the latest changes in the medical field regarding new procedures, treatments, and diagnostic tests:

- Protocols for treatment of injuries to the cervical spine and lumbar spine were revised in 2012 and updated in 2013 and in 2015.
- Protocols for treatment of injuries to the knee were revised in 2015.
- Protocols for treatment of injuries to the hand, wrist, and elbow were revised in 2015.
- Protocols for treatment of injuries to the shoulder were revised in 2014.

### Effective Dates

- February 15, 2016: Psychological Pain Assessment and Treatment – created
- November 1, 2015: Cervical Spine Lumbar Spine – update
- August 15, 2015: Knee – revision
- April 1, 2015: Hand, Wrist, and Elbow – revision
- April 1, 2014: Shoulder – revision
- July 1, 2013: Cervical Spine Lumbar Spine – update
- July 1, 2012: Cervical Spine Lumbar Spine – revision
- July 1, 2012: Opioid Management – created

## Future Updates

The Workers' Compensation Medical Protocols will continually be revised and updated, as appropriate.

The WCC advises practitioners, insurers, and other concerned parties to periodically check for announcements of revisions and updates on the WCC website: wcc.state.ct.us

The WCC – with practitioners, insurers, and the Medical Advisory Panel – is currently revising the Workers' Compensation Medical Protocols for the treatment of injuries to the foot and ankle, and these will be published upon completion.

## Acknowledgments

The WCC thanks the medical professionals who have spent – and continue to spend – many hours working with us to bring the most appropriate treatment, and the highest standard of care, to injured workers in Connecticut.
Pain is a complex phenomenon. Many factors contribute to and modify pain.

It is generally accepted that pain generators include both somatic and psychic elements. These factors are further modified by complex social variables.

What is generally referred to as "pain" by most laypersons is a subjective experience. As such, "pain" is a psychological experience and product of complex biopsychosocial phenomena.

Consequently, the diagnosis of the causes of "pain" and associated treatment of "pain" is an enormously challenging endeavor often complicated by insistent demand for relief. Neither biological / medical, psychological, nor environmental / social strategies may suffice.

It is clear from the literature that the highest rates of diagnostic and treatment efficacy are represented by integrated biopsychosocial and interdisciplinary models and delivery systems.

Psychological approaches to diagnosis and treatment appear to many to be a "black box." However, even casual scrutiny reveals similar uncertainties, ambiguities, and knowledge limitations in biological / medical methods.

Psychological / neuropsychological procedures for assessment and treatment of emotional, behavioral, and motivational aspects of pain continue to evolve in accuracy and efficacy.

Inclusion of these methods in an integrated approach to pain management is increasingly and widely recognized as essential.
### Diagnostic Criteria

Demographic screening to identify:
- any previous psychological diagnosis / treatment, including:
  - psychiatric hospitalization
  - outpatient psychotherapy / counseling
  - psychopharmacological treatment (e.g., antidepressants, anxiolytics, etc.)
- diagnosis and/or treatment of any drug or alcohol abuse or dependence – e.g., life interference such as:
  - relationships
  - work
  - DWI
  - detoxification
  - inpatient / outpatient rehabilitation
  - 12-step participation
- prior treatment for work-related pain
- prior workers’ compensation claim with pain-related lost time

Physician discretion based on anomalies of case presentation or course . . .

AND / OR

. . . positive response to any one of 4 questions obtained by any provider (above)

### Diagnostic Studies

Recommended:
- monitor medical progress
- refer for psychodiagnostic interview:
  - positive responders on demographic screen
  - individuals based on physician discretion

### Treatment

Recommended:
- medical monitoring
  - and/or
- implementation of psychodiagnostic interview-generated recommendations

### Goals of Treatment

Medical regimen compliance with:
- expected decreased VAS ratings
- functional improvement
### Diagnostic Criteria

Physician determination of:
- lack of expected improvement
- atypical presentation
- treatment noncompliance

### Diagnostic Studies

Psychodiagnostic interview:
- by qualified psychological / psychiatric provider
- with administration of standardized screening tools, such as:
  - ODI
  - BDI

### Treatment

Recommended, per examination results:
- continued medical management
- enhanced monitoring
- rehabilitative psychotherapy
- compliance contingency management regimens
- emotional-behavioral contraindications to medical management – e.g.:
  - primary / secondary gain
  - polypharmacy
  - interventional procedures including:
    - injections
    - blocks
    - surgery

### Goals of Treatment

Support medical treatment goals with:
- enhanced medical regimen compliance
- pain reduction
- functional improvement
### GREATER THAN 3 MONTHS

<table>
<thead>
<tr>
<th>DIAGNOSTIC CRITERIA</th>
<th>DIAGNOSTIC STUDIES</th>
<th>TREATMENT</th>
<th>GOALS OF TREATMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>• continued failure of expected medical improvement</td>
<td>Recommended:</td>
<td>Recommended, per examination results:</td>
<td>Support medical treatment goals with:</td>
</tr>
<tr>
<td>• onset of new symptoms</td>
<td>• formal psychological examination:</td>
<td>• continued medical management</td>
<td>• enhanced medical regimen compliance</td>
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<tr>
<td>• unexpected symptom variability</td>
<td>– by qualified psychological provider</td>
<td>• enhanced monitoring</td>
<td>• pain reduction</td>
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<tr>
<td>• compromised treatment compliance</td>
<td>– expanding diagnostic interview</td>
<td>• rehabilitative psychotherapy</td>
<td>• functional improvement</td>
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<td>– administration of self-report inventories</td>
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<td>• personality inventories, with:</td>
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</tbody>
</table>
### Diagnostic Criteria
- continued failure to demonstrate functional improvement
- lack of response to pharmacological strategies
- lack of response to interventional strategies
- marked noncompliance
- marked litigiousness
- failed drug screen
- repeated loss of medications
- other compromises of medication contracting
- positive findings on PMP

### Diagnostic Studies
Recommended:
- forensic examination:
  - by qualified psychological / neuropsychological provider
  - include:
    - systematic analysis of ability suppression
    - systematic analysis of response bias
    - formalized battery of screening measures
    - forced choice measures
    - self-report inventories with validity scales (IME?)

### Treatment
Recommended, per examination results:
- continued medical management
- enhanced monitoring
- rehabilitative psychotherapy
- compliance contingency management regimens
- emotional-behavioral contraindications to medical management – e.g.:
  - primary / secondary gain
  - polypharmacy
  - interventional procedures including:
    - injections
    - blocks
    - surgery

### Goals of Treatment
Support medical treatment goals with:
- enhanced medical regimen compliance
- functional improvement

Cessation of care, on the basis of:
- documented unreasonableness
- unnecessary evaluation
- unnecessary treatment
<table>
<thead>
<tr>
<th>PROCEDURE BASE CRITERIA</th>
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<tbody>
<tr>
<td><strong>DIAGNOSTIC CRITERIA</strong></td>
</tr>
<tr>
<td>- surgical interventions for pain reduction</td>
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<tr>
<td>(in the absence of neurological compromise)</td>
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<td>- interventional pain management procedures,</td>
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<tr>
<td>including:</td>
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<tr>
<td>- trials</td>
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<td>- permanent placement of implanted devices</td>
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<td>- personality inventories, with:</td>
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<td>- response bias scales</td>
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<tr>
<td>(e.g., MMPI-2RF, PAI, MCMI, etc.)</td>
</tr>
<tr>
<td>- additional self-report inventories directed at medical and pain patients</td>
</tr>
<tr>
<td>(e.g., MBMD, BHI-2, etc.)</td>
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<td>o blocks</td>
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<td>o surgery</td>
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<tr>
<td>- pain reduction</td>
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<tr>
<td>- functional improvement</td>
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</tbody>
</table>
**OVERVIEW**

Proper opioid management is essential for the safe and efficient care of injured patients. The WCC recognizes that some injured patients may require opioids for the management of their acute and chronic pain. It is not the intention of the WCC to restrict the proper medical use of this class of medications, however responsible prescribing is mandatory. Additionally, studies have shown that injured workers placed on high dose opioids early in the post-injury period may experience a slower recovery, more difficulty with returning to work, more difficulty with weaning, and more frequently end up on long term opioids.

During the first two weeks post injury, low dose, short acting opioids may be appropriate for those with more severe injuries. Even during the acute phase it is preferred that the injured worker avoid opioid medications when possible. During the remaining portion of the acute and subacute period, attempts should be made to wean and discontinue opioid medications as appropriate (i.e., as symptoms improve) and as soon as possible. Dose escalation during these periods should be avoided, as the injury should be stabilized and healing. Medications that are deemed to be inappropriate for the vast majority of injured patients include immediate release, ultra-short acting sublingual and nasal opioid preparations. Long acting opioids are not recommended in the acute and sub-acute phases of treatment. In addition, following major surgical interventions, as acute postoperative pain resolves attempts should be made to wean medications as soon as possible, again avoiding dose escalation beyond the acute post-operative period.

Opioids are not meant to completely eliminate pain, but to ease symptoms and improve function (i.e., improvement of work capacity, ADLs, sleep and sexual function). Any continuation of medications, however responsible prescribing is mandatory. Additionally, studies have shown that injured workers placed on high dose opioids early in the post-injury period may experience a slower recovery, more difficulty with returning to work, more difficulty with weaning, and more frequently end up on long term opioids.

If an injured patient requires opioid maintenance longer than 12 weeks, evaluation / consultation and treatment by a physician with appropriate specialty training in pain management should be considered. Documentation of medical necessity, including gains in pain, function or work capacity, is mandatory for prescribing beyond what is described within these guidelines.

The total daily dose of opioids should not be increased above 90mg oral MED (Morphine Equivalent Dose) unless the patient demonstrates measured improvement in function, pain or work capacity. Second opinion is recommended if contemplating raising the dose above 90 MED.

Before prescribing opioids for chronic pain, potential comorbidities should be evaluated. These include opioid addiction, drug or alcohol problems and depression. A baseline urine test for drugs of abuse and assessment of function and pain should be performed prior to institution of opioids for chronic pain.

**GUIDELINES FOR PRESCRIBING**

- Single prescriber
- Single pharmacy
- Opioid agreement
- Caution should be used with:
  - combination therapy
  - sedative-hypnotics
  - benzodiazepines
  - barbiturates
  - muscle relaxants
- Routine assessment of pain and function, if there is no improvement
- Weaning of opioid

**REASONS TO DISCONTINUE OPIOIDS OR REFER FOR ADDICTION MANAGEMENT**

- No measured improvement in function and / or pain, or
- Opioid therapy produces significant adverse effects, or
- Patient exhibits drug-seeking behaviors or diversions such as:
  - selling prescription drugs
  - forging prescriptions
  - stealing or borrowing drugs
  - frequently losing prescriptions
  - aggressive demand for opioids
  - injecting oral / topical opioids
  - unsanctioned use of opioids
  - unsanctioned dose escalation
  - concurrent use of illicit drugs
  - failing a drug screen
  - getting opioids from multiple prescribers
  - recurring emergency department visits for chronic pain management

If there is no measured improvement in pain, function, ADLs or work capacity after three (3) months of opioid medication, the prescribing physician must justify the continued use of opioids and should consider weaning of the opioid.

Opioids may allow the patient to return to work safely and more expeditiously and therefore may be indicated; nevertheless, attempts to wean these medications and avoidance of dose escalation should be the goal of treatment.

This document is meant as a guideline for the practitioner and should not supplant proper medical judgment.

**SAMPLE OPIOID EQUIVALENCY TABLE**

<table>
<thead>
<tr>
<th>OPIOID</th>
<th>MED</th>
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<tbody>
<tr>
<td>Codeine</td>
<td>0.15</td>
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<tr>
<td>Fentanyl Transdermal</td>
<td>2.4</td>
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<tr>
<td>Hydrocodone</td>
<td>4</td>
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<tr>
<td>Hydromorphone</td>
<td>12</td>
</tr>
<tr>
<td>Methadone up to 20mg</td>
<td>8</td>
</tr>
<tr>
<td>Methadone 21-40mg</td>
<td>10</td>
</tr>
<tr>
<td>Methadone 41-60mg</td>
<td>12</td>
</tr>
<tr>
<td>Morphine</td>
<td>1</td>
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<tr>
<td>Oxycodone</td>
<td>1.5</td>
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<tr>
<td>Oxymorphone</td>
<td>3</td>
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### MEDICAL PROTOCOLS: CERVICAL SPINE – PAGE 1 of 9

#### NECK PAIN HISTORY AND PHYSICAL EXAMINATION

<table>
<thead>
<tr>
<th>HISTORY OF PRESENT ILLNESS</th>
<th>MEDICATIONS</th>
<th>ALLERGIES</th>
<th>PAST MEDICAL / SURGICAL HISTORY</th>
<th>SOCIAL HISTORY</th>
<th>REVIEW OF SYSTEMS</th>
<th>PHYSICAL EXAMINATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of Injury:</td>
<td>History should include:</td>
<td>Medication allergies should be verified at every visit.</td>
<td>Identify any previous occupational and non-occupational injuries to the same area.</td>
<td>Identify systemic disease symptoms:</td>
<td>Identify:</td>
<td>Physical examination:</td>
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<tr>
<td>- details of events before, during, and immediately after the alleged injury</td>
<td>- previous medications taken for this neck injury</td>
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<td>smoking</td>
<td>vital signs</td>
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<tr>
<td>- mechanism of injury</td>
<td>- a list of all current medications, including dose and frequency</td>
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<td>alcohol use</td>
<td>general appearance, including posture</td>
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<td>- identification of body parts involved</td>
<td>- any significant side effects from previous medications</td>
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<td>other drug use</td>
<td>weight</td>
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<td>- location of the pain, characteristics of the pain, and distribution of the pain symptoms</td>
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<td>vocational activities</td>
<td>any pain behaviors</td>
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<td>- frequency and duration of symptoms</td>
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<td>infectious</td>
<td>Signs of symptom amplification should be noted.</td>
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<td>- alleviating / exacerbating factors</td>
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<td>neurologic</td>
<td>Visual inspection of neck</td>
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<td>Any limitations in functional activities should be noted.</td>
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<td>neoplastic</td>
<td>Palpation of cervical spine including:</td>
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<td>renal</td>
<td>- midline</td>
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<td>The history should include the presence and distribution of any upper extremity numbness, paresthesias, or weakness and a description as to whether or not it is precipitated or worsened by coughing or sneezing.</td>
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<td>rheumatologic</td>
<td>paraspinal and posterior elements</td>
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<td>Any changes in gait, bowel, bladder or sexual function should be identified as they may indicate a more severe spinal injury.</td>
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<td>other</td>
<td>shoulders</td>
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<tr>
<td>The presence of a serious or progressive neurological deficit demands immediate attention and appropriate triage.</td>
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<td>The possibility of neck pain from other non-traumatic sources should be investigated by asking questions about fever, rash, swelling, unexplained weight loss, morning stiffness etc.</td>
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<td>A visual analog pain scale should be used and monitored at each visit. The patient should be asked their current rating, average over the last week and range from low to high.</td>
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<td>Note any history of emotional and/or psychological response to the current injury.</td>
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Demographic screening to identify:
- any previous psychological diagnosis/treatment including psychiatric hospitalization, outpatient psychotherapy/counselling, or psychopharmacological treatment (e.g. antidepressants, anxiolytics, etc.)
- diagnosis and/or treatment of any drug or alcohol abuse or dependence (e.g. life interference such as relationships, work, DWI, detoxifications, inpatient/outpatient rehabilitation or 12-step participation)
- prior treatment for work-related pain
- prior workers’ compensation claim with pain-related lost time

Identify:
- smoking
- alcohol use
- other drug use
- vocational activities
- recreational activities

Identify systemic disease symptoms:
- cardiac
- endocrine
- gastrointestinal
- hematological
- infectious
- neurologic
- neoplastic
- renal
- rheumatologic
- other

Physical examination:
- vital signs
- general appearance, including posture
- weight
- any pain behaviors

Signs of symptom amplification should be noted.

Visual inspection of neck
Palpation of cervical spine including:
- midline
- paraspinal and posterior elements

Make a note of:
- range of motion
- quality of motion
- exacerabating or alleviating motions of neck and shoulders
- presence of muscle spasm
- nerve tension compression
- deep tendon reflexes
- any pathological reflexes

Sensory and motor examination of the upper and lower extremities with specific description of abnormalities

Assessment of transfers and gait
In cases where the mechanism of injury, history, or clinical presentation suggests a possible severe injury, additional evaluation is indicated.

A detailed neurological examination for possible spinal cord injury should include:
- sharp and light touch, deep pressure, temperature, and proprioceptive sensory function
- anal sphincter tone and/or perianal sensation
### ACUTE AXIAL NECK INJURY (LESS THAN 4 WEEKS)

<table>
<thead>
<tr>
<th>DIAGNOSTIC CRITERIA</th>
<th>DIAGNOSTIC STUDIES</th>
<th>TREATMENT</th>
<th>GOALS OF TREATMENT</th>
<th>IF GOALS NOT MET</th>
</tr>
</thead>
<tbody>
<tr>
<td>On initial visit:</td>
<td>Recommended:</td>
<td>Recommended:</td>
<td>Recommend RTW:</td>
<td>Document:</td>
</tr>
<tr>
<td>• complete history</td>
<td>no X-Rays, unless indicated by amount of trauma or based on documented medical suspicion</td>
<td>• Chiropractic or Physical Therapy:</td>
<td>sedentary........... 0-3 days</td>
<td></td>
</tr>
<tr>
<td>• physical examination</td>
<td>MRI or CT myelogram for progressive neurological deficit</td>
<td>– encourage increased activity ASAP</td>
<td>light-med........... 7-17 days</td>
<td></td>
</tr>
<tr>
<td>• pain diagram</td>
<td></td>
<td>– education</td>
<td>heavy.................. 14-35 days</td>
<td></td>
</tr>
<tr>
<td>Height and weight (BMI)</td>
<td></td>
<td>– active treatment strengthening and aerobic, as tolerated</td>
<td></td>
<td></td>
</tr>
<tr>
<td>On each visit document:</td>
<td></td>
<td>– passive modalities up to 2 weeks (hot pack / cold pack, ultrasound, electrical stimulation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• primary diagnosis</td>
<td></td>
<td>Up to 12 visits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• precise location and character of pain</td>
<td></td>
<td>– document functional and VAS improvement to continue after 8 visits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• VAS pain level</td>
<td></td>
<td>Medications:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• exam pertinent to injured body part</td>
<td></td>
<td>• NSAIDs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• functional capacity</td>
<td></td>
<td>• acetaminophen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• appraisal of ADLs and functional activity</td>
<td></td>
<td>• muscle relaxants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Work capacity and status</td>
<td></td>
<td>• opioid – see Opioid Protocol</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### IF GOALS NOT MET
- Document:
  - compliance
  - no shows / cancellations
  - effort: clinic
  - effort: home

Consider oral steroids for severe pain.
### Diagnostic Criteria

- On initial visit:
  - complete history
  - physical examination
  - pain diagram

### Diagnostic Studies

- **Recommended:**
  - X-Ray, especially if previous injury or surgery
  - MRI after 6 weeks, if clinically indicated

- **Not Recommended:**
  - CT Scan
  - Discogram

### Treatment

Chiropractic or Physical Therapy:
- no isolated passive modalities (hot pack / cold pack, ultrasound, electrical stimulation)
- exercise
- strengthening
- aerobic
- assess and document progress
- up to 12 additional visits based on measured improvement in VAS, function and work capacity

**Medications:**
- NSAIDs
- acetaminophen
- opioid – see opioid protocol
- antidepressants
- muscle relaxants

**Injections:**
- see IPM Protocol

**Limited Indication:**
- anticonvulsants

### Goals of Treatment

Recommend RTW:
- sedentary ....................... 0-3 days
- light-med ....................... 7-17 days
- heavy ............................. 14-35 days

Contingent on assessment of functional capacity

### If Goals Not Met

- Consider alternative cause
- Consider psychological factors
  - see Psychological Guideline
- Administer standard psych assessment tool such as ODI
### Diagnostic Criteria

On initial visit:
- complete history
- physical exam
- pain diagram

Height and weight (BMI)

On each visit document:
- primary diagnosis
- precise location and character of pain
-VAS pain level
- current meds
- exam pertinent to injured body part
- functional capacity
- appraisal of ADLs and functional activity

Work capacity and status

Appraise compliance

Consider specialty referral, if not improving

### Diagnostic Studies

Recommended:
- X-Rays
- consider F&E X-Rays

MRI, if not already done

Consider CT Scan to evaluate bony anatomy

Consider SPECT Scan to evaluate for pseudoarthrosis from previous surgery or alternative causes of neck pain

### Treatment

Recommended:
- Chiropractic or Physical Therapy
- no passive modalities, unless acute flare-up (hot pack / cold pack, ultrasound, electrical stimulation)
- exercise, strengthening, core, aerobic
  - assess and document measured improvement in VAS, functional and work capacity to continue treatment
- TENS (not isolated Rx), only if compliant with other modalities and not improving
- assess BMI and smoking and counsel appropriately
- weight reduction for BMI > 30

Medications:
- NSAIDs
- acetaminophen
- opioid – see Opioid Protocol
- antidepressants
- muscle relaxants

Injections:
- see IPM Guideline

Not Recommended:
- bed rest
- anticonvulsants

### Goals of Treatment

Recommend RTW:
- sedentary....................... 0-3 days
- light-med...................... 7-17 days
- heavy............................ 14-35 days

Contingent on assessment of functional capacity

### If Goals Not Met

Consider alternative cause

Consider psychological factors
- see Psychological Guideline

Administer standard psych assessment tool such as ODI

Consider time limited behavioral cognitive therapy

Functional capacity evaluation / vocational rehab

Change of job

Surgery may be considered for appropriate cases
- see Surgery page
## Acute Cervical Radiculopathy (Less than 4 Weeks)

### Diagnostic Criteria

- On initial visit:
  - complete history
  - physical exam
  - pain diagram
  - Height and weight (BMI)

On each visit document:
- primary diagnosis
- precise location and character of pain
- accurate description of weakness, sensory and reflex abnormalities
- root tension signs
- VAS pain level and/or leg on each visit
- functional capacity
- appraisal of ADLs and functional activity
- Work capacity and status

### Diagnostic Studies

**Recommended:**
- no X-Rays (unless indicated by amount of trauma or based on documented medical suspicion)
- MRI or CT myelogram for progressive neurological deficit

**Not Recommended:**
- CT Scan (unless indicated by degree of trauma)
- Discogram

### Treatment

**Recommended:**
- Chiropractic or Physical Therapy:
  - encourage increased activity ASAP
  - education
  - active treatment strengthening and aerobic, as tolerated
  - passive modalities up to 2 weeks (hot pack / cold pack, ultrasound, electrical stimulation)
  - traction
- Up to 12 visits
  - document functional and VAS improvement to continue after 8 visits

- Medications:
  - NSAIDs
  - steroids, if severe
  - muscle relaxants – 2 weeks
  - opioid – see Opioid Protocol
  - anticonvulsants
  - antidepressants
  - acetaminophen

- Injections:
  - see Injection Guideline

- Follow-up:
  - within 2 weeks

**Not Recommended:**
- bed rest

### Goals of Treatment

**Recommend RTW:**
- sedentary....................... 0-3 days
- light-med....................... 7-17 days
- heavy........................... 14-35 days

Contingent on assessment of functional capacity

### If Goals Not Met

**Document:**
- compliance
- no shows / cancellations
- effort: clinic
- effort: home
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<tr>
<td></td>
<td></td>
<td></td>
<td>- heavy................. 14-35 days</td>
<td>Administer standard psych assessment tool (such as ODI)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Contingent on assessment of functional capacity</td>
<td>Consider surgery for compressive radiculopathy</td>
</tr>
<tr>
<td>On each visit document:</td>
<td></td>
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**MEDICAL PROTOCOLS: CERVICAL SPINE – PAGE 6 of 9**

**SUBACUTE CERVICAL RADICULOPATHY (1-3 MONTHS)**

- complete history
- physical exam
- pain diagram
- height and weight (BMI)

On initial visit:
- precise location and character of pain
- accurate description of weakness, sensory and reflex abnormalities
- root tension signs
- VAS pain level and/or leg on each visit
- functional capacity
- appraisal of ADLs and functional activity

Current meds

Work capacity and status

Appraise compliance

Consider specialty referral, if not improving

**DIAGNOSTIC STUDIES**

- X-Ray (especially if previous injury or surgery)
- MRI
- consider CT Scan to evaluate bony anatomy for foraminal stenosis
- EMG (needle) with neurological signs and symptoms and equivocal MRI or CT findings

Not recommended:
- Discogram

**TREATMENT**

- Chiropractic or Physical Therapy:
  - no isolated passive modalities (hot pack/cold pack, ultrasound, electrical stimulation)
  - exercise, strengthening, core, aerobic (assess and document progress)
  - additional visits based on measured improvement in VAS, functional and work capacity
  - assess BMI and smoking and counsel appropriately

- NSAIDS
- antidepressants
- anticonvulsants
- acetaminophen
- opioid – see Opioid Protocol

**GOALS OF TREATMENT**

**IF GOALS NOT MET**

- Document compliance
- Consider psychological factors
- see Psychological Guideline
- Contingent on assessment of functional capacity
- Administer standard psych assessment tool (such as ODI)
- Consider surgery for compressive radiculopathy
### CHRONIC CERVICAL RADICULOPATHY (GREATER THAN 3 MONTHS)

#### DIAGNOSTIC CRITERIA

- On initial visit:
  - complete history
  - physical exam
  - pain diagram

- Height and weight (BMI)

- On each visit document:
  - primary diagnosis
  - precise location and character of pain
  - accurate description of weakness, sensory and reflex abnormalities
  - root tension signs
  - VAS pain level and / or leg on each visit
  - functional capacity
  - appraisal of ADLs and functional activity

- Current meds

- Work capacity and status

- Appraise compliance

- Consider specialty referral, if not improving

#### DIAGNOSTIC STUDIES

- Recommended:
  - X-Ray (especially if previous injury or surgery)
  - MRI

- Consider CT Scan to evaluate bony anatomy for foraminal stenosis

- EMG (needle) with neurological signs and symptoms and equivocal MRI or CT findings

#### TREATMENT

- Recommended:
  - Chiropractic or Physical Therapy:
    - no passive modalities, unless acute flare-up (hot pack / cold pack, ultrasound, electrical stimulation)
    - exercise, strengthening, core, aerobic (assess and document progress)
    - assess BMI and smoking and counsel appropriately
    - weight reduction for BMI > 30

- Medications:
  - NSAIDs
  - antidepressants
  - anticonvulsants
  - acetaminophen
  - opioid – see Opioid Protocol

- Injections:
  - see IPM Guideline

- Surgery:
  - if documented compression

- Not Recommended:
  - bed rest

#### GOALS OF TREATMENT

- Recommend RTW:
  - sedentary: 0-3 days
  - light-med: 7-17 days
  - heavy: 14-35 days

- Contingent on assessment of functional capacity

#### IF GOALS NOT MET

- EMG to document neurological status

- Consider psychological factors
  - see Psychological Guideline

- Administer standard psych assessment tool (such as ODI)

- Consider time-limited behavioral cognitive therapy

- Functional capacity evaluation / vocational rehab

- Functional restoration program

- Spinal cord stimulation:
  - neurological pain > 6 months
  - adequate psychological evaluation prior to SCS trial
  - see psychological guideline
### Root Decompression (Neck)

#### Diagnosis
- Radiculopathy due to compression
  - Symptoms in the distribution of a nerve root caused by compression of a herniated disc or altered bony anatomy

#### Indications
- Failure to improve with appropriate chiropractic or physical treatment, including traction, documented compliance
  - Time: 4-6 weeks minimum, unless progressive neurological deficit
- Medications: steroids, NSAIDs

#### Radiographic Indications
- Lateral disc herniation
- Lateral recess stenosis

#### Surgery
- Administer standard tool, ODI before and after surgery to document outcome
- Hemilaminectomy with or without discectomy
- Laminectomy for stenosis with myelopathy, normal cervical lordosis

#### Post-Operative Recovery
- Chiropractic or PT rehabilitation for strength and aerobic capacity
- Return to work:
  - Temporary total disability up to 4 weeks
  - Return to light or modified duty 4-8 weeks
  - Return to full duty after 8 weeks

#### MMI
- 6 months
- Impairment based on objective standard (per CT WC Statute)

### Fusion (Neck)

#### Diagnosis
- Severe degeneration with foraminal stenosis
- Recurrent disc herniation
- Instability (<3.5mm or 11 degrees)
- Myelopathy
- Pseudoarthrosis from previous fusion

#### Indications
- Failure to improve with at least 3 months of conservative care, including traction, documented compliance
- No long-acting opioids
- No smoking — smoking is an absolute contraindication for fusion
- Warning: signs of symptom amplification, narcotics, long time out of work, failed psychological screening

#### Radiographic Indications
- X-Rays (including obliques to assess foraminal stenosis)
- Flexion extension views for instability
- MRI to assess adjacent levels
- CT or SPECT to assess pseudoarthrosis
- Discography for appropriate clinical indications

#### Surgery
- Administer standard tool, ODI before and after surgery to document outcome
- Consider psychological screening prior to fusion surgery
- One or two levels only
- Autograft or allograft with internal fixation

#### Post-Operative Recovery
- Chiropractic or PT rehabilitation for strength and aerobic capacity
- Return to work:
  - Temporary total disability up to 4 weeks
  - Return to full duty after 8 weeks

#### MMI
- 12 months
- Impairment based on objective standard (per CT WC Statute)
MEDICAL PROTOCOLS: CERVICAL SPINE – PAGE 9 of 9

INTERVENTIONAL PAIN MANAGEMENT: BASIC GUIDELINES FOR AXIAL NECK PAIN

- Medical necessity for all injections must be documented with a clear description of the diagnosis and rationale for the injection.
- Injured workers should be re-evaluated @ 2 weeks following any intervention to assess change in pain level, change in function (and hence work status), and to determine next steps in the treatment course if medically indicated. IPM treatments (‘blocks’) are generally not a treatment performed in isolation; it is important to look at the underlying cause and include functional based exercise programs along with injections.
- Frequently cervical injuries are simply myofascial strains that can be relieved with PT and stretching. Trigger point injections may be used to facilitate and speed the recovery process if the injured worker is not progressing with conservative management alone or if it is felt that early intervention will speed return to normal work activities.
- All spinal injections must be performed with radiologic guidance, typically fluoroscopy is utilized. CT guided pain management injections should only be performed for specific indications and medical necessity must be documented. Ultrasound is a form of radiologic guidance being used for many different pain injections but cannot be recommended for spinal injections at this time.
- All spinal injections should be accompanied with a report of both the diagnostic and therapeutic response. An injection that does not provide relief still provides diagnostic information as to what is not the cause of the pain. A lack of response to a particular intervention still provides useful information and that should be duly noted in the records. This will prevent further unnecessary injections for pain generating structures that have been found to not be the cause of pain.
- For injured workers who fail to respond to treatment, alternative diagnoses should be considered. If the worker fails to respond to treatment that appears to be appropriate for the condition, evaluation of other barriers to improvement such as psychological issues should be considered.
- Cervical facet blocks are indicated for the diagnosis and treatment of neck pain with or without pseudoradicular symptoms for pain that is suspected of arising from the facet joints. A history and physical examination should document the clinician’s rationale for this suspected diagnosis. Definitive diagnosis requires documenting the patient’s response to a diagnostic injection.
- Therapeutic facet blocks will only be considered as proper management when they provide at least 70% relief of the cervical symptoms and at least 3 months of pain relief and will be limited to a maximum of 3 sets of therapeutic facet injections/year. All facet injections should include steroid (unless otherwise contraindicated) in hopes of providing long term therapeutic effect and to improve the diagnostic specificity of these injections. Patients obtaining only short term relief (less than 3 months) should be considered for more long lasting solutions, such as RF ablation. Some patients can be managed with intermittent therapeutic facet injections.
- Repeat therapeutic injections/procedures are only indicated for those individuals who document sustained improvement in both pain and function, including improved ADL’s and functional capacities for at least three months.
- In addition, if the patient has significant bilateral pain, bilateral injections should be performed with the diagnostic injection so the clinician can better and more fully assess the etiology of the pain. Residual pain from joints that are not treated will confuse the diagnostic information that is obtained from a diagnostic block. Injection.
- Radiofrequency ablation (Facet rhizotomy) may be considered for patients who achieve short-term relief with at least 70% reduction of target symptoms along with improved function and ROM with a diagnostic injection (Note-face blocks are not expected to result in improvement of radicular symptoms). Radiofrequency ablation requires that the patient has had a facet medial branch mapping procedure, intra-articular injections are not diagnostic for determining the need for RF. Rhizotomy cannot be performed more frequently than once every 6 months.
- If there is a question about the etiology of recurrent pain, re-evaluation and repeat diagnostic workup should be considered prior to repeat injections.
- Epidural steroid injections may be indicated for axial neck pain that is felt to be radicular or discogenic in origin and for which there is a specific possible spinal cause. A diagnosis of discogenic pain is often a diagnosis of exclusion and other causes of neck pain should be evaluated before considering ESIs for treatment of axial pain. Epidural steroid injections may not be performed without an MRI documenting the specific location and extent of spinal pathology, for both safety and accuracy reasons. The routine performance of three epidural steroid injections is not appropriate and results in unnecessary treatment. After each injection, the response should be documented both for pain and functional improvement; if a repeat injection is required medical necessity should be documented even if a series of injections has been approved.
- Pain can arise out of multiple structures and therefore can be multifactorial in origin, nevertheless it is not expected that every single injured worker with a cervical injury will require every single different type of injection, and in fact such practice is not recommended and is strongly discouraged.

INTERVENTIONAL PAIN MANAGEMENT: THERAPIES FOR CERVICAL RADICULOPATHY

- Epidural Steroid Injections (ESI) are indicated for the treatment of a radiculopathy/ radiculitis with symptoms of pain in a radicular distribution, which can be associated with numbness, tingling, and/or weakness in that nerve root distribution. A lack of response should lead the clinician to reconsider the diagnosis or look for alternative treatment options. Medical necessity for all injections must be documented with a clear description of the symptoms, physical findings, diagnosis and rationale for the injection.
- Injured workers should be re-evaluated @ 2 weeks following any intervention to assess change in pain level, change in function (and hence work status), and to determine next steps in the treatment course if medically indicated. IPM treatments (‘blocks’) are generally not a treatment performed in isolation; it is important to look at the underlying cause and include functional based exercise programs along with injections.
- All spinal injections should be accompanied with a report of both the diagnostic and therapeutic response. An injection that does not provide relief still provides diagnostic information as to what is not the cause of the pain. This will prevent further unnecessary injections for structures that have been found not to be the cause of pain.
- Earlier intervention with an ESI may help to speed recovery and promote progress in PT and therefore should be considered in the management of an acute radiculopathy that is not responding to conservative management.
- Epidural steroid injections may not be performed without an MRI documenting the specific location and extent of spinal pathology and should be correlated with neurologic findings.
- Delivery of medication to the location of nerve irritation is the key to success. Injections require radiologic guidance for accuracy and safety. All spinal injections must be performed with radiologic guidance, typically fluoroscopy. CT guided pain management injections should only be performed for specific indications and medical necessity must be documented. Ultrasound is not recommended for spinal injections at this time.
- There are several different approaches to the epidural space but delivery of medication as close as possible to the target location is helpful to optimize outcomes. The choice between interlaminar, transforminal, and catheter guided approaches will be left to the clinician but the risks and benefits of the various approaches should be carefully considered when deciding technique.
- The routine performance of three epidural steroid injections is not appropriate and results in unnecessary treatment. After each injection, the response should be documented both for pain and functional improvement; if a repeat injection is required medical necessity must be documented.
- Injured Workers who do not respond with sustained benefit should be considered for definitive decompression of the involved nerve root(s).
### LOW BACK PAIN HISTORY AND PHYSICAL EXAMINATION

#### HISTORY OF PRESENT ILLNESS

**Description of Injury:**
- details of events before, during, and immediately after the alleged injury
- mechanism of injury
- identification of body parts involved
- location of the pain, characteristics of the pain, and distribution of the pain symptoms
- frequency and duration of symptoms
- alleviating/exacerbating factors

Any limitations in functional activities should be noted.

The history should include the presence and distribution of any lower extremity numbness, paresthesias, or weakness and a description as to whether or not it is precipitated or worsened by coughing or sneezing.

Any changes in bowel, bladder, or sexual function should be identified, as they may indicate a more severe spinal injury. The presence of a serious or progressive neurological deficit demands immediate attention and appropriate triage.

The possibility of low back pain from other non-traumatic sources should be investigated by asking questions about fever, rash, swelling, unexplained weight loss, morning stiffness, etc.

A visual analog pain scale should be used and monitored at each visit. The patient should be asked their current rating, average over the last week and range from low to high.

Note any history of emotional and/or psychological response to the current injury.

#### MEDICATIONS

History should include:
- previous medications taken for this back injury
- a list of all current medications, including dose and frequency
- any significant side effects from previous medications

Any limitations in functional activities should be noted.

#### ALLERGIES

Medication allergies should be verified at every visit.

#### PAST MEDICAL / SURGICAL HISTORY

Identify any previous occupational and non-occupational injuries to the same area.

Determine if the patient has any history of non-traumatic back problems such as arthritis, cancer, surgery, etc.

Document any prior back treatment, chronic or recurrent symptoms, response to previous treatment, and any functional limitations or previous restrictions in work capacity.

Demographic screening to identify:
- any previous psychological diagnosis/treatment including psychiatric hospitalization, outpatient psychotherapy/counseling, or psychopharmacological treatment (e.g. antidepressants, anxiolytics, etc.)
- diagnosis and/or treatment of any drug or alcohol abuse or dependence (e.g. life interference such as relationships, work, DWI, detoxifications, inpatient/outpatient rehabilitation or 12-step participation)
- prior treatment for work-related pain
- prior workers’ compensation claim with pain-related lost time

#### SOCIAL HISTORY

Identify systemic disease symptoms:
- cardiac
- endocrine
- gastrointestinal
- hematological
- infectious
- neurologic
- neoplastic
- renal
- rheumatologic
- other

#### REVIEW OF SYSTEMS

Identify systemic disease symptoms:
- cardiovascular
- endocrine
- gastrointestinal
- hematological
- infectious
- neurologic
- neoplastic
- renal
- rheumatologic
- other

#### PHYSICAL EXAMINATION

**Physical examination:**
- vital signs
- general appearance, including posture
- height
- weight
- any pain behaviors

Signs of symptom amplification should be noted.

**Visual inspection of back**

Palpation of lumbar spine including:
- midline
- paraspinal and posterior elements
- sacroiliac regions
- hips
- gluteal regions

Make a note of:
- range of motion
- quality of motion
- presence of muscle spasm
- exacerbating or alleviating motions
- deep tendon reflexes
- nerve tension testing, both single leg and crossed leg

Sacral and piriformis testing should be considered.

Sensory and motor examination of the lower extremities with specific description of abnormalities.

**Assessment of transfers and gait**

In cases where the mechanism of injury, history, or clinical presentation suggests a possible severe injury, additional evaluation is indicated.

A detailed neurological examination for possible spinal cord injury should include:
- sharp and light touch, deep pressure, temperature, and proprioceptive sensory function
- anal sphincter tone and/or perianal sensation
# Acute Axial Back Injury (Less Than 4 Weeks)

## Diagnostic Criteria

- On initial visit:
  - complete history
  - physical examination
  - pain diagram

- Height and weight (BMI)

- On each visit document:
  - primary diagnosis
  - precise location and character of pain
  - VAS pain level
  - exam pertinent to injured body part
  - functional capacity
  - appraisal of ADLs and functional activity

- Work capacity and status

## Diagnostic Studies

- Recommended:
  - no X-Rays (unless indicated by amount of trauma or based on documented medical suspicion)
  - MRI or CT myelogram for progressive neurological deficit

## Treatment

- Recommended:
  - Chiropractic or Physical Therapy:
    - encourage increased activity ASAP
    - education
    - active treatment strengthening and aerobic, as tolerated
    - passive modalities up to 2 weeks (hot pack / cold pack, ultrasound, electrical stimulation)
  - Up to 12 visits
    - document functional and VAS improvement to continue after 8 visits

- Medications:
  - NSAIDs
  - acetaminophen
  - muscle relaxants
  - opioid – see Opioid Protocol

- Injections:
  - see IPM Protocol

- Follow-up:
  - 1 week, if work modified
  - 4 weeks, if no work modification

- Not recommended:
  - bed rest

## Goals of Treatment

- Recommend RTW:
  - sedentary ....................... 0-3 days
  - light-med ...................... 7-17 days
  - heavy ........................... 14-35 days

- Contingent on assessment of functional capacity

## If Goals Not Met

- Document:
  - compliance
  - no shows / cancellations
  - effort: clinic
  - effort: home

- Consider oral steroids for severe pain

---

**Medical Protocols: Lumbar Spine – Page 2 of 9**
# Subacute Axial Back Injury (1-3 months)

## Diagnostic Criteria

- **On initial visit:**
  - complete history
  - physical examination
  - pain diagram
  - Height and weight (BMI)

- **On each visit document:**
  - primary diagnosis
  - precise location and character of pain
  - VAS pain level
  - current meds
  - exam pertinent to injured body part
  - functional capacity
  - appraisal of ADLs and functional activity
  - Work capacity and status
  - Appraise compliance
  - Consider specialty referral, if not improving

## Diagnostic Studies

**Recommended:**
- X-Ray, especially if previous injury or surgery
- MRI after 6 weeks, if clinically indicated

**Not Recommended:**
- CT Scan
- Discogram

## Treatment

**Recommended**
- Chiropractic or Physical Therapy:
  - no isolated passive modalities
  - hot pack / cold pack, ultrasound, electrical stimulation
  - exercise
  - strengthening
  - core
  - aerobic
  - assess and document progress
  - up to 12 additional visits based on measured improvement in VAS, function and work capacity

**Assess BMI and smoking and counsel appropriately**

**Medications:**
- NSAIDs
- acetaminophen
- opioid – see Opioid Protocol
- antidepressants
- muscle relaxants

**Injections:**
- see IPM Protocol

**Limited Indication:**
- anticonvulsants

## Goals of Treatment

**Recommend RTW:**
- sedentary ............... 0-3 days
- light-med ............... 7-17 days
- heavy ................... 14-35 days

Contingent on assessment of functional capacity

## If Goals Not Met

- Consider alternative cause
- Consider psychological factors
  - see Psychological Guideline
- Administer standard psych assessment tool such as ODI
# Chronic Axial Back Injury (Greater Than 3 Months)

## Diagnostic Criteria

- **On initial visit:**
  - complete history
  - physical exam
  - pain diagram

- **Height and weight (BMI)**

- **On each visit document:**
  - primary diagnosis
  - precise location and character of pain
  - VAS pain level
  - current Meds
  - exam pertinent to injured body part
  - functional capacity
  - appraisal of ADLs and functional activity

- **Work capacity and status**

- **Appraise compliance**

- **Consider specialty referral, if not improving**

## Diagnostic Studies

- **Recommended:**
  - X-Rays
  - MRI, if not already done
  - Consider CT to evaluate bony anatomy (e.g., spondylolisthesis)
  - Consider SPECT scan to evaluate for pseudoarthrosis from previous surgery

## Treatment

### Recommended:

- **Chiropractic or Physical Therapy:**
  - no passive modalities, unless acute flare-up (hot pack / cold pack, ultrasound, electrical stimulation)
  - exercise, strengthening, core, aerobic
  - assess and document measured improvement in VAS, functional and work capacity to continue treatment
  - TENS (not isolated Rx), only if compliant with other modalities and not improving
  - assess BMI and smoking and counsel appropriately
  - weight reduction for BMI > 30

### Medications:

- NSAIDs
- acetaminophen
- opioid – see Opioid Protocol
- antidepressants

### Injections:

- see IPM Guideline

### Not Recommended:

- bed rest
- muscle relaxants

## Goals of Treatment

### Recommend RTW:

- sedentary....................... 0-3 days
- light-med..................... 7-17 days
- heavy ........................ 14-35 days

Contingent on assessment of functional capacity

## If Goals Not Met

- Consider alternative cause
- Consider psychological factors
- see Psychological Guideline
- Administer standard psych assessment tool such as ODI
- Consider time limited behavioral cognitive therapy
- Functional capacity evaluation / vocational rehab
- Change of job
- Surgery may be considered for appropriate cases
  - see Surgery page
## Diagnostic Criteria

- On initial visit:
  - complete history
  - physical exam
  - pain diagram
  - Height and weight (BMI)

- On each visit document:
  - primary diagnosis
  - precise location and character of pain
  - accurate description of weakness, sensory and reflex abnormalities
  - root tension signs
  - VAS pain level and / or leg on each visit
  - functional capacity
  - appraisal of ADLs and functional activity
  - Work capacity and status

## Diagnostic Studies

**Recommended:**
- no X-Rays (unless indicated by amount of trauma or based on documented medical suspicion)
- MRI or CT myelogram for progressive neurological deficit

**Not Recommended:**
- Discogram

## Treatment

**Recommended:**
- Chiropractic or Physical Therapy:
  - encourage increased activity ASAP
  - education
  - active treatment strengthening and aerobic, as tolerated
  - passive modalities up to 2 weeks (hot pack / cold pack, ultrasound, electrical stimulation)
  - traction
  - Up to 12 visits
  - document functional and VAS improvement to continue after 8 visits

**Medications:**
- NSAIDs
- acetaminophen
- muscle relaxants – 2 weeks
- opioids – see Opioid Protocol
- anticonvulsants
- antidepressants
- oral steroids

**Injections:**
- see Injection Guideline

**Follow-up:**
- 2 weeks

**Not Recommended:**
- bed rest

## Goals of Treatment

**Recommend RTW:**
- sedentary...................... 0-3 days
- light-med...................... 7-17 days
- heavy ......................... 14-35 days

Contingent on assessment of functional capacity

## If Goals Not Met

- Document:
  - compliance
  - no shows / cancellations
  - effort: clinic
  - effort: home

- Consider oral steroids for severe pain
# Subacute Lumbar Radiculopathy (1-3 Months)

## Diagnostic Criteria

- **On initial visit:**
  - complete history
  - physical exam
  - pain diagram
- Height and weight (BMI)

- **On each visit document:**
  - primary diagnosis
  - precise location and character of pain
  - accurate description of weakness, sensory and reflex abnormalities
  - root tension signs
  - VAS pain level and / or leg on each visit
  - functional capacity
  - appraisal of ADLs and functional activity

## Diagnostic Studies

- **Recommended:**
  - X-Ray
    - especially if previous injury or surgery
  - MRI
  - Consider CT Scan to evaluate bony anatomy for foraminal stenosis
  - EMG (needle) with neurological signs and symptoms and equivocal MRI or CT findings
- **Not Recommended:**
  - Discogram

## Treatment

- **Recommended:**
  - Chiropractic or Physical Therapy:
    - no isolated passive modalities
    - (hot pack / cold pack, ultrasound, electrical stimulation)
  - exercise, strengthening, core, aerobic
  - assessment and document progress
  - additional visits based on measured improvement in VAS, functional and work capacity
  - assess BMI and smoking and counsel appropriately
  - NSAIDS
  - acetaminophen
  - opioid – see Opioid Protocol
  - antidepressants
  - anticonvulsants
- **Injections:**
  - see IPM Guideline

## Goals of Treatment

- **Recommend RTW:**
  - sedentary....................... 0-3 days
  - light-med...................... 7-17 days
  - heavy ......................... 14-35 days
  - Contingent on assessment of functional capacity

## If Goals Not Met

- Document compliance
- Consider psychological factors
  - see Psychological Guideline
- Administer standard psych assessment tool
  - (such as ODI)
- Consider surgery for compressive radiculopathy

## Medical Protocols: Lumbar Spine – Page 6 of 9
# Chronic Lumbar Radiculopathy (Greater than 3 Months)

## Diagnostic Criteria

**On initial visit:**
- Complete history
- Physical exam
- Pain diagram

**Height and weight (BMI):**

**On each visit document:**
- Primary diagnosis
- Precise location and character of pain
- Accurate description of weakness, sensory and reflex abnormalities
- Root tension signs
- VAS pain level and/or leg on each visit
- Functional capacity
- Appraisal of ADLs and functional activity

**Current meds**

**Work capacity and status**

**Appraise compliance**

**Consider specialty referral, if not improving**

## Diagnostic Studies

**Recommended:**
- X-Ray (especially if previous injury or surgery)
- MRI

Consider CT Scan to evaluate bony anatomy (e.g., spondylolysis)

**EMG (needle) with neurological signs and symptoms and equivocal MRI or CT findings**

## Treatment

**Recommended:**
- Chiropractic or Physical Therapy:
  - No passive modalities, unless acute flare-up (hot pack / cold pack, ultrasound, electrical stimulation)
  - Exercise, strengthening, core, aerobic (assess and document progress)
  - Additional visits based on measured improvement in VAS, functional and work capacity
  - Assess BMI and smoking and counsel appropriately
  - Weight reduction for BMI > 30

**Medications:**
- NSAIDS
- Acetaminophen
- Opioid – see Opioid Protocol
- Antidepressants
- Anticonvulsants

**Injections:**
- See IPM Guideline

**Surgery:**
- If documented compression

Not recommended:
- Bed rest

## Goals of Treatment

**Recommend RTW:**
- Sedentary ....................... 0-3 days
- Light-med ..................... 7-17 days
- Heavy .............................. 14-35 days

Contingent on assessment of functional capacity

## If Goals Not Met

- EMG to document neurological status
- Consider psychological factors
  - See Psychological Guideline
- Administer standard psych assessment tool (such as ODI)
- Consider time-limited behavioral cognitive therapy
- Functional capacity evaluation / vocational rehab
- Functional restoration program
- Spinal cord stimulation:
  - Neurological pain > 6 months
  - Adequate psychological evaluation prior to SCS trial
  - See psychological guideline
## Root Decompression (Back)

### Diagnosis
- Radiculopathy due to compression
  - Symptoms in the distribution of a nerve root caused by compression of a herniated disc or altered bony anatomy

### Indications
- Failure to improve with appropriate chiropractic or physical treatment for aerobic and strength with documented compliance
- Time: 4-6 weeks minimum (unless progressive neurological deficit)
- Medications: steroids, NSAIDs, and transforaminal injection

### Radiographic Indications
- Lateral disc herniation
- Lateral recess stenosis
- Spinal stenosis

### Surgery
- Administer standard tool (ODI) before and after surgery to document outcome
- Hemilaminectomy, discectomy, laminectomy, laminectomy for stenosis

### Post-Operative Recovery
- Chiropractic or PT rehabilitation for strength and aerobic capacity
- Return to work:
  - Temporary total disability up to 4 weeks
  - Return to light or modified duty 4-8 weeks
  - Return to full duty after 8 weeks

### MMI
- 6 months
- Impairment based on objective standard (per CT WC Statute)

## Fusion (Back)

### Diagnosis
- Spondylolytic spondylolysis
- Degenerative spondylolysis
- Recurrent disc herniation
- Removal of facet for decompression
- Instability (>4mm or 10 degrees)
- Pseudoarthrosis from previous fusion

### Indications
- Failure to improve with at least 3 months of conservative care, documented compliance
- No long acting opioids
- Smoking is an absolute contraindication to fusion surgery
- BMI >30 significantly increases the risks, complications and/or poor outcomes and should be objectively assessed prior to consideration of fusion.
- Warning: signs of symptom amplification, narcotics, long time out of work, failed psychological screening

### Radiographic Indications
- X-rays (including obliques for spondylolysis)
- Flexion extension views for instability
- MRI to assess adjacent levels
- Discography for appropriate clinical indications
- CT or SPECT to assess pseudoarthrosis

### Surgery
- Administer standard tool, ODI before and after surgery to document outcome
- Consider psychological screening prior to fusion surgery
- One or two levels only
- Posterolateral fusion (PLF)
- PSF + Pedicle screws
- TLIF
- ALIF + PSF + Pedicle Screws

### Post-Operative Recovery
- Chiropractic or PT rehabilitation for strength and aerobic capacity
- Return to work
- Temporary total disability up to 16 weeks
- Return to light or modified duty depending on demand level

### MMI
- 12 months
- Impairment based on objective standard (per CT WC Statute)
Medical necessity for all injections must be documented with a clear description of the diagnosis and rationale for the injection.

Injured workers should be re-evaluated @ 2 weeks following any intervention to assess change in pain level, change in function (and hence work status), and to determine next steps in the treatment course if medically indicated. IPM treatments ('blocks') are generally not a treatment performed in isolation; it is important to look at the underlying cause and include functional based exercise programs along with injections.

All spinal injections must be performed with radiologic guidance, typically fluoroscopy is utilized. CT guided pain management injections should only be performed for specific indications and medical necessity must be documented. Ultrasound is a form of radiologic guidance being used for many different pain injections but cannot be recommended for spinal injections at this time.

All spinal injections should be accompanied with a report of both the diagnostic and therapeutic response. An injection that does not provide relief still provides diagnostic information as to what is not the cause of the pain. A lack of response to a particular intervention still provides useful information and that should be duly noted in the records. This will prevent further unnecessary injections for pain generating structures that have been found to not be the cause of pain.

For injured workers who fail to respond to treatment, alternative diagnoses should be considered. If the worker fails to respond to treatment that appears to be appropriate for the condition, evaluation of other barriers to improvement such as psychological issues should be considered.

Facet blocks are indicated for the diagnosis and treatment of axial low back pain with or without pseudoradicular symptoms for pain that is suspected of arising from the facet joints. A history and physical examination should document the clinician’s rationale for this suspected diagnosis. Definitive diagnosis requires documenting the patient’s response to a diagnostic injection. Therapeutic facet blocks will only be considered as proper management when they provide at least 70% relief of the axial back symptoms and at least 3 months of pain relief and will be limited to a maximum of 3 sets of therapeutic facet injections/year. Patients obtaining only short term relief (less than 3 months) should be considered for more long lasting solutions, such as RF ablation.

Sacroiliac joint injections are appropriate for suspected sacroiliac joint pain. This should be specifically confirmed by history and physical examination and the clinician must document medical necessity. A diagnostic sacroiliac block can be used to confirm this diagnosis. A negative response indicates this is not the cause of the pain. Therapeutic sacroiliac joint injections will only be considered as proper management when they provide at least 3 months of pain relief and will be limited to a maximum of 3 injections/year.

All facet and sacroiliac joint injections should include steroid (unless otherwise contraindicated) in hopes of providing long term therapeutic effect and to improve the diagnostic specificity of these injections. It should be recognized that patients who have short term relief with these injections may benefit from rhizotomy to achieve longer term pain relief. Some patients can be managed with intermittent therapeutic facet and/or sacroiliac joint injections in hopes of providing long term therapeutic effect and to improve the diagnostic specificity of these injections. Patients obtaining only short term relief (less than 3 months) should be considered for more long lasting solutions, such as RF ablation. Some patients can be managed with intermittent therapeutic facet injections.

Repeat therapeutic injections/procedures are only indicated for those individuals who document sustained improvement in both pain and function, including improved ADL’s and work capacities for at least three months.

In addition, if the patient has significant bilateral pain, bilateral injections should be performed with the diagnostic injection so the clinician can better and more fully assess the etiology of the pain. Residual pain from joints that are not treated will confuse the diagnostic information that is obtained from a diagnostic block.

Radiofrequency ablation (Facet and sacroiliac rhizotomy) may be considered for patients who achieve at least 70% reduction of target symptoms along with improved function and ROM with a diagnostic injection (Note- facet and sacroiliac joint blocks are not expected to result in improvement of radicular symptoms). Radiofrequency ablation requires that the patient has had a facet medial branch mapping procedure; intra-articular injections are not diagnostic for determining the need for RF. Rhizotomy cannot be performed more frequently than once every 6 months.

If there is a question about the etiology of recurrent pain, re-evaluation and repeat diagnostic workup should be considered prior to repeat injections.

Epidural steroid injections are indicated for back pain that is felt to be radicular or discogenic in origin and for which there is a specific possible spinal cause. There are situations where epidural steroid injections may help with axial low back pain, such as a central disc herniation, spinal stenosis, and/or other discogenic pain problems. A diagnosis of discogenic back pain is often a diagnosis of exclusion and other causes of back pain should be evaluated before considering ESI’s for treatment of axial back pain. Epidural steroid injections may not be performed without an MRI documenting the specific location and extent of spinal pathology. The routine performance of three epidural steroid injections is not appropriate and results in unnecessary treatment. After each injection, the response should be documented both for pain and functional improvement; if a repeat injection is required medical necessity should be documented even if a series of injections has been approved.

Pain can arise out of multiple structures and therefore can be multifactorial in origin, nevertheless it is not expected that every single injured worker with back pain will require every single different type of injection, and in fact such practice is not recommended and is strongly discouraged.

Epidural Steroid Injections (ESIs) are indicated for the treatment of a radiculopathy/ radiculitis with symptoms of pain in a radicular distribution, which can be associated with numbness, tingling, and/or weakness in that nerve root distribution. A lack of response should lead the clinician to reconsider the diagnosis or look for alternative treatment options. Medical necessity for all injections must be documented with a clear description of the symptoms, physical findings, diagnosis and rationale for the injection.

Injured workers should be re-evaluated @ 2 weeks following any intervention to assess change in pain level, change in function (and hence work status), and to determine next steps in the treatment course if medically indicated. IPM treatments ('blocks') are generally not a treatment performed in isolation; it is important to look at the underlying cause and include functional based exercise programs along with injections.

All spinal injections should be accompanied with a report of both the diagnostic and therapeutic response. An injection that does not provide relief still provides diagnostic information as to what is not the cause of the pain. This will prevent further unnecessary injections for structures that have been found not to be the cause of pain.

Earlier intervention with an ESI may help to speed recovery and promote progress in PT and therefore should be considered in the management of an acute radiculopathy that is not responding to conservative management.

Epidural steroid injections may not be performed without an MRI documenting the specific location and extent of spinal pathology and should be correlated with neurologic findings.

Delivery of medication to the location of nerve irritation is the key to success. Injections require radiologic guidance for accuracy and safety. All spinal injections must be performed with radiologic guidance, typically fluoroscopy. CT guided pain management injections should only be performed for specific indications and medical necessity must be documented. Ultrasound is not recommended for spinal injections at this time.

There are several different approaches to the epidural space but delivery of medication as close as possible to the target location is helpful to optimize outcomes. The choice between interlaminar, transforaminal, and catheter guided approaches will be left to the clinician but the risks and benefits of the various approaches should be carefully considered when deciding technique.

The routine performance of three epidural steroid injections is not appropriate and results in unnecessary treatment. After each injection, the response should be documented both for pain and functional improvement; if a repeat injection is required medical necessity must be documented.

Injured Workers who do not respond with sustained benefit should be considered for definitive decompression of the involved nerve root(s).
### Medical Protocols: Shoulder

#### Shoulder Pain History and Physical Examination

<table>
<thead>
<tr>
<th>History of Present Illness</th>
<th>Medications</th>
<th>Allergies</th>
<th>Past Medical / Surgical History</th>
<th>Social History</th>
<th>Review of Systems</th>
<th>Physical Examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description of injury:</td>
<td>History should include previous medications taken for this injury and a list of all current medications including dose and frequency.</td>
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<tr>
<td>Identification of body parts involved:</td>
<td>Any significant side effects from previous medications should be noted.</td>
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<td>Any limitations in functional activities should be noted.</td>
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<tr>
<td>The history should include the presence and distribution of any numbness, paresthesias, or weakness.</td>
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<tr>
<td>Visual inspection of shoulder:</td>
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<tr>
<td>Signs of symptom amplification should be noted.</td>
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In cases where the mechanism of injury, history, or clinical presentation suggests a possible severe injury, additional evaluation is indicated.
# Acute Traumatic or Overuse/Repetitive Shoulder Injury (Less Than 4 Weeks)

## Diagnostic Criteria
- On initial visit:
  - complete history
  - physical examination
  - pain diagram
- Height and weight (BMI)
- On each visit document:
  - primary diagnosis
  - precise location and character of pain
  - VAS pain level
  - exam pertinent to injured body part
  - functional capacity
  - appraisal of ADLs and functional activity
- Work capacity and status

## Diagnostic Studies

### Recommended:
- X-Rays, if indicated by amount of trauma or based on documented medical suspicion
- No MRI
- No CT Scan

## Treatment

### Recommended:
- ice / heat
- rest / immobilization
- physical therapy / rehabilitation
  - 4 to 6 weeks
- chiropractic care
  - maximum 12 weeks
- Medications:
  - nonsteroidal anti-inflammatory drugs
  - analgesics
  - antispasmodics
  - psychotropics
- Injections / Blocks:
  - steroids with documentation of result and duration including medicines and dosage
- Surgery may be indicated for some acute tears of rotator cuff, labrum, capsule, biceps or displaced fractures (see surgery guidelines on page 3).

### Non-Consensus Modalities:
- PRP (platelet rich injections)
- acupuncture
- hyaluronic acid injections
- stem cell preparations

## Goals of Treatment

### Recommend Return To Work:
- Non-Surgical:
  - generally light duty within 3 to 4 weeks
  - full duty within 6 to 8 weeks for most cases
- Contingent on assessment of functional capacity

## If Goals Not Met

### Document:
- compliance
- no shows / cancellations
- effort: clinic
- effort: home

Refer to orthopedic specialist after 2 weeks with primary care or occupational center with no positive result or benefit in symptoms with regard to clinical exam and history.
**SUBACUTE SHOULDER INJURY (1-3 MONTHS)**

### DIAGNOSTIC CRITERIA
- On initial visit:
  - complete history
  - physical examination
  - pain diagram

- Height and weight (BMI)

- On each visit document:
  - primary diagnosis
  - precise location and character of pain
  - VAS pain level
  - current meds
  - exam pertinent to injured body part
  - functional capacity
  - appraisal of ADLs and functional activity

- Work capacity and status

- Appraise compliance

- Consider specialty referral, if not improving

### DIAGNOSTIC STUDIES
Recommended, if clinically indicated:
- X-Ray neck and shoulder
- MRI with and without gadolinium
- CT Scan
- Ultrasound
- bone scan
- nuclear testing
- white blood cell tagged, indium scans
- neuro conductive, i.e., EMG testing

### TREATMENT
**Chiropractic**
- maximum 12 weeks

**Physical Therapy**
- maximum 6 weeks

**Medications:**
- nonsteroidal anti-inflammatory drugs
- analgesics
- antispasmodics
- psychotropics

**Injections / Blocks:**
- steroids with documentation of result and duration

**Open Surgery or Arthroscopic Surgery**
- surgical correlates (positive)
  - young age
  - dominant extremity
- acute event (i.e., less than 3 months duration)
- acute symptomatology
- surgical correlates (negative)
  - smoking
  - diabietic / immunosuppression
  - obesity / deconditioned
  - cervical disease
  - porcine xenograft
  - multiple physician or caregivers’ involvement
  - chronicity (i.e., more than 3 months of symptoms since injury)
  - retraction or atrophy of cuff or shoulder musculature
- consensus opinion:
  - asymptomatic full or partial rotator cuff tears are NOT surgical candidates

**Rehabilitation Protocol (post-surgical):**
- 2 to 3 times per week for 4 to 6 weeks (extendable)
- re-evaluate every 4 to 6 weeks by clinical and treating physician
- physical therapy for three month maximum, accumulative in nature with the exception of special circumstances

**Non-Consensus Modalities:**
- PRP (platelet rich injections)
- stem cell preparations

### GOALS OF TREATMENT
**Recommend RTW:**
- Non-Surgical:
  - generally light duty within 3 to 4 weeks
  - full duty within 6 to 8 weeks for most cases

- Surgical:
  - light duty within 4 to 6 weeks for most surgical interventions
  - full duty within 8 to 12 weeks for most surgical interventions
  - potentially longer for rotator cuff repairs especially for manual laborers
  - contingent on assessment of functional capacity predicated on the treater’s judgment with second opinion when appropriate

### IF GOALS NOT MET
- Consider alternative cause
- Consider psychological factors
- see psychological guideline
- Second Opinion:
  - after 3 to 6 months of non-surgical or conservative treatment without benefit
  - after 6 to 12 months post-surgical with poor result

At any time during treatment, the patient should be given the option for second opinion if there is an apparent physician-patient problem.
# Chronic Shoulder Injury (Greater Than 3 Months)

### Diagnostic Criteria

- On initial visit:
  - complete history
  - physical examination
  - pain diagram

- Height and weight (BMI)

- On each visit document:
  - primary diagnosis
  - precise location and character of pain
  - VAS pain level
  - current meds
  - exam pertinent to injured body part
  - functional capacity
  - appraisal of ADLs and functional activity

- Work capacity and status

- Appraise compliance

- Consider specialty referral, if not improving

### Diagnostic Studies

Recommended, if clinically indicated:
- X-Ray neck and shoulder
- MRI with and without gadolinium
- CT Scan
- Ultrasound
- bone scan
- nuclear testing
- white blood cell tagged, indium scans
- neuro conductive, i.e., EMG testing

### Treatment

**Chiropractic**
- maximum 12 weeks

**Physical Therapy**
- maximum 6 weeks

**Medications:**
- nonsteroidal anti-inflammatory drugs
- antispasmodics
- analgesics
- psychotropics

**Injections / Blocks:**
- steroids with documentation of result and duration

**Open Surgery or Arthroscopic Surgery**
- surgical correlates (positive)
  - young age
  - dominant extremity
- surgical correlates (negative)
  - smoking
  - diabetic / immunosuppression
  - obesity / deconditioned
  - cervical disease
  - multiple physician or caregivers' involvement
  - chronicity (i.e., more than 3 months of symptoms since injury)
  - retraction or atrophy of cuff or shoulder musculature

**Consensus opinion:**
- asymptomatic full or partial rotator cuff tears are NOT surgical candidates

**Rehabilitation Protocol (post-surgical):**
- 2 to 3 times per week for 4 to 6 weeks (extendable)
- re-evaluate every 4 to 6 weeks by clinical and treating physician
- physical therapy for three month maximum, accumulative in nature with the exception of special circumstances

**Non-Consensus Modalities:**
- PRP (platelet rich injections)
- acupuncture
- hyaluronic acid injections
- stem cell preparations

### Goals of Treatment

**Recommend RTW:**
- Non-Surgical:
  - generally light duty within 3 to 4 weeks
  - full duty within 6 to 8 weeks for most cases
- Surgical:
  - light duty within 4 to 6 weeks for most surgical interventions
  - full duty within 8 to 12 weeks for most surgical interventions
  - potentially longer for rotator cuff repairs especially for manual laborers
  - contingent on assessment of functional capacity predicated on the treater's judgment with second opinion when appropriate

### If Goals Not Met

**Consider alternative cause**

**Consider psychological factors**
- see psychological guideline

**Second Opinion:**
- after 3 to 6 months of non-surgical or conservative treatment without benefit
- after 6 to 12 months post-surgical with poor result

At any time during treatment, the patient should be given the option for second opinion if there is an apparent physician-patient problem.
# Medical Protocols: Hand – Page 1 of 22

## Hand/Wrist/Elbow Treatment Guidelines

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### Objectives

Injuries to the upper extremity in the workplace are common. The following sections review common injuries to the hand, wrist, and elbow.

The guidelines are not intended to be all-inclusive, nor absolute with respect to recommendations. The Commission recognizes the variability inherent in injuries and the importance of individualized treatment for the injured worker.

The recommendations should not be construed as a rule, as the ultimate judgment regarding care of a patient must be made by the physician in light of all circumstances presented. These guidelines are intended as an outline for those participating in the care of injured workers to facilitate appropriate care in the most expeditious and effective manner.

These guidelines specifically do not address causation. Many conditions have clear causation such as a witnessed fall and fracture at work, yet many do not.

The Commission recognizes the importance of assessment by providers of each individual claim based upon all data provided and in accordance with published data to determine causation. As these factors are unique to each claim, it is beyond the scope of this document to comment on causation for diagnoses included in this document.

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### General Guidelines

These guidelines are divided into sections based upon diagnosis. Practitioners are responsible for diagnosis.

An overview is provided in each section for general considerations with respect to management and expectations for particular pathology. Tables specific to diagnoses follow with more specific recommendations for evaluation, clinical studies and timeframe for specialty referral, surgical intervention, and recovery.

Many of the tables refer to therapy as a treatment option. Specific recommendations are noted for CHT (Certified Hand Therapy) or OT (occupational therapy). We recognize that many Physical Therapists (PT), as well as Chiropractors, also work with the hand and elbow. When possible, hand therapy is recommended to maximize therapy benefit.

---

### Work Status

Within the guidelines, there is an attempt to clarify timing of return to work for given diagnoses. Accordingly, ranges are given for time out of work (Totally Disabled), Return to Work (With Restrictions), and Return to Work (Without Restrictions).

Restrictions are specific to patient, injury, and work environment. Clinical issues may offset timelines.

The ranges include no Temporary Total Disability, which is typical in non-operative sprains, strains, and tendinopathy, to weeks in post-operative and more severe traumatic scenarios.

In some cases, these times may be significantly shortened. In others, patients may have chronic injuries resulting in pain or functional deficits that require further assessment such as Functional Capacity Evaluation (FCE), or potentially candid discussion regarding symptom chronicity and limitations with regard to further management.
**OVERVIEW**

Tendon injuries are some of the most common injuries sustained in the workplace. These injuries include acute sprains and strains, in addition to more chronic inflammatory/degenerative conditions of tendon. Ligament sprains, degeneration, and tearing are similar with both acute and chronic injury patterns.

Treatment of common "tendonitis" has long been directed at the presumptive inflammation. This terminology implies that pain arises from inflammation, while data has shown little of this is actually present. Current studies are underway to further understand the pathophysiology of tendon-associated pain.

Occasionally, acute strain (tendon) or sprain (ligament) may be well documented based on specific injury. These injuries will typically follow a common pathway of initial inflammation, followed by healing phase, and can often be treated by supportive means. More chronic injury will often present with peritendinous fibrosis or retinacular thickening, as seen in stenosing tenosynovitis or de Quervain’s tenosynovitis.

---

**EVALUATION**

Workers need to be evaluated within the context of their occupation.

These injuries may occur with a specific acute injury or in the process of more chronic overuse of the tendon, with the pathophysiology as noted above. Tendon function would be expected to correlate with the described injury pattern.

The evaluator should be able to identify the specific structure contributing to the pain complaint, and direct management specific to that tendon or ligament.

---

**TREATMENT**

Treatment for tendon injuries is directed at the type of injury, and in many cases the tendon or ligament involved.

While common management – including rest and anti-inflammatory medications – remain standard practice, it should be noted that there is limited information as to the efficacy of these treatments. Many acute injuries will subside well with this standard approach; some more chronic tendinopathies may not.

Furthermore, different tendons clearly respond differently to different treatments (e.g. corticosteroid injections have a documented “cure” rate for stenosing tenosynovitis and yet, more recently, have been shown to only have temporary palliative effects in lateral epicondylitis).
<table>
<thead>
<tr>
<th>INITIAL EVALUATION</th>
<th>DIAGNOSTIC STUDIES</th>
<th>TREATMENT</th>
<th>RECOVERY</th>
<th>WORK CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete History</td>
<td>As indicated:</td>
<td>Splint / Brace</td>
<td>Most soft tissue injuries are stable within 10-14 days.</td>
<td>Totally Disabled ..................... 0-2 weeks</td>
</tr>
<tr>
<td>Physical Exam</td>
<td>▪ X-Ray</td>
<td>NSAIDs</td>
<td>Frequently indicated after casting or surgery, as hand is susceptible to significant loss of motion:</td>
<td>With Restrictions ............... 2-4 weeks</td>
</tr>
<tr>
<td></td>
<td>▪ MRI</td>
<td>Therapy:</td>
<td>▪ CHT</td>
<td>Without Restrictions .......... 4-12 weeks</td>
</tr>
<tr>
<td></td>
<td>▪ Ultrasound</td>
<td>▪ OT</td>
<td>▪ OT</td>
<td>MMI............................ 6-12 months</td>
</tr>
<tr>
<td>Specifics:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ location of pain</td>
<td></td>
<td>Consider steroid injection(s).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ mechanism of injury</td>
<td></td>
<td>Follow-Up:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ work / hobby / sports Hx</td>
<td></td>
<td>▪ 1-2 weeks, if work modified</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ ROM</td>
<td></td>
<td>▪ 4 weeks, if work not modified</td>
<td></td>
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<tr>
<td>▪ instability</td>
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<tr>
<td>▪ Crepitus</td>
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<tr>
<td>▪ VAS / functional ability</td>
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<tr>
<td>Follow-Up:</td>
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<tr>
<td>▪ interval history</td>
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<tr>
<td>▪ pertinent exam</td>
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<tr>
<td>▪ VAS / functional ability</td>
<td></td>
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</tbody>
</table>
**WRIST TENDINOPATHY (e.g., de QUERVAIN’S, DORSAL AND VOLAR WRIST TENOSYNOVITIS)**

### INITIAL EVALUATION

- Complete History
- Physical Exam

### DIAGNOSTIC STUDIES

As indicated:
- X-Ray
- MRI

### TREATMENT

**Initial:**
- splinting
- medications
- steroid injection(s)
- therapy
  - CHT
  - OT
- activity modification

If no improvement after 2 weeks, recommend referral to a specialist.

Continued non-surgical treatment or surgical treatment may be appropriate.

### RECOVERY

**After surgery:**
- 1-2 weeks
  - sutures out
  - splinting, as needed, for comfort
- 2-4 weeks
  - progress to gentle active ROM
  - consider therapy
- 4-6 weeks
  - continue with active ROM exercises
  - begin gentle resistive exercises
- 6+ weeks
  - progress to normal activity

### WORK CAPACITY

<table>
<thead>
<tr>
<th>Total Disabled</th>
<th>0-2 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>With Restrictions</td>
<td>2-6 weeks</td>
</tr>
<tr>
<td>Without Restrictions</td>
<td>6-12 weeks</td>
</tr>
<tr>
<td>MMI</td>
<td>6-12 months</td>
</tr>
</tbody>
</table>

**MEDICAL PROTOCOLS: HAND – PAGE 4 of 22**

- **STATE OF CONNECTICUT WORKERS’ COMPENSATION COMMISSION**
- **REVISED APRIL 1, 2015**

**Specifics:**
- acute / chronic
- mechanism of injury
- location of pain
- work / hobby / sports Hx
- ROM
- VAS / functional ability

**Provocative tests:**
- Finkelstein Test
  - specific for de Quervain’s Tenosynovitis
## STENOSING TENOSYNOVITIS (TRIGGER FINGER/THUMB)

### INITIAL EVALUATION
- Complete History
- Physical Exam

### Specifics:
- acute / chronic
- which digit(s)
- locking
- location of pain
- mechanism of Injury
- work / hobby / sports Hx
- ROM
- Diabetes Hx
- VAS / functional ability

### DIAGNOSTIC STUDIES
- X-Ray may be indicated
- Other studies occasionally necessary:
  - MRI
  - Ultrasound

### TREATMENT
- NSAIDs
- Steroid Injection(s)
- Therapy:
  - CHT
  - OT
- Activity Modification

If no improvement within 2 weeks recommend referral to specialist

### RECOVERY
- After surgery:
  - 1-2 weeks
    - sutures out
    - splinting, as needed, for comfort
  - 2-4 weeks
    - progress to gentle active ROM
    - consider therapy
  - 4-6 weeks
    - continue with active ROM exercises
    - begin gentle resistive exercises
  - 6+ weeks
    - progress to normal activity

### WORK CAPACITY
- Totally Disabled: 0-2 weeks
- With Restrictions: 2-6 weeks
- Without Restrictions: 6-12 weeks
- MMI: 6-12 months

### MEDICAL PROTOCOLS
- HAND – PAGE 5 of 22
# Lateral and Medial Epicondylitis (Tennis and Golfer’s Elbow)

## Initial Evaluation
- Complete History
- Physical Exam

**Specifics:**
- Location of pain (epicondyle vs. forearm musculature)
- Mechanism of injury
- Work / hobby / sports Hx
- ROM
- Wrist extension test
- Radial neuritis
- Acute / chronic
- VAS / functional ability

## Diagnostic Studies
- X-Ray
- Other studies occasionally necessary:
  - MRI
  - Ultrasound

## Treatment
- Activity Modification
- Brace / Splint
- NSAIDs
- Therapy:
  - CHT
  - OT
- Steroid Injection(s)
- Surgery:
  - Most commonly improves without surgical intervention
  - Surgery frequently delayed until 6-12 months after onset of symptoms, with the expectation that patient may improve with non-op management

## Recovery
- After surgery:
  - 1-2 weeks
    - Sutures out
    - Splinting, as needed, for comfort
  - 2-4 weeks
    - Progress to gentle active ROM
    - Consider therapy
  - 4-6 weeks
    - Continue with active ROM exercises
    - Begin gentle resistive exercises
  - 6+ weeks
    - Progress to normal activity

With non-operative management, prolonged recovery of 4-6 months is not unusual.

Appropriate work modifications may be necessary.

## Work Capacity
- Totally Disabled: 0-4 weeks
- With Restrictions: 2-12 weeks
- Without Restrictions: 6-24 weeks
- MMI: 12 months
### INITIAL EVALUATION

- Complete History
- Physical Exam

### DIAGNOSTIC STUDIES

- X-Ray:
  - at least 2 orthogonal X-Rays (typically 3)

### TREATMENT

**Initial Management:**
- open wounds irrigated and closed, when clean
- consider Abx
- splint for comfort or tendon deficit

**Emergent Referral:**
- compartment concern
- vascular compromise
- evolving neurologic status

**Early Referral:**
- tendon deficit
- neurologic deficit (static)
- concern for ligament instability (beyond sprain)

Definitive management based upon injured structures.

### RECOVERY

Most soft tissue injuries are stable within 10-14 days.

Tendon repairs require specific post-operative splinting protocols under guidance of therapist.

Frequently indicated after casting or surgery, as hand is susceptible to significant loss of motion:
- CHT
- OT

Specific early therapy program, with splinting mandatory, for tendon repairs:
- Certified Hand Therapist critical

### WORK CAPACITY

**No surgery required:**
- Totally Disabled.................. 0-2 weeks
- With Restrictions ................. 2-6 weeks
- Without Restrictions ............. 6-12 weeks

**Post-surgery:**
- Totally Disabled.................. 0-2 weeks
- With Restrictions ................. 2-6 weeks
- Without Restrictions ............. 6-12 weeks

**MMI........................................ 6-12 months**
# Bicep and Tricep Injuries of the Elbow

## Initial Evaluation

- **Complete History**
- **Physical Exam**

### Specifics:
- Location of pain
- Deformity
- Mechanism of injury
  - Usually single episode traumatic for complete ruptures and can be repetitive for partial ruptures (*tendinosis*)
- Detailed history of potential associated aggravating activities (i.e., weight lifting, use of fluoroquinolone antibiotics)

### VAS / Functional Ability

## Diagnostic Studies

- **Radiographs:**
  - Rule out other causes or bone avulsion injuries
- **MRI:**
  - Study of choice, especially for evaluating partial (or incomplete) ruptures

With some complete ruptures, exam findings are obvious enough to complete the diagnosis without diagnostic tests.

Confirm complete or partial.

## Treatment

### Partial ruptures:
- **Bicep tears:**
  - Lifting, pulling, climbing restrictions
- **Partial triceps:**
  - Pushing, weight-bearing, climbing restrictions

### Non-operative modalities:
- Rest
  - Work and personal restrictions
- Physical therapy
  - More effective for triceps
- Injections
  - Not recommended
- Reassessment every 2-6 wks

### Complete ruptures:
- **Triceps:**
  - Critical to repair
- **Biceps:**
  - Optional to repair depending on patient's needs / desires

Surgical repair optimal within 3 weeks of acute complete rupture to minimize detrimental effects of muscle retraction / scarring and need of grafts.

## Recovery

### Pain relief and functional strength recovery

### Partial rupture:
- Consider surgical repair after failure of non-operative methods

## Work Capacity

<table>
<thead>
<tr>
<th>Country</th>
<th>RTW on TPD</th>
<th>MMI</th>
<th>With Restrictions</th>
<th>Without Restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecticut Workers' Compensation Commission</td>
<td>0-4 days, if no surgery planned</td>
<td>1 year post-operatively</td>
<td>2-12 weeks</td>
<td>6-24 weeks</td>
</tr>
</tbody>
</table>
**WRIST PAIN (ACUTE)**

<table>
<thead>
<tr>
<th>INITIAL EVALUATION</th>
<th>DIAGNOSTIC STUDIES</th>
<th>TREATMENT</th>
<th>RECOVERY</th>
<th>WORK CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete History</td>
<td>Plain film X-Rays:</td>
<td>Normal X-Ray:</td>
<td>2 weeks</td>
<td>Totally Disabled .......... 0-2 weeks</td>
</tr>
<tr>
<td></td>
<td>▪ minimum 3 views</td>
<td>▪ splint continuously for 2 weeks</td>
<td></td>
<td>With Restrictions .......... 2-6 weeks</td>
</tr>
<tr>
<td>Physical Exam</td>
<td>Consider 7 view formal wrist series films and/or contralateral wrist for comparison.</td>
<td>▪ NSAIDs</td>
<td></td>
<td>Without Restrictions .......... 6-12 weeks</td>
</tr>
<tr>
<td>Specifics:</td>
<td></td>
<td>▪ ice and heat</td>
<td></td>
<td>MMI ........................................ 6-12 months</td>
</tr>
<tr>
<td>▪ location of pain</td>
<td></td>
<td>▪ rest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ mechanism of injury</td>
<td></td>
<td>▪ reassess</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ work / hobby / sports Hx</td>
<td></td>
<td>Abnormal X-Ray:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ ROM</td>
<td></td>
<td>▪ treat for appropriate fracture or acute ligament injury (see other Protocols)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>▪ DRUJ pain / instability</td>
<td></td>
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<tr>
<td>▪ Crepitus</td>
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<tr>
<td>▪ Scaphoid Shift</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>▪ VAS / functional ability</td>
<td></td>
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</tr>
</tbody>
</table>
### WRIST PAIN (2 WEEKS AFTER INJURY)

<table>
<thead>
<tr>
<th>INITIAL EVALUATION</th>
<th>DIAGNOSTIC STUDIES</th>
<th>TREATMENT</th>
<th>RECOVERY</th>
<th>WORK CAPACITY</th>
</tr>
</thead>
</table>
| 2 weeks after injury | Repeat plain film X-Rays with special views, if needed (e.g. Scaphoid views). | Still normal X-Rays:  
- consider cortisone injection  
- continue NSAIDs  
- consider occupational therapy, if low suspicion  
- splint continuously 4 more weeks for significant symptoms and a high suspicion | 4 weeks |
|                    |                    | Abnormal X-Rays:  
- treat for appropriate fracture or ligament injury (see other Protocols) |          |
|                    | For DISI / VISI, scapholunate gap, clunking or signs of instability, positive scaphoid shift test, consider: | MRI  
- arthrogram / arthroscopy  
- surgery |          |

**RECOVERY**

- Totally Disabled: 0-2 weeks
- With Restrictions: 2-6 weeks
- Without Restrictions: 6-12 weeks
- MMI: 6-12 months
<table>
<thead>
<tr>
<th>INITIAL EVALUATION</th>
<th>DIAGNOSTIC STUDIES</th>
<th>TREATMENT</th>
<th>RECOVERY</th>
<th>WORK CAPACITY</th>
</tr>
</thead>
</table>
| 6-12 weeks after injury | Physical Exam:  
- is wrist pain localizing? | Reassess | 4 weeks | Totally Disabled .......... 0-2 weeks |
|                     |                    | If non-tender or improving:  
- wean splint  
- start occupational therapy  
- consider injection, if not yet done | | With Restrictions ........ 2-6 weeks |
|                     |                    | If still tender:  
- MRI arthrogram | | Without Restrictions .......... 6-12 weeks |
|                     |                    | If MRI / A abnormal:  
- arthroscopy / surgery | | MMI ........................................ 6-12 months |
|                     |                    | If MRI / A normal:  
- Occupational therapy  
- consider cortisone injection  
- consider diagnostic arthroscopy | | |
# MEDICAL PROTOCOLS: HAND – PAGE 12 of 22

## WRIST PAIN (CHRONIC: GREATER THAN 3 MONTHS)

<table>
<thead>
<tr>
<th>INITIAL EVALUATION</th>
<th>DIAGNOSTIC STUDIES</th>
<th>TREATMENT</th>
<th>RECOVERY</th>
<th>WORK CAPACITY</th>
</tr>
</thead>
</table>
| chronic wrist pain – greater than 3 months | Wrist exam:  
• localizing pain or signs of instability  
Reassess in 4 weeks | Repeat X-Rays, if not already done.  
If normal:  
• consider splint  
• NSAIDs  
• OT  
• cortisone injection  
If still significantly tender:  
• MRI +/- Arthrogram  
If abnormal:  
• arthroscopy / surgery  
If normal, consider:  
• diagnostic arthroscopy  
• bone scan  
• rheumatologic lab studies  
• steroid injection(s)  
If negative MRI / A, negative arthroscopy, negative X-Rays, ongoing pain despite steroid injections, splinting, therapy – then consider:  
• rheumatology referral  
• acupuncture  
• ergonomic changes  
• job modifications or job change  
• vocational training  
• candid discussion that not all pain has a surgical remedy and a hand surgeon no longer needed  
• may always have some wrist discomfort | 4 weeks | One or two-handed duty with restrictions, if necessary.  
Return to some type of work, possible with splint. |
### Overview

Work-related nerve injuries can occur through repetitive trauma, blunt injury or via penetrating and open injuries.

Onset can be acute, subacute, or chronic. Symptoms vary on presentation and depend on the degree and type of nerve injury.

Nerve injuries can be classified as Neuropraxia, Axonotmesis and Neurotmesis:
- Neuropraxia represents physiological dysfunction of the nerve without anatomic disruption.
- Axonotmesis represents anatomic disruption with interruption and injury to the nerve axon.
- Neurotmesis is defined as disruption of all elements of the nerve.

In the case of Axonotmesis and Neurotmesis, Wallerian degeneration of the distal nerve end takes place. This process occurs before nerve regeneration and basically is a debridement process of the distal stump of the nerve to aid in nerve regeneration.

Nerve healing takes place in an organized, sequential manner; first with Wallerian degeneration of the distal nerve ending, followed by axonal regeneration and growth, and finally nerve reinnervation.

Unfortunately, the process of nerve healing is variable and, thus, the time required to recover from nerve injury is often difficult to predict.

### Identifying Nerve Injuries

Understanding the functional anatomy of nerve is critical in making the correct diagnosis of nerve injury.

Identification of sensory and / or muscle loss will help identify the location of nerve injury and possibly help with prognosis predictions. Supplemental testing such as nerve conduction testing and electromyography are also often helpful in identifying not only the location of nerve injury, but may also indicate the severity of injury.

These tests can also help provide information concerning degree of healing of the nerve. Although these tests are helpful, they should not be the only determining factor in recommending treatment.

Based upon current literature, strong consideration should be given to pre-operative electrodiagnostic testing to assess for concomitant or coexisting neuropathy, and to serve as a baseline study for comparative purposes should another study be needed following treatment.

It is important to recall that these studies have a well-documented false-negative rate, and the presence of a negative study does not necessarily indicate absence of disease or necessity of treatment.

### Prognosis

Prognosis for peripheral nerve injuries is often difficult to determine, but with a thorough neurological exam based on the clear understanding of the anatomy and the use of supplemental testing – such as nerve conduction tests and electromyography – treatment plans can be developed and predictions for return to work status made.
# CARPAL TUNNEL SYNDROME

## INITIAL EVALUATION

- Complete History
- Physical Exam

### Specifics:
- Location of symptoms
- Work / hobby / sports Hx
- Atrophy
- 2-point discrimination
- VAS / functional ability
- Comorbidities

## DIAGNOSTIC STUDIES

- X-Ray
- Electrodiagnostic testing

### Other, with specific indication:
- MRI
- CT scan
- Ultrasound

## TREATMENT

**Initial (first 2 weeks):**
- Splinting
- Possible NSAIDs
- Possibly vitamin B6
- Possible steroid injection
- Possible therapy
  - CHT
  - OT
- Activity modification
- Ergonomic evaluation, as indicated

If no improvement after 2 weeks, consider referral to a specialist for continued non-surgical treatment or surgical treatment.

## RECOVERY

### Non-operative treatment:
- Continued depending on nerve recovery

### Post-operative treatment:
- Post-operative mobilization, as tolerated
- Post-operative therapy, as needed

## WORK CAPACITY

### Non-operative treatment:
- Frequently does not require work restrictions

### Operative treatment:
- Totally Disabled............... 0-2 weeks
- With Restrictions ............ 2-6 weeks
- Without Restrictions ......... 6-12 weeks
- MMI............................. 6-12 months
### CUBITAL TUNNEL SYNDROME

<table>
<thead>
<tr>
<th>INITIAL EVALUATION</th>
<th>DIAGNOSTIC STUDIES</th>
<th>TREATMENT</th>
<th>RECOVERY</th>
<th>WORK CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complete History</td>
<td>X-Ray</td>
<td>Initial (first 2 weeks):</td>
<td>Non-operative treatment:</td>
<td>Non-operative treatment:</td>
</tr>
<tr>
<td>Physical Exam</td>
<td>Electrodagnostic testing</td>
<td>• splinting</td>
<td>• continued depending on nerve recovery</td>
<td>• frequently does not require work restrictions</td>
</tr>
<tr>
<td>Specifics:</td>
<td>Other, with indications:</td>
<td>• possible NSAIDs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• location of symptoms</td>
<td>• MRI</td>
<td>• possibly vitamin B6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• work / hobby / sports Hx</td>
<td>• CT scan</td>
<td>• possible steroid injection</td>
<td></td>
<td></td>
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<tr>
<td>• atrophy</td>
<td>• Ultrasound</td>
<td>• possible therapy</td>
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<td>• froments</td>
<td></td>
<td>• – CHT</td>
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<tr>
<td>• Wartenberg Sign</td>
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<td>• – OT</td>
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</tr>
<tr>
<td>• clawing</td>
<td></td>
<td>• activity modification</td>
<td></td>
<td></td>
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<tr>
<td>• 2-point discrimination</td>
<td></td>
<td>• ergonometric evaluation as indicated</td>
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<tr>
<td>• VAS / functional ability</td>
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<tr>
<td>• comorbidities</td>
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<tr>
<td>Provocative tests:</td>
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<tr>
<td>• Elbow Flexion Test</td>
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<tr>
<td>• Tinel’s Sign</td>
<td></td>
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</tbody>
</table>

If no improvement after 2 weeks, consider referral to a specialist for continued non-surgical treatment or surgical treatment.

### WORK CAPACITY

<table>
<thead>
<tr>
<th>Non-operative treatment:</th>
<th>Operative treatment:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totally Disabled........ 0-2 weeks</td>
<td></td>
</tr>
<tr>
<td>With Restrictions ........ 2-6 weeks</td>
<td></td>
</tr>
<tr>
<td>Without Restrictions ...... 6-12 weeks</td>
<td></td>
</tr>
<tr>
<td>MMI................................. 6-12 months</td>
<td></td>
</tr>
</tbody>
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**INITIAL EVALUATION**

- Complete History
- Physical Exam
- Provocative tests:
  - Pronator Syndrome
    - Tinel's Sign
    - resisted forearm pronation
    - resisted elbow flexion with forearm pronation
    - resisted flexion of the middle finger sublimis
  - Radial Nerve Palsy
    - Tinel's Sign
  - Radial Tunnel Syndrome
    - pain at the origin of the extensor carpi radialis brevis with resistance of middle finger extension
    - pain with resisted forearm supination
  - Superficial Radial Nerve
    - Tinel's Sign
    - sensory in first web
  - Ulnar Tunnel Syndrome
    - Tinel's Sign
    - wrist extension and flexion maneuver

**DIAGNOSTIC STUDIES**

- X-ray
- Electrodiagnostic testing
- Other, with indications:
  - MRI
  - CT scan
  - Ultrasound

Note that electrodiagnostic studies are well recognized to be negative in Radial Tunnel Syndrome and proximal median nerve compression, but a positive result is significant, and the study serves as a baseline for comparison following treatment or surgery, and is therefore still recommended.

**TREATMENT**

Initial (first 2 weeks):
- splinting
- anti-inflammatory
- possibly vitamin B6
- possible steroid injection
- therapy
  - CHT
  - OT
- activity modification
- ergonometric evaluation as indicated

If no improvement after 2 weeks, consider referral to a specialist for continued non-surgical treatment or surgical treatment.

**RECOVERY**

Non-operative treatment:
- continued, depending on nerve recovery
Post-operative treatment:
- post-operative mobilization, as tolerated
- post-operative therapy, as needed

**WORK CAPACITY**

Non-operative treatment:
- return to work, depending on nerve recovery
- does not always require work restrictions

Operative treatment:
- Totally Disabled ..................... 0-2 weeks
- With Restrictions ................... 2-6 weeks
- Without Restrictions .............. 6-12 weeks
- MMI ........................................ 6-12 months
**OVERVIEW**

Guidelines provided are intended to establish a consistent framework for initial evaluation and subsequent management for common workplace fractures of the upper extremity.

These are guidelines provided to improve consistency, and providers should understand that these do not supersede individual circumstances, which should be appropriately documented.

**INITIAL DIAGNOSIS AND MANAGEMENT**

**Evaluation:**
- history and physical examination should include mechanism of injury and any other complaints from present injury
- previous history of injury / fracture to the same body part
- sensory complaints
- history of smoking

**History should include:**
- documentation of any pain throughout limb
- status of skin (open or closed fracture, tenting, blistering)
- neurological examination (pre- and post-immobilization)
- tendon function
- degree of wound contamination
- any visible structures (e.g., lacerated tendon) should be noted

**Physical examination should include:**
- at least 2 orthogonal views of area of concern
- joints above and below fracture should be evaluated
- CT scan possible to further clarify fracture specifics, such as degree of joint displacement
- MRI possible for soft tissue injuries or to determine presence of scaphoid fracture

**Radiographs:**
- Closed fractures
  - Fractures and acute soft tissue injuries should be managed expeditiously. Fractures should be aligned and splinted, whenever possible, to avoid further soft tissue injuries and minimize pain. This is typically accomplished with longitudinal traction. Further reduction maneuvers should be limited to those with appropriate expertise.

  **Open fractures**
  - Open fractures pose significant risk for infection. Time to administration of IV antibiotics and debridement in open fractures has been shown to be critically important to minimize infection risk. These should be transferred to appropriate center emergently. Wound irrigation and hemostasis, when possible, is appropriate. As with closed fractures, splinting is critical to reduce risk to other soft tissues and control pain. Further management may require hospitalization. Many hand injuries with minimal wound contamination may be managed with irrigation in office or ER setting and oral antibiotics.

**EMERGENCIES**

While many simple fractures can be managed in the office setting, providers should be acutely aware of these emergent situations.

**Open fractures:**
- See above. These require emergent intervention and administration of antibiotics.
- Providers should be aware that a very small laceration associated with fracture may represent a small “poke-hole” or Grade I open fracture. In the upper extremity, many of these may be treated with antibiotics alone, but antibiotic management is critical.

**Compartment Syndrome:**
- Compartment Syndrome occurs when tissue pressure exceeds perfusion pressure and tissue ischemia results. In the upper extremity, the most common area of concern is the forearm. Compartment Syndrome in the hand can occur much less often and, while reported, occurrence isolated to the fingers is extremely rare. These are often associated with fracture and crush injuries.

  As tissue pressures increase, pain escalates. The compartments become tight, but may be covered by splint. The splints should be loosened to further investigate. Neurologic deficits and vascular occlusion occur later, usually after irreparable tissue necrosis. Early diagnosis is essential.

  Hallmark findings in Compartment Syndrome are pain out of proportion to exam, and pain with passive stretch. For example, in the forearm the scenario is much more common with fracture of the shaft of radius and ulna rather than at the wrist. Passive flexion and extension of the digits should normally be somewhat tolerable. Concern should be raised when there is little to no active motion, and small amounts of passive motion elicit severe pain.

**Neurologic injury:**
- Neurological deficits should be noted on initial examination. These are typically static and, as such, do not require emergent treatment, but should be evaluated immediately. However, change in neurological status following reduction or progression of neurologic deficit should be evaluated and managed emergently.

**Vascular injury:**
- Loss of pulse or capillary refill is indicative of insult to the arterial inflow. Typical vascular deficit in the hand and wrist are a result of laceration to the artery or displaced fracture.

**Initial reduction is performed and vascular status is reevaluated.** Persistent deficit or arterial laceration compromising distal perfusion should be referred to ED and managed emergently.

**REFERRAL INDICATIONS**

**SURGICAL INDICATIONS**

**RETURN TO WORK**

Most fractures of the hand and wrist will be stable in 6-8 weeks, but often not fully healed.

Typically, these are transitioned to splints, to allow for range of motion and eventually strengthening while the fracture goes on to full healing.

Often, patients may be able to return to limited capacity within 2-4 weeks, depending on fracture, pain level, and degree of immobilization.

Referral to ED should be made emergently in cases of contaminated wound, open fractures, concern for Compartment Syndrome, or evolving neurological deficit.

Closed fractures, if stabilized, should be referred to an Orthopedic Surgeon within a week for definitive management.

Fractures often require operative intervention.

Fractures are reduced and immobilized initially.

Based upon position after reduction, or progression of displacement, surgery may be indicated to correct and maintain position.

Referral to Orthopedic Provider is indicated if displaced or unstable fracture.

Most fractures are stable and require 6-8 weeks immobilization.
# Fractures of Metacarpals and Phalanges

## Initial Evaluation
- Complete History
- Physical Exam
- Specifics:
  - location of pain
  - mechanism of injury
  - deformity
  - open wounds
  - compartments
  - instability
  - Crepitus
- Must document neurological and vascular status pre- and post-reduction or splinting
- Interval Hx
- VAS / functional ability

## Diagnostic Studies
- **X-Ray:**
  - at least 2 orthogonal X-Rays (typically 3) must be obtained of any area of concern or complaint of pain
- **CT scan:**
  - occasionally considered to define fracture
- **MRI:**
  - not typical for isolated fractures
  - may be necessary to define ligament injuries
- **Specific X-Ray views:**
  - for isolated injury to digit, recommend X-Ray of specific digit more helpful than whole hand film
- **Things to look out for:**
  - common missed diagnosis occurs with poor lateral film of involved digit
  - metacarpal injury best viewed with 3 views of hand
  - base of 5th metacarpal often best seen with reverse oblique

## Treatment
- **General:**
  - open wounds irrigated and closed, when possible
  - if open, usually begin Abx and refer immediately
  - always splint
- **Emergent referral:**
  - open fractures
  - compartment concern
  - vascular compromise
  - evolving neurologic status
- **Early referral:**
  - closed fractures with stable neurological status
- **Management:**
  - definitive management based upon fracture alignment and stability
  - may require cast vs. surgical reduction / fixation
  - surgical indications include
    - rotational malalignment
    - shortening
    - angular deformity (not reducible)

## Recovery
- Most metacarpal or phalangeal fractures require casting 4-6 weeks.
- Surgical repair occasionally allows for earlier motion but not loading until healed.
- Frequently indicated after casting or surgery, as hand is susceptible to significant loss of motion:
  - CHT
  - OT
  - typically 2 visits per week for 2-8 weeks

## Work Capacity
- Totally Disabled............... 0-2 weeks
- With Restrictions ............ 2-12 weeks
- Without Restrictions ........ 6-24 weeks
- MMI........................................ 6-12 months
# Fractures of Wrist

## Initial Evaluation

- Complete History
- Physical Exam
- **Specifics:**
  - location of pain
  - mechanism of injury
  - deformity
  - open wounds
  - compartments
  - instability
  - Crepitus

  Must document neurological and vascular status pre- and post-reduction or splinting.

- Interval Hx
- VAS / functional ability

## Diagnostic Studies

- **X-Ray:**
  - at least 2 orthogonal views (typically 3)

- **CT scan:**
  - considered, if more information needed on fracture specifics

- **MRI:**
  - useful for occult fractures
  - should be considered – typically at 2 weeks – for exam concerning for scaphoid fracture with negative radiographs

  **Specific X-Ray views:**
  - concern for scaphoid injury with snuffbox tenderness – obtain “scaphoid view”
  - distal radius angulation best seen with “facet lateral” view (20 degrees off true lateral)

- Things to look out for:
  - scaphoid fractures often subtle; if snuffbox tenderness, obtain scaphoid view
    - when in doubt, splint

## Treatment

- **Wounds:**
  - irrigate open wounds
  - begin Abx and refer immediately
  - reduction performed, if displaced
  - always splint

  **Emergent Referral:**
  - open fractures
  - compartment concern
  - vascular compromise
  - evolving neurologic status

  **Early Referral:**
  - closed fractures with stable neurological status

  **Management:**
  - definitive management based upon fracture alignment and stability
  - may require cast vs. surgical reduction / fixation
  - surgical indication based upon patient age, fracture stability, and position
  - frequent – but not definitive – indications for surgery in distal radius
    - articular displacement
    - dorsal tilt > 10 deg
    - shortening > 3 mm

## Recovery

- Most distal radius fractures require casting 4-6 weeks.

  Surgical repair occasionally allows for earlier motion but not loading until healed.

  Frequently indicated after casting or surgery, as hand is susceptible to significant loss of motion:
  - CHT
  - OT
  - typically 2 visits per week for 2-8 weeks
  - complex regional pain syndrome (RSD) may necessitate substantially greater amount of therapy

## Work Capacity

- **Totally Disabled** ............... 0-2 weeks
- **With Restrictions** ............ 2-6 weeks
- **Without Restrictions** .......... 6-12 weeks
- **MMI** .............................. 6-12 months

Carpal fractures – and notably scaphoid – are slow to heal and may more than double above timeline.

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**MEDICAL PROTOCOLS:** HAND – PAGE 19 of 22
# FRACTURES OF ELBOW

## INITIAL EVALUATION
- Complete History
- Physical Exam
  - Specifics:
    - location of pain
    - mechanism of injury
    - ROM
    - instability
    - Crepitus
- Detailed history of work injury, usually single traumatic event
- Detailed history of any previous elbow injuries/fractures
- Appropriate relevant neurovascular exam
- VAS / functional ability

## DIAGNOSTIC STUDIES
- **Radiographs:**
  - critical to obtain initially, and additional special views if necessary
- **CT Scan:**
  - often necessary to confirm treatment plan
- **MRI:**
  - occasionally useful to evaluate occult fractures

## TREATMENT
- **Open fractures:**
  - treated acutely with direct emergency room evaluation and urgent surgical intervention
- **Closed fractures:**
  - initial immobilization with or without a closed reduction, then acute referral to orthopedic surgeon
  - surgery:
    - open reduction / internal fixation (ORIF):
      - scheduled typically less than two weeks
      - optimally less than one week for closed fractures (immediate for open fractures)
  - medications:
    - OTC analgesics
    - narcotic pain medication
    - injections:
      - may be appropriate for selected cases, i.e. aspiration and injection for acute radial head fracture

## RECOVERY
- Pain relief and functional strength recovery
  - If goals not met:
    - most simple elbow fractures (i.e., single fractures not associated with dislocations) heal in 2-4 months
    - if a simple fracture treated non-operatively is not healed in 2-4 months, further specialist consultation and/or diagnostic tests (i.e., CT Scan) are necessary
    - complex fracture dislocations needing ORIF take much longer to heal and obtain functional recovery, not uncommonly 6-9 months

## WORK CAPACITY
- For non-operative/cast immobilization:
  - Totally Disabled ..................... 1-4 weeks
  - With Restrictions ................... 2-12 weeks
  - Without Restrictions ............ 6-12 weeks
- For open reduction/internal fixation:
  - Totally Disabled ..................... 1-4 weeks
  - With Restrictions ................... 2-12 weeks
  - Without Restrictions ............ 6-12 weeks
- MMI ...................................... 1 year
  - Post-operative:
    - extended accordingly for complex cases, including at least 6 months after full RTW
OSTEOARTHRITIS OF THE HAND, WRIST, AND ELBOW

OVERVIEW

Osteoarthritis (osteoarthrosis, DJD) is the most common disease of the joints. It is characterized by progressive deterioration and loss of articular cartilage, and by reactive changes at the margins of the joints and in the subchondral bone. Associated synovitis is common.

Clinical manifestations are characterized by progressive joint pain, stiffness, and enlargement.

Prevalence increases with age and is almost universal in persons over the age of 65. It is more common in women. Genetic, hormonal, and biomechanical factors also play a role.

Direct injury to joints can lead to post-traumatic arthritis, which may present in a delayed fashion. Most likely no specific type of manual labor can directly "cause" arthritis.

The role of repetitive trauma is controversial, but in certain scenarios it may worsen underlying and pre-existing arthritis.

EVALUATION

Osteoarthritis will present with focal / joint specific findings. These are not always painful, but may restrict range of motion.

Evaluation should focus on focal pain and mobility.

Radiographs are essential to diagnosis.

TREATMENT

There is no cure for cartilage wear.

Treatment is often directed to alleviate the associated painful synovitis, either by decreasing load on the affected joint through activity modification, bracing, medication, or injection.

Surgical treatment may offer relief after all conservative measures have been exhausted.
# OSTEOARTHRITIS

## INITIAL EVALUATION

- Complete History
- Physical Exam

**Specifics:**
- location of pain
- mechanism of injury
- work / hobby / sports Hx
- ROM
- swelling
- instability
- Crepitus
- grip strength
- Grind Test (thumb CMC)
- Heberden’s / Bouchard’s

**Interval Hx**
- VAS / functional ability

## DIAGNOSTIC STUDIES

- X-Rays

**X-Rays**

Controversial if repetitive strain without discreet injury materially and substantially aggravates underlying arthritis, or is pain part of the natural history of arthritis, and unrelated to job.

A remote injury can result in certain patterns of arthritis years later, such as SLAC wrist after scapholunate ligament injury. A patient presenting with an arthritis pattern that appears to be from an old injury may be experiencing the natural history of their original injury rather than an injury caused by work.

Consider blood work to rule out rheumatoid arthritis or other non-work related cause of arthritis.

## TREATMENT

- Rest
- Splinting
- Steroidal / NSAIDs
- Heat

**Topicals:**
- e.g., Diclofenac, Flector Patch, capsaiscin

**Steroid injection(s)**

**Therapy:**
- CHT
- OT

Arthritis may require long-term management as opposed to cure. Patients may never be completely pain free. Symptoms may wax and wane depending upon activity level.

Surgery is indicated for refractory cases, unresponsive to conservative measures, or interfering with activities of daily living and causing loss of work.

**Surgery:**
- arthroplasty (with or without replacement)
- arthrodesis

## RECOVERY

**Maximum 8 weeks of conservative treatment, including:**
- CHT
- OT

Recovery following surgery 3 months.

## WORK CAPACITY

- **Totally Disabled**................. 0-2 weeks
- **With Restrictions**.............. 2-12 weeks
- **Without Restrictions**......... 6-24 weeks
- **MMI**.......................... 6-12 months

Return to work with permanent restrictions, if cannot perform full duty; otherwise consider alternative employment.

May need permanent restrictions following surgery.
**HISTORY OF PRESENT ILLNESS**

- Description of Injury:
  - details of events before, during, and immediately after the alleged injury
  - mechanism of injury
  - identification of body parts involved
  - location of the pain, characteristics of the pain, and distribution of the pain symptoms
  - frequency and duration of symptoms
  - alleviating / exacerbating factors

  Any limitations in functional activities should be noted. Inquire about previous insults, surgery, prescriptions, and limitations of the knee.

  The history should include the presence and distribution of any lower extremity numbness, weakness, or radicular symptoms, as well as limpness and / or other leg symptoms.

  A visual analog pain scale should be used and monitored at each visit. The patient should be asked their current rating, average over the last week and range from low to high. Note any pain at night or at rest.

  Note any history of emotional and / or psychological condition, i.e. psychiatric diagnoses and hospitalizations for mental illness.

**MEDICATIONS**

- History should include:
  - previous medications taken for this knee injury
  - a list of all current medications, including dose and frequency
  - any significant side effects from previous medications
  - tolerance to specific medications

  Medication allergies should be verified at every visit.

**PAST MEDICAL / SURGICAL HISTORY**

- Identify any previous occupational and non-occupational injuries to the same area.

  Determine if the patient has any history of non-traumatic knee problems such as arthritis, cancer, surgery, etc.

  Document any prior knee treatment, chronic or recurrent symptoms, response to previous treatment, and any functional limitations or previous restrictions in work capacity.

  Determine if the patient has any history of non-knee medical conditions such as diabetes, cardiac arrest, etc.

**SOCIAL HISTORY**

- Identify:
  - smoking
  - alcohol use
  - other drug use
  - psychologic profile
  - vocational activities
  - recreational activities

  Note potential primary or secondary gains.

**REVIEW OF SYSTEMS**

- Identify systemic disease symptoms:
  - cardiac
  - endocrine
  - gastrointestinal
  - hematological
  - infectious
  - neurologic
  - neoplastic
  - renal
  - rheumatologic
  - other

**PHYSICAL EXAMINATION**

- Physical exam:
  - height
  - weight
  - vital signs
  - general appearance
  - note signs of symptom amplification; consider:
    - affect
    - behavior

- Visual inspection of knee:
  - skin color
  - scars
  - deformity
  - edema

- Compare to contralateral:
  - muscle atrophy
  - alignment of extremity
  - temperature of knee

- Knee range of motion:
  - extension to full flexion

- Reflexes:
  - patella tendon

- Strength testing:
  - quadriceps
  - hamstring muscles

- Patella – femoral exam:
  - crepitus
  - alignment
  - tracking
  - compression test
  - grind test

- Meniscal testing:
  - McMurray’s
  - Apley

- Ligament assessment (Lachman, Drawer, Step off):
  - anterior
  - posterior

- Collaterals:
  - Varus
  - Valgus
  - stress

- Stress Testing:
  - posterior lateral
  - posterior medial

- Tenderness:
  - distal thigh
  - proximal tibia
  - note areas of soreness

- Arthrofibrosis:
  - separate guarding from true contracture

- Examine Joints above / below:
  - hip
  - ankle

- Gait Pattern:
  - limp
  - short arc
  - avoidance

- Evaluate non-knee-related issues:
  - sciatica
  - vascular

- Consider autoimmune phenomenon and inflammatory etiologies, i.e.:
  - gout
  - lyme
  - rheumatoid
  - sepsis

- State of Connecticut Workers’ Compensation Commission

**REVISED AUGUST 15, 2015**
## Diagnostic Studies

**Recommended:**
- X-Rays, if indicated by trauma or medical suspicion
- MRI or CT, only if suggestion of locked knee, ligament instability, or suspicion of significant occult process

## Treatment

**Recommended:**
- Ice / Heat:
  - elevation +/- compression
- Rest / Immobilization:
  - question crutches
- Physical Therapy:
  - 4-6 weeks (12-18 visits)
  - as indicated by progress
- Chiropractic Care:
  - 4-6 weeks (12-18 visits)
- Acupuncture
  - 4-6 weeks (12-18 visits)

**Medications:**
- NSAIDs
- analgesics
- antispasmodics
- psychotropics
- aspiration / injection, if necessary

## Goals of Treatment

**Recommend RTW – Non-Surgical:**
- light duty..................within 3-4 weeks (generally)
- full duty....................within 6-8 weeks (for most cases)

Contingent on assessment of functional capacity

## If Goals Not Met

**Document:**
- compliance
- no shows / cancellations
- effort: clinic
- effort: home

**Refer to specialist:**
- after 2 weeks with no positive result or benefit of symptoms with regard to clinical exam and history
## Subacute Knee Injury (1-3 Months)

### Diagnostic Criteria

- **On initial visit:**
  - complete history
  - physical examination
  - pain diagram
- **Height and weight (BMI)**
- **On each visit document:**
  - primary diagnosis
  - precise location and character of pain
  -VAS pain level
  - current medications
  - exam pertinent to injured body part
  - functional capacity
  - appraisal of ADLs and functional activity
- **Work capacity and status**
- **Appraise compliance**
- **Consider specialty referral, if not improved**

### Diagnostic Studies

- Recommended, if clinically indicated:
  - X-Ray of knee: question hip
  - MRI: with or without contrast (if previous surgery)
  - CT Scan: for some fractures, for tumor
  - Ultrasound to rule out DVT
  - Bone Scan to rule out: contusion, infection, cancer, fatigue FX
  - Nuclear Testing: prosthetic loosening vs. infection
  - White Blood Cell Tagged: indium scan to rule out infection
  - Nuclear Conductive: to rule out nerve compression injuries

### Treatment

- **Recommended:**
  - Chiropractic Care: 6 to 8 weeks (18 to 24 visits)
  - Physical Therapy: 6 to 8 weeks (18 to 24 visits)

- **Medications:**
  - NSAIDs
  - analgesics (oral or topical)
  - antispasmodics
  - psychotropics
  - injection / aspiration
  - steroid / hyaluronic acid

- **Document result and duration.**

- **Surgery:**
  - dependent onDX and response to conservative treatment

- **Negative Surgical Correlates:**
  - smoking
  - poor physiology
  - diabetic / immunosuppression
  - previous surgery
  - obesity / de-conditioned
  - chronicity – i.e., more than three months of symptoms since injury
  - retraction or atrophy of thigh musculature
  - multiple physician or caregiver involvement

- **Rehabilitation Protocol (post-surgical):**
  - 2 to 3 times per week for 4 to 6 weeks (extendable)
  - re-evaluate every 4 to 6 weeks by clinical and treating physician
  - physical therapy for three month maximum, accumulative in nature with the exception of special circumstances

### Goals of Treatment

- **Recommend RTW:**
  - Non-Surgical:
    - generally light duty within 3 to 4 weeks
    - full duty within 6 to 8 weeks for most cases
  - Surgical:
    - light duty within 4 to 6 weeks for most surgical interventions
    - full duty within 6 to 8 weeks for most surgical interventions
    - potentially longer (3 to 4 months) for extensive ligament reconstruction or arthroplasty with some vocations
  - contingent on assessment of functional capacity predicated on the treater’s judgment with second opinion when appropriate

### If Goals Not Met

- Consider alternative cause.
- Consider psychological and motivational factors
  - see Psychological Guideline
- Second opinion:
  - after 3 to 6 months of nonsurgical or conservative treatment without benefit
  - after 6 to 12 months postsurgical with poor result
- At any time during treatment, the patient should be given the option for second opinion, if there is an apparent physician-patient problem.
### Diagnostic Criteria

On initial visit:
- complete history
- physical examination
- pain diagram

Height and weight (BMI)

On each visit document:
- primary diagnosis
- precise location and character of pain
- VAS pain level
- current medications
- exam pertinent to injured body part
- functional capacity
- appraisal of ADLs and functional activity

Work capacity and status

Appraise compliance

Consider specialty referral, if not improved

### Diagnostic Studies

Recommended, if clinically indicated:
- X-Ray of knee: question hip
- MRI: with or without contrast (if previous surgery)
- CT Scan: for some fractures, for tumor
- Ultrasound to rule out DVT
- Bone Scan to rule out:
  - contusion
  - infection
  - cancer
  - fatigue FX
- Nuclear Testing:
  - prosthetic loosening vs. infection
- White Blood Cell Tagged:
  - indium scan to rule out infection
- Neuro Conductive:
  - to rule out nerve compression injuries

### Treatment

Recommended:
- Chiropractic Care:
  - 6 to 8 weeks (18 to 24 visits)
- Physical Therapy:
  - 6 to 8 weeks (18 to 24 visits)

Medications:
- NSAIDs
- analgesics
- antispasmodics
- psychotropics
- injection / aspiration
- steroid / hyaluronic acid

Document result and duration.

Surgery:
- dependent on DX and response to conservative treatment

Negative Surgical Correlates:
- smoking
- poor physiology
- diabetic / immunosuppression
- previous surgery
- obesity / de-conditioned
- chronicity – i.e., more than three months of symptoms since injury
- retraction or atrophy of thigh musculature
- multiple physician or caregiver involvement

Rehabilitation Protocol (post-surgical):
- 2 to 3 times per week for 4 to 6 weeks (extendable)
- re-evaluate every 4 to 6 weeks by clinical and treating physician
- physical therapy for three month maximum, accumulative in nature with the exception of special circumstances

### Goals of Treatment

Recommend RTW:
- Non-Surgical:
  - generally light duty within 3 to 4 weeks
  - full duty within 4 to 6 weeks for most cases
- Surgical:
  - light duty within 4 to 6 weeks for most surgical interventions
  - full duty within 6 to 12 weeks for most surgical interventions
  - potentially longer for ligament reconstruction, fracture repair, and arthroplasty
  - contingent on assessment of functional capacity predicated on the treater’s judgment with second opinion when appropriate

### IF Goals Not Met

Consider alternative cause.

Consider psychological factors
- see Psychological Guideline

Second opinion:
- after 3 to 6 months of non-surgical or conservative treatment without benefit
- after 6 to 12 months post-surgical with poor result

At any time during treatment, the patient should be given the option for second opinion, if there is an apparent physician-patient problem.