



# Repetitive Motion Injuries: Urgent Diagnosis, Patient-Centered Management

**Urgent message:** Musculoskeletal disorders result in costly, disabling outcomes for Americans—causing significant economic impact (work-related injuries, early retirement, days away from work) and representing a leading cause of chronic diseases nationwide. Frequently, the initial treating facility, which determines if the injured/ill patient is capable of returning to work or needs time away from work or modified duty, is an urgent care center.

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## Introduction

An estimated one in two adults older than 18 years of age, or 126.6 million Americans, are affected by musculoskeletal disorders (MSDs),<sup>1</sup> exceeding the percentage of adults with pulmonary and cardiovascular disease.<sup>1</sup> In 2012–2014, the United States Bone and Joint Initiative estimated that \$322 billion were spent treating MSDs.<sup>1</sup> Factors contributing to cost include an aging population, overutilization of diagnostic studies, inappropriate visits to emergency departments, poor understanding of work functions, bodily requirements, and ergonomic design.

## Overview of MSDs

The likelihood of developing musculoskeletal complaints is multifactorial<sup>2</sup>; see **Table 1** for categorization of occupational vs nonoccupational risks.

## History and physical examination

The approach to the musculoskeletal exam begins with a detailed history and establishing symptom parameters. These include:

- Location/radiation
- Onset, timing
- Duration
- Aggravating/alleviating factors



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**Table 1. Occupational vs Nonoccupational Risk for Musculoskeletal Complaints<sup>2</sup>**

Occupational Risks	Nonoccupational Risks
<ul style="list-style-type: none"> <li>• Job satisfaction</li> <li>• Ergonomic factors                             <ul style="list-style-type: none"> <li>– Repetition</li> <li>– Force</li> <li>– Non-neutral posture</li> <li>– Vibration</li> <li>– Lighting</li> <li>– Temperature</li> </ul> </li> <li>• Inadequate rest cycles</li> <li>• Lack of task variability</li> <li>• Pace</li> </ul>	<ul style="list-style-type: none"> <li>• Age</li> <li>• Sex</li> <li>• Obesity</li> <li>• Smoking</li> <li>• Deconditioned status</li> <li>• Comorbidities</li> </ul>

- Quality
- Context, mechanism of injury
  - Trauma, leisure or work-related, previous injury
- Other associated symptoms

The urgent care provider is responsible for understanding work duties, identifying exposure risk, and determining return-to-work status. Consideration may be given to restrictive duties, such as decreased or temporarily avoiding certain movements, repetitions, awkward postures, and enforcing weight limits; however, lost time for certain conditions may be unavoidable. Maintaining functional capacity and limiting muscle loss is paramount for the patient and practitioner.

After an appropriate history, the physical examination consists of a stepwise approach:

- Inspection (comparing contralateral side)
  - Erythema
  - Edema
  - Previous surgical scarring
  - Discoloration
  - Bruising
  - Muscle atrophy, tone
  - Symmetry
- Palpation
  - Crepitus
  - Tenderness
  - Warmth
- Range of motion (ROM)
  - Active and passive
- Neurological testing
  - Sensory
  - Reflexes
  - Strength assessment
- Peripheral pulses

Clinical tests specific to the suspected diagnosis may also be required.<sup>3</sup> All red flag symptomology should be ruled out and any signs of malingering documented. Secondary gain concerns may be involved with a reported work-related injury, and a detailed description of job duties is warranted. If the urgent care provider is encountering reported work-related injuries frequently, it may be helpful to tour the job site in order to better understand the working environment and accommodation process.

Repetitive motion injuries commonly seen in the urgent care setting include:

- Rotator cuff tendinopathy
- Carpal tunnel syndrome
- de Quervain tendinopathy
- Lateral and medial epicondylitis
- Trigger finger or thumb

**Rotator Cuff Tendinopathy**

*Overview*

Rotator cuff (RC) tendinopathy results in painful motion associated with inflammation and friction of muscles, tendons, and bursa related to multiple causes. RC tendinopathy falls into the spectrum of shoulder impingement syndrome.<sup>3</sup> The RC is primarily responsible for internal/external rotation, shoulder abduction, and stabilization—composed of four muscles (the supraspinatus, infraspinatus, teres minor, and subscapularis) and corresponding musculotendinous attachments. Shoulder pain is a common presenting complaint in the urgent care setting, estimated to account for 16% to 34% of complaints, with rotator cuff pathology as the most common reason patients seek treatment.<sup>4</sup>

Stress to the rotator cuff, specifically the supraspinatus muscle, occurs when the arm is in an elevated position.

*History/Clinical Presentation*

- Complaints of pain with overhead activities
  - Lateral deltoid area
  - Daily activities such as putting on a shirt or brushing hair cause pain
  - Vocational vs recreational history involving repetitive shoulder motion or working with hands over head
- Difficulty sleeping, more pronounced when lying on affected side
- Pain is gradual, nonradiating, and exacerbated by external rotation and elevation

*Physical examination*

- Tenderness of the supraspinatus, infraspinatus,

and subacromial aspect

- Supraspinatus tendon—most frequently injured
- Crepitus (grating, cracking sound)
- Atrophy of supraspinatus and infraspinatus muscle
  - Indicates longstanding disease
  - Sunken appearance of scapular fossa

*Testing*

Exclusion of other etiologies (cervical spine issues, acute coronary ischemia, osteoarthritis) is important. Rotator cuff tendinitis is clinically diagnosed; many consider musculoskeletal ultrasound as the gold standard for initial evaluation of tendon disorders<sup>5</sup>; however, this is not routinely completed in the urgent care setting. Physical exam signs suggestive of rotator cuff pathology include:

- Painful arc test—Shoulder pain between 60° and 120° abduction
  - Most useful when used in conjunction with Neer and Hawkins-Kennedy testing
- Neer—Pronate, passively forward flex affected arm
  - Pain is a positive result
- Hawkins-Kennedy—Elevate the arm, flex shoulder and elbow to 90° and internally rotate
  - Pain is a positive result<sup>3</sup>
- “Empty can” test
  - Straighten arm, 90° of abduction and 30° forward flexion, internally rotate
    - Relative isolation of the supraspinatus tendon
    - Many consider this the “gold standard” for evaluation of supraspinatus function
  - Clinician then attempts to adduct arm against resistance
    - Tendinopathy—pain *without* weakness
    - Tear—pain *with* weakness
    - Lidocaine injection test—distinguishes between tendinopathy and tear
  - More accurate assessment of strength
    - Tendinopathy—normal strength
    - Tear—weakness

*Diagnosis*

Obtaining radiographs of the shoulders for nontraumatic shoulder pain is generally not warranted and provides little diagnostic benefit.<sup>6</sup> Overutilization of x-rays is common; a chart review of 312 patients presenting to the ED with complaints of shoulder pain found that only 20% of the 185 patients for whom x-rays were

Table 2. An Approach to Assessing Musculoskeletal Complaints			
History	Inspection	Palpation	Range of motion
<ul style="list-style-type: none"> <li>• Parameters of the symptoms</li> <li>• Inquire about trauma, leisure, or work activities</li> <li>• Monitor for malingering</li> </ul>	<ul style="list-style-type: none"> <li>• Palpation</li> <li>• Edema</li> <li>• Erythema</li> <li>• Surgical scarring</li> <li>• Discoloration</li> <li>• Bruising</li> </ul>	<ul style="list-style-type: none"> <li>• Crepitus</li> <li>• Tenderness</li> <li>• Warmth</li> </ul>	<ul style="list-style-type: none"> <li>• Active</li> <li>• Passive</li> <li>• Flexion, extension</li> <li>• Adduction, abduction</li> <li>• Internal, external rotation</li> </ul>

ordered had a condition resulting in specific treatment; 0% of x-rays in patients in the absence of a fall or deformity provided diagnostic benefit resulting in treatment.<sup>7</sup>

MRI is recommended after failure of conservative measures or when suspicious for an RC tear. Electromyography (EMG) and nerve conduction velocity studies (NCVs) may be useful to rule out neurological involvement.

*Treatment*

RC tendinopathy is initially treated with conservative measures for 3-6 weeks:

- Patient education
  - ROM exercises to prevent adhesive capsulitis
    - Diabetes increases the risk of adhesive capsulitis
  - Avoid aggravating activities (work restrictions may be of value)
  - **Work restrictions:** Avoid prolonged, repetitive tasks requiring shoulder abduction, flexion especially above 60° (commonly written as “no overhead work”); avoid heavy lifting and vibration exposure
  - In order to facilitate recovery, ergonomic redesign of the workplace may be recommended to the employer, focusing on force, shoulder flexion, duration, and posturing
  - Support return-to-work and daily activities within limitations of pain
    - Based on ROM, strength, and function
    - Prior to resuming full duty status, the patient should be able to perform work-activities without return or exacerbation of symptoms
- Physical therapy

- An exercise approach for the treatment of RC tendinopathy has been found to have the same patient outcomes as surgical intervention, even in the presence of partial and full-thickness RC tears<sup>3</sup>
- OTC NSAIDs for 7-10 days
- Self-application of ice or heat
  - Ice believed to reduce acute inflammation
  - Heat believed to accelerate healing by way of increased blood supply
- Follow-up appointment scheduled 1-2 weeks after initial assessment
  - Assess work limitations and adjustments to activity modifications
- Subacromial glucocorticosteroid injection
  - Considered if more conservative approaches (including PT) fail after several weeks
  - Initially, a single injection is scheduled; if adequate response, a second should be attempted after waiting at least 2 weeks

*“Electrodiagnostic tests help confirm diagnosis; however, electromyography is only indicated to rule out other pathology or determination of severity when contemplating surgical intervention.”*

- Lateral vs posterior approach
  - Lateral approach significantly reduces risk of injecting into RC tendons
- Locate lateral edge of acromion; entry point of needle is 1 to 1.5 inches below
  - Needle inserted parallel to acromial angle
  - Depth dependent on body habitus of patient
  - Inject local anesthetic
    - Deltoid muscle (1 mL)
    - Deep deltoid fascia (0.5 mL)
  - “Popping” sensation appreciated = in appropriate place (subacromial bursa)
  - 1 to 2 mL of anesthetic
  - Needle left inserted
    - Retest strength; if the following conditions are met, inject shoulder with 1 mL methylprednisolone (Depo Medrol) (80 mg/mL)
      - 50% reduction in pain

- 75%-80% strength (abduction, external rotation) is 75%-80% of unaffected side
- Absent any “red flag” symptoms or actual diagnosis of an RC tear (in which case referral should be made earlier), refer to orthopedist after 6-9 months of conservative treatment or if suspicion of RC tear

### Carpal Tunnel Syndrome (CTS)

#### Overview

CTS may be acute or idiopathic in nature, resulting from compression of the median nerve causing pain and numbness in the hand. The median nerve passes through the carpal tunnel (formed by the carpal bones and the flexor retinaculum).

Characteristics of CTS include:

- Female predominance
- Personal medical factors increase risk of development<sup>3</sup>
  - Diabetes
  - Obesity
  - Pregnancy
  - Hypothyroidism
  - Rheumatoid arthritis
  - Anatomic

In addition to personal risk factors, repetition, vibration, awkward postures, forceful exertion, dominant hand overuse, and prolonged task duration are suspected contributing factors.<sup>3</sup>

#### History/Clinical Presentation

Pain and numbness occur along the distribution of the median nerve:

- Thumb
- Index and middle fingers
- Radial aspect of fourth finger
- Complaints progress over time
  - Frequently dropping items
  - Weakness, decreased dexterity, and tingling/numbness in the wrist and palm
  - Report feeling the need to “shake out” hands to alleviate symptoms
  - Difficulty with sustained grasping (eg, holding a steering wheel)
- Often with increased symptoms while in bed

#### Physical examination

- **Strength:** Weakness with thumb opposition and abduction may be appreciated
- **Muscle loss:** Thenar atrophy may be present in long-standing cases

- **Sensory:** Fixed sensory loss over the median nerve distribution (not appreciated over the thenar eminence) is another late characterization<sup>3</sup>

### Testing

- Tinel's sign (percussing lightly over the median nerve)
- Phalen's test (request the patient hold the dorsal aspect of their flexed wrists together for 60 seconds)
  - These are considered positive if a tingling sensation occurs along the distribution of the median nerve
  - Phalen's has both greater sensitivity and specificity than Tinel's sign<sup>3</sup>
- Other pertinent clinical testing include:
  - Monofilament, vibration, hand elevation test, and carpal compression

Electrodiagnostic tests help confirm the diagnosis; however, electromyography (EMG) is only indicated to rule out other pathology or determination of severity when contemplating surgical intervention. Patients with high clinical suspicion for CTS can undergo injections without having an EMG/NCS completed.

### Diagnosis

CTS is a clinical diagnosis, highly suspicious when signs and symptoms are present over the median nerve with characteristic factors providing diagnostic value. If a patient presents with classic symptoms of CTS, confirmed by nerve conduction studies (NCS), and does not wish to undergo surgical decompression, EMG is not warranted or needed for diagnosis.

### Treatment

Nonsurgical treatment may provide relief.

- Activity modification and exercise<sup>8</sup>
  - **Work restrictions:** Not always warranted, consider avoiding high force combined with repetitive gripping or pinching and handheld tools that vibrate
- Night splinting<sup>8</sup>
- Oral corticosteroids<sup>3</sup>
  - For patients who *do not* want to undergo injection therapy
  - Dosing recommendations vary; consider prednisolone 20 mg daily for 10 to 14 days<sup>8</sup>
  - Studies note short-term benefit
- Corticosteroid injections<sup>3</sup>
  - Superior to oral forms

- Used if unresponsive to nocturnal splinting with symptoms lasting > 3 weeks
- **Technique:** A minimum dose of methylprednisolone 40 mg using a 25- or 27-gauge needle at a 45° angle entering the skin near the distal crease<sup>8</sup>
- No more than once every 6 months per wrist
- Recurrent symptoms after two injections warrant additional adjunct treatment or surgical evaluation
- Lidocaine patches
  - Recommended for select cases of acute, subacute and chronic CTS<sup>8</sup>
- Phonophoresis (ultrasound utilized to deliver topical medications, glucocorticosteroids or NSAIDs via electrical current)<sup>8</sup>
  - Splints and/or injection are generally attempted first as those are believed to provide greater relief<sup>8</sup>
- NSAIDs
  - Not as primary treatment unless thought to have an inflammatory component<sup>8</sup>

Surgical intervention is considered if nonoperative measures fail; temporary relief following an injection represents a favorable prognostic factor in terms of surgical outcome.

Treatments *not* recommended include:

- Gabapentin
- Opioids
- Magnets
- Pulsed magnetic field therapy
- Acupuncture

### de Quervain Tendinopathy

#### Overview

de Quervain tendinopathy is a noninflammatory thickening of the extensor retinaculum, resulting in tendon entrapment of the abductor pollicis longus and extensor pollicis brevis (housed in the first dorsal compartment). As the overlying retinaculum thickens, pain develops over the radial aspect of the wrist.<sup>9</sup> It is a common condition, affecting 1.3% of women and 0.5% of men worldwide.<sup>10</sup> The etiology is not well-understood; however, suggestive causative factors include:

- Repetitive motion (overuse)
- Awkward postures (thumb held in extension and abduction)
- Postpartum period
- Diabetes
- Advanced age
- Increased BMI<sup>9</sup>





Source: Ashley Clay, MS, PA-C. Used with permission.

**History/Clinical Presentation**

- Gradual onset of pain over the radial styloid
- Atraumatic history
- Difficulty with gripping objects
- Common in mothers of infants
  - Thought to be related to repetitive lifting of the baby<sup>9</sup>

**Physical examination**

- Radial sided wrist pain/pain at base of thumb with wrist or thumb motion
- Exacerbated by resisted radial deviation, grasping or gripping
- Tenderness with/without swelling over the first dorsal compartment

**Testing**

Radiographs do not improve clinical diagnosis but can assist in ruling out other suspected pathology.<sup>9</sup>

**Diagnosis**

A classic diagnostic maneuver, Finkelstein’s test, is considered positive if pain is reproduced when the patient has thumb flexed, fingers wrapped around it and the examiner deviates the hand towards the ulna.<sup>9</sup>

**Treatment**

- Rest
- Ice

- NSAIDs
- Splinting (thumb spica)
- Follow-up visits are generally required every 1-2 weeks
  - Allows determination of treatment benefit vs relief of symptoms
- Work restrictions may require restricted lifting, gripping, and twisting of affected hand; can also consider limiting repetitive wrist flexion and ulnar deviation
  - Ergonomic recommendations provided to employer may include identification of localized pressure from sharp objects and forceful use of digits

Refractory cases may require an injection of corticosteroid into the sheath of the first dorsal compartment to reduce tendon thickening, inflammation.<sup>9</sup> Researchers continually advocate for conservative approaches. Earp, et al demonstrated that a single injection abated symptoms in 82% of participants at 6 weeks, and 52% were estimated to remain symptom-free at 6 and 12 months postinjection.<sup>10</sup> If injection therapy fails, surgical release of the first dorsal compartment relieves the entrapment; this intervention is completed on an outpatient basis<sup>9</sup>.

**Lateral/Medial Epicondylitis**

**Overview**

The term *epicondylitis* is a misnomer by name as it suggests “inflammation” of either the medial or lateral aspects of the elbow; however, microscopic analysis of the tendon does not reveal inflammation. Epicondylitis, an overuse condition, is a constellation of micro-tears, collagen distortion, and angiofibroblastic degeneration<sup>11</sup> resulting in tendinosis.

- Annually affects 1%-3% of the population<sup>11</sup>
- Women and men are affected equally
- Average onset between the ages of 40 and 60 years<sup>11</sup>
- **Lateral epicondylitis**—Injury to the extensor carpi radialis brevis muscle (ECRB)
  - Effects wrist extension
  - Referred to as “tennis elbow”
- **Medial epicondylitis**—Injury to the pronator teres and flexor carpi radialis muscles
  - Effects wrist flexion
  - Referred to as “golfers’ elbow”

**History/Clinical Presentation**

Patients will likely present with pain around the lateral or medial aspects of the epicondyle (dominant hand)

and subjective complaints with gripping activities. Causative factors include:

- Forceful use (managing loads > 44 pounds)
- Repetition, especially for more than 2 hours per day<sup>11</sup>
- Smoking
- Obesity

#### *Physical examination*

- Tenderness along respective epicondyle
  - 1-2 cm distal to ECRB
  - Pain is commonly elicited with resisted pronation of the forearm<sup>12</sup>
- **Lateral epicondylitis**—Pain with wrist extension
- **Medial epicondylitis**—Pain with wrist flexion
- Full ROM
- Rarely associated numbness or tingling
  - Suggests additional ulnar or radial neuropathy

#### *Testing*

Diagnostic studies are rarely warranted or useful during the initial workup; however, if complaints persist following 4 weeks of treatment, plain radiographs should be considered; if there is concern for C-6 radiculopathy, MRI may be of value. It should be noted that ultrasound can be employed to characterize the areas of tendinosis and may assist in treatment modalities.<sup>11</sup>

#### *Diagnosis*

Typically clinical and based on history and physical examination findings.

#### *Treatment*

Treatment recommendations are similar for both medial and lateral presentations. The cornerstone of therapy includes:

- Rest, ice, compression, elevation (RICE therapy)
  - **Work restrictions:** Avoid vibrating hand tools, high-force gripping or pinching<sup>13</sup>
    - As this is not a progressively worsening condition, no basis for permanent restrictive duty
- NSAIDs
  - Oral vs topical
- Acetaminophen
- Counterforce bracing—circumferential forearm band
  - Applied 10 cm distal to elbow joint<sup>11</sup>
- Stretching, strengthening<sup>12</sup>
  - A 2012 study of 297 patients found that struc-

- tured physical therapy provided greater pain relief than corticosteroid injections or NSAIDs
- Patients treated with PT also found to have lower recurrence rate<sup>11</sup>
- Corticosteroid injection
  - Provides acute relief; however, long-term outcomes remain unchanged for both conditions<sup>11,12</sup>

#### **Trigger Finger/Thumb**

##### *Overview*

Entrapment (thickening, stenosis) of the flexor tendons at the level of the A1 pulley system results in trigger finger (TF).

- One of the most common upper limb issues evaluated in orthopedic practice<sup>14</sup>
  - Occurs 20 times more often than de Quervain's<sup>10</sup>
- Female predominance
- More common between the ages of 52 and 62<sup>14</sup>
- Associated with

*“Efficient, cost-effective management of MSDs is well within the field of expertise for urgent care providers.”*

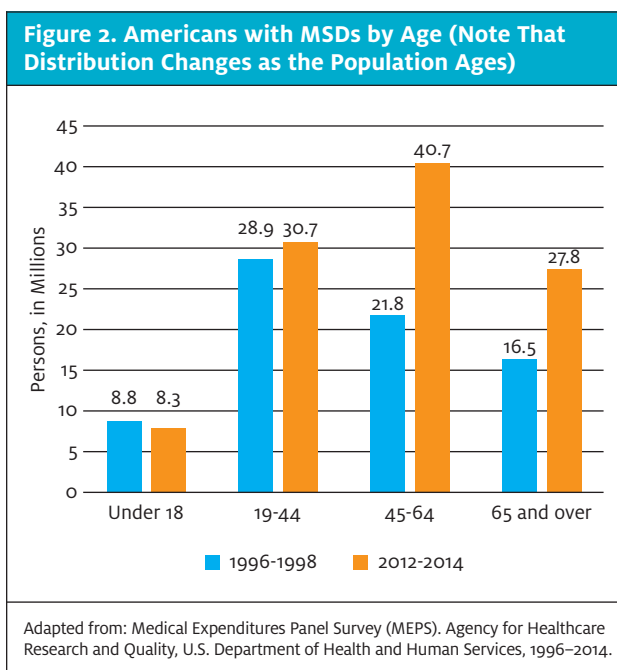
- Diabetes
- Connective tissue disorders
- Nontraumatic events
- Occupations with repetitive tasks requiring force and grip; exposure to vibration

##### *History/Clinical Presentation*

This condition results in the finger or thumb feeling “stuck” or causing a sensation of “catching” during flexion (bending) or extension (straightening) of the digit.<sup>12</sup> Initially, patients complain of joint stiffness or pain over the palmar aspect radiating along the digit.

##### *Physical examination*

- Palpable snapping sensation or crepitus over the A1 pulley system (overlying the MCP joint) with associated tenderness
- Nodule may be present distal to the metacarpophalangeal (MCP) joint<sup>14</sup>
- Puckering of the skin is common
- Thickening of palmar fascia decreases ROM



### Testing

No routine lab or imaging tests are required if other diagnoses have been ruled out. X-rays can be utilized if there is concern for joint abnormalities or inflammatory arthritis exists, but are not required if presentation supports a clinical diagnosis.

### Diagnosis

Clinically diagnosed, locking or clicking observed as patient opens and closes hand.

### Treatment

- Corticosteroid injection into the tendon sheath
  - First-line treatment
  - Injections are reported to be 64%-93% successful in nondiabetic patients<sup>15</sup>
- Surgical intervention is generally considered after failing two or three injections
- Ice
- NSAIDs
- Splinting
  - Often affects dexterity and mobility, resulting in noncompliance
  - Shown to resolve in 55% of manual labor population if splinted early<sup>16</sup>
- **Work restrictions:** Avoid repetitive activities that aggravate complaints; consider padded gloves

### Urgent Care Impact

Responsibilities of the urgent care provider often encompass occupational health roles, especially in rural areas, as preferred provider networks within Worker's Compensation are limited; urgent care clinicians provide initial medical management for musculoskeletal complaints and reported work-related injuries.

Appropriate referrals to specialists, coordination of care, determination of work-relatedness, and management of the return-to-work (RTW) process are aspects of these visits. Utilization of ambulatory centers for the treatment of MSDs (work and non-work-related) continue to increase; according to the Bone and Joint Initiative, 85% of individuals with MSDs will have at least one ambulatory care visit annually, averaging slightly below six office visits per year.<sup>17</sup>

As the population ages, it is reasonable to expect an increase in healthcare utilization for MSDs. The U.S. Census Bureau projects that by the year 2060, one-quarter of the population will be 65 years and over (nearly doubling in size from 2017 to 2060).<sup>18</sup> Efficient, cost-effective management of MSDs is well within the field of expertise for urgent care providers.

A 12-month retrospective review of 12,722 patients treated at a physician-owned urgent care facility specializing in orthopedics found that access to care for ambulatory conditions in an urgent care setting improved patient care and decreased overall health costs for the patients and the facility. The average wait time to be seen by a provider was 17 minutes at the UC, compared with 45 minutes in the hospital ED; time to follow-up with an orthopedist was 1.2 days post UC compared with 3.4 days post ED; overall cost per visit was \$461 (UC) and \$8,150 (ED).<sup>19</sup>

### Work-Related Musculoskeletal Disorders

Clinicians can incorporate basic screening tools with a detailed understanding of workplace responsibilities to establish causation and potential need for work restrictions. Occupational history should include:

- Job satisfaction
- Employment length
- Rotation schedule
- Reported cause
- Job description
  1. Subjective employee description
  2. Employer-provided description vs job site survey
- Occupational risk factors, exposure duration
- Exertional demands

According to the American College of Occupational



Table 3. Considerations for Anticipated Functional Status in Select MSDs	
Rotator cuff tendinitis	<ul style="list-style-type: none"> <li>• Encourage participation in work activities within limitations of pain</li> <li>• Assess for issues with abduction, forward flexion</li> <li>• Limit heavy lifting, avoid or limit activities with hand above shoulder, “no overhead use”; rarely permanent</li> <li>• Maximum medical improvement (MMI) expected in 30-60 days once symptoms improving and no surgical intervention</li> </ul>
Carpal tunnel syndrome	<ul style="list-style-type: none"> <li>• No evidence to suggest restrictions are required</li> <li>• Most activities can safely be performed; however, consider need for limitation of forceful grip, repetition</li> <li>• If significant impairment in hand sensation, restrictions may be of value for those working with hot, sharp, or breakable objects</li> <li>• Perform ergonomic evaluations to analysis duration, frequency, reach, pinch force, hand postures, etc.</li> <li>• MMI status post surgical intervention: 60-90 days</li> <li>• Continued improvement s/p surgery is possible over 18 months</li> </ul>
de Quervain tendinopathy	<ul style="list-style-type: none"> <li>• Ergonomic recommendations to reduce exposure recommended</li> <li>• Consider advising to avoid awkward hand postures, thumb pinching</li> <li>• MMI: 30-45 days status post surgery</li> </ul>
Epicondylitis	<ul style="list-style-type: none"> <li>• Limit loss of muscle mass, maintain functional capacity</li> <li>• Severe cases with dominant hand involvement may affect writing, typing, fine motor skills</li> <li>• Temporarily limit lifting, carrying heavy objects</li> <li>• Use of straps or splints may affect dexterity</li> </ul>
Trigger finger/thumb	<ul style="list-style-type: none"> <li>• Reduce repetitive motions, forceful gripping</li> <li>• Ability to perform tasks such as writing, typing may be limited</li> <li>• Conduct job analysis to evaluate contact stress and forceful finger use</li> <li>• Need for restrictive duty rarely extends beyond 6 weeks with effective treatment</li> </ul>
Adapted from the American College of Occupational and Environmental Medicine.	

and Environmental Medicine (ACOEM), medical causation refers to a causal link between an injury, illness, disease, or disorder and a known risk factor.<sup>20</sup> MSDs can be attributed to both work and non-work-related activities. Work relation is suspected when an event or exposure during work results in a bodily reaction.

MSDs are considered work-related musculoskeletal disorders (WMSD) if the following conditions are met: 1) The work environment and work duties contributed significantly to the disease and/or 2) the injury or illness is exacerbated or persists longer, secondary to work conditions.

Nearly one-third of injuries and illnesses reported in 2017 resulted in days away from work.<sup>21</sup> Major events resulting in injuries included:<sup>21</sup>

- Bodily reaction
  - Sprains, strains, tears
- Overexertion
  - Pushing, pulling, lifting, carrying

The U.S. Bureau of Labor Statistics (BLS) reported that approximately 2.8 million nonfatal workplace injuries and illnesses occurred in 2017, at a rate of 2.8 cases per

100 full-time employees.<sup>21</sup> Of those cases, tendinitis resulted in 33 median days away from work; carpal tunnel syndrome resulted in 30; and sprains/strains/tears accounting for 11 median days.<sup>21</sup>

In addition to having familiarity with epidemiological evidence supporting direct correlation with accepted risk factors,<sup>18</sup> the urgent care clinician must fully understand the work environment and duties. MSDs are associated with high costs to employers secondary to absenteeism, lost productivity, increased healthcare premiums, disability, and Workers’ Compensation.

**Determining Work Relationship**

Urgent care providers may need to determine work-relatedness based on presenting symptoms and work exposure—causation of MSDs is not always easily identified and nonacute subjective symptoms can progressively worsen and manifest as a multifactorial consequence. Often, cause-effect relationships between clinical diagnosis and occupational exposure are difficult to ascertain.

The initial assessment of a reported work injury often occurs at the urgent care level; causality findings during initial evaluation are often preliminary, and the provider should communicate the level of uncertainty to the patient, employer, and Workers' Compensation.<sup>20</sup> Objectives during the initial evaluation include:<sup>21</sup>

- Determine diagnosis
  - Accounting for subjective complaints, clinical signs, and objective diagnostic findings
  - Review previous medical records
    - Including pre-existing symptoms, diagnoses, previous injury or trauma
    - Results of medical surveillance and preplacement testing
    - Consideration of other contributing factors
    - Document any signs of malingering or concerns for secondary gain
- Workplace exposure (as detailed previously)
- Data review
  - Supports or refutes an occupational relationship
    - Literature, studies, case reports

Determining causation should account for occupational/nonoccupational risk, socioeconomic, and psychological factors.<sup>20</sup> Causation must be evidenced-based.

Incorrectly correlating the injury to the occupation or failing to associate job hazards with reported complaints may negatively impact multiple stakeholders, including Workers' Compensation carriers, employers, personal health insurance companies, and the employee.

### Returning to Work/Modified Duty vs Lost Time

The initial treating facility—often an urgent care center—determines if the injured/ill patient is capable of returning to work, requires time away from work, or may return with restricted/modified duties. The American Medical Association strongly recommends that providers return patients to their usual duties as soon as possible. Strong evidence links positive benefits of mental and physical health to re-employment. The longer an injured worker is placed off work, the more likely they will remain off work.

Navigating the RTW process requires that the clinician understand tolerance, capacity, associated risks, work environment, and bodily requirements of a full return to duty. Assess if the employer accommodates modified duty status; many have progressive, robust RTW programs. The ACOEM offers guidance in terms

of anticipated functional status based on a variety of MSDs; see **Table 3**.

### Conclusion

The ever-changing medical climate requires the urgent care provider be cognizant of economic impact and implications of cost burden and care. MSDs are costly, potentially disabling diagnoses requiring complex diagnostic and therapeutic approaches that encompass facilitation of care, understanding dynamic work environments, promoting total health, and improved functional status for work and non work-related conditions. ■

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