



Workers' Compensation Board

January 13, 2022

New York Workers' Compensation Medical Treatment Guidelines for Ankle and Foot Injuries

A Training Module Developed by the Medical Director's Office

Ankle and Foot Training Module

■ Medical Care

- Medical care and treatment required as a result of a work-related injury should be focused on restoring the patient's functional ability to perform their daily and work activities with a focus on return to work, while striving to restore the patient's health to its pre-injury status in so far as is feasible.
- Any medical provider rendering services to a workers' compensation patient must utilize the Workers' Compensation Board's *New York Medical Treatment Guidelines (MTGs)* as provided for with respect to all work-related injuries and/or illnesses.

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- Positive results are defined primarily as functional gains that can be objectively measured. Objective functional gains include, but are not limited to, positional tolerances, range of motion, strength, endurance, activities of daily living (ADL), cognition, psychological behavior, and efficiency/velocity measures that can be quantified. Subjective reports of pain and function may be considered and given relative weight when the pain has anatomic and physiologic correlation in proportion to the injury.

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- If a given treatment or modality is not producing positive results within a well-defined time frame, the provider should either modify or discontinue the treatment regime. The provider should evaluate the efficacy of the treatment or modality two to three weeks after the initial visit and three to four weeks thereafter. These time frames may be slightly longer in the context of conditions that are inherently mental health issues, and shorter for other non-musculoskeletal medical conditions (e.g., pulmonary, dermatologic etc.). Recognition that treatment failure is at times attributable to an incorrect diagnosis, a failure to respond should prompt the clinician to reconsider the diagnosis in the event of an unexpected poor response to an otherwise rational intervention.

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- Education of the patient and family, as well as the employer, insurer, policy makers and the community, should be a primary emphasis in the treatment of a work-related injury or illness. Practitioners should develop and implement effective educational strategies and skills. An education-based paradigm should always start with communication providing reassuring information to the patient. No treatment plan is complete without addressing issues of individual and/or group patient education as a means of facilitating self-management of symptoms and prevention of future injury.

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■ Acuity

- Acute, subacute and chronic are generally defined as time frames for disease stages:
 - Acute – Less than one month
 - Subacute – One to three months, and
 - Chronic – Longer than three months

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■ Time Frames

- Diagnostic time frames for conducting diagnostic testing commence on the date of injury.
- Treatment time frames for specific interventions commence once treatments have been initiated, not on the date of injury.
- Clinical judgment may substantiate the need to accelerate or decelerate the time frames discussed in this training module.
- Specific durations of treatments and number of treatment visits (e.g., physical therapy/occupational therapy (PT/OT)) are beyond the scope of this training module and the provider should refer to the recommendations in the *MTGs*.

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■ Delayed Recovery

- For those patients who fail to make expected progress 6-12 weeks after an injury and whose subjective symptoms do not correlate with objective signs and tests, reexamination in order to confirm the accuracy of the diagnosis and reevaluation of the treatment program should be performed. When addressing a clinical issue that is not inherently a mental health issue, assessment for potential barriers to recovery (yellow flags/psychological issues) should be ongoing throughout the care of the patient. At 6-12 weeks, alternate treatment programs, including formal psychological or psychosocial evaluation should be considered. Clinicians must be vigilant for any pre-existing mental health issues or subsequent, consequential mental health issues that may be impacting recovery.

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■ Delayed Recovery

- For issues that are clearly and inherently mental health issues from the outset (i.e., when it is evident that there is an underlying, work-related, mental health disorder as part of the claim at issue), referral to a mental health provider can and should occur much sooner. Referrals to mental health providers for the evaluation and management of delayed recovery do not indicate or require the establishment of a psychiatric or psychological condition. The evaluation and management of delayed recovery does not require the establishment of a psychiatric or psychological claim.

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■ Active Interventions

- Active interventions emphasizing patient responsibility, such as therapeutic exercise and/or functional treatment, are generally emphasized over passive modalities, especially as treatment progresses. Generally, passive and palliative interventions are viewed as a means to facilitate progress in an active rehabilitation program with concomitant attainment of objective functional gains.

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■ Diagnostic Imaging and Testing Procedures

- Clinical information obtained by history taking and physical examination should be the basis for selection of imaging procedures and interpretation of results.
- It may be of value to repeat diagnostic procedures (e.g., imaging studies) during the course of care to reassess or stage the pathology when there is progression of symptoms or findings, prior to surgical interventions and therapeutic injections when clinically indicated, and post-operatively to follow the healing process.

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■ Surgical Interventions

- Consideration of surgery should be within the context of expected functional outcome. The concept of "cure" with respect to surgical treatment by itself is generally a misnomer. All operative interventions must be based upon positive correlation of clinical findings, clinical course, imaging, and other diagnostic tests.

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■ Surgical Interventions

- For surgery to be performed to treat pain, there must be clear correlation between the pain symptoms and objective evidence of its cause. In all cases, shared decision making with the patient is advised.

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■ Pre-Authorization

- All diagnostic imaging, testing procedures, non-surgical and surgical therapeutic procedures within the criteria of the *MTGs* and based on a correct application of the *MTGs* are considered authorized, with the exception of the procedures listed in section 324.3(1)(a) of Title 12 NYCRR.

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■ Pre-Authorization

- Second or subsequent procedures (the repeat performance of a surgical procedure due to failure of, or incomplete success from, the same surgical procedure performed earlier, if the *MTGs* do not specifically address multiple procedures) also require pre-authorization.

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■ Personality/Psychological/Psychosocial Evaluations

- In select patients, mental health evaluations are essential to make, secure or confirm a diagnosis. Of course, the extent and duration of evaluations and/or interventions by mental health professionals may vary, particularly based on whether: the underlying clinical issue in the claim is inherently a mental health issue; there is a mental health issue that is secondary or consequential to the medical injury or illness that is at issue in the claim in question; or there is a pre-existing, unrelated mental health issue that has been made worse by, and/or is impeding the recovery from the medical injury or illness that is at issue in the claim in question.

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■ Personality/Psychological/Psychosocial Evaluations

- When assessing for a pre-existing, unrelated mental health issue that has been made worse by and/or is impeding the recovery from a work-related, medical injury or illness, then a one-time visit for initial psychiatric/psychological encounter should be sufficient, as care would normally be continued by the prior treating provider.
- If psychometric testing is indicated by findings in the initial encounter, time for such testing should not exceed an additional three hours of professional time.

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■ Personality/Psychological/Psychosocial Evaluations

- For conditions in which a mental health issue is a central part of the initial claim, or in which there is a mental health issue that is secondary or consequential to the work-related, medical injury or illness, that is part of the claim in question, then more extensive diagnostic and therapeutic interventions may be clinically indicated and are discussed in detail in the *MTGs* for such mental health conditions.

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■ Functional Capacity Evaluation (FCE)

- Functional capacity evaluation is a comprehensive or more restricted evaluation of the various aspects of function as they relate to the patient's ability to return to work.
 - In most cases, the question of whether a patient can return to work can be answered without an FCE.
 - An FCE may be considered at time of maximum medical improvement (MMI), following reasonable prior attempts to return to full duty throughout course of treatment, when the treating physician is unable to make a clear determination on work status on case closure. An FCE is not indicated early during a treatment regime for any reason including one to support a therapeutic plan.

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■ Functional Capacity Evaluation (FCE)

- When an FCE is being used to determine return to a specific job site, the treating provider is responsible for understanding and considering the job duties. FCEs cannot be used in isolation to determine work restrictions. The authorized treating provider must interpret the FCE in light of the individual patient's presentation and medical and personal perceptions. FCEs should not be used as the sole criteria to diagnose malingering.

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■ Functional Capacity Evaluation (FCE)

- An FCE may be considered at time of MMI, following reasonable prior attempts to return to full duty throughout the course of treatment, when the treating provider is unable to make a clear determination on work status on case closure.

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■ Return To Work

- For purposes of the *MTGs*, return to work is defined as any work or duty that the patient is able to perform safely. It may not be the patient's regular work. Ascertaining a return-to-work status is part of medical care and should be included in the treatment and rehabilitation plan. It is normally addressed at every outpatient visit.

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■ Return To Work

- A description of the patient's status and task limitations is part of any treatment plan and should provide the basis for restriction of work activities when warranted. Early return to work should be a prime goal in treating occupational injuries. The emphasis within the *MTGs* is to move patients along a continuum of care and return to work, since the likelihood of returning an injured worker to work drops progressively the longer the worker has been out of work.

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■ Return To Work

- When returning to work at the patient's previous job task/setting is not feasible given the clinically determined restrictions on the patient's activities, inquiry should be made about modified duty work settings.

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- **The NY WC MTG for Foot and Ankle address common and potentially work-related ankle and foot injuries. It encompasses assessment (including identification of “red flags” or indicators of potentially-serious injury or disease); diagnosis; diagnostic studies for identification of clinical pathology; work-relatedness; and management, including modified duty and activity, return to work, and an approach to delayed recovery.**
 - Red flags include fracture, dislocation, malignancy, metabolic disorders, infection, and other conditions.

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■ History Taking and Physical Examination

- History taking and physical examination establish the foundation/basis for and dictate subsequent stages of diagnostic and therapeutic procedures. When findings of clinical evaluations and those of other diagnostic procedures are not consistent with each other, the objective clinical findings should have preference.

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■ History of Present Injury

- **Mechanism of injury**: Details of symptom onset and progression, and symptoms that may arise from postural or functional accommodation to the ankle-foot injury;
- **Relationship to work**: Statement of the probability that the illness or injury is work-related;
- **Prior injuries**: Previous occupational and non-occupational injuries to the same area, including specific prior treatment;
- **Functional abilities**: Ability to perform job duties and activities of daily living; and
- **Additional factors**: Exacerbating and alleviating factors of symptoms.

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■ Past History

- Past medical history includes, but is not limited to, neoplasm, gout, arthritis, and diabetes;
- Review of systems includes, but is not limited to, symptoms of rheumatologic, neurologic, endocrine, neoplastic, and other systemic diseases;
- Smoking history;
- Vocational and recreational pursuits;
- Prior imaging studies; and
- Past surgical history.

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■ Physical Examination

Examination of a joint should include the joint above and below the affected area, including the opposite side for comparison.

Physical examination should include accepted tests and exam techniques applicable to the joint or area being examined, including: visual inspection, palpation, bilateral range of motion (active/passive), strength, joint stability, neurologic assessment.

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■ Assessing Red Flags

- Certain findings raise red flags—suspicions of potentially serious medical conditions. In the foot and ankle, these findings or indicators may include: fracture, dislocation, infection or inflammation, tumor, tendon rupture and neurological or vascular compromise including compartment syndrome. Further evaluation/consultation or urgent/emergency intervention may be indicated. The NY WC MTG for Ankle and Foot Injuries incorporate changes in clinical management triggered by the presence of these red flags.

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■ Diagnostic Criteria and Differential Diagnosis

- In most cases of true foot and ankle disorders, diagnostic studies are usually not needed until after a period of conservative care and observation. Most ankle and foot problems improve quickly once any red flags are ruled out. Routine testing, i.e., laboratory tests, plain-film radiographs of the foot or ankle, or special imaging studies, are not recommended during the first month of activity limitation except when a red flag that is noted on history or examination raises suspicion of a dangerous foot or ankle condition or of referred pain.

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■ Diagnostic Testing and Procedures

- One diagnostic imaging procedure may provide the same or distinctive information as obtained by other procedures. Therefore, prudent choice of procedure(s) for a single diagnostic procedure, a complementary procedure in combination with other procedures(s), or a proper sequential order in multiple procedures will ensure maximum diagnostic accuracy, minimize adverse effect to patients and promote cost effectiveness by avoiding duplication or redundancy.

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■ Diagnostic Testing and Procedures

- When a diagnostic procedure, in conjunction with clinical information, provides sufficient information to establish an accurate diagnosis, a second diagnostic procedure will be redundant if it is performed only for diagnostic purposes. At the same time, a subsequent diagnostic procedure can be a complementary diagnostic procedure if the first or preceding procedures, in conjunction with clinical information, cannot provide an accurate diagnosis.

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■ Diagnostic Testing and Procedures

It is recognized that repeat imaging studies and other tests may be warranted by the clinical course and to follow the progress of treatment in some cases. It may be of value to repeat diagnostic procedures (e.g., imaging studies) during the course of care to:

- Reassess or stage the pathology when there is progression of symptoms or findings,
- Prior to surgical interventions and therapeutic injections when warranted, and
- Post-operatively to follow the healing process.

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■ Achilles Tendinopathy

- Initial management is non-operative.
- It is believed that early intervention is critical, as management becomes more complicated and less predictable when the condition becomes chronic.

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■ Achilles Tendinopathy

- Diagnostic studies
 - X-ray for diagnosis of Achilles tendon disorders, retrocalcaneal bursitis, or blunt trauma or suspected fracture
 - **Recommended** – Diagnosis of insertional Achilles tendon disorders or retrocalcaneal bursitis or evaluating blunt trauma or suspected fracture.
 - **NOT** indicated for diagnosis of mid-substance disorders.

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■ Achilles Tendinopathy

- Diagnostic studies
 - Ultrasound for diagnosis of Achilles tendinopathy
 - **Recommended** – Diagnosis of Achilles tendinopathy and may be particularly useful for differentiation of paratendonitis and tendinosis and for identifying fluid in the retrocalcaneal bursa.

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■ Achilles Tendinopathy

- Diagnostic studies
 - Magnetic resonance imaging (MRI) for diagnosis of Achilles tendinopathy
 - **Recommended** – Evaluation of Achilles tendinopathies including paratendonitis, tendinosis, and retrocalcaneal bursitis.

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■ Achilles Tendinopathy

- Diagnostic studies
 - CT for diagnosis of Achilles tendinopathy
 - **Not Recommended** – Diagnosis of Achilles tendinopathy.

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■ Achilles Tendinopathy

- Medications
 - **Recommended** – Generic ibuprofen, naproxen, or other older-generation non-steroidal anti-inflammatory drugs (NSAIDs) as first-line medications for most patients. Second-line medications should include one of the other generic medications. Acetaminophen (or the analog paracetamol) may be a reasonable alternative for these patients, although most evidence suggests acetaminophen is modestly less effective. There is evidence that NSAIDs are as effective for relief of pain as opioids (and tramadol) and less impairing.

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■ Achilles Tendinopathy

- Medications
 - NSAIDs for patients at high risk of gastrointestinal bleeding
 - **Recommended** – Concomitant use of cytoprotective classes of drugs: misoprostol, sucralfate, histamine Type 2 receptor blockers, and proton pump inhibitors for patients at high risk of gastrointestinal bleeding.
 - At-risk patients include the elderly, diabetics, cigarette smokers, and those with a history of prior gastrointestinal bleeding.

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■ Achilles Tendinopathy

- Medications
 - NSAIDs for patients at risk for cardiovascular adverse effects
 - **Recommended** – Acetaminophen or aspirin as the first-line therapy appears to be the safest regarding adverse cardiovascular effects.
 - **Recommended** – If needed, NSAIDs that are non-selective are preferred over COX-2 specific drugs. In patients receiving low-dose aspirin for primary or secondary cardiovascular disease prevention, to minimize the potential for the NSAID to counteract the beneficial effects of aspirin, the NSAID should be taken at least 30 minutes after or eight hours before the daily aspirin.

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■ Achilles Tendinopathy

- Medications
 - Acetaminophen for treatment of acute, subacute, or chronic Achilles tendinopathy pain
 - **Recommended** – Treatment of acute, subacute, or chronic Achilles tendinopathy pain, particularly in patients with contraindications for NSAIDs.

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■ Achilles Tendinopathy

- Medications
 - **Recommended** – Topical NSAIDs for acute, subacute, or chronic tendinopathy, but **NOT** post-operatively.
 - **Not Recommended** – Systemic corticosteroids, vitamins, lidocaine patches and opiates for acute, subacute, or chronic tendinopathy.

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■ Achilles Tendinopathy

- Treatments for acute, subacute, chronic, or post-operative Achilles tendinopathy
 - **Recommended** – Cryotherapy, heat therapy.
 - **Not Recommended** – Night splints (night splints and walking boots may be utilized post-operatively).

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■ Achilles Tendinopathy

- Rehabilitation
 - **Recommended** – PT/OT; extracorporeal shockwave therapy for chronic mid-portion Achilles tendinopathy; Iontophoresis with glucocorticosteroid for acute, subacute, or chronic Achilles tendinopathy; low-level laser therapy for select chronic Achilles tendinopathy.
 - **Not Recommended** – Acupuncture; dry needling; massage and tendon mobilization; therapeutic ultrasound; phonophoresis; low-level laser therapy for acute, subacute, or post-operative Achilles tendinopathy.

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■ Achilles Tendinopathy

- Injection Therapy
 - **Recommended** – Glucocorticosteroid injections (low-dose) for paratendon bursitis and glycosaminoglycan polysulfate local injection (GAGPS) for chronic Achilles tendinopathy.

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■ Achilles Tendinopathy

- Surgery
 - **Recommended** – Select cases of **chronic** Achilles tendinopathy without rupture.
 - **Not Recommended** – **Acute** or **subacute** Achilles tendinopathy without rupture

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■ Achilles Tendinopathy

- Orthotic devices
 - **Not Recommended** – Orthotic devices (such as heel lifts, heel pads or heel braces) for acute, subacute, chronic, or post-operative Achilles tendinopathy.

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■ Achilles Tendon Rupture

- Diagnosis of an Achilles tendon rupture is most often based on loss of plantar flexion strength, palpation of a gap in the mid-portion of the tendon (proximal to the calcaneal insertion), and a positive squeeze test of the calf muscle that fails to elicit plantar flexion. Specific imaging is not required for most acute rupture cases.
 - Acute rupture refers to rupture that presents for evaluation within four weeks, whereas chronic rupture refers to ruptures that present for evaluation four to six weeks or more after an acute injury.

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■ Achilles Tendon Rupture

- Diagnostic studies
 - Routine X-ray for Diagnosis of Acute Achilles Rupture is generally ***NOT*** recommended.
 - Ultrasound or MRI for Diagnosis of Acute Achilles Tendon Rupture is **Recommended** when the clinical suspicion of rupture is high but uncertain. Ultrasound is generally preferred over MRI.

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■ Achilles Tendon Rupture

- Medications
 - Recommendations are similar to Achilles Tendinopathy but limited use of opiates may be utilized acutely and post-operatively.
 - Prophylaxis for Prevention of Deep Venous Thrombosis is **Recommended**.

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■ Achilles Tendon Rupture

- Treatments
 - **Recommended** – Self-application of cryotherapy or heat therapy for acute, subacute, chronic, or post-operative Achilles tendon rupture.
 - **Recommended** – PT/OT for all post-operative and conservatively managed Achilles tendon rupture patients.

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■ Achilles Tendon Rupture

- Treatments
 - Non-Operative Management
 - **Recommended** – Functional splinting and casting in many cases, particularly for select patients with low physical demands where risk factors may outweigh benefits.

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■ Achilles Tendon Rupture

- Treatments
 - Surgery for Treatment of Achilles Tendon Rupture
 - **Recommended** but the mixed results of the data supporting operative and non-operative care should be discussed with patients when covering treatment options. Discussion should include the equivocal superiority of surgical compared to non-operative treatment.

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■ Achilles Tendon Rupture

- Treatments
 - Surgery
 - Open and Percutaneous Operative Approaches
 - For patients undergoing operative repair, there is no recommendation of one approach over the other.
 - **Recommended** – Early post-op weight bearing with functional or rigid bracing.
 - **Not Recommended** – Augmented repairs.

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■ Tenosynovitis (Including Stenosing Tenosynovitis)

- Patients with tendinopathy present with localized ankle pain that is augmented by movement. Occasionally, pain may extend along the affected tendon sheath.
- Initial care usually involves limitation of the physical factors thought to be contributing. Walking casts or boots, splints, or braces for tendinoses may be helpful especially in moderate to severe cases. NSAIDs are often prescribed for initial treatment.

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- **Tenosynovitis (Including Stenosing Tenosynovitis)**
 - Diagnostic Studies
 - There are no tests that are typically performed for tenosynovitis. X-rays are usually not helpful. Bony deformities may contribute to the tenosynovitis and occult fractures may occur.

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■ Tenosynovitis (Including Stenosing Tenosynovitis)

■ Medications

- **Recommended** – Generic ibuprofen, naproxen, or other older-generation NSAIDs as first-line medications for most patients. Second-line medications should include one of the other generic medications. Acetaminophen (or the analog paracetamol) may be a reasonable alternative for these patients, although most evidence suggests acetaminophen is modestly less effective. There is evidence that NSAIDs are as effective for relief of pain as opioids (and tramadol) and less impairing.

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■ Tenosynovitis (Including Stenosing Tenosynovitis)

■ Treatments

- **Recommended** – Walking boots, casts, splints, and braces for acute and subacute ankle tenosynovitis.
- **Recommended** – Therapy, iontophoresis, steroid injections.
- **Not Recommended** – Manipulation and mobilization, massage, deep friction massage, or acupuncture for acute, subacute, or chronic ankle tenosynovitis.
- **Not Recommended** – Surgical release for subacute or chronic tenosynovitis.

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■ Plantar Fasciitis

- Plantar heel pain, known as plantar fasciitis (PF), is common. Other names for plantar heel pain include painful heel syndrome, heel spur syndrome, runner's heel, subcalcaneal pain, calcaneodynia, plantar fasciopathy, and calcaneal periostitis.
- PF is usually marked pain in the inferior or plantar aspect of either the center or medial heel. Pain may be reported distal towards the arch of the foot.

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■ Plantar Fasciitis

- PF generally responds well to conservative management, with more than 90% of patients resolving over a six to 12 month period with non-surgical intervention.
 - Initial management of plantar heel pain is non-invasive. More than 90% of plantar heel pain will resolve with non-invasive measures over a six to 12 month period. Possibly the most important non-operative treatment is reassuring the patient that 95% of those with PF will have resolution of symptoms in 12 to 18 months.

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■ Plantar Fasciitis

- Diagnostic Studies
 - Use of X-Ray for Diagnosis of Plantar Heel Pain
 - **Recommended** – Diagnosis of suspected fracture in patients with plantar heel pain.
 - MRI for Diagnosis of Select Patients with PF
 - **Recommended** – Suspected plantar fascial rupture, avascular necrosis of talar dome, and stress fracture of the talar neck particularly if heel pain is not improving.
 - Ultrasound for Diagnosis of PF
 - **Recommended** – Evaluation of plantar heel pain when clinical diagnosis is uncertain or after no improvement from a course of conservative treatment of four to six weeks.

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■ Plantar Fasciitis

- Medications:
 - **Recommended** – Generic ibuprofen, naproxen, or other older generation NSAIDs are recommended as first-line medications for most patients. Second-line medications should include one of the other generic medications. Acetaminophen (or the analog paracetamol) may be a reasonable alternative for these patients, although most evidence suggests acetaminophen is modestly less effective. There is evidence that NSAIDs are as effective for relief of pain as opioids (and tramadol) and less impairing.
 - Topical NSAIDs may be utilized.

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■ Plantar Fasciitis

- Medications:
 - **Not Recommended** – Opioids (except for limited use for up to seven post-operative days), infliximab, oral/IM steroids, vitamins, lidocaine patches and post-op topical NSAIDs.

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■ Plantar Fasciitis

- Treatments (Refer to NY WC MTG for complete recommendations)
 - **Recommended** – Cryotherapy, heat therapy, and night splints (for subacute or chronic PF), stretching, heel taping, and non-custom orthotics.
 - **Recommended** – Steroid injections WITHOUT ultrasound guidance for chronic PF.
 - **Not Recommended** – Casting for chronic PF.
 - **Not Recommended** – Platelet rich plasma, magnets, acupuncture, Iontophoresis, low-level laser, massage and manipulation.

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■ Plantar Fasciitis

- Treatments
 - Surgery
 - **Recommended** – Select chronic recalcitrant PF. There is no recommendation for any particular procedure or method over another.
 - **Recommended** – Intracorporeal pneumatic shockwave therapy (IPST) as a surgical alternative in select patients with chronic PF.
 - **Not Recommended** – Cryosurgery, percutaneous calcaneus fenestration, radiofrequency microtenotomy.

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■ Foot Ulceration

- Assess the wound margins and areas around the wound, including for induration, and tracking of infection or inflammation. Determine the stage of each ulcer.
- Sensation of the foot and bone and joint deformities should be carefully assessed. Evaluation of perfusion of the foot and ankle, including dorsalis pedis and posterior tibial pulses, and of capillary refill is helpful. Footwear should be assessed for good repair, provision of comfort and support, and freedom from protruding, abrasive, or sharp features.

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■ Foot Ulceration

- Need to rule out Osteomyelitis and X-rays, bone scans and MRI may be indicated.
- NSAIDs/APAP are preferred over opioids but must be cautious of underlying conditions.
- Antibiotics may be indicated and should be based on cultured or anticipated organisms.
- Total contact casting, surgical debridement, hyperbaric oxygen and wound vacuum systems may be required.

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■ Paronychia

- Paronychia is an inflammatory disorder of the nail folds. It is generally classified as acute and chronic. Acute cases are caused by trauma to the nail folds or cuticle.
 - NSAIDs/APAP are frequently utilized for pain.
 - Antibiotics and antifungals are often **Recommended**.
 - Warm compresses are **Recommended**.
 - En bloc excision of the proximal nail fold and eponychial marsupialization, with or without nail plate removal may be required for recurrent paronychia or failure of non-operative treatment.
 - Incision and drainage of abscess may be required.

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■ Foot Drop

- Foot drop is a weakness in the dorsiflexion strength of the affected lower extremity resulting in an abnormal gait pattern. Foot drop is most commonly caused by a variety of central and peripheral nervous system disorders, although any disorder affecting muscle strength may cause foot drop. Foot drop results in an abnormal gait pattern most often because the ankle of the weak side cannot undergo voluntary dorsiflexion.
- Acute trauma followed by foot drop and lower leg pain may mark compartment syndrome, which is one of the surgical emergent causes of foot drop.

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■ Foot Drop

- Various diagnostic tests are required to determine the etiology of a foot drop.
- **Recommended** – Ankle-foot orthotics for the treatment of foot drop.
- **Not Recommended** – Taping.

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■ Tarsal Tunnel Syndrome

- Tarsal tunnel syndrome (TTS) is a relatively infrequent condition defined as an entrapment neuropathy of the tibial nerve or one of its branches from its entry point under the flexor retinaculum below the medial malleolus to the end of its lateral and medial plantar and posterior calcaneal branches, which innervate the base of the foot. TTS is described by the constellation of symptoms of intermittent tingling, numbness or burning paresthesias in the toes and the plantar surface of the foot.

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■ Tarsal Tunnel Syndrome

- In the absence of neuropathic findings (sensory or motor involvement), four to six weeks of conservative care before using invasive measures may be reasonable. The commonly prescribed conservative measures are intended to relieve pressure and pain. These include cold, taping, exercises (especially posterior tibial nerve stretching), anti-inflammatory medications, splints, orthotic devices and supportive footwear.

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■ Tarsal Tunnel Syndrome

- Diagnostic studies
 - **Recommended** – Nerve conduction studies (NCS) for diagnosis and pre-operative assessment of TTS patients to confirm the diagnosis of entrapment of the tibial nerve at the ankle for cases that do not improve with conservative treatment, or if considering surgical release after excluding the possibility of other causes such as polyneuropathy and radiculopathy.
 - **Not Recommended** – Electromyography (EMG) for initial evaluation, diagnosis or pre-operative assessment of TTS patients as there is no quality evidence demonstrating the utility of EMG in the diagnosis of TTS.

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■ Tarsal Tunnel Syndrome

- Diagnostic studies
 - **Recommended** – MRI for diagnosis of select cases of clinically suspected TTS that have failed conservative management or if a mass lesion is suspected.
 - **Recommended** – Use of ultrasound as an aid to NCS, as it may be beneficial to identify suspected space occupying lesions in the tarsal tunnel after failed conservative management, or as an adjunct to guide interventional therapies.
 - **Not Recommended** – Routine use of diagnostic ultrasound.

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■ Tarsal Tunnel Syndrome

- Treatments
 - Medications such as NSAIDs/APAP and lidocaine patches may be utilized.
 - **Recommended** – Cryotherapy/heat.
 - **Not Recommended** – Opioids (except for up to seven days post-op), diuretics, vitamins.

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■ Tarsal Tunnel Syndrome

- Treatments
 - **Recommended** – Various treatments may include rest, exercise, steroid injection, orthotics.
 - **Recommended** – Surgical release of posterior tibial nerve impingement at the tarsal tunnel upon failure of conservative treatment and in the presence of space occupying lesion. Surgical release for cases with nonspecific causes are otherwise expected to have mixed results and patients should be counseled regarding potential lack of benefit before consideration of surgery.
 - **Not Recommended** – Taping, magnets, acupuncture, manipulation, ultrasound, iontophoresis, and phonophoresis.

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■ Ankle Sprain

- Ankle sprain (AS) injuries involve a tear to one or more ligaments in any of the three ligament groups. The majority of AS injuries involve only the lateral ligaments, with approximately 15% involving the medial ankle. The natural course of the lateral AS is rapid improvement. Ten to 20% of patients with acute AS may develop chronic ankle instability.
- Sprain: Injury, not necessarily permanent, of a ligament.
 - Grade I: overstretching or slight tearing without instability.
 - Grade II: incomplete tearing.
 - Grade III: complete tear or rupture.

Ankle and Foot Training Module

■ Ankle Sprain

- Diagnostic studies
 - **Recommended** – X-ray is indicated when there is concern for a fracture.
 - **Recommended** – CT for assessment of select patients with subacute or chronic AS.
 - **Recommended** – MRI for the assessment of select patients with subacute or chronic ankle sprain.
 - **Recommended** – Bone scan for select patients.
 - **Recommended** – Electrodiagnostic studies of peroneal nerve for select patients with recurrent/recalcitrant lateral sprains.
 - **Not Recommended** – MRA for the assessment of acute, subacute or chronic AS.

Ankle and Foot Training Module

■ Ankle Sprain

- **Recommended** – NSAIDs/APAP for pain. Topical NSAIDS may be utilized for acute AS.
- **Recommended** – Opioids for select acute or post-operative AS may be recommended for no more than one week for select patients with severe pain related to acute AS. Limited use of opioids for no more than one week may be indicated for those that have undergone ankle ligament repair surgery or those who encountered surgical complications.
- **Not Recommended** – Lidocaine patches.

Ankle and Foot Training Module

■ Ankle Sprain

- Treatments
 - **Recommended** – Rest, ice, compression, elevation (RICE) but early mobilization is encouraged; walking boot may be indicated in severe cases.
 - **Recommended** – Ankle brace (orthosis) for acute AS.
 - **Recommended** – Immobilization with splinting for severe AS.
 - Application of a splint for ten days to three weeks after a 48-hour period of elevation and non-weight bearing.
 - Physical Therapy may be **Recommended**
 - **Not Recommended** – Heat for acute cases.

Ankle and Foot Training Module

■ Ankle Sprain

- Treatments
 - Injections are **NOT** recommended.
 - Surgery for Treatment of **chronic** ankle instability (CAI)
 - Indications: CAI of at least six months' duration, lateral ankle ligament laxity, and failure of non-operative therapies including therapy and use of ankle orthosis.
 - Surgery is **NOT** indicated for acute or subacute ankle ligament tear.

Ankle and Foot Training Module

■ Mid-Tarsus Pain and Sprains

- Mid-tarsus or mid-foot pain and sprains frequently involve the ligaments of the mid-foot. A primary diagnostic focus is to eliminate the diagnosis of mid-foot fracture. Metatarsalgia is included in this category as is metatarsophalangeal joint sprain. However, metatarsalgia is a broad categorization of forefoot pain that also includes numerous other conditions (e.g., Morton's neuroma).

Ankle and Foot Training Module

■ Mid-Tarsus Pain and Sprains

- **Recommended** – Weight bearing X-rays, which include AP and lateral views without obliques; often bilateral for comparative purposes:
 - Often normal in mild injuries (Grade 1 sprains).
 - Generally abnormal in moderate (Grade 2 sprains).
 - Always abnormal in severe injuries (Grade 3 sprains).
- **Recommended** – CT scans in uncertain cases and in select pre-operative cases.

Ankle and Foot Training Module

■ Mid-Tarsus Pain and Sprains

- **Recommended** – Immobilization in a short-leg walking boot or cast for mild to moderate cases without diastasis.
 - Duration of Therapy – Four to six weeks with repeat X-rays and evaluation for stability at two weeks.
- **Recommended** – Surgery for all severe cases, unstable injuries, and those with significant diastasis (e.g., >2mm).

Ankle and Foot Training Module

■ Foot Neuroma (Morton's Neuroma)

- Morton's neuroma is a common neuralgia affecting the web spaces of the toes, typically the third toe. The pain of Morton's neuroma may be debilitating in cases where patients have difficulty walking or applying pressure on their foot out of fear of pain. The neuroma is associated with a pathology of the plantar digital nerve as it divides at the base of the toes to supply the sides of the toes. There are many different treatments that have been used for Morton's neuroma such as NSAIDs, corticosteroid injections, ablative procedures, and surgery.

Ankle and Foot Training Module

■ Foot Neuroma (Morton's Neuroma)

- Treatments
 - **Recommended** – Changes in shoe wear.
 - Essentially all patients should be advised to wear stiff-soled, wide-toe-box shoes with a low heel and soft insert.
 - **Recommended** – Orthotics, including metatarsal pads.
 - **Recommended** – Glucocorticosteroid injections (maximum of three) for select Morton's neuroma patients for whom a change in shoe wear and orthotics have failed.

Ankle and Foot Training Module

■ Foot Neuroma (Morton's Neuroma)

- Surgery
 - Indications: Select cases where pain and/or debility are significant and changing shoe wear, orthotics and glucocorticoid injection(s) fail to sufficiently control symptoms.
 - Ablation for Morton's neuroma
 - Surgical excision and/or decompression for Morton's neuroma

Ankle and Foot Training Module

■ Bunions/Hallux Valgus

- Hallux valgus (“bunion”) is a lateral deviation of the great toe at the metatarsophalangeal joint with respect to the midline of the body, generally defined as over 14.5 degrees, and occurring in most cases with medial deviation of the first metatarsal.
- X-rays are **recommended**.
- Treatments include a change of shoe wear, orthotics and surgery in refractory cases.

Ankle and Foot Training Module

■ Hammer Toe

- Hammer toe syndromes normally occur in the sagittal plane. The metatarsophalangeal joint is dorsiflexed, while the proximal interphalangeal joint is plantarflexed. Hammer toe mostly affects the second toe.
 - Non-operative treatments include footwear modifications to improve toe box/room, padding, corticosteroid injections, and orthotics.
 - Operative treatment (arthroplasty, flexor tendon transfer, flexor tenotomy, extensor tendon lengthening and metatarsophalangeal joint capsulotomy, fusion, and diaphysectomy) in refractory cases.

Ankle and Foot Training Module

■ Ankle and Foot Fractures

- The initial evaluation of a patient with ankle injury should seek to identify conditions that require immediate treatment. These conditions include open fracture, vascular compromise, compartment syndrome, and joint dislocation.

Ankle and Foot Training Module

■ Ankle and Foot Fractures

- In general, non-displaced or minimally displaced injuries are treated non-operatively, whereas displaced or unstable injuries are treated operatively. Complications of ankle and foot fractures include decreased range of motion, post-traumatic osteoarthritis, pain, persistent pain despite hardware removal, progressive talar instability, and malunions with concomitant syndesmotic widening.

Ankle and Foot Training Module

■ Ankle and Foot Fractures

- The initial treatment of foot and ankle fractures is dictated by injury type (displaced or stable, open or closed) and by concomitant soft tissue injury. Closed, stable injuries are generally treated non-operatively. Open fractures require emergent debridement and antibiotic prophylaxis. Closed unstable fractures generally require operative management. Management should be initiated for severe swelling, compartment syndrome, and skin integrity breakdown from fracture blisters.

Ankle and Foot Training Module

■ Ankle and Foot Fractures

- The NY WC MTG provides general information regarding a myriad of foot and ankle fractures; it is beyond the scope of this module to cover all of that material in depth. The provider should use their own medical knowledge and judgement, in conjunction with the NY WC MTG, to determine the appropriate treatment for each individual fracture.

Ankle and Foot Training Module

■ Ankle and Foot Fractures

- Depending on the type of fracture, radiographic studies including X-rays, CT, MRI, bone scan, and ultrasound may be required for evaluation. The use of one study does not necessarily preclude the use of additional studies but the provider should be cognizant of radiation dosages associated with X-ray and CT.
- Follow-up studies are frequently required to monitor healing.

Ankle and Foot Training Module

■ Ankle and Foot Fractures

- Pain medications including NSAIDs/APAP, as well as opioids may be required. Care should be taken to limit the duration of narcotic pain medications.
- Fracture immobilization followed by therapy may be required.
- Surgical intervention may require post-operative immobilization followed by therapy.

Ankle and Foot Training Module

- **Wound Care, Subungual Hematoma, Contusions**
 - See the NY WC MTG for Hand, Wrist, and Forearm Injuries.

Ankle and Foot Training Module

- For additional questions, please email MTGTrainings@wcb.ny.gov.

Thank You