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Workers' Compensation Board

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New York Workers' Compensation Medical Treatment Guidelines for Hip and Groin Injuries

A Training Module Developed by the Medical Director's Office

Hip and Groin 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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Overview

- The hip and groin disorders described in this training module are covered in a more complete fashion in the NY WC MTG for Hip and Groin Injuries. Other prominent disorders, including lumbar radiculopathy and lumbar spinal stenosis (which can present as posterior and lateral hip pain), are not reviewed here but should often be considered in the differential diagnosis of hip pain and hip symptoms (see the NY WC MTG for Mid and Low Back Injuries for a discussion of these disorders). Additional diagnostic considerations include inguinal hernias, femoral hernias, atherosclerotic abnormalities, aneurysms, avulsion fractures (especially sartorius, rectus femoris), femoral mononeuritis, tumor, cancer, crystal arthropathies (e.g., gout, pseudogout, hydroxyapatite), and infections including septic arthritis.

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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 hip/groin injury;
- **Relationship to work**: This includes a 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 for symptoms; not limited to the hip/groin.

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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. If applicable this should also include Gastrointestinal (GI) and Gastrourinary (GU) (noting any incontinence issues) as well as appropriate musculoskeletal areas;
- Smoking history;
- Vocational and recreational pursuits including history of barotrauma;
- Prior imaging studies; and
- Past surgical history.

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Physical Examination

- Examination of a joint should include the joint 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, AROM, PROM, strength, stability, leg length discrepancy, circulation, neurological exam (as indicated), gait assessment.

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Assessing Red Flags

- Certain findings raise flags—suspicions of potentially serious medical conditions. Assessment (history and physical examination) should include evaluation for red flags. In the hip/groin, these findings or indicators may include: fracture, dislocation, infection or inflammation, tumors, or systemic rheumatological disorders, and neurological compromise. Further evaluation/consultation or urgent/emergency intervention may be indicated. The NY WC MTG for Hip and Groin Injuries incorporate changes in clinical management triggered by the presence of red flags.

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Diagnostic Criteria and Differential Diagnosis

- The history, physical examination, and radiographs will effectively diagnose most hip disorders. If the diagnosis of a hip and groin disorder remains unclear, magnetic resonance imaging (MRI), with or without gadolinium, is generally the imaging method used to diagnose most other intra-articular and extra-articular pathologies. Other imaging techniques include ultrasound, computed tomography (CT) imaging, post-operative radiography, and magnetic resonance and CT arthrography.

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Diagnostic Criteria and Differential Diagnosis

- The provider performing an initial evaluation of a patient with hip or groin pain should seek a discrete explanatory diagnosis. A review of systems that also involve the knee, spine, abdomen, and genito-urinary tract is necessary. The examination of a patient with hip or groin pain generally needs to focus on the hip joint and include relevant neighboring structures similar to the review of systems. Potentially serious disorders include infections, tumors, or systemic rheumatological disorders.

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Hip Osteoarthrosis

- Hip degenerative joint disease (DJD) is most commonly caused by osteoarthrosis (OA). Although OA is the more common name for this entity, osteoarthrosis is considered to be more technically precise because classic inflammation is absent.
- OA may develop in only one joint after a significant traumatic injury such as fracture, in which case it is often delayed by many years.

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Hip Osteoarthrosis

- Diagnostic studies
  - **Recommended** – Radiographs (X-rays) to assist in diagnosing hip OA in nearly all patients with hip pain thought to have hip OA. These are generally only obtained once.

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Hip Osteoarthrosis

- Diagnostic studies
  - MRI is used as a test for select hip joint problems. It is considered the imaging test of choice for soft tissues, and is the gold standard for evaluating osteonecrosis after X-rays.
    - **Recommended** – For select hip joint pathology, particularly involving concerns regarding soft tissue pathology or with symptoms lasting more than three months.
    - **Not Recommended** – For routine evaluation of acute, subacute or chronic hip joint pathology, including degenerative joint disease.

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Hip Osteoarthrosis

- Diagnostic studies
  - **Recommended** – MRI without arthrography for select hip joint problems to evaluate the joint but not the labrum.

    *Rationale: T*here are concerns that MRI is inferior to MR arthrography, particularly for evaluating the labrum; therefore, MRI without arthrography is recommended for evaluating the joint but not the labrum.

  - **Recommended** – CT scan of bony structures for patients who need advanced imaging, but have contraindications for MRI.

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Hip Osteoarthrosis

- Diagnostic studies
  - **Recommended** – Bone scan to assist in diagnosis of osteonecrosis, neoplasms, or other conditions with increased polyosthotic bone metabolism in select patients with acute, subacute or chronic hip pain; suspected metastases; primary bone tumors; infected bone (osteomyelitis); inflammatory arthropathies; osteonecrosis; Avascular Nectrosis (AVN); or trauma (i.e., occult fractures).
  - **Not Recommended** – CT scan for routine diagnosis of hip OA.
  - **Not Recommended** – Ultrasound to diagnose hip OA.

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Hip Osteoarthrosis

- Diagnostic studies
  - **Recommended** – Antibodies for select patients with acute, subacute chronic or post-operative hip pain to assist in diagnosis, including differentiating inflammatory rheumatic disorders from hip OA.
    - *Indications*: Undiagnosed patients with either systemic arthropathies and/or peripheral neuropathies, or patients with incomplete evaluations. Diagnostic testing should generally include sedimentation rate. Other tests may include rheumatoid factor, antinuclear antibody level, and others.

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Hip Osteoarthrosis

- Diagnostic studies
  - **Recommended** – C-reactive protein, Erythrocyte Sedimentation Rate, rheumatoid panels for select patients with acute, subacute, chronic or post-operative hip pain to assist in diagnosis, including differentiating inflammatory rheumatic disorders from hip OA.
    - *Indications*: Undiagnosed patients with either systemic arthropathies and/or peripheral neuropathies, or patients with incomplete evaluations. Other tests may include rheumatoid factor and antinuclear antibody level.

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Hip Osteoarthrosis

- Diagnostic studies
  - **Recommended** – Local anesthetic injections to assist in diagnosing cause of hip pain.
    - *Frequency/Dose/Duration*: One injection. A second evaluation is rarely needed. Intra-articular hip injections with anesthetic agents are generally thought to be better if performed with a glucocorticosteroid as it generally accomplishes both diagnostic and therapeutic purposes simultaneously, although occasionally a simple anesthetic injection may be helpful in select cases.

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Hip Osteoarthrosis

- Diagnostic studies
  - Electromyography, including nerve conduction studies, have been used to confirm diagnostic impressions of other peripheral nerve entrapments, including the lateral femoral cutaneous nerve to the thigh (meralgia paresthetica).
    - **Recommended** – For select patients to assist in the diagnosis of subacute or chronic peripheral nerve entrapments, including lateral cutaneous nerve to thigh (meralgia paresthetica).

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Hip Osteoarthrosis

- Medications
  - **Recommended** – For most patients, generic ibuprofen, naproxen, or other older-generation non-steroidal anti-inflammatory drugs (NSAIDs) are recommended as first-line medications. 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 (including tramadol) and less impairing.

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Hip Osteoarthrosis

- Medications
  - **Recommended** – NSAIDs for treatment of acute, subacute, or chronic hip OA.
  - **Recommended** – If NSAIDs are utilized for patients at high risk of gastrointestional bleeding, concomitant use of cytoprotective classes of drugs such as misoprostol, sucralfate, histamine Type 2 receptor blockers, and/or proton pump inhibitors.
  - At-risk patients include the elderly, diabetics, cigarette smokers, and those with a history of prior gastrointestinal bleeding."

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Hip Osteoarthrosis

- Medications
  - NSAIDs for patients at risk for cardiovascular adverse effects should have the risks and benefits of NSAID therapy for pain discussed; acetaminophen or aspirin as the first-line therapy appears to be the safest regarding cardiovascular adverse effects.
    - 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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Hip Osteoarthrosis

- Medications
  - **Recommended** – Acetaminophen for the treatment of acute, subacute and chronic hip OA pain, particularly in patients with contraindications for NSAIDs.
    - There is evidence of hepatic toxicity when exceeding four gm/day.
  - **Recommended** – Topical NSAIDs for treatment of acute, subacute, or chronic hip OA for acute, subacute or chronic hip OA.
    - For most patients, oral medications are recommended; however, for those with contraindications for oral NSAIDs or intolerance, topical NSAIDs may be a reasonable alternative.

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Hip Osteoarthrosis

- Medications
  - **Recommended** – Capsicum for short-term treatment of acute or subacute hip pain as well as for acute exacerbations of chronic hip pain as a counterirritant.
    - Duration of use for patients with chronic pain is limited to an acute flare-up period, generally lasting no more than two weeks. Caution should be exerted to avoid application near the genitals.

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Hip Osteoarthrosis

- Medications
  - **Not Recommended** – Opioids for acute, subacute, or chronic hip pain.
  - **Not Recommended** – Lidocaine patches, eutectic mixture of local anesthetics (EMLA), complementary or alternative treatments or dietary supplements, norepinephrine inhibiting anti-depressants, selective serotonin reuptake inhibitors (SSRIs), anti-convulsant agents for hip OA.

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Hip Osteoarthrosis

- Treatments
  - **Recommended** – Cryotherapy/heat for acute, subacute or chronic hip OA, as well as for hip arthroplasty and surgery patients.
  - **Not Recommended** – Ultrasound, low level laser, diathermy, infrared therapy.
- Rehabilitation
  - **Recommended** – Therapeutic exercises, physical therapy/occupational therapy (PT/OT).
  - **Recommended** – Walking aids, i.e., cane, crutches, walker, for select moderate to severe acute hip or groin pain or subacute and chronic hip or groin pain.

Hip and Groin Training Module

Hip Osteoarthrosis

- Rehabilitation
  - **Recommended –** Orthotics, shoe insoles and shoe lifts for patients with significant leg discrepancy (usually at least 2 cm) and hip pain felt to be a consequence of that discrepancy.
- Acupuncture
  - **Recommended** – For select patients in the treatment of chronic hip OA as an adjunct to more efficacious treatments.
    - Moderate to severe chronic OA of the hip. Prior treatments should include NSAIDs, weight loss, and exercise including a graded walking program and strengthening exercises.
    - A limited course of six appointments with a clear objective and functional goals to be achieved. Additional appointments would require documented functional benefits, lack of plateau in measures and probability of obtaining further benefits.
  - **Not Recommended** – Magnets, massage, reflexology, electrical therapies.

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Hip Osteoarthrosis

- Rehabilitation
  - **Recommended** – Pre-operative exercise for patients who exhibit evidence of weakness or unsteady gait. Flexibility components may be reasonable in those without fixed deficits.
    - All arthroplasty patients may benefit, but particularly those with weakness or unsteady gait. Also particularly helpful for those needing supervised encouragement. Improves speed of post-op recovery.
    - One pre-operative course. Two or three follow-up appointments for adherence and additional exercise instruction may be needed for select patients. Patients with severe deficits may require two to three appointments a week for four to six weeks in advance of arthroplasty. Those with minimal deficits may benefit from a single appointment to teach programmatic elements for a self-directed program.

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Hip Osteoarthrosis

- Rehabilitation
  - **Recommended** – Post-operative exercise and/or rehabilitation program for hip arthroplasty surgery patients.
  - **Recommended** – Late post-operative exercise program after arthroplasty or hip fracture for patients who exhibit significant evidence of weakness or unsteady gait beyond three months post-operatively.

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Hip Osteoarthrosis

- Injection Therapy
  - **Recommended** – Intra-articular glucocorticosteroid injections for the treatment of hip OA.
    - Hip OA pain where control with NSAID(s), acetaminophen, weight loss and exercise is unsatisfactory.
  - **Not Recommended** – Intra-articular hip viscosupplementation injections, intra-articular platelet-rich plasma injections, prolotherapy injections, botulinum injections, glucosamine sulfate intra-muscular injections, glucosamine sulfate intra-articular injections.

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Hip Osteoarthrosis

- Surgery
  - **Recommended** – Hip arthroplasty for severe arthritides, osteonecrosis with collapse or insufficient response to non-operative treatment, or substantially symptomatic hip dysplasia.
  - **Recommended** – Osteotomy for the treatment of hip OA in select patients.
  - Indications include significant alignment abnormalities, dysplasia, osteonecrosis, nonunion of femoral neck fracture, slipped capital femoral epiphyses, and cox vara. Generally performed on younger patients in preference to arthroplasty.

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Hip Osteoarthrosis

- Surgery
  - **Recommended** – Post-operative exercise and rehabilitation program for hip arthroplasty surgery patients.
  - **Recommended** – Post-operative assistive devices as needed, including walking aid, ADL adaptive equipment (e.g., long-handled reacher or shoe horn or sock aid, elevated toilet seat).
  - **Recommended** – For treatment of infected prosthesis, a serious outcome that usually requires surgical debridement, drainage and appropriate antibiotics. Treatment frequently necessitates prolonged IV antibiotics and may require removal of implanted hardware.

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Hip Osteoarthrosis

- Surgery
  - **Recommended** – For treatment of dislocations, including referral back to the treating surgeon, as appropriate, to reduce dislocation and incidence of recurrence. Revision surgery may be required for recurrent dislocations.
  - **Recommended** – For treatment of infected prosthesis, a serious outcome that usually requires surgical debridement, drainage and appropriate antibiotics. Treatment frequently necessitates prolonged IV antibiotics and may require removal of implanted hardware.

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Hip Osteonecrosis

- Osteonecrosis (aka, avascular necrosis) involves bone death.
  - Some cases are considered occupational disorders, particularly in the setting of dysbarism (atmospheric compression/decompression) including divers and other workers in compressed air atmospheres who experience impaired blood supply to the femur due to nitrogen gas in the blood during excessively rapid decompression. Major trauma is another reported cause.
    - Significant, discrete trauma is thought to be a risk factor. However, nontraumatic job physical factors are controversial. Treatment is primarily based on alleviating the exposure(s) thought to be responsible. A surgical “coring” procedure, vascularized and unvascularized bone grafting, and osteotomy are sometimes utilized. Severe cases may require arthroplasty.

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Hip Osteonecrosis

- Diagnostic studies
  - Osteonecrosis is most commonly diagnosed on imaging studies. If the diagnosis of hip pain remains unclear after radiographs, MRI (with or without gadolinium, etc.) is generally the imaging of choice.
    - **Recommended** – CT or bone scan can be used for patients who are unable to have an MRI.
    - **Recommended** – X-rays for all patients thought to have Osteonecrosis (with periodic follow-up studies).

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Hip Osteonecrosis

- Medications
  - Similar to those for Osteoarthrosis although opioids may be utilized briefly for severe pain.
    - For limited use (maximum of seven days) as adjunctive therapy for NSAIDs.

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Hip Osteonecrosis

- Treatments
  - The early treatment focus for mild to moderate cases of osteonecrosis is to identify and treat reversible risk factors. Reduction or elimination of activities that significantly provoke symptoms including avoidance of dysbaric exposures is recommended. Moderately severe or severe cases generally receive prompt surgical treatment, especially if collapse has occurred.
  - Assessing disease severity is the first step for osteonecrosis. Elimination of decompression atmospheres is a prominent early intervention. Nonprescription analgesics may provide sufficient pain relief for most patients with hip pain from osteonecrosis. If either the condition is progressing and/or disease severity is more advanced, surgical intervention is indicated.

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Hip Osteonecrosis

- Treatments
  - Patients with osteonecrosis should not generally undergo any decompression atmospheres until the condition is resolved. High force and/or high impact force (e.g., jumping) should generally be precluded in patients presenting with osteonecrosis (especially those with more severe disease at risk of collapse) until the condition is either substantially improved or resolved.

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Hip Osteonecrosis

- Treatments
  - Surgery
    - **Recommended** – Core decompression surgery in patients with generally moderate to severe osteonecrosis either (i) not responding to risk factor modification and/or (ii) felt to be at risk of collapse and further delay while treating risk factors or treating with hyperbaric oxygen is felt to be too risky.
    - **Recommended** – Arthroplasty for the treatment of osteonecrosis with collapse or severe disease unresponsive to non-operative treatment.

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Hip Osteonecrosis

- Treatments
  - **Recommended** – Hyperbaric oxygen (HBO) for treatment of osteonecrosis.
    - *Indications*: Osteonecrosis Ficat Stage 2. It may be reasonable to attempt Hyperbaric Oxygen (HBO) in patients with more severe osteonecrosis. Up to 30 treatments.

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Hip Fractures

- Hip fractures include both frank and stress fractures. Occupational fractures most commonly result from falls or motor vehicle accidents. Stress fractures most typically involve repeated applications of unaccustomed force over a relatively short interval of hours to days. These are usually treated with elimination of the offending exposure and observation. PT to address movement system impairments, such as muscle performance and motor patterns, may assist in reducing forces on the affected site.

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Hip Fractures

- Diagnostic studies
  - **Recommended** – X-rays for evaluating the hip in all patients with potential hip fractures.
  - **Recommended** – Bone scan for use in select patients with acute, subacute or chronic hip pain to assist in the diagnosis of fractures.
    - Patients with hip fractures also with suspicion of osteonecrosis, Paget's disease, neoplasm, or other increased polyosthotic bone metabolism.

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Hip Fractures

- Diagnostic studies
  - **Recommended** – CT for evaluating hip fracture patients with concerns for osteonecrosis or following traumatic dislocations or arthroplasty-associated recurrent dislocations. CT is also recommended for patients who need advanced imaging but have contraindications for MRI.
    - Helical CT is generally helpful for vascular concerns, reduces motion artifact and speeds scanning time.

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Hip Fractures

- Diagnostic studies
  - **Recommended** – MRI for select hip fracture patients who also have subacute or chronic hip pain with consideration of accompanying soft tissue pathology or other diagnostic concerns.
    - MRI has been suggested for evaluations of patients with symptoms over three months, but may be utilized earlier to help r/o stress fractures.

Hip and Groin Training Module

Hip Fractures

- Medications
  - NSAIDs/acetaminophen as discussed for prior conditions.
  - **Recommended** – Bisphosphonates for select patients with osteopenia-related hip fractures.
  - **Recommended** – Opioids for treatment of select patients with post-operative hip fractures.
    - Generally, patients require no more than a few days to not more than one week of treatment with opioids for most hip surgeries.

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Hip Fractures

- Treatments
  - Surgery
    - **Recommended** – Surgical intervention as soon as the patient is medically stable.
      - There are many different surgical approaches and products used for fixation. The type of surgical treatment (e.g., pin, screw, nail) or non-operative management is deferred to the treating surgeon.

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Hip Fractures

- Treatments
  - Surgery
    - **Recommended** – Arthroplasty, especially for patients with displaced femoral neck and subcapital fractures.
    - **Recommended** – Hemiarthroplasty for patients with displaced femoral neck and subcapital fractures.

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Hip Fractures

- Treatments
  - Surgery
    - **Recommended** – Treatment of infected prosthesis, a serious outcome that usually requires surgical debridement, drainage and appropriate antibiotics. Treatment frequently necessitates prolonged IV antibiotics and may require removal of implanted hardware.
    - **Recommended** – Treatment of dislocations, which should include referral back to the treating surgeon, as appropriate, to reduce the dislocation and incidence of recurrence. Revision surgery may be required for patients with recurrent dislocations.

Hip and Groin Training Module

Hip Fractures

- Treatments
  - Venous thromboembolic disease (VTED) is a high-risk complication among post-operative hip arthroplasty/fracture patients resulting in morbidity and mortality. Determinations on the types of prophylaxis should be discussed between the surgeon and patient. The NY WC MTG delineates this more completely.
  - Pre- and post-operative rehabilitation, including hip arthroplasty and hip fractures, will vary. The NY WC MTG discusses options in greater depth.

Hip and Groin Training Module

- **Femoroacetabular Impingement, "Hip Impingement", and Labral Tears**

Labral Tears	Nonradiating groin pain with ROM. Typically provoked with specific, predictable activities, such as specific position(s). May have buckling, clicking, catching. Pain may be worse with pivoting and walking.	Variable findings; pain reproducible on ROM. Extent of ROM often restricted. Pain reproduced with hip into extension from flexion. Pain with hyperflexion, internal rotation, and adduction (impingement position) is present in most cases. Pain and/or click may also be reproduced with the labral stress test and/or with resisted straight leg raise.	Radiographs are often ordered. MRI is sometimes ordered, and MR arthrography is often helpful.
Femoroace-tabular Impingement	Nonradiating groin pain. Pain is often positional and worse with activity. Pain with hip flexion and internal rotation.	Decreased internal rotation and adduction with hip flexed to 90 degrees. Positive impingement test (pain with passive adduction and gradually internally rotating the flexed hip).	Radiographs usually ordered. MRI and MR arthrography helpful.

Hip and Groin Training Module

- **Femoroacetabular Impingement, “Hip Impingement”, and Labral Tears**
  - Diagnostic studies
    - **Recommended** – MR Arthrogram for diagnosing femoroacetabular impingement and labral tears in patients with subacute or chronic hip pain and symptoms or clinical suspicion of femoroacetabular impingement, labral tears, or other hip joint concerns.
    - **Recommended** – MRI in select patients with subacute or chronic lateral hip pain when there is diagnostic uncertainty as to the etiology and to assist in making an accurate diagnosis.
    - **Recommended** – Ultrasound for evaluating patients with femoroacetabular impingement and labral tears.
      - Generally arthrogram and MRI are the preferred diagnostic tests, yet selective use of ultrasound may be helpful.

Hip and Groin Training Module

- **Femoroacetabular Impingement, “Hip Impingement”, and Labral Tears**
  - Medications
    - NSAIDs/Acetaminophen as discussed for prior conditions.
    - Opioids are rarely used for treatment of patients with labral tears and femoroacetabular impingement.
      - **Recommended** – For short-term use (less than one week) for patients with labral tears and femoroacetabular impingement and severe pain.
      - **Recommended** – For select treatment of patients with post-operative labral tears and femoroacetabular impingement (a brief course of a few days to not more than one week).

Hip and Groin Training Module

- **Femoroacetabular Impingement, “Hip Impingement”, and Labral Tears**
  - Treatments
    - **Recommended** – Therapeutic exercise, i.e., PT/OT, for labral tears and femoroacetabular impingement, particularly post-operatively and to address any strength deficits. Total numbers of visits may be as few as two to three for mild patients or up to 12 to 15 with documentation of objective functional improvement.
    - **Recommended** – Local glucocorticosteroid injections for treatment of hip impingement or labral tears in select patients.
      - *Indications*: Hip impingement and/or labral tears generally not resolving over a period of a few weeks of treatment with activity modification and NSAIDs.

Hip and Groin Training Module

- **Femoroacetabular Impingement, “Hip Impingement”, and Labral Tears**
  - Treatments
    - Surgery
      - **Recommended** – Arthroscopy to diagnose and treat patients with hip pain if there is a suspicion of labral tear, intra-articular body, femoroacetabular impingement, or there are other subacute or chronic mechanical symptoms for patients who failed conservative management.
      - **Recommended** – Open surgical repair for hip impingement or labral tear cases that fail conservative management and either fail arthroscopic repair and/or are thought to be best treated with an open approach.

Hip and Groin Training Module

- **Femoroacetabular Impingement, “Hip Impingement”, and Labral Tears**
  - Treatments
    - **Recommended** – Walking aids, i.e., cane, crutches, walker, for select patients with moderate to severe labral tears and femoroacetabular impingement.
      - *Indications*: Disabling, moderate to severe labral tears and femoroacetabular impingement where risks of increasing debility are outweighed by device use that increases mobility. For acute injuries, crutches and canes may be helpful during the recovery and/or rehabilitative phase to increase functional status (e.g., from wheelchair to walker to cane).

Hip and Groin Training Module

- **Gluteus Medius Tendinosis and Tears ("Rotator Cuff of the Hip") Greater Trochanteric Pain Syndrome and Trochanteric Bursitis**
  - Diagnostic studies
    - **Recommended** – MR arthogram to diagnose gluteus medius tendinosis or tears, and for greater trochanteric pain syndrome in patients with subacute or chronic hip pain.
    - *Rationale*: As compared to other imaging procedures, enhanced MR arthrogram allows better labral evaluation and is recommended for diagnosing gluteus medius tendinosis or tears, or trochanteric bursitis. It is likely the best imaging procedure available for these patients and is recommended for select use.

Hip and Groin Training Module

- **Gluteus Medius Tendinosis and Tears ("Rotator Cuff of the Hip") Greater Trochanteric Pain Syndrome and Trochanteric Bursitis**
  - Diagnostic studies
    - **Recommended** – MRI in select patients with subacute or chronic lateral hip pain where there is diagnostic uncertainty as to the etiology and to assist in making an accurate diagnosis.
    - **Recommended** – Ultrasound for evaluating patients with gluteus medius tendinopathies, greater trochanteric bursitis, and greater trochanteric pain syndrome/lateral hip pain.

Hip and Groin Training Module

- **Gluteus Medius Tendinosis and Tears ("Rotator Cuff of the Hip") Greater Trochanteric Pain Syndrome and Trochanteric Bursitis**
  - Medications
    - NSAIDs/acetaminophen as discussed for prior conditions.
    - **Recommended** – Opioids for treatment of select patients with postoperative gluteus medius tendinosis or tears, trochanteric bursitis, and greater trochanteric pain.
      - Generally, patients require no more than a few days to not more than one week of treatment with opioids for most hip surgeries.

Hip and Groin Training Module

- **Gluteus Medius Tendinosis and Tears ("Rotator Cuff of the Hip") Greater Trochanteric Pain Syndrome and Trochanteric Bursitis**
  - Treatments
    - **Recommended** – Therapeutic exercise (i.e., PT/OT) for greater trochanteric pain syndrome, trochanteric bursitis and gluteus medius tendinosis and tears, particularly to address any strength deficits in the lateral hip musculature. Total number of visits may be as few as two to three for mild patients or up to 12 to 15 with documentation of objective functional improvement.

Hip and Groin Training Module

- **Gluteus Medius Tendinosis and Tears ("Rotator Cuff of the Hip") Greater Trochanteric Pain Syndrome and Trochanteric Bursitis**
  - Treatments
    - **Recommended** – Glucocorticosteroid injections as a treatment option for acute, subacute or chronic trochanteric bursitis, greater trochanteric pain syndrome and gluteus medius tears with accompanying clinical bursitis. Maximum of three injections.

Hip and Groin Training Module

- **Gluteus Medius Tendinosis and Tears ("Rotator Cuff of the Hip") Greater Trochanteric Pain Syndrome and Trochanteric Bursitis**
  - Treatments
    - **Recommended** – Surgical repair for gluteus medius tears that are not responsive to medical management.
    - *Indications/Rationale*: Tears of the gluteus medius tendon with accompanying pain and/or functional deficits felt amenable to surgical treatment. Generally, at least three weeks of non-operative treatment is advisable.

Hip and Groin Training Module

Hamstring and Hip Flexor Strains

- Hamstring and hip flexor strains are thought to be true muscular strains (i.e., disrupted myotendinous junctions). The examination findings are tenderness usually at either the muscle origin or insertion with swelling or large ecchymoses in more severe cases. Some cases involve complete ruptures and require surgical repair. Clinical tests are generally not necessary. Treatments may include NSAIDs, heat or cold, ace wraps, work limitations, therapy, and progressive agility, and trunk stabilization.

Hip and Groin Training Module

Hamstring and Hip Flexor Strains

- Diagnostic studies
  - **Recommended** – Ultrasound for diagnosing hamstring strains and tears and hip flexor strains that are generally at least moderate in severity. Mild strains generally resolve with appropriate treatment and without need for diagnostic testing.
  - **Recommended** – MRI to diagnose hamstring or hip flexor strains in select more severe cases.
  - *Indications*: Severe and select cases of moderately-severe strains in which there is consideration for surgical repair.

Hip and Groin Training Module

Hamstring and Hip Flexor Strains

- Treatments
  - **Recommended** – Hot or cold or ace wrap therapies for treatment of hamstring or hip flexor strains.
  - **Recommended** – Therapeutic exercise (i.e., PT/OT) particularly to address any strength deficits in the lateral hip musculature.
  - **Recommended** – Intra-articular glucocorticosteroid injections for the treatment of hamstring or hip flexor strains.
    - *Indications*: For hamstring or hip flexor strains where control with NSAID(s), acetaminophen, weight loss and exercise is unsatisfactory.
    - *Frequency/Dose/Duration*: A single injection should be administered and the results evaluated.

Hip and Groin Training Module

Hamstring and Hip Flexor Strains

- Treatments
  - **Not Recommended** –
    - Intra-articular hip viscosupplementation injections
    - Intra-articular platelet-rich plasma injections
    - Prolotherapy injections
    - Botulinum injections
    - Glucosamine sulfate intra-muscular injections
    - Glucosamine sulfate intra-articular injections

Hip and Groin Training Module

Hamstring and Hip Flexor Strains

- Treatments
  - **Recommended** – Surgical repair for treatment of large or complete hamstring or hip flexor strains in select patients.
  - **Recommended** – Walking aid, i.e., cane, crutches, walker, for select moderate to severe hamstring or hip flexor strains.
  - **Not Recommended** – Bed rest, electrical therapies for treatment of hamstring or hip flexor strains.

Hip and Groin Training Module

Groin Strains and Adductor-Related Groin Pain

- Clinical tests are generally not necessary, although in the more ***severe*** cases, evaluation with X-rays and/or MRI are **Recommended** for evaluation of the underlying bony structure as well as the degree of muscle tear as rare cases may require surgery.
- See the NY WC MTG for the full recommendations regarding groin strains and adductor-related groin pain.

Hip and Groin Training Module

Meralgia Paresthetica

- Meralgia paresthetica is a peripheral entrapment neuropathy of the lateral femoral cutaneous nerve, a sensory nerve supplying the upper lateral aspects of the thigh.
- Most cases are diagnosed clinically and successfully treated empirically, thus requiring no testing. Testing is advised, however, before surgery, both to secure the diagnosis and more precisely identify the location of entrapment for the operative approach. In this situation Magnetic Resonance Neurography and/or Nerve Conduction Study may be **Recommended**.

Hip and Groin Training Module

Meralgia Paresthetica

- Treatments
  - **Recommended** – Cryotherapy and heat treatment for all patients.
  - **Recommended** – Glucocorticosteroid injections for the treatment of meralgia paresthetica if more conservative treatments are not efficacious.
  - **Not Recommended** – Spinal cord stimulator.

Hip and Groin Training Module

Meralgia Paresthetica

- Treatments
  - **Recommended** – Surgical release for treatment of select patients with meralgia paresthetica.
    - *Indications*: Patients who both have continued symptoms unresponsive to the above treatments and in whom symptoms are sufficiently severe to warrant invasive treatment. Should have diagnosis and site of entrapment confirmed by either nerve conduction study or Magnetic Resonance neurography.

Hip and Groin Training Module

Lower Abdominal Strains

- Lower abdominal strains are frequent occurrences in occupational populations that involve heavy lifting. Patients should be evaluated for hernias and referred for consideration of surgical repair if found.
- Most patients can be treated conservatively with NSAIDS, heat and cold therapies. Rehabilitation is **Recommended** particularly for those with strength deficits and/or significant functional impairments.

Hip and Groin Training Module

Epididymo-Orchitis

- The vast majority of cases of epididymitis or combined epididymito-orchitis have infectious origins. There is a small, but not insignificant minority of patients who report a history of a heavy lift or strain that precipitated the symptoms, thus giving rise to the possibility that this entity may sometimes be an occupational disease or injury outside of the obvious setting of direct work-related trauma.
- Patients with a clinical course that does not resolve should be evaluated by a urologist.
- Patients should be evaluated for testicular torsion (a surgical emergency), tumor and genitourinary infections. Those with evidence suggesting any of these conditions should be referred to a primary health care provider or urologist.

Hip and Groin Training Module

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

Thank You