New York State
Workers' Compensation Board

New York
Knee Injury
Medical Treatment Guidelines©

First Edition

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This Treatment Guideline is adopted, with modification, from the State of Colorado's Lower Extremity Medical Treatment Guideline, with supplementation from ACOEM's Occupational Medicine Treatment Guidelines© and the State of Washington's Medical and Surgical Treatment Guidelines.

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A GENERAL GUIDELINE PRINCIPLES

The principles summarized in this section are key to the intended application of the New York State Medical Treatment Guidelines.

Medical Care

A.1 MEDICAL CARE

Medical care and treatment required as a result of a work-related injury should be focused on restoring functional ability required to meet the patient's daily and work activities and return to work, while striving to restore the patient's health to its pre-injury status in so far as is feasible.

A.2 RENDERING OF MEDICAL SERVICES

Any medical provider rendering services to a workers compensation patient must utilize the Treatment Guidelines as provided for with respect to all work related injuries and or illnesses.

A.3 POSITIVE PATIENT RESPONSE

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

A.4 RE-EVALUATE TREATMENT

If a given treatment or modality is not producing positive results, the provider should either modify or discontinue the treatment regime. The provider should evaluate the efficacy of the treatment or modality 2 to 3 weeks after the initial visit and 3 to 4 weeks thereafter. Reconsideration of diagnosis should also occur in the event of poor response to a rational intervention.

Education

A.5 EDUCATION

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 work related injury or illness. Practitioners must 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.

Time Frames

A.6 DIAGNOSTIC TIME FRAMES

Diagnostic time frames for conducting diagnostic testing commence on the date of injury. Clinical judgment may substantiate the need to accelerate or decelerate the time frames discussed in this document.

A.7 TREATMENT TIME FRAMES

Treatment time frames for specific interventions commence once treatments have been initiated, not on the date of injury. Obviously, duration may be impacted by disease process and severity, patient compliance, as well as availability of services. Clinical judgment may substantiate the need to accelerate or decelerate the time frames discussed in this document.

A.8 SIX-MONTH TIME FRAME

Since the prognosis drops precipitously for returning an injured worker to work once he/she has been temporarily totally disabled for more than six months, the emphasis within these guidelines is to move patients along a continuum of care and return-to-work within a six-month time frame, whenever possible.

A.9 DELAYED RECOVERY

For those patients who are failing to make expected progress 6-12 weeks after an injury, reexamination in order to confirm the accuracy of the diagnosis should be made. Thereafter, consideration of an alternate treatment program should be made. This may include an interdisciplinary rehabilitation program and may also include a psychosocial evaluation.

Treatment Approaches

A.10 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.

A.11 ACTIVE THERAPEUTIC EXERCISE PROGRAM

Active therapeutic exercise program goals should incorporate patient strength, endurance, flexibility, range of motion, coordination, and education. This includes functional application in vocational or community settings.

A.12 DIAGNOSTIC IMAGING AND TESTING PROCEDURES

Clinical information obtained by history taking and physical examination should be the basis for selection and interpretation of imaging procedure results. All diagnostic procedures have variable specificity and sensitivity for various diagnoses.

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 (that may be a repeat of the same procedure, when the rehabilitation physician, radiologist or surgeon documents the study was of inadequate quality to make a diagnosis) can be a complementary diagnostic procedure if the first or preceding procedures, in conjunction with clinical information, cannot provide an accurate diagnosis.

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. Regarding CT examinations, it must be recognized that repeat procedures result in an increase in cumulative radiation dose and associated risks.

A.13 SURGICAL INTERVENTIONS

Contemplation 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

and imaging and other diagnostic tests. A comprehensive assimilation of these factors must lead to a specific diagnosis with positive identification of pathologic condition(s). For surgery to be performed to treat severe pain, there should be clear correlation between the pain symptoms and objective evidence of its cause

A.14 PRE-AUTHORIZATION

All diagnostic imaging, testing procedures, non-surgical and surgical therapeutic procedures within the criteria of the medical treatment guidelines and based on a correct application of the medical treatment guidelines are considered authorized, with the exception of following procedures: Lumbar Fusion, Artificial Disc Replacements, , Vertebroplasty, Kyphoplasty, Electrical Bone Growth Stimulators, Spinal Cord Stimulators, Anterior Acromioplasty of the Shoulder, Chondroplasty, Osteochondral Autograft, Autologous Chondrocyte Implantation, Meniscal Allograft Transplantation and Knee Arthroplasty (Total or Partial Knee Joint Replacement). These are not included on the list of pre-authorized procedures. Providers who want to perform one of these procedures must request pre-authorization from the carrier before performing the procedure.

A.15 PERSONALITY/PSYCHOLOGICAL/PSYCHOSOCIAL EVALUATIONS

In select patients, diagnostic testing procedures may be useful when there is a discrepancy between diagnosis, signs, symptoms, clinical concerns or functional recovery. Psychological testing should provide differentiation between pre-existing depression versus injury-caused depression, as well as post-traumatic stress disorder, and other psychosocial issues that may include work or non-work related issues.

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 should be made. Formal psychological or psychosocial evaluation may be considered.

A professional fluent in the primary language of the patient is strongly preferred. When such a provider is not available, services of a professional language interpreter must be provided.

Frequency: One time visit for evaluation. If psychometric testing is indicated by findings in the initial evaluation, time for such testing should not exceed an additional two hours of professional time.

A.16 PERSONALITY/PSYCHOLOGICAL/PSYCHOSOCIAL INTERVENTION

Following psychosocial evaluation, when intervention is recommended, such intervention should be implemented as soon as possible. This can be used alone or in conjunction with other treatment modalities.

- Time to produce effect: 2 to 8 weeks
- Optimum duration: 6 weeks to 3 months
- Maximum duration: 3 to 6 months. Counseling is not intended to delay but to enhance functional recovery. For select patients, longer supervision may be required, and if further counseling is indicated, documentation of the nature of the psychological factors, as well as projecting a realistic functional prognosis, should be provided by the authorized treating practitioner every 4 to 6 weeks during treatment.

Return to Work

A.17 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. Areas such as endurance, lifting (dynamic and static), postural tolerance, specific range-of-motion, coordination and strength, worker habits, employability, as well as psychosocial, cognitive, and sensory perceptual aspects of competitive employment may be evaluated. Components of this evaluation may include: (a) musculoskeletal screen; (b) cardiovascular profile/aerobic capacity; (c) coordination; (d) lift/carrying analysis; (e) job-specific activity tolerance; (f) maximum voluntary effort; (g) pain assessment/psychological screening; (h) non-material and material handling activities; (i) cognitive; (j) visual; and (k) sensory perceptual factors.

In most cases, the question of whether a patient can return to work can be answered without an FCE.

A.18 RETURN-TO-WORK

For purposes of these guidelines, 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, should be included in the treatment and rehabilitation plan, and normally addressed at every outpatient visit. A description of 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 given the poor return-to-work prognosis for a patient who has been out of work for more than six months.

A.19 JOB SITE EVALUATION

The treating physician may communicate with the employer or his designee, either in person or by telephone, to obtain information regarding the demands of the patient's pre-injury job, including a description of the exertional demands of the job, the need for repetitive activities, load lifting, static or awkward postures, or any other factors that would pose a risk of re-injury or impedance of convalescence. When return 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 also be made about modified duty work settings, and a similar set of questions should be posed by the physician about work activities/demands in modified duty jobs.

Ideally, the physician would gain the most information from an on-site inspection of the job settings and activities; but it is recognized that this may not be feasible in most cases. If job videos/CDs/DVDs are available from the employer, these can contribute valuable information.

Frequency: 1 or 2 calls

- 1st call: Patient is in a functional state where the patient can perform some work.
- 2nd call: Patient has advanced to state where the patient is capable of enhanced functional demands in a work environment

The physician shall document the conversation on a form prepared by the Workers' Compensation Board.

Other

A.20 GUIDELINE RECOMMENDATIONS AND MEDICAL EVIDENCE

The Workers Compensation Board [the Department and its Advisors including medical and other professionals] have not independently evaluated or vetted the scientific medical literature used in support of the guidelines, but have relied on the methodology used by the developers of various guidelines utilized and referenced in these Guidelines.

A.21 EXPERIMENTAL TREATMENT

Medical treatment that is experimental and not approved for any purpose, application or indication by the FDA is not permitted under these Guidelines.

A.22 INJURED WORKERS AS PATIENTS

In these Guidelines, injured workers are referred to as patients recognizing that in certain circumstances there is no doctor- patient relationship.

A.23 SCOPE OF PRACTICE

These Guidelines do not address scope of practice or change the scope of practice.

B INTRODUCTION TO KNEE INJURY

B.1 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. The medical records should reasonably document the following.

B.1.a History of Present Injury

B.1.a.i Mechanism of injury. This includes details of symptom onset and progression, and symptoms that may arise from postural or functional accommodation to the knee injury;

B.1.a.ii Relationship to work. This includes a statement of the probability that the illness or injury is work-related;

B.1.a.iii Prior occupational and non-occupational injuries to the same area including specific prior treatment and any prior bracing devices;

B.1.a.iv History of locking, clicking, giving way, acute or chronic swelling, crepitation, pain while ascending or descending stairs, or popping;

B.1.a.v Ability to perform job duties and activities of daily living; and

B.1.a.vi Exacerbating and alleviating factors for symptoms; not limited to the knee.

B.1.b Past History

B.1.b.i Past medical history includes, but is not limited to, neoplasm, gout, arthritis, and diabetes;

B.1.b.ii Review of systems includes, but is not limited to, symptoms of rheumatologic, neurologic, endocrine, neoplastic, and other systemic diseases;

B.1.b.iii Smoking history;

B.1.b.iv Vocational and recreational pursuits;

B.1.b.v Prior imaging studies; and

B.1.b.vi Past surgical history.

B.1.c Physical Examination

Examination of a joint should include the joint above and below the affected area. Physical examinations should include accepted tests and exam techniques applicable to the joint or area being examined, including:

B.1.c.i Visual inspection;

B.1.c.ii Palpation;

B.1.c.iii Range of motion/quality of motion;

B.1.c.iv Strength;

B.1.c.v Joint stability;

B.1.c.vi Examination for a displaced or abnormally displaceable patella;

B.1.c.vii If applicable to injury, integrity of distal circulation, sensory, and motor function; and

B.1.c.viii If applicable, full neurological exam including muscle atrophy and gait abnormality.

B.1.d Red Flags

Certain findings, "Red Flags", raise suspicion of potentially serious medical conditions. Assessment (history and physical examination) should include evaluation for red flags. In the knee these findings or indicators may include: fracture, dislocations, and ligamentous tears; infection or inflammation; and neurological or vascular compromise including compartment syndrome. Further evaluation/ consultation or urgent/ emergency intervention may be indicated, and the Knee Guidelines incorporate changes in clinical management triggered by the presence of "red flags."

B.2 RADIOGRAPHIC IMAGING

Radiographic imaging should not be routinely performed. The mechanism of injury and specific indications for the radiograph should be listed on the

request form to aid the radiologist and x-ray technician. Indications include:

B.2.a.i The inability to transfer weight for four steps at the time of the initial visit, regardless of limping;

B.2.a.ii History of significant trauma, especially blunt trauma or fall from a height;

B.2.a.iii Age over 55 years;

B.2.a.iv Unexplained or persistent pain over two weeks. (Occult fractures, especially stress fractures, may not be visible on initial x-ray. A follow-up radiograph and/or bone scan may be required to make the diagnosis);

B.2.a.v History or exam suggestive of intravenous drug abuse or osteomyelitis; and

B.2.a.vi Pain with swelling and/or range of motion (ROM) limitation localizing to an area of prior fracture, internal fixation, or joint prosthesis.

B.3 LABORATORY TESTING

Laboratory tests are rarely indicated at the time of initial evaluation, unless there is suspicion of systemic illness, infection, neoplasia, connective tissue disorder, or underlying arthritis or rheumatologic disorder based on history and/or physical examination. Laboratory tests can provide useful diagnostic information. Tests include, but are not limited to:

B.3.a.i Complete Blood Count (CBC) with differential can detect infection, blood dyscrasias, and medication side effects;

B.3.a.ii Erythrocyte sedimentation rate (ESR), rheumatoid factor (RF), Antinuclear Antigen (ANA), HumanLeukocyte Antigen (HLA), and C-reactive protein (CRP), among others, can be used to detect evidence of a rheumatologic, infection, or connective tissue disorder;

B.3.a.iii Serum calcium, phosphorous, uric acid, alkaline phosphatase, and acid phosphatase can detect metabolic bone disease;

B.3.a.iv Liver and kidney function may be performed for prolonged anti-inflammatory use or other medications requiring monitoring; and

B.3.a.v Analysis of joint aspiration for bacteria, white cell count, red cell count, fat globules, crystalline birefringence and chemistry to evaluate joint effusion.

B.4 FOLLOW-UP DIAGNOSTIC IMAGING AND TESTING 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.

All diagnostic imaging procedures have a significant percentage of specificity and sensitivity for various diagnoses. None is specifically characteristic of a certain diagnosis. Clinical information obtained by history taking and physical examination should be the basis for selection and interpretation of imaging procedure results.

Magnetic resonance imaging (MRI), myelography, or computed axial tomography (CT) scanning following myelography may provide useful information for many knee disorders. When a diagnostic procedure, in conjunction with clinical information, provides sufficient information to establish an accurate diagnosis, the second diagnostic procedure will be redundant if it is performed only for diagnostic purposes. At the same time, a subsequent diagnostic procedure (that may be a repeat of the same procedure, when the rehabilitation physician, radiologist or surgeon documents that the study was of inadequate quality to make a diagnosis) can be a complementary diagnostic procedure if the first or preceding procedures, in conjunction with clinical information, cannot provide an accurate diagnosis. Usually, preference of a procedure over others depends upon availability, a patient's tolerance, and/or the treating practitioner's familiarity with the procedure.

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. Regarding CT

examinations, it must be recognized that repeat procedures result in an increase in cumulative radiation dose and associated risks.

When indicated, the following additional imaging studies can be utilized for further evaluation of the lower extremity, based upon the mechanism of injury, symptoms, and patient history. The studies below are listed in frequency of use, not importance.

C DIAGNOSTIC STUDIES

C.1 Imaging Studies

C.1.a Magnetic Resonance Imaging (MRI)

Magnetic Resonance Imaging (MRI) provides a more definitive visualization of soft tissue structures, including ligaments, tendons, joint capsule, menisci and joint cartilage structures, than x-ray or Computed Axial Tomography in the evaluation of traumatic or degenerative injuries. The addition of intravenous or intra-articular contrast can enhance definition of selected pathologies.

In general, the high field, conventional, MRI provides better resolution. A lower field scan may be indicated when a patient cannot fit into a high field scanner or is too claustrophobic despite sedation. Inadequate resolution on the first scan may require a second MRI using a different technique. A subsequent diagnostic MRI may be a repeat of the same procedure, when the rehabilitation physician, radiologist or surgeon says the study was of inadequate quality to make a diagnosis. All questions in this regard should be discussed with the MRI center and/or radiologist.

Ferrous material/metallic objects present in the tissues is a contraindication for the performance of an MRI.

C.1.b Computed Axial Tomography (CT)

Computed Axial Tomography (CT) provides excellent visualization of bone and is used to further evaluate bony masses and suspected fractures not clearly identified on radiographic window evaluation. Instrument scatter-reduction software provides better resolution when metallic artifact is of concern. When ferrous/metallic materials are present in the tissues, CT should be ordered rather than MRI. CT examinations entail exposure to ionizing radiation, with associated radiation-related risks.

C.1.c Lineal Tomography

Not recommended.

C.1.d Bone Scan (Radioisotope Bone Scanning)

^{99M}Technecium diphosphonate uptake reflects osteoblastic activity and may be useful in metastatic/primary bone tumors, stress

fractures, osteomyelitis, and inflammatory lesions, but cannot distinguish among these entities.

It is useful for the investigation of trauma, infection, stress fracture, occult fracture, Charcot joint, Complex Regional Pain Syndrome, and suspected neoplastic conditions of the lower extremity.

C.1.e Other Radionuclide Scanning

Indium and gallium scans are procedures usually used to help diagnose lesions seen on other diagnostic imaging studies. ^{67}Gallium citrate scans are used to localize tumor, infection, and abscesses. ^{111}Indium-labeled leukocyte scanning is utilized for localization of infection or inflammation.

C.1.f Arthrograms

Arthograms may be useful in the evaluation of internal derangement of a joint, only when MRI or other tests are contraindicated or not available. Potential complications of this more invasive technique include pain, infection, and allergic reactions.

C.1.g Diagnostic Arthroscopy

Refer to Table 1.

Table 1: Criteria for Diagnostic Arthroscopy

IF the diagnosis is supported by			AND this has been done (if recommended)	The following may be appropriate
CLINICAL FINDINGS SUBJECTIVE	OBJECTIVE	IMAGING	CONSERVATIVE CARE	PROCEDURE
Pain and functional limitations continue despite conservative care		Imaging is inconclusive	Medications AND/OR Physical therapy	DIAGNOSTIC ARTHROSCOPY

C.2 OTHER TESTS

The studies below are listed by frequency of use, not importance.

C.2.a Electrodiagnostic Testing

Electrodiagnostic testing for the knee includes, but is not limited to, Electromyography (EMG) and Nerve Conduction Studies (NCS). Evaluation of Somatosensory Evoked Potentials (SSEP) is not recommended for conditions of the knee. Electrodiagnostic studies have limited use with knee disorders. It is recommended and preferred that EDS in the out-patient setting be performed and interpreted by physicians board-certified in Neurology or Physical Medicine and Rehabilitation.

C.2.b Doppler Ultrasonography/Plethysmography

Doppler Ultrasonography/Plethysmography is useful in establishing the diagnosis of arterial and venous disease in the lower extremity and should be considered prior to the more invasive venogram or arteriogram study. Doppler is less sensitive in detecting deep-vein thrombosis in the calf muscle area. If the test is initially negative, an ultrasound should be repeated 7 days post initial symptoms to rule out popliteal thrombosis. It is also useful for the diagnosis of popliteal mass when MRI is not available or contraindicated.

C.2.c Venogram/Arteriogram

Venogram/Arteriogram is useful for investigation of vascular injuries or disease, including deep-venous thrombosis. Potential complications may include pain, allergic reaction, and deep-vein thrombosis.

C.3 OTHER PROCEDURES

C.3.a Joint Aspiration

Joint Aspiration is a procedure used when specifically indicated and performed by individuals properly trained in these techniques. This is true at the initial evaluation when history and/or physical examination are of concern for a septic joint or bursitis. Aspiration should not be performed through an infected area.

Particularly at the knee, aspiration of a large effusion can help to decrease pain and speed functional recovery. Persistent or unexplained effusions may be examined for evidence of infection, rheumatologic, or inflammatory processes. The presence of fat globules in the effusion strongly suggests occult fracture. A large

hemorrhagic effusion should prompt suspicion that a fracture or ligament tear may be present.

D SPECIFIC KNEE INJURY DIAGNOSES, TESTING, AND TREATMENT

D.1 CHONDRAL DEFECTS (Cartilage or cartilage and bone defects)

D.1.a Description/Definition

Cartilage or cartilage and bone defect at the articular or meniscal surface of a joint.

D.1.b Mechanism of Injury

Usually caused by a traumatic knee injury.

D.1.c Specific Physical Findings

Knee effusion, pain in joint.

D.1.d Diagnostic Testing Procedures

MRI may show bone bruising, osteochondral lesion, or possibly articular cartilage injury. Radiographs and CT may also be used. Following an acute injury an MRI usually shows bone bruising.

D.1.e Non-Operative Treatment

Limited indications. The size and extent of the injury should be determined first. This form of therapy is reserved for non-displaced, stable lesions. Immobilization (for acute injury), active and/or passive therapy.

D.1.f Surgical Indications/Operative Treatment

Chondroplasty, Osteochondral Autograft and Autologous Chrondrocyte Implantation are not included on the list of pre-authorized procedures. Providers who want to perform one of these procedures must request pre-authorization from the carrier before performing the procedure.

Chondroplasty, Osteochondral Autograft (OATS) Procedure and Autologous Chrondrocyte Implantation (ACI). Refer to Table 3.

If a non-operative treatment approach is initially recommended, surgery may be indicated after the failure of conservative management. The patient must continue to exhibit the designated objective findings, subjective symptoms and (where applicable) imaging findings.

D.1.g ACI Exclusion Criteria

ACI is not a covered procedure in any of the following circumstances:

- Lesion that involves any portion of the patellofemoral articular cartilage, bone, or is due to osteochondritis dissecans.
- A "kissing lesion" or Modified Outerbridge Grade II, III, or IV exists on the opposite tibial surface.
- Mild to severe localized or diffuse arthritic condition that appears on standing x-ray as joint space narrowing, osteophytes, or changes in the underlying bone.
- Unhealthy cartilage border; the synovial membrane in the joint may be used as a substitute border for up to ¼ of the total circumference.
- Prior total meniscectomy of either compartment in the affected knee. Must have at least 1/3 of the posterior meniscal rim.
- History of anaphylaxis to gentamycin or sensitivity to materials of bovine origin.
- Chondrocalcinosis is diagnosed during the cell culture process.

Table 2: Modified Outerbridge Classification

I	Articular cartilage softening
II	Chondral fissures or fibrillation < 1.25 cm in diameter
III	Chondral fibrillation > 1.25 cm in diameter ("crabmeat changes")
IV	Exposed subchondral bone

D.1.h Post-Operative Therapy

May include restricted weight-bearing, bracing, active and/or passive therapy. Continuous passive motion is suggested after microfracture.

Table 3: Chondral Defects

If the patient has	AND the diagnosis is supported by			AND this has been done (if recommended)	The following surgery may be appropriate
DIAGNOSIS	CLINICAL FINDINGS SUBJECTIVE	OBJECTIVE	IMAGING	CONSERVATIVE CARE	SURGICAL PROCEDURE
Chondral Defects	Joint pain AND Swelling	Effusion OR Crepitus OR Limited ROM		Medication AND/OR Physical Therapy	CHONDRO-PLASTY (Shaving or debridement of an articular surface)
Chondral Defects	Joint pain AND Swelling	Small full thickness chondral defect on the weight bearing portion of the medial or lateral femoral condyle AND Knee is stable with intact, fully functional menisci and ligaments AND Normal joint space AND Ideal age 45 or younger	Chondral defect on the weight bearing portion of the medial or lateral femoral condyle on: MRI OR Arthroscopy	Medication AND/OR Physical Therapy	Subchondral drilling OR Micro-Fracture

Table 3: Chondral Defects

If the patient has	AND the diagnosis is supported by			AND this has been done (if recommended)	The following surgery may be appropriate
DIAGNOSIS	CLINICAL FINDINGS			CONSERVATIVE CARE	SURGICAL PROCEDURE
	SUBJECTIVE	OBJECTIVE	IMAGING		
Chondral Defects	Joint pain AND Swelling	Failure of previous subchondral drilling or microfracture Large full thickness chondral defect that measures less than 3 cm in diameter and 1 cm in bone depth on the weight bearing portion of the medial or lateral femoral condyle AND Knee is stable with intact, fully functional menisci and ligaments AND Normal knee alignment AND Body mass index of less than 35	Chondral defect on the weight bearing portion of the medial or lateral femoral condyle on: MRI OR Arthroscopy	Medication AND/OR Physical Therapy	OSTEO-CHONDRAL AUTOGRAFT (MOSAICPLA-STY OR OATS PROCEDURE)

Body Mass Index (BMI): The equation for calculating the BMI = (Weight in pounds ÷ by height in inches divided ÷ by height in inches) x 703. For example, a person weighing 210 pounds and 6 feet tall would have a BMI of 210 pounds ÷ by 72 inches ÷ by 72 inches) x 703=28.5.

Table 3: Chondral Defects

If the patient has	AND the diagnosis is supported by			AND this has been done (if recommended)	The following surgery may be appropriate
DIAGNOSIS	CLINICAL FINDINGS SUBJECTIVE	OBJECTIVE	IMAGING	CONSERVATIVE CARE	SURGICAL PROCEDURE
Chondral Defects	Patient is capable and willing to follow the rehabilitation protocol.	Failure of traditional surgical interventions (i.e., microfracture, drilling, abrasion, osteochondral graft). Debridement alone does not constitute a traditional surgical intervention for ACI. AND Single, clinically significant, lesion that measures between 1 to 10 sq. cm in area that affects a weight-bearing surface of the medial femoral condyle or the lateral femoral condyle. AND Full-thickness lesion (Modified Outerbridge Grade III-IV) that involves only cartilage (see table 5 following page). AND Knee is stable with intact, fully functional menisci and ligaments. AND Normal knee alignment AND Normal joint space AND Patient is less than 60 years old AND Body Mass Index of less than 35.	Chondral defect on the weight bearing surface of the medial or lateral femoral condyle on: MRI OR Arthroscopy	Physical therapy for a minimum of 2 months	AUTOLOGOUS CHONDROCYTE IMPLANTATION (ACI) See ACI exclusion criteria, Section D.1.g

Body Mass Index (BMI): The equation for calculating the BMI = (Weight in pounds ÷ by height in inches divided ÷ by height in inches) x 703. For example, a person weighing 210 pounds and 6 feet tall would have a BMI of 210 pounds ÷ by 72 inches ÷ by 72 inches) x 703=28.5.

D.2 AGGRAVATED OSTEOARTHRITIS

D.2.a Description/Definition

Swelling and/or pain in a joint due to an aggravating activity in a patient with pre-existing degenerative change in a joint.

D.2.b Mechanism of Injury

May be caused by repetitive activity or constant position.

D.2.c Specific Physical Findings

Increased pain and swelling in a joint.

D.2.d Diagnostic Testing Procedures

Radiographs

D.2.e Non-Operative Treatment

NSAIDS, ice, bracing, active and/or passive therapy, therapeutic injections, which may include hyaluronate therapy, restricted activity.

D.2.f Surgical Indications/Operative Treatment

Symptoms not responsive to conservative therapy.

Debridement with or without removal of loose bodies. Arthroscopic joint lavage is not recommended.

For symptoms not responsive to conservative measures, treatment may involve total joint replacement. Refer to Table 8.

D.2.g Post-Operative Therapy

Active and/or passive therapy.

D.3 COLLATERAL LIGAMENT INJURY

D.3.a Description/Definition

Sprain/strain or rupture of the medial or lateral collateral ligament. Injury of the medial collateral ligament may also be associated with a concomitant medial meniscus injury.

D.3.b Mechanism of Injury

Valgus or varus trauma force applied to the knee.

D.3.c Specific Physical Findings

Medial-lateral instability (knee should be tested in slight flexion), tenderness over medial or lateral collateral ligament which increases with valgus or varus force applied to the knee.

D.3.d Diagnostic Testing Procedures

MRI may be indicated for suspected Grade II or Grade III tears.

D.3.e Non-Operative Treatment

Isolated Grade I collateral ligament tears and many Grade II tears have been shown to heal with excellent results without surgical intervention. When accompanying cruciate or meniscus injuries are ruled out, the patient can be treated non-operatively. Conservative management with casting, orthotics and rehabilitation may be indicated.

D.3.f Surgical Indications/Operative Treatment

A complete Grade III collateral ligament tear should be referred to an orthopedic surgeon.

D.4 ANTERIOR CRUCIATE LIGAMENT (ACL) INJURY

D.4.a Description/Definition

Rupture or partial rupture of the anterior cruciate ligament; may be associated with other internal derangement of the knee.

D.4.b Mechanism of Injury

May be caused by virtually any traumatic force to the knee but most often caused by a twisting or a hyperextension force.

D.4.c Specific Physical Findings

Findings on physical exam include effusion or hemarthrosis, instability, Lachman's test, pivot shift test, and anterior drawer test.

D.4.d Diagnostic Testing Procedures

MRI. Radiographs may show avulsed portion of tibial spine but this is a rare finding.

D.4.e Non-Operative Treatment

Active and/or passive therapy, bracing.

D.4.f Surgical Indications/Operative Treatment

If a non-operative treatment approach is initially recommended, surgery may be indicated after the failure of conservative management. The patient must continue to exhibit the designated objective findings, subjective symptoms and (where applicable) imaging findings. Refer to Table 4.

D.4.g Post-Operative Therapy

Active and/or passive therapy, bracing.

Table 4: Anterior Cruciate Ligament Injury

If the patient has	AND the diagnosis is supported by			AND this has been done (if recommended)	The following surgery may be appropriate
DIAGNOSIS	CLINICAL FINDINGS SUBJECTIVE	OBJECTIVE	IMAGING	CONSERVATIVE CARE	SURGICAL PROCEDURE
Anterior Cruciate Ligament Injury	Pain alone is not an indication for surgery Instability of the knee, described as "buckling or giving way" OR Significant effusion at the time of injury OR Description of injury indicates rotary twisting or hyperextension incident	Positive Lachman's sign OR Positive pivot shift OR Positive anterior drawer	(Not required if acute effusion, hemarthrosis, and instability; or documented history of effusion, hemarthrosis and instability) ACL disruption on: MRI OR Arthroscopy OR Arthrogram	In the presence of a complete tear in a patient for whom surgical repair is contemplated, a course of conservative treatment need not be completed prior to surgery. Physical therapy OR Brace	ANTERIOR CRUCIATE LIGAMENT (ACL) REPAIR

D.5 POSTERIOR CRUCIATE LIGAMENT (PCL) INJURY

D.5.a Description/Definition

Rupture of PCL; may have concurrent ACL rupture.

D.5.b Mechanism of Injury

Most often caused by a posterior directed force to flexed knee.

D.5.c Specific Physical Findings

Findings on physical exam include acute effusion, instability, reverse Lachman's test, reverse pivot shift, posterior drawer test.

D.5.d Diagnostic Testing Procedures

MRI, radiographs may reveal avulsed bone.

D.5.e Non-Operative Treatment

Active and/or passive therapy, bracing.

D.5.f Surgical Indications

Complaints of instability. Carefully consider the patients' normal daily activity level before initiation of surgical intervention. Most commonly done when the PCL rupture is accompanied by multiligament injury.

D.5.g Operative Treatment

Autograft or allograft reconstruction.

D.5.h Post-Operative Therapy

Active and/or passive therapy, bracing.

D.6 MENISCUS INJURY

D.6.a Description/Definition

A tear, disruption, or avulsion of medial or lateral meniscus tissue.

D.6.b Mechanism of Injury

Trauma to the menisci from rotational, shearing, torsion, and/or impact injuries.

D.6.c Specific Physical Findings

Patient describes a popping, tearing, or catching sensation. Findings on physical exam may include joint line tenderness, locked joint, or occasionally, effusion.

D.6.d Diagnostic Testing Procedures

Radiographs including standing Posterior/Anterior (PA), lateral, tunnel, and skyline views. MRI is the definitive imaging test MRI is sensitive and specific for meniscal tear. However, meniscal MRI is frequently abnormal in asymptomatic injuries. Clinical correlation with history and physical exam findings specific for meniscus injury is critically important.

Providers planning treatment should therefore consider the patient's complaints and presence of arthritis on MRI carefully,

knowing that not all meniscus tears in the middle aged and older population are related to the patients' complaints of pain.

MRI arthrograms may be approved to diagnose recurrent meniscal tears particularly after previous surgery

D.6.e Non-Operative Treatment

Active and/or passive therapy, bracing. Trial of manipulation may be attempted for a locked knee. Clinical response should be seen within 2-3 treatments.

D.6.f Surgical Indications/ Operative Treatment Meniscectomy/Meniscus Repair and Meniscal Allograft Transplantation.

Meniscal Allograft Transplantation is not included on the list of pre-authorized procedures. Providers who want to perform one of these procedures must request pre-authorization from the carrier before performing the procedure.

Refer to Table 5.

D.6.g Post-Operative Therapy

Active and/or passive therapy, bracing.

Table 5: Meniscus Injury

If the patient has	AND the diagnosis is supported by			AND this has been done (if recommended)	The following surgery may be appropriate
DIAGNOSIS	CLINICAL FINDINGS			CONSERVATIVE CARE	SURGICAL PROCEDURE
	SUBJECTIVE	OBJECTIVE	IMAGING		
Meniscus Injury	Joint pain OR Swelling OR Feeling of giving way OR Locking, clicking or popping	Positive Mc Murray's sign OR Joint line tenderness OR Effusion OR Limited range of motion OR Locking, clicking, or popping OR Crepitus	(Not required for locked knee) Meniscal tear on MRI (Surgical Repair of Grade I tear is not indicated except in unusual circumstances)	In the presence of a locked knee, in a patient for whom surgical repair is contemplated, a course of conservative treatment need not be performed prior to surgery Physical therapy OR Medication OR Activity modification	Meniscectomy OR Meniscus Repair

Table 5: Meniscus Injury

If the patient has	AND the diagnosis is supported by			AND this has been done (if recommended)	The following surgery may be appropriate
DIAGNOSIS	CLINICAL FINDINGS SUBJECTIVE	OBJECTIVE	IMAGING	CONSERVATIVE CARE	SURGICAL PROCEDURE
Meniscus Injury	Capable and willing to follow the rehabilitation protocol AND Knee pain that has not responded to conservative treatment	Previous meniscectomy with at least two-thirds of the meniscus removed AND If Modified Outerbridge Scale Graft III then debridement must first produce an articular surface sufficiently free of irregularities to maintain the integrity of the transplanted meniscus See Table 9 for Modified Outerbridge Classification. AND Stable knee with intact ligaments, normal alignment, and normal joint space. AND Ideal age 20-45 years (too young for total knee) AND Body Mass Index of less than 35	Articular cartilage in the affected compartment demonstrates a chondrosis classified by the Modified Outerbridge Scale as Grade I, Grade II or Grade III	Physical therapy OR NSAID OR Activity modification	MENISCAL ALLOGRAFT TRANS-PLANTATION See meniscal allograft transplantation exclusion criteria next page

D.7 MENISCAL ALLOGRAFT TRANSPLANTATION EXCLUSION CRITERIA

Meniscal Allograft Transplantation is not a covered procedure in any of the following circumstances:

a. Mild to severe localized or diffuse arthritic condition that appears on standing x-ray as joint space narrowing, osteophytes or changes in the underlying bone.

b. Articular cartilage in the affected compartment demonstrates a chondrosis classified by the Modified Outerbridge Scale as Grade III that has not undergone debridement; Grade III with debridement that has not produced an articular surface that can maintain the integrity of the transplanted meniscus; or Grade IV.

Table 6: Modified Outerbridge Classification

I	Articular cartilage softening
II	Chondral fissures or fibrillation < 1.25 cm in diameter
III	Chondral fibrillation > 1.25 cm in diameter ("crabmeat changes")
IV	Exposed subchondral bone

Body Mass Index (BMI): The equation for calculating the BMI = (Weight in pounds ÷ by height in inches divided ÷ by height in inches) x 703. For example, a person weighing 210 pounds and 6 feet tall would have a BMI of 210 pounds ÷ by 72 inches ÷ by 72 inches) x 703=28.5.

D.8 PATELLAR SUBLUXATION

D.8.a Description/Definition

An incomplete subluxation or dislocation of the patella. Recurrent episodes can lead to subluxation syndrome that can cause frank dislocation of the patella.

D.8.b Mechanism of Injury

Primarily associated with contusion, lateral force direct contact. Secondary causes associated with shearing forces on the patella.

D.8.c Specific Physical Findings

Patient may report buckling sensation. Findings on physical exam may include retinacular weakness, swelling, effusion, marked pain with patellofemoral tracking/compression and glides. In addition, other findings include atrophy of muscles, positive patellar apprehension test, patella alta.

D.8.d Diagnostic Testing Procedures

Radiographs including Merchant views, Q-angle versus congruents.

D.8.e Non-Operative Treatment

Active and/or passive therapy, bracing, therapeutic injection.

D.8.f Surgical Indications

Fracture, recurrent subluxation or recurrent effusion, or symptoms not responsive to conservative therapy

D.8.g Operative Treatment

Open reduction internal fixation with fracture. Following a patellar dislocation, surgical consultation no sooner than 4-6 months of conservative therapy. Retinacular release, quadriceps reefing, and patellar tendon transfer should only be considered after a minimum of 4 to 5 months of conservative therapy.

D.8.h Post-Operative Therapy

Active and/or passive therapy, bracing.

D.9 RETROPATELLAR PAIN SYNDROME (CHONDROMALACIA PATELLA)

D.9.a Description/Definition

A retropatellar pain syndrome lasting over three months. Retropatellar pathologies are associated with resultant weakening instability, and pain of the patellofemoral mechanism. Can include malalignment, persistent quadriceps tendinitis, distal patellar tendinitis, patellofemoral arthrosis, and symptomatic plica syndrome.

D.9.b Mechanism of Injury

May be associated with contusion, repetitive patellar compressive forces, shearing articular injuries associated with subluxation or

dislocation of patella, fractures, infection, and connective tissue disease.

D.9.c Specific Physical Findings

Patient complains of pain, instability and tenderness that interfere with daily living and work functions. Findings on physical exam may include retinacular tenderness, pain with patellar compressive ranging, positive patellar glide test, atrophy of quadriceps muscles, positive patellar apprehensive test. Associated anatomical findings may include increased Q angle; rotational lower extremity joints; ligament laxity, and effusion.

D.9.d Diagnostic Testing Procedures

Radiographs including tunnel, Merchant, or Laurin views. MRI rarely identifies pathology. Occasionally CT or bone scan.

D.9.e Non-Operative Treatment

Active and/or passive therapy, bracing, orthotics, therapeutic injections.

D.9.f Surgical Indications

Patellar tendon disruption, quadriceps tendon rupture/avulsion, fracture, or symptoms not responsive to conservative therapy. There is very limited data on long term outcomes of surgical treatment for anterior knee pain. Surgical intervention should be considered after failure of a comprehensive rehabilitation program that has included quadriceps strengthening.

D.9.g Operative Treatment

Arthroscopic debridement of articular surface, plica, synovial tissue, loose bodies, arthrotomy, open reduction internal fixation with fracture, patellar button (prosthesis) with grade III-IV osteoarthritis (modified Outerbridge classification) and possible patellectomy. Retinacular release, quadriceps reefing, and tibial transfer procedures should only be considered after 6 to 9 months of conservative therapy. Refer to Table 7.

D.9.h Post-Operative Therapy

Active and/or passive therapy; bracing.

Table 7: Retropatellar Pain Syndrome

If the patient has	AND the diagnosis is supported by			AND this has been done (if recommended)	The following surgery may be appropriate
DIAGNOSIS	CLINICAL FINDINGS SUBJECTIVE	OBJECTIVE	IMAGING	CONSERVATIVE CARE	SURGICAL PROCEDURE
RETROPATELLAR PAIN SYNDROME (CHONDROMALACIA PATELLA)	Knee pain with sitting OR Pain with patellar/femoral movement OR Recurrent dislocations	Lateral tracking of the patella OR Recurrent effusion OR Patellar apprehension OR synovitis with or without crepitus OR Increased Q angle > 15 degrees	Abnormal patellar tilt on: x-ray or MRI	Physical therapy (not required for acute patellar dislocation with associated intra-articular fracture) OR Medications	LATERAL RETINACULAR RELEASE OR PATELLAR TENDON REALIGNMENT OR MAQUET PROCEDURE

D.10 TENDINITIS/TENOSYNOVITIS

D.10.a Description/Definition

Inflammation of the lining of the tendon sheath or of the enclosed tendon. Usually occurs at the point of insertion into bone or a point of muscular origin. Can be associated with bursitis, or calcium deposits or systemic connective diseases.

D.10.b Mechanism of Injury

May be caused by extreme or repetitive trauma, strain, or excessive unaccustomed exercise or work.

D.10.c Specific Physical Findings

Involved tendons may be visibly swollen with possible fluid accumulation and inflammation; popping or crepitus; and decreased range of motion.

D.10.d Diagnostic Testing Procedures

Rarely indicated.

D.10.e Non-Operative Treatment

Active and/or passive therapy, including ergonomic changes at work station(s), NSAIDs, therapeutic injections.

D.10.f Surgical Indications

Suspected avulsion fracture or severe functional impairment unresponsive to conservative therapy.

D.10.g Operative Treatment

Rarely indicated and only after extensive conservative therapy.

D.10.h Post-Operative Therapy

Active and/or passive therapy.

D.11 BURSITIS

D.11.a Description/Definition

Inflammation of bursa tissue. Can be precipitated by tendinitis, bone spurs, foreign bodies, gout, arthritis, muscle tears, or infection.

D.11.b Mechanism of Injury

May be caused by sudden change in work habits, frequent repetitive motions in non-routine work profile, postural changes, contusion, frequent climbing, soft tissue trauma, fracture, continuous work on uneven surfaces, sustained compression force.

D.11.c Specific Physical Findings

Palpable, tender and enlarged bursa, decreased range of motion, warmth. May have increased pain with range of motion.

D.11.d Diagnostic Testing Procedures

Bursal fluid aspiration with testing for connective tissue, rheumatic disease, and infection. Radiographs, CT, MRI are rarely indicated.

D.11.e Non-Operative Treatment

Active and/or passive therapy, ice, therapeutic injection, treatment of an underlying infection, if present.

D.11.f Surgical Indications

Bursa excision after failure of conservative therapy.

D.11.g Operative Treatment

Surgical excision of the bursa.

D.11.h Post-Operative Therapy

Active and/or passive therapy.

E THERAPEUTIC PROCEDURES, NON-OPERATIVE

Before initiation of any therapeutic procedure, the authorized treating provider, employer and insurer must consider these important issues in the care of the injured worker.

First, patients undergoing therapeutic procedure(s) should be released or returned to modified, restricted, or full duty during their rehabilitation at the earliest appropriate time.

Second, cessation and/or review of treatment modalities should be undertaken when no further significant subjective or objective improvement in the patient's condition is noted. If patients are not responding within the recommended duration periods, alternative treatment interventions, further diagnostic studies or consultations should be pursued.

Third, providers should provide and document education 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.

In unusual cases where a patient is unable to attend an outpatient center, home therapy may be necessary. Home therapy may include active and passive therapeutic procedures as well as other modalities to assist in alleviating pain, swelling, and abnormal muscle tone. Home therapy is usually of short duration.

The following procedures are listed in alphabetical order.

E.1 ACUPUNCTURE

Acupuncture is a procedure used for the relief of pain and inflammation and there is some scientific evidence to support its use. The exact mode of action is only partially understood. Western medicine studies suggest that acupuncture stimulates the nervous system at the level of the brain, promotes deep relaxation, and affects the release of neurotransmitters. Acupuncture is commonly used as an alternative or in addition to traditional Western pharmaceuticals. While it is commonly used when pain medication is reduced or not tolerated, it may be used as an adjunct to physical rehabilitation and/or surgical intervention to hasten the return of functional activity. Moxibustion and other complementary integrative medicine techniques are often combined with acupuncture, but have no demonstrated efficacy. No additional reimbursement should be provided for acupuncture combined with moxibustion or other similar adjunctive procedures. Acupuncture must be performed by a professional who is authorized under the Workers' Compensation Laws and duly certified in New York State to provide acupuncture services.

Acupuncture with or without electrical stimulation) is the insertion and removal of filiform needles to stimulate acupoints (acupuncture points), with or without the use of electrical current (micro-amperage or milli-amperage) on the needles at the acupuncture site. Needles may be inserted, manipulated and retained for a period of time. Acupuncture can be used to reduce pain, reduce inflammation, increase blood flow, increase range of motion, decrease the side effect of medication-induced nausea, promote relaxation in an anxious patient, and reduce muscle spasm. Indications include joint pain, joint stiffness, soft tissue pain and inflammation, paresthesia, post-surgical pain relief, muscle spasm, and scar tissue pain.

- Time to produce effect: 3 to 6 treatments
- Frequency: 1 to 3 times per week
- Optimum duration: 1 month
- Maximum duration: 10 treatments
- Total Time Frames for Acupuncture and Acupuncture with Electrical Stimulation: Time frames are not meant to be applied to each of the above sections separately. The time frames are to be applied to all acupuncture treatments regardless of the type or combination of therapies being provided.

E.2 BIOFEEDBACK

Not recommended.

E.3 INJECTIONS-THERAPEUTIC

Description: Therapeutic injections involve the delivery of anesthetic and/or anti-inflammatory medications to the painful structure. Therapeutic injections have many potential benefits. Ideally, a therapeutic injection will: (a) reduce inflammation in a specific target area; (b) relieve secondary muscle spasm; (c) allow a break from pain; and (d) support therapy directed to functional recovery. Diagnostic and therapeutic injections should be used early and selectively to establish a diagnosis and support rehabilitation. If injections are overused or used outside the context of a monitored rehabilitation program, they may be of significantly less value.

Contraindications: General contraindications include local or systemic infection, bleeding disorders, allergy to medications used and patient refusal. Specific contraindications may apply to individual injections.

E.3.a Soft tissue and Joint Injections

Soft tissue and joint injections may be performed as analgesic or anti-inflammatory procedures. Injections into the tendon are not recommended.

- Frequency: Not more than 2 to 3 times annually. Usually 1 or 2 injections adequate. A minimum of 3 weeks interval between injections is recommended.
- Time to produce effect: Immediate with local anesthetic, or within 3 days with corticosteroids.
- Optimum/maximum duration: Limited to 3 injections annually to the same site.

E.3.b Trigger Point Injections

Not recommended.

E.3.c Prolotherapy (also known as sclerotherapy)

Not recommended.

E.3.d Protein Rich Plasma

Not recommended.

E.3.e Intra-Capsular Acid Salts

Intra-Capsular Acid Salts (also known as viscosupplementation) is a form of treatment for osteoarthritis or degenerative changes in the knee joint. It is recommended that these injections be considered a therapeutic alternative in patients who have failed non-pharmacological and analgesic treatment, and particularly, if non-steroidal anti-inflammatory drug treatment is contraindicated or surgery is not an option. The utility of viscosupplementation in severe osteoarthritis and its efficacy beyond 6 months is not well known.

- Time to produce effect: One series of injections, per product instructions.
- Frequency: If the first use is associated with decreased symptoms and increased function, repeat use may be considered after 6 months if symptoms recur.

- Optimum/maximum duration: Varies. Efficacy beyond 6 months is not well known.

E.4 MEDICATIONS

Medication use in the treatment of knee injuries is appropriate for controlling acute pain and inflammation. Use of medications will vary widely due to the spectrum of injuries.

All drugs should be used according to patient needs. A thorough medication history, including use of alternative and over- the- counter medications, should be performed at the time of the initial visit and updated periodically. Treatment for pain control is initially accomplished with acetaminophen and/or NSAIDS. The patient should be educated regarding the interaction with prescription and over-the-counter medications as well as the contents of over-the-counter herbal products.

The following are listed in alphabetical order.

E.4.a Acetaminophen

Actaminophen is an effective analgesic with antipyretic but not anti-inflammatory activity. Acetaminophen is generally well tolerated, causes little or no gastrointestinal irritation, and is not associated with ulcer formation. Acetaminophen has been associated with liver toxicity when the recommended daily dose is exceeded or in patients who chronically use alcohol. Patients may not realize that many over-the-counter preparations may contain acetaminophen. The total daily dose of acetaminophen should not exceed 4 grams per 24-hour period from all sources, including narcotic-acetaminophen combination preparations. Patients who consume three or more alcoholic drinks per day are at greater risk for liver toxicity, and consideration should be given to the use of other analgesics or limiting the acetaminophen dose to 2 grams per 24-hour period from all sources. Monitoring liver function via blood testing for use beyond 10 days is advisable.

Recommendations:

Acetaminophen is a reasonable alternative to NSAIDs, although evidence suggests it is modestly less efficacious.

Acetaminophen is recommended for treatment of knee pain, particularly for those with contraindications for NSAIDs.

Optimum Duration: 7 to 10 days.

Maximum Duration: Chronic use as indicated on a case-by-case basis.

E.4.b Minor Tranquilizer/Muscle Relaxants

Not recommended.

E.4.c Narcotics

Narcotics should be primarily reserved for the treatment of severe knee pain. In mild-to-moderate cases of knee pain, narcotic medication should be used cautiously on a case-by-case basis. Adverse effects include respiratory depression, the development of physical and psychological dependence, and impaired alertness. This medication has physically addictive properties and withdrawal symptoms may follow abrupt discontinuation.

Narcotic medications should be prescribed with strict time, quantity, and duration guidelines, and with definitive cessation parameters.

Pain is subjective in nature and should be evaluated using a scale to rate effectiveness of the narcotic prescribed. Any use beyond the maximum should be documented and justified based on the diagnosis and/or invasive procedures.

- Optimum Duration: 3 to 7 days.
- Maximum Duration: 2 weeks. Use beyond two weeks is acceptable in appropriate cases.

Any use beyond the maximum should be documented and justified based on the diagnosis and/or invasive procedures.

E.4.d Nonsteroidal Anti-Inflammatory Drugs (NSAIDs)

Nonsteroidal Anti-Inflammatory Drugs (NSAIDS) are useful for pain and inflammation. In mild cases, they may be the only drugs required for analgesia. There are several classes of NSAIDS, and the response of the individual patient to a specific medication is unpredictable. For this reason, a range of NSAIDS may be tried in

each case with the most effective preparation being continued. Patients should be closely monitored for adverse reactions. The US Food and Drug Administration advises that many NSAIDS may have an increased risk of serious cardiovascular thrombotic events, myocardial infarction, stroke, which can be fatal and increased risk of serious adverse GI events including bleeding, ulceration and perforation of the stomach and intestines.

Generally, older generation (COX-1, non-selective) NSAIDS are recommended as first-line medications. Second-line medications should generally include one of the other COX-1 medications. While COX-2 selective agents generally have been recommended as either third- or fourth-line medications to use when there is a risk of gastrointestinal complications, misoprostol, sucralfate, histamine 2 blockers and proton pump inhibitors are also gastro-protective. COX-2 selective agents may still be used for those with contraindications to other medications, especially those with a history of gastrointestinal bleeding or past history of peptic ulcer disease.

Selective COX-2 inhibitors should be used with great caution in patients with ischemic heart disease and/or stroke and avoided in patients with risk factors for coronary heart disease. Patients with known cardiovascular disease or multiple risk factors for cardiovascular disease should have the risks and benefits of NSAID therapy for pain discussed. In these patients, it appears to be safest to use acetaminophen or aspirin as the first-line therapy. If needed, NSAIDS that are non-selective are preferred over COX-2 specific drugs. Even a relative lack of COX-2 selectivity does not completely eliminate the risk of cardiovascular events, and in that regard, all drugs in the NSAID spectrum should only be prescribed after thorough consideration of risk benefit balance. Patients who receive COX-2 inhibitors should take the lowest effective dose for the shortest time necessary to control symptoms. 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, aspirin should be taken 2 hours before or at least 8 hours after the NSAID. (Antman 07).

Recommendations:

NSAIDs are recommended for the treatment of acute, subacute, chronic, or post-operative knee pain. Over-the counter (OTC) agents may suffice and may be tried first.

- Frequency/Duration: In most patients with acute knee pain, scheduled dosage, rather than as needed,

is generally preferable. As needed (PRN) prescriptions may be reasonable for mild, moderate or chronic knee pain. Discontinuation: Resolution of symptoms, lack of efficacy, or development of adverse effects that necessitate discontinuation.

Those patients at substantially increased risk for gastrointestinal bleeding, who also have indications for NSAIDs, should be considered for concomitant prescriptions of cytoprotective medications, particularly if longer term treatment is contemplated.

Individuals considered being at elevated risk include history of prior gastrointestinal bleeding, elderly, diabetics, and cigarette smokers. There are four commonly used cytoprotective classes of drugs: Misoprostol, sucralfate, histamine type 2 receptor blockers (famotidine, ranitidine, cimetadine, etc.), and proton pump inhibitors (esomeprazole, lansoprazole, omeprazole, pantoprazole, rabeprazole). There is not believed to be substantial differences in efficacy for prevention of gastrointestinal bleeding. There also are combination products of NSAIDs/misoprostol (e.g., arthrotec).

- Frequency/Duration: Frequency as recommended.
- Discontinuation: Intolerance, development of adverse effects, or discontinuation of the NSAID.

E.4.e Topical Drug Delivery

Topical drug delivery may be an alternative treatment of localized musculoskeletal disorders. It is necessary that all topical agents be used with strict instructions for application as well as maximum number of applications per day to obtain the desired benefit and avoid potential toxicity. As with all medications, patient selection must be rigorous to select those patients with the highest probability of compliance.

E.4.e.i Topical Salicylates and Nonsalicylates

Topical Salicylates and Nonsalicylates have been shown to be effective in relieving pain in acute and chronic musculoskeletal conditions. Topical salicylates and nonsalicylates achieve tissue levels that are potentially therapeutic, at least with regard to COX inhibition. Other than local skin reactions, the side effects of therapy are minimal, although not nonexistent, and the usual

contraindications to use of these compounds need to be considered. Local skin reactions are rare and systemic effects even less common. Their use in patients receiving warfarin therapy may result in alterations in bleeding time. Overall, the low level of systemic absorption can be advantageous, allowing the topical use of these medications when systemic administration is relatively contraindicated such as is the case in patients with hypertension, cardiac failure, or renal insufficiency.

- Optimal duration: 1-2 weeks to determine effectiveness.

Continued use should be evaluated every 3 months.

E.4.e.ii Capsaicin

Capsaicin is another medication option for topical drug use in lower extremity injury. Capsaicin offers a safe and effective alternative to systemic NSAID therapy. Although it is quite safe, effective use of capsaicin is limited by the local stinging or burning sensation that typically dissipates with regular use, usually after the first 7 to 10 days of treatment. Patients should be advised to apply the cream on the affected area with a plastic glove or cotton applicator and to avoid inadvertent contact with eyes and mucous membranes.

- Optimal duration: 1-2 weeks to determine effectiveness.

Continued use should be evaluated every 3 months. individual cases.

E.4.f Tramadol

Tramadol is useful in relief of lower extremity pain and has been shown to provide pain relief equivalent to that of commonly prescribed NSAIDS. Although Tramadol may cause impaired alertness, it is generally well tolerated, does not cause gastrointestinal ulceration, or exacerbate hypertension or congestive heart failure. Tramadol should be used cautiously in patients who have a history of seizures or who are taking medication that may lower the seizure threshold, such as MAO inhibitors, SSRIs, and tricyclic antidepressants. This medication has physically addictive properties and withdrawal may follow

abrupt discontinuation and is not recommended for patients with prior opioid addiction.

Maximum duration: 2 weeks. Use beyond 2 weeks is acceptable in appropriate cases.

E.5 ORTHOTICS AND PROSTHETICS

E.5.a Fabrication/Modification of Orthotics

Fabrication/Modification of Orthotics would be used when there is need to normalize weight-bearing, facilitate better motion response, stabilize a joint with insufficient muscle or proprioceptive/reflex competencies, to protect subacute conditions as needed during movement, and correct biomechanical problems.

- Time to produce effect: 1 to 3 sessions (includes wearing schedule evaluation).
- Frequency: 1 to 2 times per week.
- Optimum/maximum duration: 4 sessions of evaluation, casting, fitting, and re-evaluation.

E.5.b Orthotic/Prosthetic Training

Orthotic/Prosthetic Training is the skilled instruction (preferably by qualified providers) in the proper use of orthotic devices and/or prosthetic limbs including stump preparation, donning and doffing limbs, instruction in wearing schedule and orthotic/prosthetic maintenance training. Training can include gait, mobility, transfer and self-care techniques.

- Time to produce effect: 2 to 6 sessions.
- Frequency: 3 times per week.
- Optimum/maximum duration: 2 to 4 months.

E.5.c Splints or Adaptive Equipment

Design, fabrication and/or modification indications include the need to control neurological and orthopedic injuries for reduced stress during functional activities and modify tasks through instruction in the use of a device or physical modification of a device, which reduces stress on the injury. Equipment should

improve safety and reduce risk of re-injury. This includes high and low technology assistive options such as workplace modifications, computer interface or seating, crutch or walker training, and self-care aids.

- Time to produce effect: Immediate.
- Frequency: 1 to 3 sessions or as indicated to establish independent use.
- Optimum/maximum duration: 1 to 3 sessions.

E.6 RETURN-TO-WORK

Communication is essential between the patient, employer and physician to determine appropriate restrictions and return-to-work dates. It is the responsibility of the physician to provide clear, concise restrictions, and it is the employer's responsibility to determine if temporary duties can be provided within the restrictions.

E.6.a Establishment of Activity Level Restrictions

For lower extremity injuries, the following should be addressed when describing the patient's activity level:

- Lower body postures such as squatting, kneeling, crawling, stooping, or climbing should include duration and frequency.
- Ambulatory level for distance, frequency and terrain should be specified.
- Standing duration and frequency with regard to balance issues.
- Use of adaptive devices or equipment for proper ergonomics to enhance capacities can be included.

E.6.b Compliance with Activity Restrictions

In some cases, compliance with restriction of activity levels may require a complete jobsite evaluation, a functional capacity evaluation (FCE), or other special testing

E.7 THERAPY-ACTIVE

Most of the following active therapies have some evidence and are based on the philosophy that therapeutic exercise and/or activity are beneficial for restoring flexibility, strength, endurance, function, range of motion,

and can alleviate discomfort. Active therapy requires an internal effort by the individual to complete a specific exercise or task. This form of therapy requires supervision from a therapist or medical provider such as verbal, visual and/or tactile instruction(s). At times, the provider may help stabilize the patient or guide the movement pattern but the energy required to complete the task is predominately executed by the patient.

Patients should be instructed to continue active therapies at home as an extension of the treatment process in order to maintain improvement levels. Home exercise can include exercise with or without mechanical assistance or resistance and functional activities with assistive devices.

The following active therapies are listed in alphabetical order.

E.7.a Activities of Daily Living (ADL)

Activities of Daily Living are instruction, active-assisted training and/or adaptation of activities or equipment to improve a person's capacity in normal daily activities such as self-care, work re-integration training, homemaking and driving.

- Time to produce effect: 4 to 5 treatments.
- Frequency: 2 to 3 times per week.
- Optimum duration: 2 to 3 weeks.
- Maximum duration: 3 weeks.

E.7.b Functional Electrical Stimulation

Functional Electrical Stimulation is the application of electrical current to elicit involuntary or assisted contractions of atrophied and/or impaired muscles. Indications include muscle atrophy, weakness, and sluggish muscle contraction secondary to pain, injury, neuromuscular dysfunction or peripheral nerve lesion or where the potential for atrophy exists. May be an appropriate treatment in conjunction with an active exercise program.

- Time to produce effect: 2 to 6 treatments.
- Frequency: 3 times per week.
- Optimum duration: 8 weeks.
- Maximum duration: 8 weeks.

E.7.c Gait Training

Gait Training is crutch walking, cane or walker instruction to a person with lower extremity injury or surgery. Indications include the need to promote normal gait pattern with assistive devices; instruct in the safety and proper use of assistive devices; instruct in progressive use of more independent devices (i.e., platform-walker, to walker, to crutches, to cane); instruct in gait on uneven surfaces and steps (with and without railings) to reduce risk of fall, or loss of balance; and/or instruct in equipment to limit weight-bearing for the protection of a healing injury or surgery.

- Time to produce effect: 3 to 4 treatments.
- Frequency: 2 to 3 times per week.
- Optimum duration: 2 weeks.
- Maximum duration: 2 weeks.

E.7.d Neuromuscular Re-education

Not recommended.

E.7.e Therapeutic Exercise

Therapeutic Exercise, with or without mechanical assistance or resistance, may include isoinertial, isotonic, isometric and isokinetic types of exercises. Indications include the need for cardiovascular fitness, reduced edema, improved muscle strength, improved connective tissue strength and integrity, increased bone density, promotion of circulation to enhance soft tissue healing, improvement of muscle recruitment, increased range of motion and are used to promote normal movement patterns. Can also include complementary/ alternative exercise movement therapy.

- Time to produce effect: 2 to 6 treatments.
- Frequency: 3 to 5 times per week.
- Optimum duration: 4 to 8 weeks.
- Maximum duration: 8 weeks.

E.7.f Wheelchair Management and Propulsion

Wheelchair Management and Propulsion is the instruction and training of self-propulsion and proper use of a wheelchair. This includes transferring and safety instruction. This is indicated in individuals who are not able to ambulate due to bilateral lower

extremity injuries, inability to use ambulatory assistive devices, and in cases of multiple traumas.

- Time to produce effect: 2 to 6 treatments.
- Frequency: 2 to 3 times per week.
- Optimum duration: 2 weeks.
- Maximum duration: 2 weeks.

E.8 THERAPY-PASSIVE

Therapy-Passive includes those treatment modalities that do not require energy expenditure on the part of the patient. They are principally effective during the early phases of treatment and are directed at controlling symptoms such as pain, inflammation and swelling. They should be use adjunctively with active therapies to help control swelling, pain and inflammation during the rehabilitation process. They may be used intermittently as deemed appropriate or regularly if there are specific goals with objectively measured functional improvements during treatment.

While protocols for specific diagnoses and post-surgical conditions may warrant durations of treatment beyond those listed as "maximum," factors such as exacerbation of symptoms, re-injury, interrupted continuity of care, and co-morbidities may extend durations of care. Having specific goals with objectively measured functional improvement during treatment can support extended durations of care. It is recommended that if after 3 to 5 visits no treatment effect is observed, alternative treatment interventions, further diagnostic studies or further consultations should be pursued.

The following passive therapies and modalities are listed in alphabetical order.

E.8.a Continuous Passive Movement (CPM)

Continuous Passive Movement is a form of passive motion using specialized machinery that acts to move a joint and may also pump blood and edema fluid away from the joint and periarticular tissues. CPM is effective in preventing the development of joint stiffness if applied immediately following surgery. It should be continued until the swelling that limits motion of the joint no longer develops. Range of motion for the joint begins at the level of patient tolerance and is increased twice a day as tolerated. Use of this equipment may require home visits.

- Time to produce effect: Immediate.
- Frequency: Up to 4 times a day
- Optimum duration: Up to 3 weeks post surgical.
- Maximum duration: 3 weeks.

E.8.b Contrast Baths

Not recommended.

E.8.c Electrical Stimulation (Unattended)

Not recommended. For the purposes of these guidelines, unattended means that the physician or therapist is not physically present with the patient on a 1:1 basis when treatment is being administered.

E.8.d Fluidotherapy

Fluidotherapy employs a stream of dry, heated air that passes over the injured body part. The injured body part can be exercised during the application of dry heat. Indications include the need to enhance collagen extensibility before stretching, reduce muscle guarding, or reduce inflammatory response.

- Time to produce effect: 1 to 4 treatments.
- Frequency: 1 to 3 times per week.
- Optimum duration: 4 weeks.
- Maximum duration: 1 month.

E.8.e Infrared Therapy

Not recommended.

E.8.f Iontophoresis

Not recommended.

E.8.g Manipulation

Manipulation is manual therapy that moves a joint beyond the physiologic range of motion but not beyond the anatomic range of

motion. It is indicated for locked knee, contracture, or pain and loss of range of motion due to adhesions or contractures.

- Time to produce effect: Immediate or up to 10 treatments.
- Frequency: 1 to 5 times per week as indicated by the severity of involvement and the desired effect.
- Optimum duration: 10 treatments.
- Maximum duration: 10 treatments.

E.8.h Manual Electrical Stimulation

Manual Electrical Stimulation is used for peripheral nerve injuries or pain reduction that requires continuous application, supervision, or involves extensive teaching. Indications include muscle spasm (including TENS), atrophy, decreased circulation, osteogenic stimulation, inflammation, and the need to facilitate muscle hypertrophy, muscle strengthening, muscle responsiveness in Spinal Cord Injury/Brain Injury (SCI/BI), and peripheral neuropathies.

- Time to produce effect: Variable, depending upon use.
- Frequency: 3 to 7 times per week.
- Optimum duration: 8 weeks.
- Maximum duration: 2 months.

E.8.i Massage, Manual or Mechanical

Not recommended.

E.8.j Mobilization (Joint)

Mobilization is passive movement, which may include passive range of motion performed in such a manner (particularly in relation to the speed of the movement) that it is, at all times, within the ability of the patient to prevent the movement if they so choose. It may include skilled manual joint tissue stretching. Indications include the need to improve joint play, improve intracapsular arthrokinematics, or reduce pain associated with tissue impingement/maltraction.

- Time to produce effect: 6 to 9 treatments.

- Frequency: 3 times per week.
- Optimum duration: 10 treatments.
- Maximum duration: 10 treatments.

E.8.k Mobilization (Soft Tissue)

Mobilization (Soft Tissue) is the skilled application of manual techniques designed to normalize movement patterns through the reduction of soft tissue pain and restrictions. Indications include muscle spasm around a joint, trigger points, adhesions, and neural compression.

- Time to produce effect: 2 to 3 weeks.
- Frequency: 2 to 3 times per week.
- Optimum duration: 10 treatments.
- Maximum duration: 10 treatments.

E.8.l Paraffin Bath

Not recommended.

E.8.m Superficial Heat and Cold Therapy

Superficial heat and cold therapies are thermal agents applied in various manners that lower or raise the body tissue temperature for the reduction of pain, inflammation, and/or effusion resulting from injury or induced by exercise. It may be used acutely with compression and elevation. Indications include acute pain, edema and hemorrhage, need to increase pain threshold, reduce muscle spasm and promote stretching/flexibility. Includes portable cryotherapy units and application of heat just above the surface of the skin at acupuncture points. May be performed in conjunction with other active therapy, or may be self-administered by the patient.

- Time to produce effect: Immediate.
- Frequency: 2 to 5 times per week.
- Optimum duration: 3 weeks as primary, or up to 2 months if used intermittently as an adjunct to other therapeutic procedures.

- Maximum duration: 2 months.

E.8.n Short-wave Diathermy

Not recommended.

E.8.o Traction

Not recommended.

E.8.p Transcutaneous Electrical Nerve Stimulation (TENS)

Transcutaneous Electrical Nerve Stimulation (TENS) treatment should include at least one instructional session for proper application and use. Indications include muscle spasm, atrophy and control of concomitant pain in the office setting. Minimal TENS unit parameters should include pulse rate, pulse width and amplitude modulation. Consistent, measurable, functional improvement must be documented and determination of the likelihood of chronicity prior to the provision of a home unit. TENS treatment should be used in conjunction with active physical therapy.

- Time to produce effect: Immediate.
- Frequency: Variable.
- Optimum duration: 3 sessions.
- Maximum duration: 3 sessions. Purchase or provide with home unit if effective.

E.8.q Ultrasound

Ultrasound uses sonic generators to deliver acoustic energy for therapeutic thermal effects. Indications include scar tissue, adhesions, contractures and muscle spasm, and the need to extend muscle tissue or accelerate the soft tissue healing.

- Time to produce effect: 6 to 15 treatments.
- Frequency: 3 times per week.
- Optimum duration: 4 to 8 weeks.
- Maximum duration: 2 months.

E.8.r Vasopneumatic Devices

Not recommended.

E.8.s Whirlpool

Whirlpool is conductive exposure to water at temperatures that best elicits the desired effect (cold vs. heat). It generally includes massage by water propelled by a turbine or Jacuzzi jet system and has the same thermal effects as hot packs if higher than tissue temperature. It has the same thermal effects as cold application if comparable temperature water used. Indications include the need for analgesia, relaxing muscle spasm, reducing joint stiffness, enhancing mechanical debridement and facilitating and preparing for exercise.

- Time to produce effect: 2 to 4 treatments.
- Frequency: 3 to 5 times per week.
- Optimum duration: 3 weeks as primary, or up to 2 months if used intermittently as an adjunct to other therapeutic procedures.
- Maximum duration: 2 months.

F THERAPEUTIC PROCEDURES , OPERATIVE

All operative interventions must be based upon positive correlation of clinical findings, clinical course and diagnostic tests. A comprehensive assimilation of these factors must lead to a specific diagnosis with positive identification of pathologic condition(s). It is imperative to rule out non-physiologic modifiers of pain presentation or non-operative conditions mimicking radiculopathy or instability (e.g., peripheral neuropathy, piriformis syndrome, myofascial pain, scleratogenous or sympathetically mediated pain syndromes, sacroiliac dysfunction, psychological conditions, etc.) prior to consideration of elective surgical intervention.

In addition, operative treatment is indicated when the natural history of surgically treated lesions is better than the natural history for non-operatively treated lesions. All patients being considered for surgical intervention should first undergo a comprehensive neuromusculoskeletal examination to identify mechanical pain generators that may respond to non-surgical techniques or may be refractory to surgical intervention.

Structured rehabilitation interventions should be strongly considered post-operative in any patient not making expected functional progress within three weeks post-operative.

F.1 KNEE FUSION

F.1.a Description/Definition

Surgical fusion of femur to tibia at the knee joint.

F.1.b Diagnostic Testing Procedures

Radiographs, MRI, gallium scan (R/O infection). Lab work as indicated.

F.1.c Non-Operative Treatment

Active and/or passive therapy for weight-sharing braces; NSAIDs.

F.1.d Surgical Indications

All reasonable conservative measures have been exhausted and other reasonable surgical options have been seriously considered or implemented.

F.1.e Operative Treatment

Usually open reduction, grafting, internal fixation. External fixation or intramedullary rodding may also be used.

F.1.f Post-Operative Therapy

Active for protected weight-bearing and gait training.

F.2 TOTAL KNEE REPLACEMENT

Knee Arthroplasty (Total or Partial Knee Joint Replacement) is not included on the list of pre-authorized procedures. Providers who want to perform one of these procedures must request pre-authorization from the carrier before performing the procedure.

Refer to Table 8.

Table 8: Criteria for Total Knee Replacement

IF the diagnosis is supported by			AND this has been done (if recommended)	The following surgery may be appropriate
CLINICAL FINDINGS SUBJECTIVE	OBJECTIVE	IMAGING	CONSERVATIVE CARE	SURGICAL PROCEDURE
Limited range of motion OR Night time joint pain OR No pain relief with conservative care	Over 50 years of age AND Body Mass Index of less than 35	Osteoarthritis on: Standing x-ray OR Arthroscopy	Medications OR Viscosupplementation injections OR Steroid injection	KNEE JOINT REPLACEMENT If only 1 compartment is affected, a unicompartmental or partial replacement if indicated If 2 of the 3 compartments are affected, a total joint replacement is indicated

F.3 AMPUTATION

F.3.a Description/Definition

Surgical removal of a portion of the lower extremity.

F.3.b Mechanism of Injury

Usually secondary to post-traumatic bone, soft tissue, vascular or neurologic compromise of part of the extremity.

F.3.c Specific Physical Findings

Non-useful or non-viable portion of the lower extremity.

F.3.d Diagnostic Testing Procedures

Radiographs, vascular studies.

F.3.e Non-Operative Treatment

None

F.3.f Surgical Indications

Non-useful or non-viable portion of the extremity.

F.3.g Operative Treatment

Amputation.

F.3.h Post-Operative Therapy

Active and/or passive therapy for prosthetic fitting, construction and training, protected weight-bearing.

F.4 MANIPULATION UNDER ANESTHESIA

F.4.a Description/Definition

Passive range of motion of a joint under anesthesia.

F.4.b Mechanism of Injury

Joint stiffness that usually results from a traumatic injury, compensation related surgery, or other treatment.

F.4.c Specific Physical Findings

Joint stiffness in both active and passive modes.

F.4.d Diagnostic Testing Procedures

Radiographs.

F.4.e Non-Operative Treatment

Active and/or passive therapy for active and passive range of motion exercises.

F.4.f Surgical Indications

Is indicated in cases of intractable restriction and may be performed by a duly qualified surgeon. Consider if routine therapeutic modalities, including physical therapy and/or dynamic bracing, do not restore the degree of motion that should be expected after a reasonable period of time, usually at least 12 weeks.

F.4.g Operative Treatment

Not applicable.

F.4.h Post-Operative Therapy

Active and/or passive therapy for active and passive range of motion.

F.5 BURSECTOMY

F.5.a Description/Definition

Surgical removal of peri-articular bursa.

F.5.b Mechanism of Injury

Usually a traumatic local injury or repetitive minor local irritation.

F.5.c Specific Physical Findings

Swelling, tenderness over the bursa.

F.5.d Diagnostic Testing Procedures

Radiographs.

F.5.e Non-Operative Treatment

Active and/or passive therapy for splinting, rest, NSAIDS, steroid injection.

F.5.f Surgical Indications

Persistent pain, swelling despite treatment.

F.5.g Operative Treatment

Surgical removal of the bursa.

F.5.h Post-Operative Therapy

Active and/or passive therapy for graduated range of motion exercises.

F.6 OSTEOTOMY

F.6.a Description/Definition

A reconstructive procedure involving the surgical cutting of bone for realignment and is useful in patients that would benefit from realignment in lieu of total joint replacement.

F.6.b Mechanism of Injury

Post-traumatic arthritis or deformity.

F.6.c Specific Physical Findings

Painful decreased range of motion and/or deformity.

F.6.d Diagnostic Testing Procedures

Radiographs, MRI scan, CT scan.

F.6.e Non-Operative Treatment

Active and/or passive therapy for activity modification, bracing, NSAIDS.

F.6.f Surgical Indications

Failure of non-surgical treatment. Avoidance of total joint arthroplasty desirable.

F.6.g Operative Treatment

Peri-articular opening or closing wedge of bone, usually with grafting and internal or external fixation.

F.6.h Post-Operative Therapy

Active and/or passive therapy for protected weight-bearing, progressive range of motion.

F.7 HARDWARE REMOVAL

F.7.a Description/Definition

Surgical removal of internal or external fixation device.

F.7.b Mechanism of Injury

Usually following healing of a post-traumatic injury that required fixation or reconstruction using instrumentation.

F.7.c Specific Physical Findings

Local pain to palpation, swelling, erythema.

F.7.d Diagnostic Testing Procedures

Radiographs, tomography, CT scan, MRI.

F.7.e Non-Operative Treatment

Active and/or passive therapy for local modalities, activity modification, NSAIDS.

F.7.f Surgical Indications

Persistent local pain, irritation around hardware.

F.7.g Operative Treatment

Removal of instrumentation. Some instrumentation may be removed in the course of standard treatment without local irritation.

F.7.h Post-Operative Therapy

Active and/or passive therapy for progressive weight-bearing, range of motion.

F.8 RELEASE OF CONTRACTURE

F.8.a Description/Definition

Surgical incision or lengthening of contracted tendon or peri-articular soft tissue.

F.8.b Mechanism of Injury

Usually following a post-traumatic injury.

F.8.c Specific Physical Findings

Shortened tendon or stiff joint.

F.8.d Diagnostic Testing Procedures

Radiographs, CT scan, MRI scan.

F.8.e Non-Operative Treatment

Active and/or passive therapy for stretching, range of motion exercises.

F.8.f Surgical Indications

Persistent shortening or stiffness associated with pain and/or altered function.

F.8.g Operative Treatment

Surgical incision or lengthening of involved soft tissue.

F.8.h Post-Operative Therapy

Active and/or passive therapy for stretching, range of motion exercises.

F.9 MENISCECTOMY

F.9.a Description/Definition

The surgical excision of a meniscus.

F.9.b Evaluation and Management

See Table 5.

F.10 LIGAMENT REPAIR

F.10.a Description/Definition

Surgical reattachment of torn anterior or posterior cruciate ligaments or medial or lateral collateral ligaments

F.10.b Evaluation and Management

See Table 4.

Sources:

This Treatment Guideline is adopted, with modification, from the State of Colorado's Lower Extremity Medical Treatment Guideline, with supplementation from ACOEM's[1] Occupational Medicine Treatment Guidelines and the State of Washington's Medical and Surgical Treatment Guidelines.

[1] American College of Occupational and Environmental Medicine

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