HEALTHHELP®

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2024 Computed Tomography (CT) Lower Extremities

Diagnostic Imaging

CT-LowerEXT-HH

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Guideline Initiated: 06/30/2019

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CT General Contraindications

Computed tomography (CT) may be contraindicated for **ANY** of the following: [2]

- Allergy to contrast (if contrast is used)
- Pregnancy
- Renal impairment and dialysis unmanageable (if contrast is used)

Preamble: Pediatric Diagnostic Imaging

HealthHelp's clinical guidelines for the Diagnostic Imaging program, are intended to apply to both adults and pediatrics (21 years of age or younger), unless otherwise specified within the criteria.

Computed Tomography (CT) Ankle

NCD 220.1
See also, **NCD 220.1**: Computed Tomography at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

CT Ankle Guideline

Computed tomography (CT) of the ankle is considered medically appropriate when the documentation demonstrates **ANY** of the following: (*__NOTE__: *Plain X-rays **MUST** precede CT evaluation, unless otherwise specified*.)

1. Ankle-specific pathology and **ANY** of the following:
    a. Injury or trauma, **magnetic resonance imaging (MRI) is contraindicated or unavailable** and **ANY** of the following: [35] [34]
        i. Achilles tendon tear is suspected, Thompson test is positive **AND** ultrasound is non-diagnostic or indeterminate. [26]
        ii. Anterior talofibular ligament injury is suspected and unstable, X-ray is non-diagnostic or indeterminate **AND** ankle fracture **OR** osteochondral injury of the talus is suspected, and **EITHER** of the following: [37] [1]
            A. Orthopedic sign (eg, anterior or posterior drawer test) is positive.
            B. Stress X-rays are positive.

iii. Fracture is known from prior imaging (eg, X-ray, CT), ligamentous or tendon injury is suspected, **AND** surgery maybe required.

iv. Fracture is suspected for evaluation of **ANY** of the following:

A. Complete fracture risk is high with conservative therapy.

B. Delayed or non-union fracture, when there is **NO** healing demonstrated between 2 sets of X-rays. (*__NOTE__: *CT is preferred.*)

C. Insufficiency, occult or stress fracture is suspected and X-rays taken 10 to 14 days or longer after injury or clinical assessment are negative, non-diagnostic or indeterminate. [4]

D. Pathologic fracture **OR** impending fracture suspected or at risk, based on prior X-ray or computed tomography (CT).

v. High ankle injury (syndesmotic injury) is suspected, with tenderness over the syndesmosis (anterior inferior tibiofibular ligament [AITFL]) and **EITHER** of the following: [29] [30]

A. Orthopedic sign (eg, cotton test, dorsiflexion external rotation test, squeeze test) is positive. (**NOTE**: *With a positive orthopedic sign, an initial X-ray is always preferred, but **NOT** required*.)

B. Stress X-rays are positive.

vi. Ligamentous or tendon injury is suspected, **AND** surgery may be required. [37] [1]

vii. Tendon rupture or ligament injury is suspected, based on mechanism of injury and physical findings **AND** ultrasound is non-diagnostic or indeterminate.

b. Joint prosthesis or replacement is known, **AFTER** X-ray is completed **AND** joint prosthesis loosening or dysfunction (eg, pseudotumor formation) is suspected. [16]

c. Pain in the ankle area with conservative management (eg, physical therapy) evaluation, MRI is **contraindicated or unavailable** and **EITHER** of the following: (**NOTE**: *Indication does **NOT** apply to young children [age is less than 5]*.) [8] [38]

i. Attempted within the last 6 months, for at least 4 weeks **AND** symptoms persist or worsen.

ii. Symptoms progress or worsen during course of conservative management

2. Autoimmune disease (eg, rheumatoid arthritis) is suspected or known, **MRI is contraindicated or unavailable** and **ANY** of the following: [38]

a. Diagnosis is uncertain, prior to start of treatment.

b. Prior imaging is non-diagnostic or indeterminate.

c. Treatment response monitoring (eg, medication effect) is needed.

3. Avascular necrosis is suspected or known, **MRI is contraindicated or unavailable** and **ANY** of the following: [25] [15]

a. Osteonecrosis is known, **AFTER** X-rays are completed, to evaluate contralateral joint.

b. Prior X-ray or CT is non-diagnostic or indeterminate, but suggesting osteonecrosis.

c. Symptomatic, high risk (eg, alcohol abuse, glucocorticosteroid use, glycogen storage disease, renal transplant, sickle cell anemia) **AND** prior X-rays are normal **ORnon-diagnostic or indeterminate**.

4. Cancer in the lower extremity is known and **ANY** of the following: [41] [5] [6] [36] [12]

a. Surveillance following **National Comprehensive Cancer Network (NCCN)** surveillance protocols (*see **Surveillance** section*).

b. Primary cancer is known, for follow-up, **AND** active treatment was received in the last year.

c. Staging, restaging, recurrence **OR** metastasis

5. Crystalline arthropathy is suspected or known, to characterize crystal deposition disease (eg, gout) **AND EITHER** of the following: [36]

a. Extra-articular crystal deposits (tendons or bursa) are known.

b. Initial X-ray and rheumatological work-up (eg, c-reactive protein [CRP], erythrocyte sedimentation rate [ESR]) are complete **AND** joint aspiration is non-diagnostic or indeterminate **OR CANNOT** be performed.

6. Foreign body and **BOTH** ultrasound and X-ray(s) are non-diagnostic or indeterminate. [7]

7. Infection (eg, abscess, bursitis, osteomyelitis, septic arthritis) is suspected or known and **ANY** of the following: (*__NOTE__: *MRI and nuclear medicine are preferred for acute infection. CT is preferred for chronic infection*.) [27]

a. Infection or abscess is clinically suspected (eg, elevated complete blood count [CBC], CRP or ESR, joint aspiration is positive), symptomatic (eg, fever, pain, swelling) **AND** prior X-ray is negative.

b. Ulcer (eg, diabetic, ischemic, pressure, traumatic) is **NOT** improving with treatment **AND** deep or bone infection is suspected.

c. Ultrasound or X-ray is abnormal, non-diagnostic or indeterminate.

8. Inflammatory condition from rheumatological source (eg, crystalline arthropathy, gout, hemarthrosis following arthrocentesis) is suspected or known **AND MRI is contraindicated or unavailable**. [38]
9. Mass, lesion or cyst is suspected or known and X-ray or ultrasound are non-diagnostic or indeterminate. (*__NOTE__: *MRI is preferred*.) (*__NOTE__: *Superficial mass should be initially evaluated with ultrasound*.) [5] [12]
10. Osteochondral lesion (eg, defects, fractures, osteochondritis dissecans) is suspected based on mechanism of injury and physical findings. [9]
11. Peripheral neurogenic condition (eg, Charcot joint, Morton's neuroma, myositis) is suspected or known, **MRI is contraindicated or unavailable** and **ANY** of the following: [8] [20]
    a. Conservative management (eg, physical therapy) evaluation and **EITHER** of the following:
        i. Attempted within the last 6 months, for at least 4 weeks **AND** symptoms persist or worsen.
        ii. Symptoms progress or worsen during course of conservative management
    b. Electromyogram or nerve conduction study is abnormal, non-diagnostic or indeterminate.
    c. Ultrasound or X-ray is abnormal, non-diagnostic or indeterminate.
12. Peri-procedural imaging to guide pre-procedure planning or post-operative complications.
13. Prior CT lower extremity imaging is non-diagnostic or indeterminate. (*__NOTE__: *One follow-up is appropriate to evaluate for changes since preceding imaging finding[s]. Further surveillance is appropriate when lesion is specified as "highly suspicious" or there is a change since last exam.*)
14. Synovial chondromatosis or loose bodies **AND** joint pain **OR** prior X-ray or ultrasound demonstrate mechanical symptoms **AND MRI is contraindicated or unavailable**.
15. Vascular malformations are suspected or known, MRI is **contraindicated or unavailable**, ultrasound is non-diagnostic or indeterminate, imaging results may change management **AND/OR** for peri-operative planning or follow-up. [18]

Computed Tomography (CT) Foot

NCD 220.1
See also, **NCD 220.1**: Computed Tomography at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

CT Foot Guideline

Computed tomography (CT) of the foot is considered medically appropriate when the documentation demonstrates **ANY** of the following: (*__NOTE__: *Plain X-rays **MUST** precede CT evaluation, unless otherwise specified*.)

1. Foot specific pathology and **ANY** of the following:
    a. Flatfoot deformity (congenital or acquired) is painful and **ALL** of the following: [28] [33]
        1. Conservative management (eg, chiropractic treatments, physical therapy, physician-supervised exercise program) was attempted within the last 6 months, for at least 4 weeks **AND** symptoms persist.
        2. **Magnetic resonance imaging (MRI) is contraindicated or unavailable**.
    b. Injury or trauma is suspected or known, **MRI is contraindicated or unavailable**, with **ANY** of the following: [13] [34]
        i. Fracture is known from prior imaging (eg, X-ray, CT), ligamentous or tendon injury is suspected, **AND** surgery maybe required.
        ii. Fracture is suspected for evaluation of **ANY** of the following:
            A. Complete fracture risk is high with conservative therapy.
            B. Delayed or non-union fracture, when there is **NO** healing demonstrated between 2 sets of X-rays. (*__NOTE__: *CT is preferred.*)
            C. Insufficiency, occult or stress fracture is suspected and X-rays taken 10 to 14 days or longer after injury or clinical assessment are negative, non-diagnostic or indeterminate. [4]
            D. Pathologic fracture **OR** impending fracture suspected or at risk, based on prior X-ray or computed tomography (CT).

iii. Tendon, muscle rupture or ligament injury is suspected, based on mechanism of injury and physical findings **AND** ultrasound is non-diagnostic or indeterminate.

c. Neuropathic foot, MRI is **contraindicated or unavailable** and **ALL** of the following: [10] [39]

i. Wound infection (eg, foul odor, friable or discolored granulation tissue, non-purulent discharge) is suspected or known.

ii. Wound healing is delayed.

d. Pain in the foot area with conservative management (eg, physical therapy) evaluation, MRI is **contraindicated or unavailable** and **EITHER** of the following: (**NOTE**: *Indication does **NOT** apply to young children [age is less than 5]*.) [39] [38]

i. Attempted within the last 6 months, for at least 4 weeks **AND** symptoms persist or worsen.

ii. Symptoms progress or worsen during course of conservative management

2. Autoimmune disease (eg, rheumatoid arthritis) is suspected or known, **MRI is contraindicated or unavailable** and **ANY** of the following: [38]

a. Diagnosis is uncertain, prior to start of treatment.

b. Prior imaging is non-diagnostic or indeterminate.

c. Treatment response monitoring (eg, medication effect)

3. Avascular necrosis is suspected or known, **MRI is contraindicated or unavailable** and **ANY** of the following: [15]

a. Osteonecrosis is known **AND** X-rays are completed, to evaluate contralateral joint.

b. Prior X-ray or CT is non-diagnostic or indeterminate, suggesting osteonecrosis.

c. Symptomatic, high risk (eg, alcohol abuse, glucocorticosteroid use, glycogen storage disease, renal transplant, sickle cell anemia) and prior X-rays are normal **OR** non-diagnostic or indeterminate.

4. Cancer in the lower extremity is known and **ANY** of the following: [41] [5] [6] [36] [12]

a. National Comprehensive Cancer Network (NCCN) surveillance (*See **Surveillance** section*)

b. Primary cancer is known, for follow-up, when active treatment was received in the last year.

c. Staging, restaging, recurrence or metastasis

5. Crystalline arthropathy is suspected or known, to characterize crystal deposition disease (eg, gout) and **EITHER** of the following: [38]
    a. Extra-articular crystal deposits, within tendons or bursa, are known.
    b. Initial X-ray and rheumatological work-up (eg, c-reactive protein [CRP], erythrocyte sedimentation rate [ESR]) are complete **AND** joint aspiration is non-diagnostic or indeterminate **OR CANNOT** be performed.
6. Foreign body and **BOTH** ultrasound and X-ray(s) are non-diagnostic or indeterminate. [7]
7. Infection (eg, abscess, bursitis, osteomyelitis, septic arthritis) is suspected or known and **ANY** of the following: (*__NOTE__: *MRI and nuclear medicine are preferred for acute infection. CT is preferred for chronic infection*.) [42]
    a. Infection or abscess is clinically suspected (eg, elevated complete blood count [CBC], CRP or ESR or joint aspiration is positive), symptomatic (eg, fever, pain, swelling) **AND** prior X-ray is negative.
    b. Ulcer (eg, diabetic, ischemic, pressure, traumatic) is **NOT** improving with treatment **AND** deep or bone infection is suspected.
    c. Ultrasound or X-ray is abnormal, non-diagnostic or indeterminate.
8. Inflammatory condition from rheumatological source (eg, crystalline arthropathy, gout, hemarthrosis following arthrocentesis) is suspected or known and **MRI is contraindicated or unavailable**. [38]
9. Mass, lesion or cyst is suspected or known and X-ray or ultrasound is non-diagnostic or indeterminate. (*__NOTE__: *MRI is preferred*.) (*__NOTE__: *Baker's cyst or superficial mass should be initially evaluated with ultrasound*.) [5] [12]
10. Osteochondral lesion (eg, defects, fractures, osteochondritis dissecans) is suspected, based on mechanism of injury and physical findings. [9]
11. Peripheral neurogenic condition (eg, Charcot joint, Morton’s neuroma, myositis) is suspected or known, **MRI is contraindicated or unavailable** and **ANY** of the following: [20]
    a. Conservative management (eg, physical therapy) evaluation and **EITHER** of the following:
        i. Attempted within the last 6 months, for at least 4 weeks **AND** symptoms persist or worsen.
        ii. Symptoms progress or worsen during course of conservative management
    b. Electromyogram or nerve conduction study is abnormal, non-diagnostic or indeterminate.

c. Ultrasound or X-ray is abnormal, non-diagnostic or indeterminate.

12. Peri-procedural imaging to guide pre-procedure planning or post-operative complications.
13. Prior CT lower extremity imaging is non-diagnostic or indeterminate. (*__NOTE__: *One follow-up is appropriate to evaluate for changes since preceding imaging finding[s]. Further surveillance is appropriate when lesion is specified as "highly suspicious" or there is a change since last exam.*)
14. Synovial chondromatosis or loose bodies, with joint pain or mechanical symptoms are demonstrated on prior X-ray or ultrasound **AND MRI is contraindicated or unavailable**.
15. Vascular malformations are suspected or known, MRI is **contraindicated or unavailable**, ultrasound is non-diagnostic or indeterminate, imaging results may change management **AND/OR** for peri-operative planning or follow-up. [18]

Computed Tomography (CT) Hip

NCD 220.1
See also, **NCD 220.1**: Computed Tomography at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

CT Hip Guideline

Computed tomography (CT) of the hip is considered medically appropriate when the documentation demonstrates **ANY** of the following: (*__NOTE__: *Plain X-rays **MUST** precede CT evaluation, unless otherwise specified*.)

1. Hip-specific pathology and **ANY** of the following: [45]
    a. Injury or trauma is suspected or known, **magnetic resonance imaging (MRI) is contraindicated or unavailable**, for **ANY** of the following: [31] [34]
        i. Femoroacetabular impingement (FAI) **OR** labral tear is suspected or known and **ANY** of the following: [23] [24]
            A. FAI is known, to determine candidacy for hip preservation surgery.
            B. FAI is suspected on prior X-ray, labral tear is suspected **AND** mechanical symptoms (eg, catching, clicking, giving way, hip instability, locking) are persistent.

C. Labral tear is suspected, X-ray is completed **AND** mechanical symptoms (eg, catching, clicking, giving way, hip instability, locking) are persistent.

D. Orthopedic sign (eg, anterior impingement, posterior impingement) is positive. (**NOTE**: *With a positive orthopedic sign, an initial X-ray is always preferred, however, it is **NOT** required*.)

ii. Hip or femur fracture is suspected and **ANY** of the following: [31]

i. Complete fracture risk is high with conservative therapy.

ii. Delayed or non-union when there is **NO** healing demonstrated between 2 sets of X-rays. (*__NOTE__: *CT is preferred study*)

iii. Insufficiency, occult or stress fracture is suspected **AND** X-ray is negative, non-diagnostic or indeterminate. (*__NOTE__: *MRI is preferred*.)[4]

iv. Pathologic fracture or concern for impending fracture based on prior X-ray or CT

iii. Tendon, muscle rupture or ligament injury is suspected, based on mechanism of injury and physical findings **AND** ultrasound is non-diagnostic or indeterminate.

b. Joint prosthesis or replacement is known, X-ray is completed and **EITHER** of the following: [44]

i. Joint prosthesis loosening or dysfunction (eg, pseudotumor formation) is suspected.

ii. Metallosis is suspected with painful metal on metal hip replacement and **EITHER** of the following:

A. Cobalt-chromium levels are more than 7 parts per billion (ppb)

B. Joint aspiration is abnormal.

c. Pain in the hip area with conservative management (eg, physical therapy) evaluation, MRI is **contraindicated or unavailable** and **EITHER** of the following: (**NOTE**: *Indication does **NOT** apply to young children [age is less than 5]*.) [17] [38]

i. Attempted within the last 6 months, for at least 4 weeks **AND** symptoms persist or worsen.

ii. Symptoms progress or worsen during course of conservative management

2. Autoimmune disease (eg, rheumatoid arthritis) is suspected or known, **MRI is contraindicated or unavailable** and **ANY** of the following: [38]
    a. Diagnosis is uncertain, prior to start of treatment.
    b. Prior imaging is non-diagnostic or indeterminate.
    c. Treatment response monitoring (eg, medication effect)
3. Avascular necrosis is suspected or known, **MRI is contraindicated or unavailable** and **ANY** of the following: [15]
    a. Osteonecrosis is known **AND** X-rays are completed, to evaluate contralateral joint.
    b. Prior X-ray or CT is non-diagnostic or indeterminate, suggesting osteonecrosis.
    c. Symptomatic, high risk (eg, alcohol abuse, glucocorticosteroid use, glycogen storage disease, renal transplant, sickle cell anemia) and prior X-rays are normal **OR** non-diagnostic or indeterminate.
4. Cancer in the lower extremity is known and **ANY** of the following: [41] [5] [6] [36] [12]
    a. National Comprehensive Cancer Network (NCCN) surveillance (*See **Surveillance** section*)
    b. Primary cancer is known, for follow-up, when active treatment was received in the last year.
    c. Staging, restaging, recurrence or metastasis
5. Crystalline arthropathy is suspected or known, to characterize crystal deposition disease (eg, gout) and **EITHER** of the following: [38]
    a. Extra-articular crystal deposits, within tendons or bursa, are known.
    b. Initial X-ray and rheumatological work-up (eg, c-reactive protein [CRP], erythrocyte sedimentation rate [ESR]) are complete **AND** joint aspiration is non-diagnostic or indeterminate **OR CANNOT** be performed.
6. Foreign body and **BOTH** ultrasound and X-ray(s) are non-diagnostic or indeterminate. [7]
7. Infection (eg, abscess, bursitis, osteomyelitis, septic arthritis) is suspected or known and **ANY** of the following: (*__NOTE__: *MRI and nuclear medicine are preferred for acute infection. CT is preferred for chronic infection*.) [27]
    a. Infection or abscess is clinically suspected (eg, elevated complete blood count [CBC], CRP or ESR or joint aspiration is positive), symptomatic (eg, fever, pain, swelling) **AND** prior X-ray is negative.
    b. Ulcer (eg, diabetic, ischemic, pressure, traumatic) is **NOT** improving with treatment **AND** deep or bone infection is suspected.

c. Ultrasound or X-ray is abnormal, non-diagnostic or indeterminate.

8. Inflammatory condition from rheumatological source (eg, crystalline arthropathy, gout, hemarthrosis following arthrocentesis) is suspected or known and **MRI is contraindicated or unavailable**. [38]

9. Mass, lesion or cyst is suspected or known and X-ray or ultrasound is non-diagnostic or indeterminate. (*__NOTE__: *MRI is preferred*.) (*__NOTE__: *Superficial mass should be initially evaluated with ultrasound*.) [5] [12]

10. Osteochondral lesion (eg, defects, fractures, osteochondritis dissecans) is suspected, based on mechanism of injury and physical findings. [9]

11. Peripheral neurogenic condition (eg, neuropathic joint) is suspected or known, **MRI is contraindicated or unavailable** and **ANY** of the following: [17] [20]

    a. Conservative management (eg, physical therapy) evaluation and **EITHER** of the following:

        i. Attempted within the last 6 months, for at least 4 weeks **AND** symptoms persist or worsen.

        ii. Symptoms progress or worsen during course of conservative management

    b. Electromyogram or nerve conduction study is abnormal, non-diagnostic or indeterminate.

    c. Ultrasound or X-ray is abnormal, non-diagnostic or indeterminate.

12. Peri-procedural imaging to guide pre-procedure planning or post-operative complications.

13. Prior CT lower extremity imaging is non-diagnostic or indeterminate. (*__NOTE__: *One follow-up is appropriate to evaluate for changes since preceding imaging finding[s]. Further surveillance is appropriate when lesion is specified as "highly suspicious" or there is a change since last exam.*)

14. Synovial chondromatosis or loose bodies, with joint pain or mechanical symptoms are demonstrated on prior X-ray or ultrasound **AND MRI is contraindicated or unavailable**.

15. Vascular malformations are suspected or known, MRI is **contraindicated or unavailable**, ultrasound is non-diagnostic or indeterminate, imaging results may change management **AND/OR** for peri-operative planning or follow-up. [18]

Computed Tomography (CT) Knee

NCD 220.1
See also, **NCD 220.1**: Computed Tomography at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

CT Knee Guideline

Computed tomography (CT) of the knee is considered medically appropriate when the documentation demonstrates **ANY** of the following: (*__NOTE__: *Plain X-rays **MUST** precede CT evaluation, unless otherwise specified*.)

1. Knee-specific pathology and **ANY** of the following:
    a. Injury or trauma, **magnetic resonance imaging (MRI) is contraindicated or unavailable**, and **ANY** of the following: [40] [34]
        i. Anterior cruciate ligament (ACL) injury is suspected with positive orthopedic physical sign (anterior drawer test, Lachman's test, pivot shift test). [14]
        ii. Anterior cruciate ligament (ACL) injury is suspected and **ANY** of the following:
            A. Positive orthopedic physical sign (anterior drawer test, Lachman's test, pivot shift test).
            B. Acute knee injury, physical exam is limited by pain **AND** swelling, initial X-ray is completed and **ANY**
                I. Pain is severe, with inability to stand, audible pop at time of injury and/or very swollen joint.
                II. X-ray is abnormal with large joint effusion visualized.
                III. X-ray is normal **AND** ACL rupture is suspected based on mechanism of injury.
        iii. ACL rupture is suspected, when there is an acute knee injury, physical exam is limited by pain **AND** swelling, initial X-ray is completed and **ANY** of the following: [21] [14]
            A. Pain is severe, with inability to stand, audible pop at time of injury and/or very swollen joint.
            B. X-ray is abnormal with large joint effusion visualized.

C. X-ray is normal **AND** ACL rupture is suspected based on mechanism of injury.

iv. Fracture is known from prior imaging (eg, X-ray, CT), ligamentous or tendon injury is suspected, **AND** surgery maybe required.

v. Fracture is suspected for evaluation of **ANY** of the following:

A. Complete fracture risk is high with conservative therapy.

B. Delayed or non-union fracture, when there is **NO** healing demonstrated between 2 sets of X-rays. (*__NOTE__: *CT is preferred.*)

C. Insufficiency, occult or stress fracture is suspected and X-rays taken 10 to 14 days or longer after injury or clinical assessment are negative, non-diagnostic or indeterminate. [4]

D. Pathologic fracture **OR** impending fracture suspected or at risk, based on prior X-ray or computed tomography (CT).

vi. Ligament tear (lateral collateral or medial collateral) is suspected **AND** orthopedic sign (valgus stess test/laxity, varus stress test/laxity) is positive. [14]

vii. Mechanical locking of knee is acute and is **NOT** due to guarding.

viii. Meniscal tear/injury is suspected and orthopedic signs (Apley's test, McMurray's compression, Thessaly test) are positive. [19]

ix. Patellar dislocation (acute or recurrent) is suspected or known and orthopedic sign (patellofemoral apprehension test) is positive **OR** X-ray findings are compatible with a history of patellar dislocation. [32]

x. Posterior cruciate ligament injury and orthopedic sign (posterior drawer test, posterior tibial sag test) is positive. [14]

xi. Tendon, muscle rupture or ligament injury is suspected, based on mechanism of injury and physical findings **AND** ultrasound is non-diagnostic or indeterminate.

b. Joint prosthesis or replacement is known, X-ray is completed and joint prosthesis loosening or dysfunction (eg, pseudotumor formation) is suspected. [43]

c. Pain in the knee area with conservative management (eg, physical therapy) evaluation, MRI is **contraindicated or unavailable** and **EITHER** of the following: (**NOTE**: *Indication does **NOT** apply to young children [age is less than 5]*.) [11] [38]

i. Attempted within the last 6 months, for at least 4 weeks **AND** symptoms persist or worsen.

ii. Symptoms progress or worsen during course of conservative management

2. Autoimmune disease (eg, rheumatoid arthritis) is suspected or known, **MRI is contraindicated or unavailable** and **ANY** of the following: [38]
   a. Diagnosis is uncertain, prior to start of treatment.
   b. Prior imaging is non-diagnostic or indeterminate.
   c. Treatment response monitoring (eg, medication effect)
3. Avascular necrosis is suspected or known, **MRI is contraindicated or unavailable** and **ANY** of the following: [15]
   a. Osteonecrosis is known **AND** X-rays are complete, to evaluate contralateral joint.
   b. Prior X-ray or CT is non-diagnostic or indeterminate, suggesting osteonecrosis.
   c. Symptomatic, high risk (eg, alcohol abuse, glucocorticosteroid use, glycogen storage disease, renal transplant, sickle cell anemia) and prior X-rays are normal **OR** non-diagnostic or indeterminate.
4. Cancer in the lower extremity is known **ANY** of the following: [41] [5] [6] [36] [12]
   a. National Comprehensive Cancer Network (NCCN) surveillance (*See **Surveillance** section*)
   b. Primary cancer is known, for follow-up, when active treatment was received in the last year.
   c. Staging, restaging, recurrence or metastasis
5. Crystalline arthropathy is suspected or known, to characterize crystal deposition disease (eg, gout) and **EITHER** of the following: [38]
   a. Extra-articular crystal deposits, within tendons or bursa, are known.
   b. Initial X-ray and rheumatological work-up (eg, c-reactive protein [CRP], erythrocyte sedimentation rate [ESR]) are complete **AND** joint aspiration is non-diagnostic or indeterminate **OR CANNOT** be performed.
6. Foreign body and **BOTH** ultrasound and X-ray(s) are non-diagnostic or indeterminate. [7]
7. Infection (eg, abscess, bursitis, osteomyelitis, septic arthritis) is suspected or known and **ANY** of the following: (*__NOTE__: *MRI and nuclear medicine are preferred for acute infection. CT is preferred for chronic infection*.) [27]
   a. Infection or abscess is clinically suspected (eg, elevated complete blood count [CBC], CRP or ESR or joint aspiration is positive), symptomatic (eg, fever, pain, swelling) **AND** prior X-ray is negative.

b. Ulcer (eg, diabetic, ischemic, pressure, traumatic) is **NOT** improving with treatment **AND** deep or bone infection is suspected.

c. Ultrasound or X-ray is abnormal, non-diagnostic or indeterminate.

8. Inflammatory condition from rheumatological source (eg, crystalline arthropathy, gout, hemarthrosis following arthrocentesis) is suspected or known and **MRI is contraindicated or unavailable**. [38]

9. Mass, lesion or cyst is suspected or known and X-ray or ultrasound is non-diagnostic or indeterminate. (*__NOTE__: *MRI is preferred*.) (*__NOTE__: *Baker's cyst or superficial mass should be initially evaluated with ultrasound*.) [5] [12]

10. Osteochondral lesion (eg, defects, fractures, osteochondritis dissecans) is suspected, based on mechanism of injury and physical findings. [9]

11. Peripheral neurogenic condition (eg, neuropathic joint) is suspected or known, **MRI is contraindicated or unavailable** and **ANY** of the following: [20]

    a. Conservative management (eg, physical therapy) evaluation and **EITHER** of the following:

        i. Attempted within the last 6 months, for at least 4 weeks **AND** symptoms persist or worsen.

        ii. Symptoms progress or worsen during course of conservative management

    b. Electromyogram or nerve conduction study is abnormal, non-diagnostic or indeterminate.

    c. Ultrasound or X-ray is abnormal, non-diagnostic or indeterminate.

12. Peri-procedural imaging to guide pre-procedure planning or post-operative complications.

13. Prior CT lower extremity imaging is non-diagnostic or indeterminate. (*__NOTE__: *One follow-up is appropriate to evaluate for changes since preceding imaging finding[s]. Further surveillance is appropriate when lesion is specified as "highly suspicious" or there is a change since last exam.*)

14. Synovial chondromatosis or loose bodies, with joint pain or mechanical symptoms are demonstrated on prior X-ray or ultrasound **AND MRI is contraindicated or unavailable**.

15. Vascular malformations are suspected or known, MRI is **contraindicated or unavailable**, ultrasound is non-diagnostic or indeterminate, imaging results may change management **AND/OR** for peri-operative planning or follow-up. [18]

Computed Tomography (CT) Leg

NCD 220.1
See also, **NCD 220.1**: Computed Tomography at https://www.cms.gov/medicare-coverage-database/search.aspx *if applicable to individual's healthplan membership*.

CT Leg Guideline

Computed tomography (CT) of the leg (long-bones, non-joint) is considered medically appropriate when the documentation demonstrates **ANY** of the following: (*__NOTE__: *Plain X-rays **MUST** precede CT evaluation, unless otherwise specified*.)

1. Leg-specific pathology evaluation and **ANY** of the following:
    a. Injury or trauma is suspected or known, **magnetic resonance imaging (MRI) is contraindicated or unavailable**, and **ANY** of the following: [34]
        i. Fracture is known from prior imaging (eg, X-ray, CT), ligamentous or tendon injury is suspected, **AND** surgery maybe required.
        ii. Fracture is suspected for evaluation of **ANY** of the following:
            A. Complete fracture risk is high with conservative therapy.
            B. Delayed or non-union fracture, when there is **NO** healing demonstrated between 2 sets of X-rays. (*__NOTE__: *CT is preferred.*)
            C. Insufficiency, occult or stress fracture is suspected and X-rays taken 10 to 14 days or longer after injury or clinical assessment are negative, non-diagnostic or indeterminate. [4]
            D. Pathologic fracture **OR** impending fracture suspected or at risk, based on prior X-ray or computed tomography (CT).
        iii. Ligamentous or tendon injury is suspected, **AND** surgery may be required. [37] [1]
        iv. Tendon, muscle rupture or ligament injury is suspected, based on mechanism of injury and physical findings **AND** ultrasound is non-diagnostic or indeterminate.
    b. Leg discrepancy is suspected or known: CT scanogram.
    c. Pain in the leg area with conservative management (eg, physical therapy) evaluation, MRI is **contraindicated or unavailable** and **EITHER** of the following: (**NOTE**: *Indication does **NOT** apply to young children [age is less than 5].*) [38]

i. Attempted within the last 6 months, for at least 4 weeks **AND** symptoms persist or worsen.

ii. Symptoms progress or worsen during course of conservative management

2. Autoimmune disease (eg, rheumatoid arthritis) is suspected or known, **MRI is contraindicated or unavailable** and **ANY** of the following: [38]
   a. Diagnosis is uncertain, prior to start of treatment.
   b. Prior imaging is non-diagnostic or indeterminate.
   c. Treatment response monitoring (eg, medication effect)
3. Cancer in the lower extremity is known and **ANY** of the following: [5] [36] [12]
   a. National Comprehensive Cancer Network (NCCN) surveillance (*See **Surveillance** section*)
   b. Primary cancer is known, for follow-up, when active treatment was received in the last year.
   c. Staging, restaging, recurrence or metastasis
4. Foreign body and **BOTH** ultrasound and X-ray(s) are non-diagnostic or indeterminate. [7]
5. Infection (eg, abscess, bursitis, osteomyelitis, septic arthritis) is suspected or known and **ANY** of the following: (*__NOTE__: *MRI and nuclear medicine are preferred for acute infection. CT is preferred for chronic infection*.) [27]
   a. Infection or abscess is clinically suspected (eg, elevated complete blood count [CBC], CRP or ESR or joint aspiration is positive), symptomatic (eg, fever, pain, swelling) **AND** prior X-ray is negative.
   b. Ulcer (eg, diabetic, ischemic, pressure, traumatic) is **NOT** improving with treatment **AND** deep or bone infection is suspected.
   c. Ultrasound or X-ray is abnormal, non-diagnostic or indeterminate.
6. Mass, lesion or cyst is suspected or known and X-ray or ultrasound is non-diagnostic or indeterminate. (*__NOTE__: *MRI is preferred*.) (*__NOTE__: *Baker's cyst or superficial mass should be initially evaluated with ultrasound*.) [5] [12]
7. Peri-procedural imaging to guide pre-procedure planning or post-operative complications.
8. Prior CT lower extremity imaging is non-diagnostic or indeterminate. (*__NOTE__: *One follow-up is appropriate to evaluate for changes since preceding imaging finding[s]. Further surveillance is appropriate when lesion is specified as "highly suspicious" or there is a change since last exam.*)
9. Synovial chondromatosis or loose bodies, with joint pain or mechanical symptoms are demonstrated on prior X-ray or ultrasound **AND MRI is contraindicated or unavailable**.

10. Vascular malformations are suspected or known, ultrasound is non-diagnostic or indeterminate **AND** results likely to change management **OR** for pre-operative planning. [18]

Extremity Cancer Surveillance

Bone Cancer Surveillance

NCCN Bone Cancer Version 2.2024

Bone cancer surveillance includes **ANY** of the following:

1. Chondrosarcoma surveillance for **ANY** of the following:
    a. Atypical cartilaginous tumor surveillance with **ALL** of the following:
        i. Chest imaging every 6 to 12 months for 2 years, then annually as clinically indicated
        ii. Primary site X-rays and/or cross-sectional imaging magnetic resonance imaging (MRI) (with and without contrast) or computed tomography (CT) (with contrast) every 6 to 12 months for 2 years, then annually as clinically indicated
    b. Low-grade, extracompartmental appendicular tumor, grade I axial tumors or high-grade (grade II or III, clear cell or extracompartmental) tumors surveillance with **ALL** of the following:
        i. Chest imaging every 3 to 6 months, may include CT at least every 6 months for 5 years, then annually for at least 10 years, as clinically indicated
        ii. Primary site X-rays and/or cross-sectional imaging MRI (with and without contrast) or CT (with contrast) as clinically indicated.
2. Chordoma surveillance with **ALL** of the following:
    a. Chest imaging every 6 months, with CT included, annually for 5 years, then annually thereafter as clinically indicated
    b. Imaging of primary site, timing and modality (eg, MRI ± CT [both with contrast], X-ray) as clinically indicated up to 10 years
3. Ewing Sarcoma after primary treatment completed and stable/improved disease, surveillance with **ALL** of the following:
    a. Chest imaging with X-ray or CT: every 2 to 3 months

b. Primary site imaging with MRI ± CT (both with contrast) and X-ray, increase intervals after 24 months and after 5 years, annually as clinically indicated (indefinitely) (*__NOTE__: *Consider PET/CT [head-to-toe] and/or bone scan.*)

4. Giant cell tumor of the bone surveillance with **ALL** of the following:
   a. Chest imaging every 6 to 12 months for 4 years, then annually thereafter as clinically indicated
   b. Surgical site imaging as clinically indicated (eg, CT and/or MRI, both with contrast, X-ray)
5. Osteosarcoma surveillance with primary site and chest imaging (using same imaging that was done for initial work-up) for **ANY** of the following: (*__NOTE__: *Consider PET/CT [head-to-toe] and/or bone scan*.)
   a. Image every 3 months for years 1 and 2
   b. Image every 4 months for year 3
   c. Image every 6 months for years 4 and 5
   d. Image annually for year 6 and thereafter, as clinically indicated

Soft Tissue Sarcoma Surveillance

NCCN Soft Tissue Sarcoma Version 1.2024

Soft tissue sarcoma surveillance includes **ANY** of the following: *__NOTE__: *Contrasted imaging is preferred; for long term surveillance to minimize radiation exposure, X-rays or MRI may be substituted.*

1. Desmoid tumor (aggressive fibromatosis) imaging surveillance includes **ANY** of the following:
   a. CT or MRI every 3 to 6 months for 2 to 3 years, then every 6 to 12 months thereafter
   b. Ultrasound may be considered for select locations (eg, abdominal wall) for long-term follow-up
2. Retroperitoneal/intra-abdominal, after resection imaging surveillance includes CT or MRI (consider PET/CT) every 3 to 6 months for 2 to 3 years, then every 6 months for the next 2 years, then annually.
3. Stage IA/IB tumor surveillance includes **ALL** of the following:
   a. Chest imaging with CT (+contrast) or MRI (± contrast) as clinically indicated
   b. Magnetic resonance imaging (MRI) at baseline and periodically (frequency based on estimated recurrence)

4. Stage II/III resectable with acceptable functional outcomes surveillance includes **ANY** of the following:
    a. Chest imaging with CT (+contrast) or MRI (± contrast) at end of treatment and periodic imaging of primary site (based on estimated risk of locoregional recurrence)
    b. Chest imaging and imaging of primary site with CT (+contrast) or MRI (± contrast) as clinically indicated
5. Stage II, III or select stage IV (any T, N1, M0), resectable with adverse functional outcomes **OR** unresectable primary disease surveillance imaging includes **ANY** of the following:
    a. Baseline and periodic imaging of primary site as clinically indicated
    b. Chest imaging with CT (+contrast) or MRI (± contrast) as clinically indicated
6. Stage IV synchronous disease imaging surveillance includes **ANY** of the following:
    a. Chest and other known metastatic sites imaging with CT (+contrast) or MRI (± contrast) as clinically indicated
    b. MRI (± contrast) (preferred) and/or CT (+ contrast) at baseline and periodically (frequency based on estimated recurrence)

CT Lower Extremities Procedure Codes

Table 1. CT Lower Extremity Associated Procedure Codes

CODE	DESCRIPTION
73700	Computed tomography, lower extremity; without contrast material
73701	Computed tomography, lower extremity; with contrast material(s)
73702	Computed tomography, lower extremity; without contrast material, followed by contrast material(s) and further sections

CT Lower Extremities Summary of Changes

CT Lower Extremities guideline had the following version changes from 2023 to 2024:

- Added the following to keep in line with current research:
    - "Achilles tendon" indication
    - "Anterior talofibular ligament" indication
    - "Crystalline arthropathy" indication

  - Indications under "Cancer"
  - "Joint prosthesis" indication
  - Pediatric specific indications
  - "Vascular malformations" indication
- Removed the following as the indication is no longer supported by current research:
  - "Congenital malformation" indication
  - "Intraarticular fracture" indication
  - "Muscle or tendon rupture" indication
- Mid-cycle update: added Pediatric Preamble and pediatric indications

CT Lower Extremity Definitions

Abscess is a swollen area within body tissue, containing an accumulation of pus.
Achilles tendon is the tendon that connects the calf muscles to the heel bone. It's located at the back of the leg, above the ankle. The medical name for the Achilles tendon is the calcaneal tendon.
Anterior cruciate ligament (ACL) is a ligament in the center of the knee that prevents the shin bone (tibia) from moving forward on the thigh bone (femur).
Anterior drawer test is a common orthopedic test to assess for anteror cruciate ligament tears. Anterior drawer test is performed by having a person lay on their back with knees flexed between 80 degrees and 90 degrees. The examiner sits on the person's feet, grasps the tibia and pulls it forward. If the tibia pulls forward more than normal, the test is considered positive.
Anterior talofibular ligament (ATFL) is a ligament in the ankle that's part of the lateral collateral ligament complex. It's one of three ligaments in the complex, along with the posterior talofibular ligament (PTFL) and the calcaneofibular ligament. Most sprains affect the ATFL, and it's the weakest of the lateral collateral ankle ligaments.
Anterior inferior tibiofibular ligament (AITFL) is one of the ligaments that stabilize the tibiofibular syndesmosis, contributing to ankle stability.
Apley test refers to a compression test used to evaluate meniscal problems or injuries in the knee.
Arthrocentesis is the surgical puncture of a joint especially for aspiration of fluid from the joint.
Avascular necrosis is localized death of bone tissue due to impaired or disrupted blood supply (as from traumatic injury or disease).
Baker cyst refers to a fluid-filled cyst that causes a bulge and a feeling of tightness behind the knee.

Bursitis is swelling of the fluid filled sac or sac-like cavity that reduces friction between moving parts in the joints.

Charcot joint is a progressive, degenerative condition that affects one or more joints especially of the foot or ankle, is marked by bone fragmentation, swelling, redness, pain, and joint deformity, and typically occurs following loss of nerve sensation associated with various diseases (such as diabetes, syphilis, and spina bifida).

Computed tomography (CT) refers to a computerized X-ray imaging procedure in which a three-dimensional image of a body structure is revealed through a series of cross-sectional images or "slices."

Computed tomography (CT) scanogram is a diagnostic procedure that uses rotating X-ray beams to create cross-sectional images of the body. The images can then be used to create a three-dimensional image.

Congenital is a condition or trait present from birth.

Conservative management is an approach to treating pain utilizing non-surgical treatment options such as physical therapy, medication and injections, for a designated time, usually 4 to 6 weeks.

Cotton test is designed to test for syndesmosis instability caused by the separation of the tibia and fibula. Cotton test is a manual stress test used to identify the amount of lateral translation of the talus within the ankle mortise. The examiner stabilizes the proximal ankle while shifting the talus laterally.

C-reactive protein (CRP) is a pentameric protein synthesized by the liver, whose level rises in response to inflammation.

Crystalline arthropathy is a joint disorder caused by deposits of crystals in joints and the soft tissues around it.

Cyst is a closed sac having a distinct membrane and developing abnormally in a cavity or structure of the body.

Delayed union fracture is healing of a fracture that takes longer than expected, usually 4 to 6 months, that is demonstrated between 2 sets of X-rays.

Dislocation is a separation of two bones where they meet at a joint. This injury can be very painful and can temporarily deform and immobilize the joint.

Dorsiflexion external rotation stress test (Kleiger's test) determines rotator damage to the deltoid ligament or the distal tibiofibular syndesmosis.

Electromyogram (EMG) is a test that converts the electrical activity associated with functioning skeletal muscle into a visual record or into sound used to diagnose neuromuscular disorders and in biofeedback training.

Erythrocyte sedimentation rate (ESR) is a commonly performed hematology test that may indicate and monitor an increase in inflammatory activity within the body caused by one or more conditions such as autoimmune disease, infections or tumors.

Femoroacetabular impingement is a condition in which extra bone grows along one or both of the bones that form the hip joint, giving the bones an irregular shape and causing them to rub together during movement.

Flatfoot deformity is a condition in which the arch of the instep is flattened so that the entire sole rests upon the ground.

Friable means tissue that is easily irritated and more likely to tear, bleed, or become inflamed.

Glycogen storage disease is a rare metabolic disorder that prevents the body from storing or breaking down glycogen, a type of sugar. GSD affects the liver, muscles, and other parts of the body, depending on the type.

Gout is a metabolic disease marked by a painful inflammation of the joints, deposits of urates in and around the joints, and usually an excessive amount of uric acid in the blood.

Hemarthrosis is a hemorrhage into a joint.

Hip impingement, or femoroacetabular impingement (FAI), occurs when the femoral head (ball of the hip) pinches up against the acetabulum (cup of the hip). When this happens, damage to the labrum (cartilage that surrounds the acetabulum) can occur, causing hip stiffness and pain, and can lead to arthritis.

Indeterminate findings are inconclusive or insufficient for treatment planning.

Insufficiency fracture are a subtype of stress fractures commonly associated with osteoporosis and Vitamin D deficiency.

Ischemia is a deficient supply of blood to a body part (such as the heart or brain) due to obstruction of the inflow of arterial blood.

Labrum is a rim of soft tissue or fibrous cartilage that surrounds the socket of a ball and socket joint to make it more stable. A labrum gives more support to hold the bones in their proper places. The ligaments that help hold the joint together attach to the labrum.

Lachman's sign is a physical examination maneuver used to assess the integrity of the anterior cruciate ligament in a suspected anterior cruciate ligament (ACL) injury.

Magnetic resonance imaging (MRI) is a non-invasive diagnostic technique that produces computerized images of internal body tissues and is based on nuclear magnetic resonance of atoms within the body induced by the application of radio waves.

McMurray's test is a series of knee and leg movements healthcare providers use to diagnose a torn meniscus. McMurray's sign is a test where a patient lies on his or her back with the knee completely flexed. The examiner rotates the foot fully outward while slowly extending the knee: a painful click in outward rotation indicates a torn medial meniscus; a painful click in inward rotation indicates a torn lateral meniscus.

Meniscus is a thin fibrous cartilage between the surfaces of some joints, such as the knee, wrist, acromioclavicular, stemoclavicular and temperomandibular.

Metallosis is a rare condition characterized by the deposition and build-up of metal debris in the soft tissues of the body associated with metal-on-metal (MOM) prosthetic devices. It can present with local/systemic symptoms and signs due to a chronic inflammatory host response.

Metastasis is the spread of a disease-producing agency (such as cancer cells) from the initial or primary site of disease to another part of the body.
Morton's neuroma is a painful condition that occurs when tissue around a damaged or irritated nerve in the foot thickens.
Myositis is a rare condition that causes muscle inflammation. It can cause muscle weakness, pain, and fatigue.
Neuropathy is damage, disease or dysfunction of one or more nerves, especially of the peripheral nervous system, that is typically marked by burning or shooting pain, numbness, tingling, muscle weakness or atrophy It is often degenerative and is usually caused by injury, infection, disease, drugs, toxins or vitamin deficiency.
Nerve conduction study (NCS) is a test that measures how fast an electrical impulse moves through the nerve and can identify nerve damage.
Non-diagnostic is a result that does not lead to a confirmed diagnosis.
Non-union fracture is demonstrated by no healing between two sets of x-rays. Incomplete healing by 6 to 8 months is non-union.
Occult fracture is a suspected broken bone that doesn't show up on X-rays.
Osteochondral is relating to or composed of bone and cartilage.
Osteochondritis dissecans is a joint disorder in which a segment of bone and cartilage starts to separate from the rest of the bone after repeated stress or trauma. The fragment may stay in place or fall into the joint space.
Osteoid osteoma is a benign (non-cancerous), small tumor that usually grows in the long bones of a person's lower extremities. The thighbone is the most common location, although it can occur in the bones of the hand, and it sometimes occurs in the lower part of the spine
Osteomyelitis is an infectious, inflammatory disease of bone. It is often painful, bacterial in origin and may result in the death of bone tissue.
Osteonecrosis is localized death of bone tissue due to impaired or disrupted blood supply.
Pathological fracture is a broken bone caused by disease, often by the spread of cancer to the bone.
Patellarfemoral apprehension test is used to test whether the patella is likely to dislocate laterally.
Pediatric approximate ages are defined by the US Department of Health (USDH), the Food and Drug Administration (FDA), and the American Academy of Pediatrics (AAP) as the following:

- Infancy, between birth and 2 years of age
- Childhood, from 2 to 12 years of age
- Adolescence, from 12 to 21 years of age, further defined by the AAP into:
    1. Early (ages 11–14 years)
    2. Middle (ages 15–17 years),

3. Late (ages 18–21 years)
4. Older ages may be appropriate for children with special healthcare needs.

Pivot shift test is a dynamic but passive test of knee stability, carried out by the examiner without any activity of the person. It shows a dysregulation between rolling and gliding in the knee joint. The person lies in a supine position. The movement is a combination of axial load and valgus force, applied by the examiner, during a knee flexion from an extended position. When the test is positive, it indicates an injury of the anterior cruciate ligament.

Posterior cruciate ligament (PCL) is a ligament in the back of the knee that connects the thighbone to the shinbone. It's one of several ligaments in the knee. PCL injuries can occur when the knee is bent beyond its normal range of motion.

Posterior drawer test is used to assess for posterior cruciate ligament tears. Posterior drawer test is performed when the person is supine and the knee to be tested is flexed to approximately 90 degrees. The examiner then sits on the toes of the tested extremity to help stabilize it. The examiner grasps the proximal lower leg, approximately at the tibial plateau or joint line with the thumbs placed on the tibial tuberosity. Then the examiner attempts to translate the lower leg posteriorly. The test is considered positive if there is a lack of end feel or excessive posterior translation.

Posterior sag sign (gravity Drawer test) tests for rotary instability posteriorly and/or torn posterior cruciate ligament (PCL). In a supine position, the subject's hip and knee are flexed to 90° while the examiner supports the leg under the lower calf or heel in the air. A positive sign is a posterior sag of the tibia caused by gravitational pull.

Pseudotumor is a medical term that means "false tumor". It's an abnormality that looks like a tumor, such as a temporary swelling.

Recurrence is a new occurrence of something that happened or appeared before.

Rheumatoid arthritis (RA) is an autoimmune disease (usually chronic) that is characterized by pain, stiffness, inflammation, swelling and sometimes destruction of the joints.

Septic arthritis is an infection in the joint (synovial) fluid and joint tissues.

Sickle cell disease is a chronic anemia that occurs in individuals who are homozygous for the gene controlling hemoglobin S (eg, African or Mediterranean descent). It is characterized by destruction of red blood cells and by episodic blocking of blood vessels by the adherence of sickle cells to the vascular endothelium. This causes the serious complications of the disease (such as organ failure).

Squeeze test is a clinical test for detecting "stable" syndesmosis injuries. The test compresses the proximal fibula against the tibia to assess the integrity of the bones, interosseus membrane, and syndesmotic ligaments. Pain occurs with fracture or diastasis and is considered positive.

Staging in cancer is the process of determining how much cancer is within the body (tumor size) and if it has metastasized (spread).

Stress fracture is a tiny crack in a bone caused by repetitive force, often from overuse — such as repeatedly jumping up and down or running long distances.
Stress X-rays are special X-ray views, in which a radiograph of the part examined is done after applying requisite stress. Stress views are important in the evaluation of ligamentous tears, joint stability and fracture unions. Stress views are done after applying force. The direction of the force depends on the part examined and the purpose of the X-ray.
Syndesmotic injury also known as a high ankle sprain, is a traumatic injury to the ligaments that bind the distal tibia and fibula. These injuries can occur with any ankle motion, but are most common with extreme external rotation or dorsiflexion of the talus.
Synovial chondromatosis (SC) is a rare, non-cancerous condition that causes cartilage to develop in the synovial membrane of joints, tendon sheaths, or bursae. SC can lead to severe disability and dysfunction of the affected joint.
Tarsal coalition is an abnormal connection between two or more bones in the back of the foot.
Thessaly test is a clinical examination used to detect meniscal tears in the knee.
Thompson test is used in lower limb examination to test for the rupture of the Achilles tendon. The person lies face down with feet hanging off the edge of the bed. If the test is positive, there is no movement of the foot (normally plantarflexion) on squeezing the corresponding calf, signifying likely rupture of the Achilles tendon.
Ulcerated is a break in the skin or mucous membrane with loss of surface tissue, disintegration and necrosis of epithelial tissue and often pus.
Ultrasound is the diagnostic or therapeutic use of ultrasound and especially a noninvasive technique involving the formation of a two-dimensional image used for the examination and measurement of internal body structures and the detection of bodily abnormalities.
Valgus stress sign is a test of medial collateral ligament integrity, where a passive force is exerted on a joint that, in the presence of ligamentous insufficiency, would cause the medial joint space to open.
Varus stress sign is a test of lateral collateral ligament integrity, where a passive force is exerted on a joint that, in the presence of ligamentous insufficiency, would cause the lateral joint space to open (eg, lateral collateral ligament of the knee and radial collateral ligament of the elbow).

CT Lower Extremities References

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