Dupuytren contracture is associated with which of the following?

A. Arthritis  
B. Epilepsy  
C. Myositis  
D. Smoking

- Dupuytren contracture is caused by thickening and shortening of the palmar fascia and results in a flexion contracture of the MCP and PIP joints. It is associated with alcoholism, epilepsy, and diabetes.
- The incidence of Dupuytren disease is 2-3 times higher in individuals with epilepsy.
- The disease is commonly known as “viking’s disease” because it occurs more in people whose ancestors come from northern Europe.

What is the name for an abnormal fibrous hyperplasia and contracture of the palmar fascia that causes a flexion contracture of the metacarpophalangeal (MCP) and proximal interphalangeal (PIP) joints?

A. Dupuytren’s contracture  
B. Trigger finger  
C. Charcot joint  
D. De Quervain’s tenosynovitis

- ___________ is an abnormal fibrous hyperplasia and contracture of the palmar fascia that causes a flexion contracture of the MCP and PIP joints.
- It is more common in white men age 50 to 70.
- It is associated with alcoholism, pulmonary tuberculosis, epilepsy, and diabetes mellitus.
- It is painless, but can cause functional problems.

<table>
<thead>
<tr>
<th>Dupuytren’s contracture</th>
<th>Trigger finger</th>
</tr>
</thead>
<tbody>
<tr>
<td>The palmar fascia thickens and draws in which causes the affected finger to bend toward the palm. Small hard knots can form just under the skin at the base of the finger.</td>
<td>Each tendon is surrounded by a protective sheath. Trigger finger occurs when the affected finger’s tendon sheath becomes irritated and inflamed.</td>
</tr>
<tr>
<td>The ring fingers are most commonly affected.</td>
<td>This interferes with the normal gliding motion of the tendon through the sheath.</td>
</tr>
</tbody>
</table>
• Diffuse idiopathic skeletal hyperostosis (DISH) is a condition characterized by calcification and ossification of ligaments and enthuses (ligament and tendon insertion sites); mainly affecting the vertebral column.

<table>
<thead>
<tr>
<th>Idiopathic</th>
<th>Skeletal</th>
<th>Hyperostosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>unknown cause</td>
<td>relating to skeleton</td>
<td>excessive growth of bone</td>
</tr>
</tbody>
</table>

A 65-year-old male presents to clinic with complaints of a chronic stiff neck and dysphagia. He is HLA-B27, rheumatoid factor, and ANA negative. Which of the following diagnoses best explains the patient's symptoms?

A. Rheumatoid arthritis  
B. Ankylosing spondylitis  
C. Diffuse idiopathic skeletal hyperostosis  
D. Enteropathic arthropathy

• Diffuse idiopathic skeletal hyperostosis (DISH) is characterized by pre-spinous ossifications along the anterolateral structures (ie, anterior longitudinal ligament) of three or more vertebral segments, sparing the intervertebral discs, and most commonly seen in the thoracic spine. Significant anterior ossifications in the cervical spine may compress the esophagus causing dysphagia.  
• DISH is not associated with HLA-B27 positivity, apophyseal joint ankylosis, or sacroiliac joint erosions which distinguishes it from ankylosing spondylitis. Approximately 10-20% of patients with Crohn's disease or ulcerative colitis will develop enteropathic arthropathy affecting the larger joints of the lower extremity.

A 65-year-old woman complains of chronic back pain for “decades” and increased difficulty with movement. There is no history of recent trauma. Radiographs of her thoracolumbar spine are taken and demonstrate relative preservation of disc height along with continuous calcifications along the anterolateral areas. The sacroiliac joints are unremarkable. What is her diagnosis?

A. Ankylosing spondylitis  
B. Spondylosis deformans  
C. Intervertebral osteochondrosis  
D. Diffuse idiopathic skeletal hyperostosis

• Radiographs of diffuse idiopathic skeletal hyperostosis (DISH) demonstrate calcification of the anterior longitudinal ligament. Criteria for DISH include the relative preservation of intervertebral disk height, flowing anterolateral calcifications of at least 4 continuous vertebral levels, and the absence of sacroiliac joint erosions.  
• It differs from ankylosing spondylitis by the lack of involvement of the sacroiliac joint (erosions, sclerosis). Spondylosis deformans results in the formation of large osteophytes along the vertebral bodies which are typically right-sided with initial horizontal orientation. Intervertebral osteochondrosis is a primary degenerative disease of the nucleus pulposus.
Which of the following organisms has been identified as the cause of Lyme disease?

A. Borrelia burgdorferi
B. Streptococcus pyogenes
C. Neisseria meningitidis
D. Babesia microti

- Lyme disease is a tick-borne illness caused mostly by ___________ in the United States.
- The early stage of Lyme disease involves formation of erythema migrans, a characteristic skin lesion that develops within 2 weeks to a month of exposure.
- Later stages can involve neurological and cardiac symptoms along with persistent arthritis involving large joints such as the knee.
What is the most common neurologic manifestation of Lyme disease in the United States?
A. Stroke  B. Bell’s palsy  C. Trigeminal neuralgia  D. Guillian-Barre syndrome

- Lyme disease is a tick-borne infection from Borellia burgdorferi. Occasionally, patients can develop neurological involvement and, in this case, the patient developed a Bell's palsy. Bilateral Bell's palsy should raise suspicion for Lyme disease.
- Neurologic manifestations include peripheral neuropathies, radiculopathies, and mononeuritis multiplex.

Which of the following is true of gouty arthritis?
A. Calcium pyrophosphate dihydrate crystals are found in joint fluid  B. Female predominance  C. Allopurinol can be used during an attack  D. Tophi (deposits of uric acid crystals) may be present

- ________ can be seen in gout.
- Calcium pyrophosphate dihydrate crystals are seen in pseudogout. Gout has a male predominance. Allopurinol is used to lower serum uric acid and prevent or decrease attacks, but is not used for an acute attack.

<table>
<thead>
<tr>
<th>Gout</th>
<th>Pseudogout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monosodium urate</td>
<td>Calcium pyrophosphate dihydrate</td>
</tr>
<tr>
<td>Needle-shaped crystals</td>
<td>Rhomboid-shaped crystals</td>
</tr>
</tbody>
</table>

Gout commonly involves which of the following areas?
A. Knee  B. Toe  C. Elbow  D. Fingers

- Gout is an inflammatory arthritis most commonly found in the metatarsophalangeal joint at the base of the big toe, also termed Podagra. Gout is caused by elevated levels of uric acid in the blood, which crystallizes into monosodium urate monohydrate crystals. These crystals are deposited into joints, most commonly the great toe. Causes include genetic predisposition, medications such as diuretics, increased alcohol consumption, and high purine diets.
- During an acute gouty attack, the great toe can become red, tender, and swollen. Acute gouty attacks can be treated with nonsteroidal anti-inflammatory drugs (NSAIDs), colchicine, and steroids. For long-term prevention, xanthine oxidase inhibitors such as allopurinol would be indicated.

<table>
<thead>
<tr>
<th>Low-Purine Diet for Gout</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eat more</td>
</tr>
<tr>
<td>Fruits</td>
</tr>
<tr>
<td>Vegetables</td>
</tr>
<tr>
<td>Whole grains</td>
</tr>
<tr>
<td>Low-fat dairy</td>
</tr>
<tr>
<td>Low sodium</td>
</tr>
<tr>
<td>Nuts</td>
</tr>
</tbody>
</table>

- Purines are substances in animal and plant foods that your body converts to uric acid. If you can't flush the uric acid out through your kidneys, it can build up in the bloodstream and be deposited as needle-shaped crystals in your joints.
- These crystals cause the severe inflammation and intense pain of a gout attack.
Hyperuricemia is an excess of uric acid in the blood. Uric acid passes through the liver, and enters your bloodstream. Normal uric acid levels are 2.4-6.0 mg/dL (female) and 3.4-7.0 mg/dL (male). Normal values will vary from laboratory to laboratory. Most of it is excreted (removed from your body) in your urine, or passes through your intestines to regulate "normal" levels.

Purines are nitrogen-containing compounds, which are made inside the cells of your body (endogenous), or come from outside of your body, from foods containing purine (exogenous). Purine breaks down into uric acid. Increased levels of uric acid from excess purines may accumulate in your tissues, and form crystals. This may cause high uric acid levels in the blood.

What should the serum uric acid level (mg/dl) be lowered to in patients with joint pain symptoms related to gout?

A. 6  B. 8  C. 10  D. 12

The American College of Rheumatology recommends that the serum uric acid level be lowered to at least 6 mg/dl in patients experiencing joint pain related to gout.

Which medication class can be associated with precipitation of gout flare?

A. Statins  B. Loop diuretics  C. Beta blockers  D. ACE inhibitors

Loop diuretics and thiazide diuretics can lead to hyperuricemia and precipitate a gout flare.

Indomethacin is used to relieve pain, swelling, and joint stiffness caused by arthritis, gout, bursitis, and tendonitis. Reducing these symptoms helps you do more of your normal daily activities. This medication is known as a NSAID.

An afebrile patient presents with extreme pain and swelling of the first metatarsophalangeal (MTP) joint. Treatment for this acute attack includes:

A. Indomethacin  B. Allopurinol  C. Probenecid  D. Febuxostat

The patient has gout, and acute attack treatments include Indomethacin, corticosteroids, and colchicine. Prophylactic treatment for gout: Allopurinol, Probenecid, Febuxostat.
A 50-year-old male with an acute flare of gouty arthritis affecting his knee returns to clinic requesting exercise recommendations. Physical examination reveals a slightly warm and swollen joint. His primary care physician provided him with prescriptions for indomethacin and colchicine. Which form of strength training would you recommend?

A. Isotonic
B. Isokinetic
C. Isometric
D. Isolated

- **Isometric** exercises will cause the least amount of joint inflammation and pain. These exercises are performed with no visible joint movement and can restore and maintain muscle strength with minimal work, fatigue, and stress to the joint.
- **Isotonic** (constant weight through joint's ROM with variable speed) and **isokinetic** (constant speed through joint's ROM with variable resistance) exercises should be avoided as they may exacerbate a symptomatic flare.

Pseudogout commonly involves which of the following areas?

A. Elbow
B. Fingers
C. Knee
D. Toe

- **Pseudogout** commonly involves the knee and wrist as opposed to **gout**, which usually affects the big toe (termed podagra).
- **Pseudogout** is inflammation caused by calcium pyrophosphate crystals. **Gout** is inflammation caused by monosodium urate monohydrate crystals. Both can be diagnosed with aspirated synovial fluid.
- **Pseudogout** presents with acute joint swelling and pain commonly in the knee, but can also affect the wrist, shoulders, and hip.
Milwaukee shoulder syndrome (MSS) is a rare destructive, calcium phosphate crystalline arthropathy. Milwaukee shoulder refers to a destructive shoulder arthropathy due to deposition of hydroxyapatite crystals, and identification of these crystals in synovial fluid is the cornerstone of diagnosis.

A 75-year-old female presents to clinic with a large, cool synovial effusion of her right shoulder. Physical examination is significant for pain-limited range of motion (ROM) and profound rotator cuff muscle weakness. X-rays of the patient's shoulder reveal superior subluxation of the humeral head, extensive bony destruction of the glenohumeral joint, soft-tissue effusion, and calcific deposits. The most likely diagnosis is:

A. Osteonecrosis  B. Lyme disease  C. Pseudogout  D. Charcot arthropathy

The patient presents with a classic "Milwaukee shoulder" - an apatite-associated destructive arthritis. The role of calcium phosphate crystals in the pathogenesis of this arthritis remains uncertain. Typically, patients are elderly women and manifest large, cool synovial effusions, severe radiographic damage, and large rotator cuff tears. Chronic musculoskeletal manifestations of Lyme disease may include bursitis and tendinitis, but not a destructive arthritis as depicted in the vignette. There was no history given alluding to a diagnosis of osteonecrosis of the humeral head or a neuropathic arthropathy (ie, Charcot arthropathy).

A joint aspiration (arthrocentesis): A joint aspiration is a procedure whereby a sterile needle and syringe are used to drain synovial fluid from a patient's joint.

<table>
<thead>
<tr>
<th>Gout</th>
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</tr>
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<tbody>
<tr>
<td>Gout is caused by Sodium urate crystals.</td>
<td>Pseudogout is caused by deposits of crystals called Calcium pyrophosphate.</td>
</tr>
<tr>
<td>The affected joints include knees, ankle, wrist, hand, elbow and toes.</td>
<td>The affected joints include toes, wrist, shoulder, knee, ankle and fingers.</td>
</tr>
<tr>
<td>Gout can be observed in men between ages 40 and 60. Women rarely develop gout before menopause.</td>
<td>In the idiopathic form, Pseudogout occurs in middle-aged or elderly people (65 – 75). If it occurs in young patients, it would be observed in the hereditary form and could be the form associated with other disorders.</td>
</tr>
<tr>
<td>Serum urate is high in gout</td>
<td>Serum urate is normal in pseudogout</td>
</tr>
</tbody>
</table>

A 45-year-old patient with a history of hyperparathyroidism presents with recurrent episodes of knee pain. X-rays reveal chondrocalcinosis of the medial and lateral menisci. The most likely diagnosis which would account for the patient's pain and x-ray findings is

A. Osteoarthritis  B. Gout  C. Paget's disease  D. Pseudogout

A definitive diagnosis of CPPD arthropathy (ie, pseudogout) requires the identification of CPPD crystals from joint fluid; however, the radiologic findings in this case are diagnostic. CPPD deposition disease can be associated with hyperparathyroidism, hemochromatosis, and amyloidosis. It is weakly associated with hypothyroidism. Chondrocalcinosis is not seen in osteoarthritis, monosodium urate crystal arthropathy (ie, gout), or Paget's disease.
A patient presents with symmetric inflammation of bilateral knee joints. Fluid aspirate microscopy reveals positive birefringent crystals. Which of the following conditions are associated with this synovitis?

A. Hyperthyroidism  
B. Hyperparathyroidism  
C. Hypermagnesemia  
D. Hyperphosphatemia

* The patient has pseudogout, which is associated with hyperparathyroidism, hypothyroidism, hypomagnesemia, hypophosphatemia, hemochromatosis, and amyloidosis.

A definitive diagnosis of gout is based upon the identification of monosodium urate crystals in synovial fluid or a tophus. All synovial fluid samples obtained from undiagnosed inflamed joints by arthrocentesis should be examined for these crystals. Under polarized light microscopy, they have a _______-like morphology and strong _______ birefringence. This test is difficult to perform and requires a trained observer.

A. Needle, Negative  
B. Rhomboid, Positive  
C. Needle, Positive  
D. Rhomboid, Negative

* Birefringence is the optical property of a material having a refractive index that depends on the polarization and propagation direction of light.