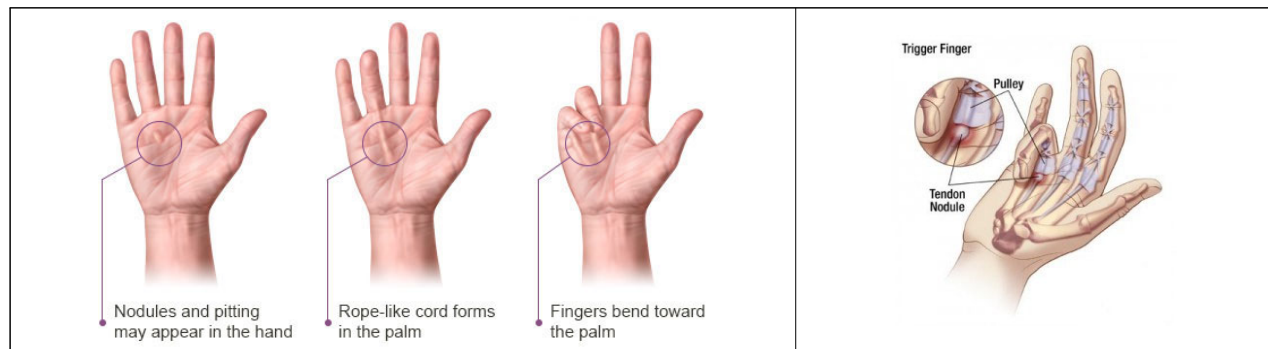


Dupuytren contracture is associated with which of the following?

- 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.


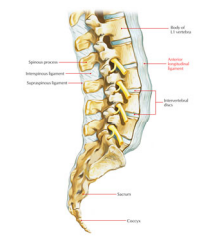


What is the name for an abnormal fibrous hyperplasia and contracture of the palmar fascia that causes a flexion contracture of the metacarpophalangeal (MCP) and proximal interphalangeal (PIP) joints?

- 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.

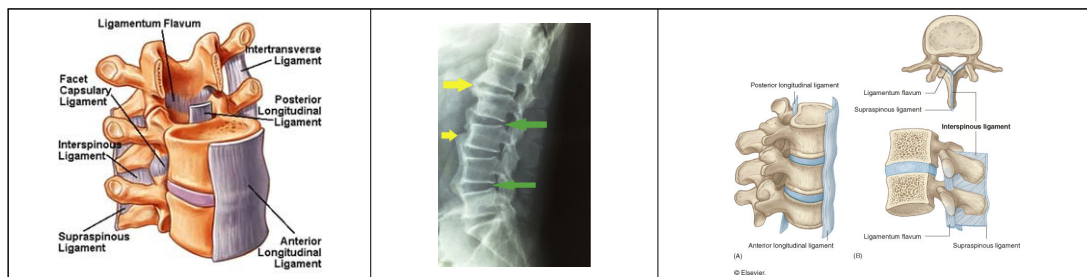
Dupuytren's contracture	Trigger finger
<ul style="list-style-type: none"> • The palmar fascia thickens and draws in which causes the affected finger to bend toward the palm. Small hard knots can form just under the skin at the base of the finger. • The ring fingers are most commonly affected. 	<ul style="list-style-type: none"> • Each tendon is surrounded by a protective sheath. Trigger finger occurs when the affected finger's tendon sheath becomes irritated and inflamed. • This interferes with the normal gliding motion of the tendon through the sheath.

		<ul style="list-style-type: none"> Diffuse idiopathic skeletal hyperostosis (DISH) is a condition characterized by calcification and ossification of ligaments and entheses (ligament and tendon insertion sites); mainly affecting the vertebral column. 						
<table border="1"> <tr> <th>Idiopathic</th> </tr> <tr> <td>unknown cause</td> </tr> </table>	Idiopathic	unknown cause	<table border="1"> <tr> <th>Skeletal</th> </tr> <tr> <td>relating to skeleton</td> </tr> </table>	Skeletal	relating to skeleton	<table border="1"> <tr> <th>Hyperstosis</th> </tr> <tr> <td>excessive growth of bone</td> </tr> </table>	Hyperstosis	excessive growth of bone
Idiopathic								
unknown cause								
Skeletal								
relating to skeleton								
Hyperstosis								
excessive growth of bone								

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

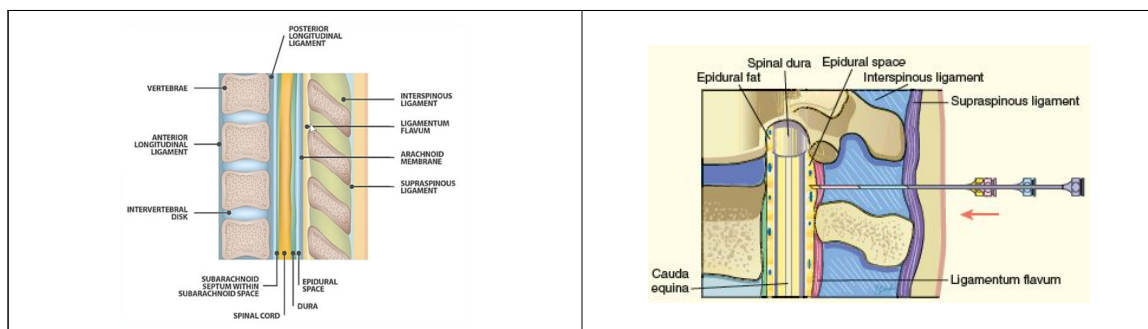
- Diffuse idiopathic skeletal hyperostosis (DISH)** is characterized by pre-spinous ossifications along the anterolateral structures (ie, anterior longitudinal ligament) of three or more vertebral segments, sparing the intervertebral discs, and most commonly seen in the thoracic spine. Significant anterior 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.

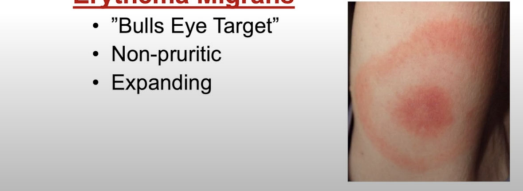


A 65-year-old woman complains of chronic back pain for "decades" and increased difficulty with movement. There is no history of recent trauma. Radiographs of her thoracolumbar spine are taken and demonstrate relative preservation of disc height along with continuous calcifications along the anterolateral 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.

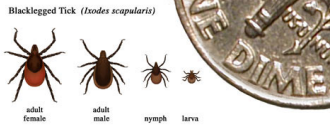

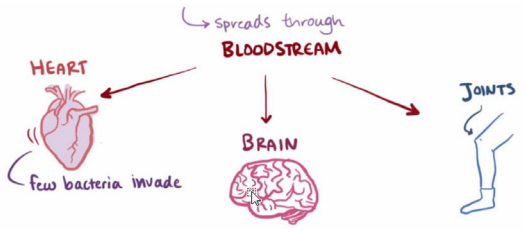


<ul style="list-style-type: none"> • Stage 1 • <i>Early Localized</i> • 7-14 Days after bite • Malaise, fatigue, headache, myalgias • Erythema Migrans <ul style="list-style-type: none"> • "Bulls Eye Target" • Non-pruritic • Expanding 	<ul style="list-style-type: none"> • Stage 2 • <i>Early disseminated</i> • ~Weeks • CNS <ul style="list-style-type: none"> • Ex. Bell's Palsy • Neuritis, Cranial nerve palsies, meningitis • Cardiac <ul style="list-style-type: none"> • "Lyme Carditis" • Myocarditis, AV block (1st, 2nd or 3rd) • Stage 3 • <i>Late persistent</i> • Months to Years • Arthritis (chronic) <ul style="list-style-type: none"> • Monoarticular or oligoarticular • Neurological symptoms <ul style="list-style-type: none"> • Neuropathy, Meningitis, Encephalopathy • Acrodermatitis chronica atrophicans (B. afzelii)
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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*

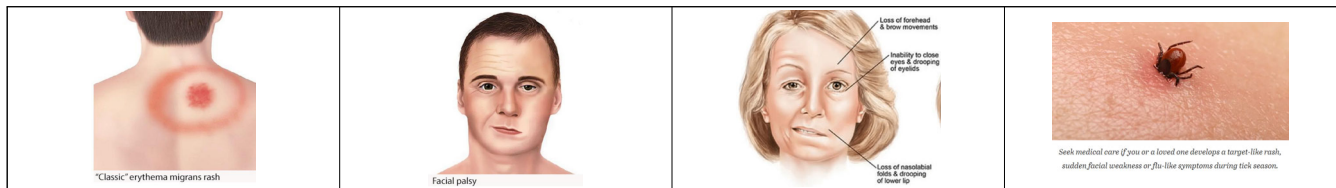
- Lyme disease is a tick-borne illness caused mostly by _____ in the United States.
- The early stage of Lyme disease involves formation of erythema migrans, a characteristic skin lesion that develops within 2 weeks to a month of exposure.
- Later stages can involve neurological and cardiac symptoms along with persistent arthritis involving large joints such as the knee.

Lyme disease		Post-Lyme disease
		
<ul style="list-style-type: none"> • Deer ticks can carry the bacteria (<i>Borrelia burgdorferi</i>) that causes Lyme disease. Lyme disease causes a rash, often in a <u>bull's-eye pattern</u>, and flu-like symptoms. Joint pain and weakness in the limbs also can occur. • Most people with Lyme disease recover completely with appropriate antibiotic treatment. For those who develop syndromes after their infection is treated, pain medications may provide symptomatic relief. 		<ul style="list-style-type: none"> • Although most cases of Lyme disease can be cured with a 2- to 4-week course of oral antibiotics, patients can sometimes have symptoms of pain, fatigue, or difficulty thinking that lasts for more than 6 months after they finish treatment. • This condition is called Post-Treatment Lyme Disease Syndrome (PTLDS).

A 35-year-old male with a history of Lyme disease that was treated adequately with antibiotics one year ago complains of continued muscle aches, joint pain, fatigue, and difficulty concentrating. His repeat Lyme serologies have been negative, as have all other laboratory tests. A full medical work-up by his internist was unremarkable. You recommend

- A. intravenous ceftriaxone for 28 days.
- B. sulfasalazine for his muscle and joint pains.
- C. intra-articular cortisone injections for joint pain.
- D. emotional support and symptom management.

- The patient has **post-Lyme disease syndrome**, which occurs in a minority of patients who have had Lyme disease. There is no specific treatment. Physicians should provide support and management of patient complaints.



What is the most common neurologic manifestation of Lyme disease in the United States?

- A. Stroke
B. Bell's palsy
C. Trigeminal neuralgia
D. Guillain-Barre syndrome

- Lyme disease** is a tick-borne infection from *Borrelia 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.

Gout	Pseudogout
Monosodium urate	Calcium pyrophosphate dihydrate
Needle-shaped crystals	Rhomboid-shaped crystals

RIGHT Tophi on SP channel	SYSTEM 1				SYSTEM 3			
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	-	L	SP	2	-	L	LU	10
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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.

	Gout	Pseudogout
Joint involvement	Smaller joints	Larger joints
Pain	Intense	Moderate
Joint characteristic	Inflamed	Swollen
Typical characteristic	Hyperuricemia	Chondrocalcinosis
Synovial fluid	Uric acid crystals (negative birefringent crystals, needle-like shape)	Calcium pyrophosphate crystals (positive birefringent crystals, rhomboid-shaped)

Low-Purine Diet for Gout

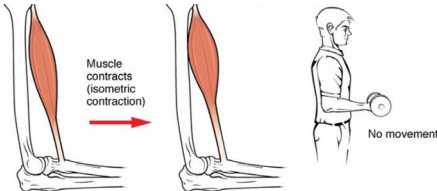
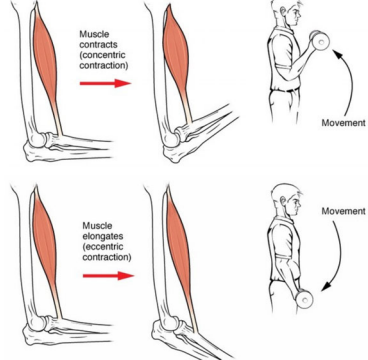

Eat More

- Fruits
- Vegetables
- Whole grains
- Low-fat dairy
- Legumes
- Nuts

Eat Less

- Shellfish
- Organ meats (liver)
- Alcoholic beverages
- Soft drinks

- 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.

Isometric	Isotonic	Isokinetic
Constant muscle length + No movement in the limb	Muscle length changes + Movement of a limb takes places	Muscle length changes + Constant velocity (with a machine)
		

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?

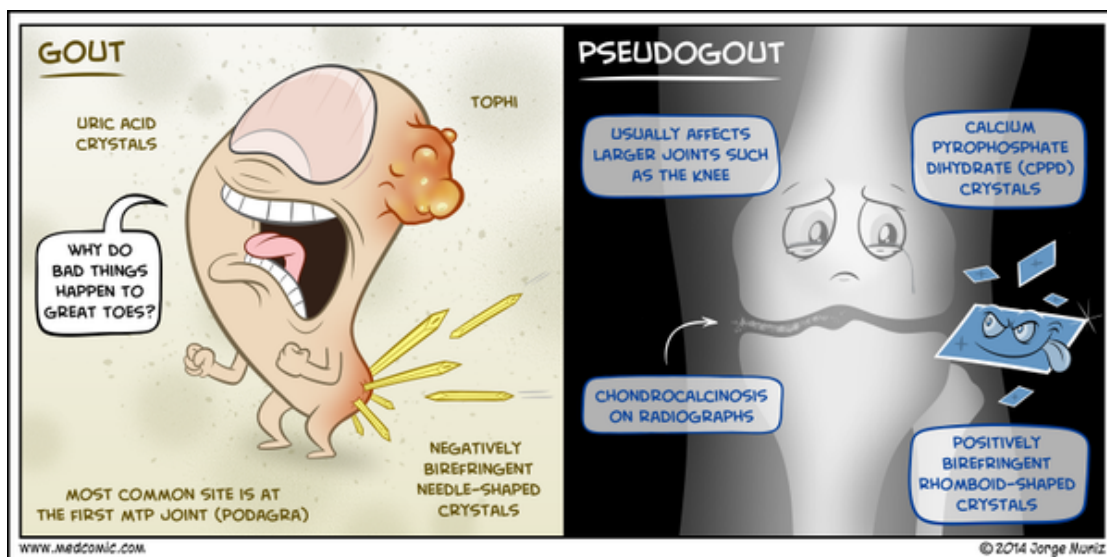
- A. Isotonic
- B. Isokinetic
- C. Isometric
- D. Isolated

- **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.





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).

Gout	Pseudogout
Gout is caused by Sodium urate crystals.	Pseudogout is caused by deposits of crystals called Calcium pyrophosphate.
The affected joints include knees, ankle, wrist, hand, elbow and toes.	The affected joints include toes, wrist, shoulder, knee, ankle and fingers.
Gout can be observed in men between ages 40 and 50. Women rarely develop gout before menopause.	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.
Serum urate is high in gout	Serum urate is normal in pseudogout.
Negatively birefringent needle shaped crystals.	Positively birefringent Rhomboid – shaped crystals.

The illustration shows a medical professional performing a joint aspiration on a patient's knee. A syringe is inserted into the joint, and fluid is being drawn out. A circular inset shows a microscopic view of the joint fluid, displaying numerous small, needle-shaped clefts characteristic of urate crystals. A microscope is also shown next to the inset. The text 'Microscopic analysis of joint fluid' is written below the inset. The text 'Joint Aspiration' is written below the procedure. The logo 'VERITAS health' is visible in the bottom left corner.



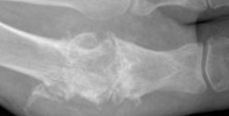
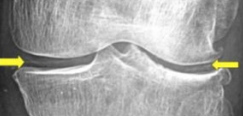
- Joint aspiration (arthrocentesis): A joint aspiration is a procedure whereby a sterile needle and syringe are used to drain synovial fluid from a patient's joint.

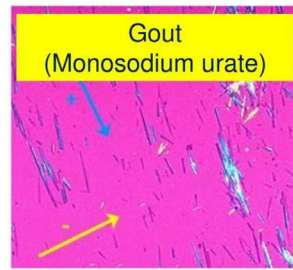
Gout	Pseudogout
Needle-like	Rhomboid

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

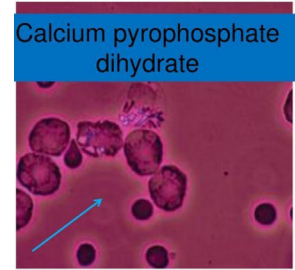
- A definitive diagnosis of **CPPD arthropathy (ie, pseudogout)** requires the identification of CPPD crystals from joint fluid; however, the radiologic findings in this case are diagnostic.
- CPPD deposition disease can be associated with hyperparathyroidism, hemochromatosis, and amyloidosis. It is weakly associated with hypothyroidism.
- Chondrocalcinosis is not seen in osteoarthritis, monosodium urate crystal arthropathy (ie, gout), or Paget's disease.

Characteristic	Gout	Pseudogout
Crystal composition	Uric acid	Calcium pyrophosphate
		
Crystal shape	Needle-like	Rhomboid
Birefringent	Negative	Weakly positive
Most common joint affected	1st MTP	Knee
Radiography	"Rat-bite" erosions	White lines of chondrocalcinosis
		
First line treatment	NSAID	NSAID



Gout
(Monosodium urate)

Strongly **negatively** birefringent
Needle-shaped crystals
(Yellow when parallel to
polarizer)



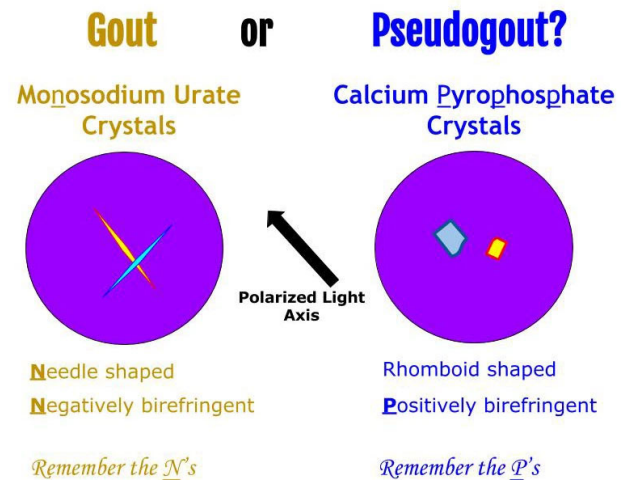
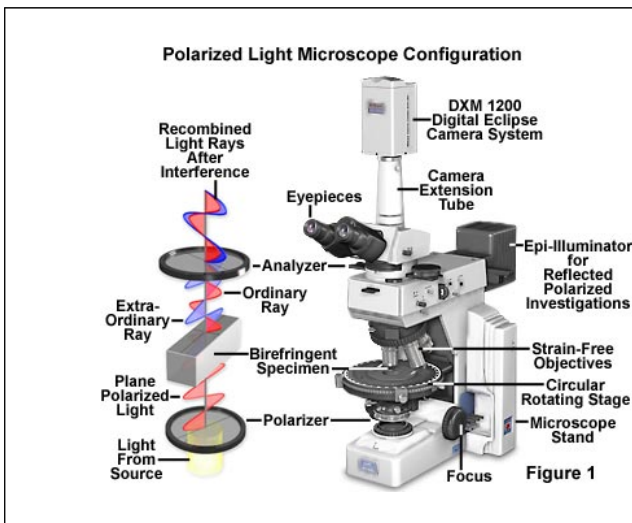
Calcium pyrophosphate
dihydrate

Weakly **positively** birefringent
Rhomboid-shaped crystals
(Blue when parallel to
polarizer)

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.