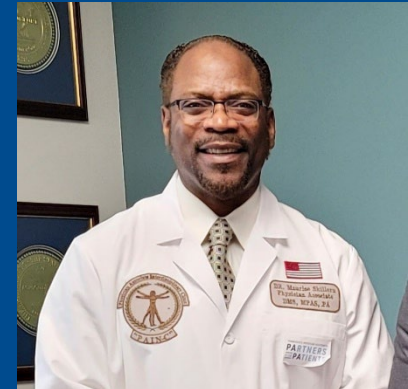


JOINT PAIN MANAGEMENT IN THE PRIMARY CARE SETTING

Date: Saturday, October 14, 2023

Presented by:

Dr. Maurice Skillern
DMS, MPAS, PA



LMU

DeBusk College of Osteopathic Medicine
LINCOLN MEMORIAL UNIVERSITY

VALUES | EDUCATION | SERVICE

Disclosures

- I have no actual or potential conflict of interest in relation to this program/presentation.
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Objectives

- Upon completion of this activity, participants should be able to do the following:
 - Identify normal and abnormal joint physiology
 - Identify the symptoms and signs of joint pain
 - Recognize common joint pain etiology
 - Determine the appropriate workup to diagnose the cause of Joint pain
 - osteoarthritis (OA)
 - Rheumatoid Arthritis
 - Osgood-Schlatter
 - Other
 - Determine appropriate treatment for joint pain management
 - Non-pharmacologic measures/treatment
 - Pharmacologic treatment
 - Chronic pain management (opioids / pain implants etc.)
 - Surgical intervention
 - Differentiate when to consult a joint pain patient to an orthopedic surgeon

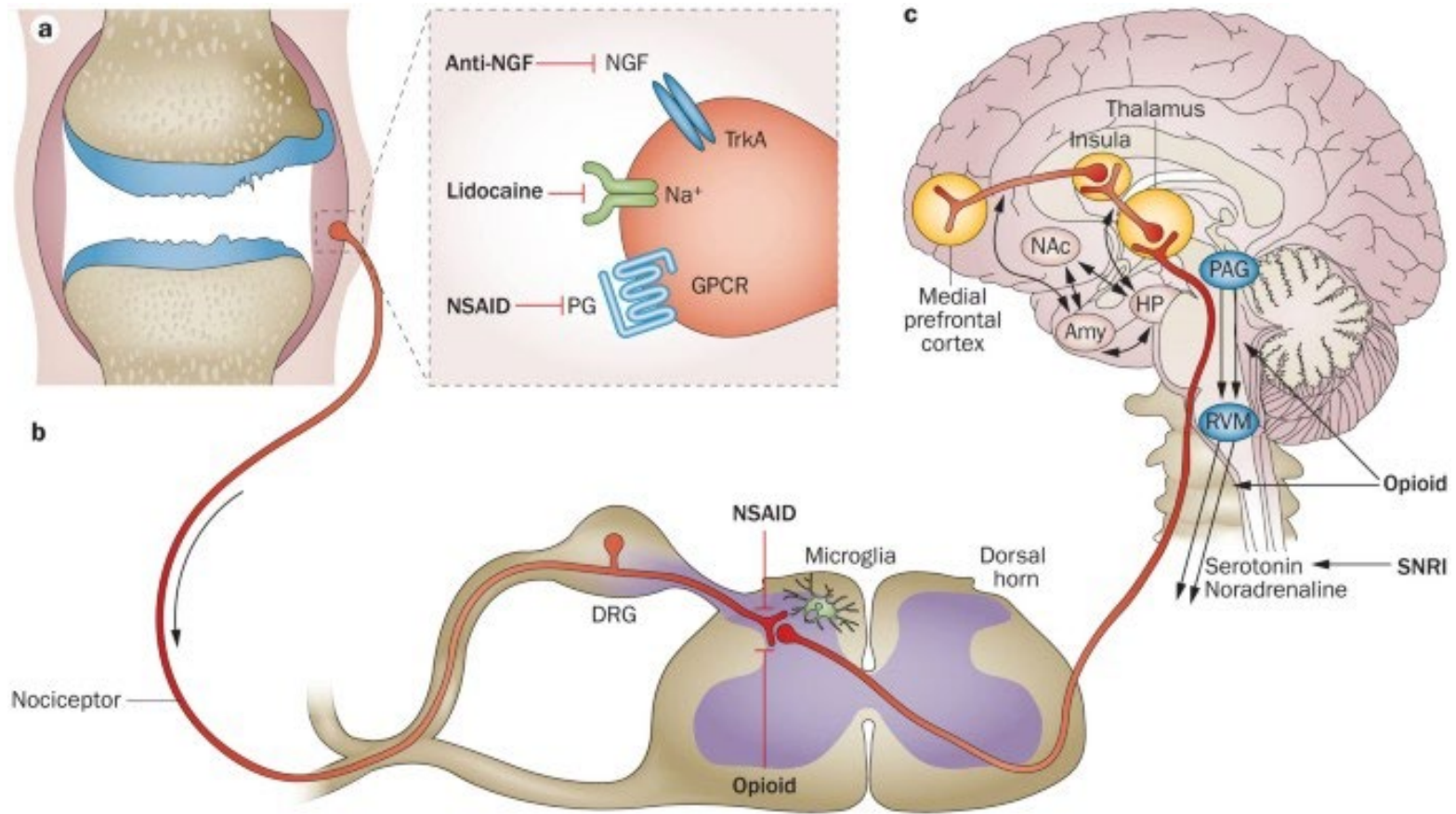
Joint Pain

- **Pain, in general.**

1. Pain is an unpleasant signal that something hurts. It is a complex experience that differs greatly from person to person, even between those with similar injuries and/or illnesses.
 - A. Pain can be very mild (Almost unnoticeable)
 - B. Explosive
2. The International Association for the Study of Pain defines pain as "an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage."
3. Pain motivates organisms to withdraw from damaging situations, to protect a damaged body part while it heals, and to avoid similar experiences in the future.
4. An Individual may experience pain as:
 - A. Pricking / Tingling / Stinging / Burning / Shooting
 - Aching / Electric sensations



Joint Pain



Types of Joints

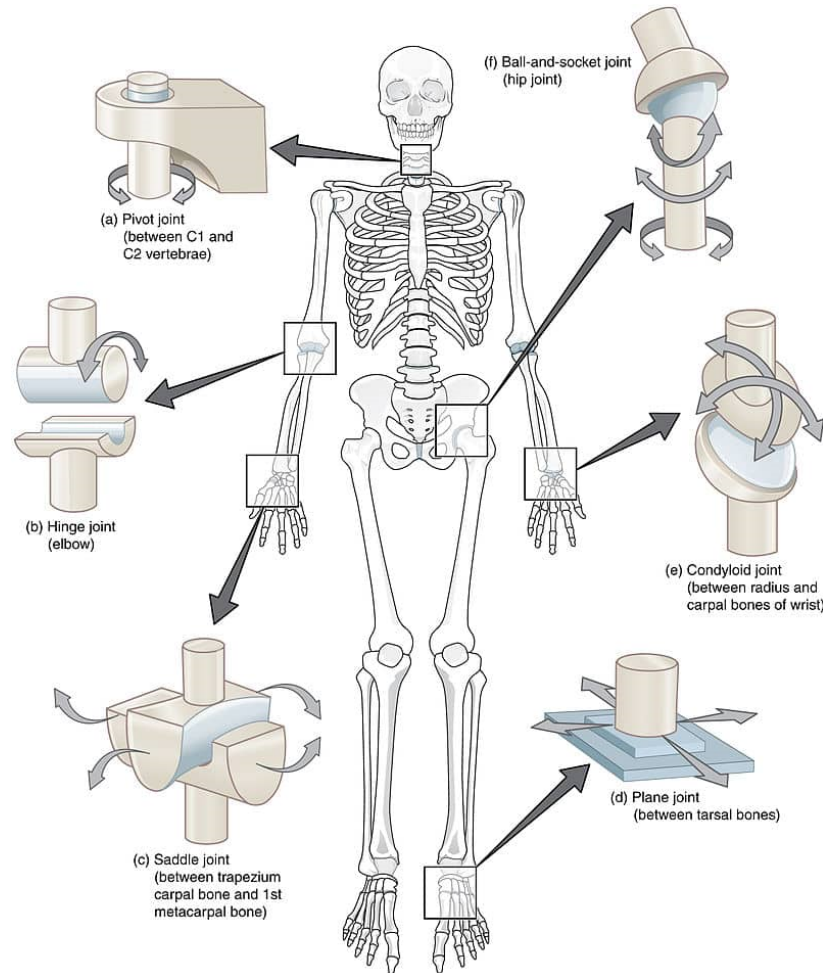
Joint Pain

- **Types of freely movable joints**

- **Ball and socket joint.** Permitting movement in all directions, the ball and socket joint features the rounded head of one bone sitting in the cup of another bone. Examples include the shoulder joint and the hip joint.
- **Hinge joint.** The hinge joint is like a door, opening and closing in one direction, along one plane. Examples include the elbow joint and the knee joint.
- **Condylloid joint.** The condylloid joint allows movement, but no rotation. Examples include the finger joints and the jaw.
- **Pivot joint.** The pivot joint, also called the rotary joint or trochoid joint, is characterized by one bone that can swivel in a ring formed from a second bone. Examples are the joints between the ulna and radius bones that rotate the forearm, and the joint between the first and second vertebrae in the neck.
- **Gliding joint.** The gliding joint is also called the plane joint. Although it only permits limited movement, it's characterized by smooth surfaces that can slip over one another. An example is the joint in the wrist.
- **Saddle joint.** Although the saddle joint does not allow rotation, it does enable movement back and forth and side to side. An example is the joint at the base of the thumb.

Joint Pain

- Types of freely movable joints



Joint Pain

1. Pain, in reference to joints
 1. Joint pain is a condition affecting any area of the body where two or more bones connect to form a joint.
 2. The human body contains over 300 joints
 3. Pain of joints can be sensed as:
 - Pricking
 - Tingling
 - Stinging
 - Burning
 - Shooting
 - Aching
 - Electric sensations



Joint Pain

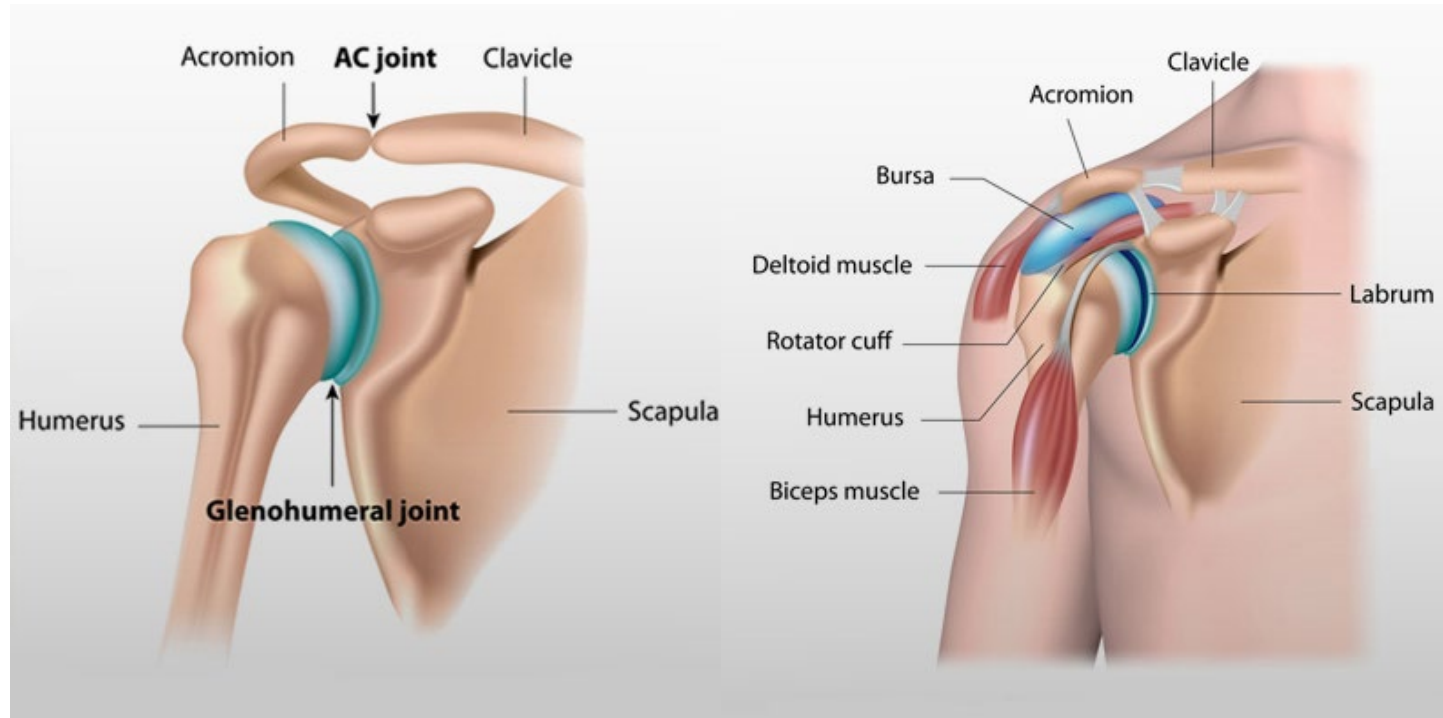
1. Joints include several kinds of supportive and moving parts.
2. They typically consist of fibrous connective tissue and cartilage.
 1. Other components
 1. Bone
 2. Muscle
 3. Tendons
 4. Tissue
 5. Cartilage
- ❖ Although muscles are not technically part of a joint, they are important because strong muscles help support and protect the joints.



Joint Pain

1. Any part of the joint can be a source of pain

1. Bone
2. Muscle
3. Tissue
4. Cartilage



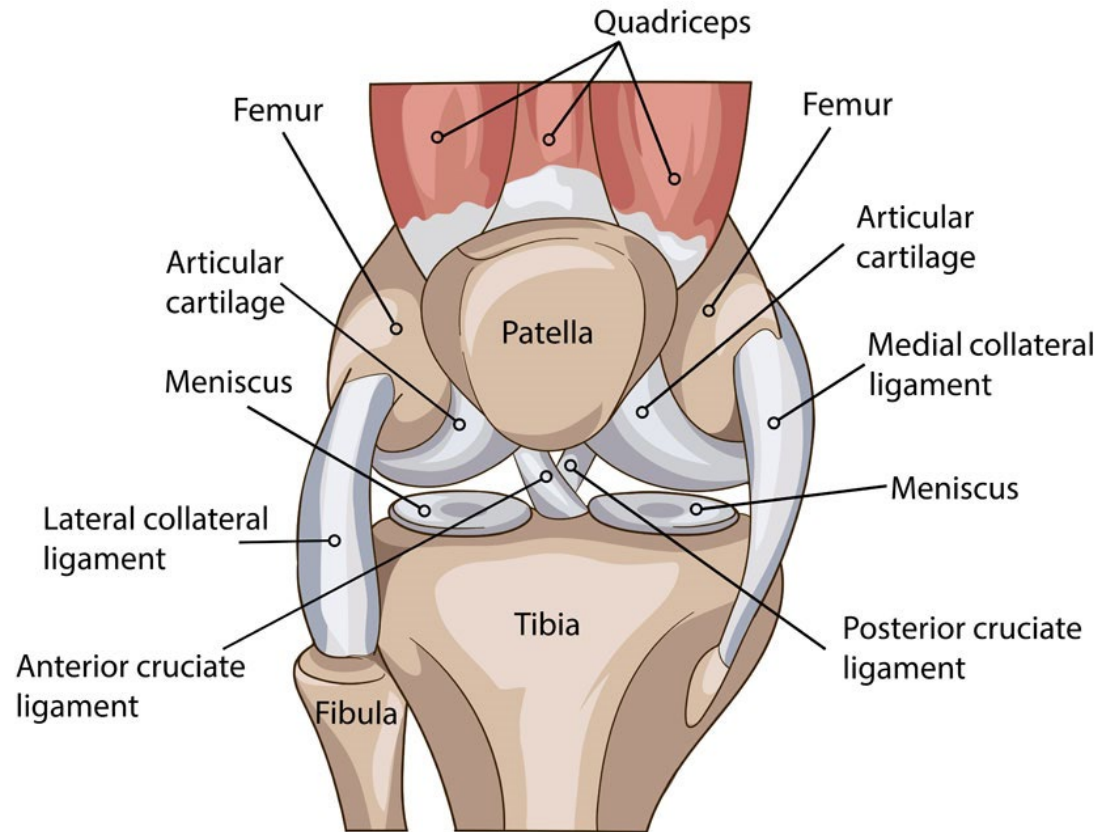
Joint Pain

1. Knee pain is the most common type of joint pain, followed by:
 - A. Shoulder
 - B. Hip pain
2. Painful joints become increasingly more common as we age.
3. Joint pain is also dependent upon
 - A. Weight Distribution
 - B. Friction of the joint in use
 - C. Systemic ABN
 - D. How the joint has been used



Joint Pain

Knee



Joint Pain

1. Mode of injury: Usually 2 separate categories (broadly speaking)

1. Non-traumatic

1. Sudden onset without trauma
 1. Usually, you will hear the patient say over the last 2 months it started hurting and got worse with time.
2. Insidious onset “over the last few years”.
3. Examples:
 1. Osteoarthritis
 2. Rheumatoid arthritis
 3. Fibromyalgia
 4. Adult Still’s disease
 5. Ankylosing spondylitis
 6. Leukemia / Osteosarcoma
 7. Rheumatic fever
 8. Osteomyelitis



Mode of injury

Joint Pain

1. Mode of injury: Usually 2 separate categories (broadly speaking)

1. Traumatic:

1. Onset Involving Trauma
2. Usually, you will hear the patient say something like:
 1. I fell and hurt the joint of interest (in accident or during a physical activity)
 2. I was in a car accident
 1. Shoulder / Knee / Hand / Feet / Ankle / Wrist

3. Examples:

1. Anterior cruciate ligament tear (running and I stopped suddenly)
2. Posterior cruciate ligament tear (running and I stopped suddenly / I hyperextended my knee)
3. Lateral or medial ligament tear (I twisted my knee)
4. Rotator cuff tear (I fell on my shoulder and now I cannot lift my arm).
5. Fractures
 1. Boxers Fracture

Joint Pain



Osteoarthritis



Rheumatoid arthritis



Tear of anterior cruciate ligament

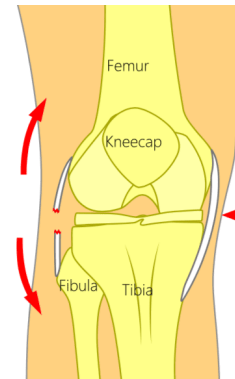


Partial

Complete

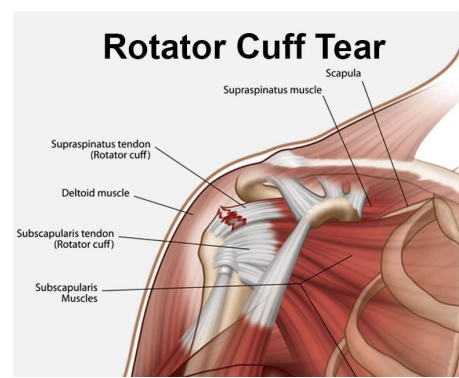


Avulsion



FRACTURE OF NECK OF THE 5th METACARPAL

The head of the metacarpal bone forms the knuckle during an enclosed fist.



Rotator Cuff Tear



Other Causes of Joint Pain

Joint Pain

- **Other Causes of Joint Pain:**

- **Osteoarthritis.** A disease that causes the breakdown of joints.
- **Adult Still's disease.** A rare systemic autoinflammatory disease that causes high spiking fevers, and a rash in addition to joint pain.
- **Ankylosing spondylitis.** A type of inflammatory arthritis that primarily affects the spine that can cause spinal vertebrae to fuse.
- **Autoimmune diseases.** Conditions like rheumatoid arthritis and lupus can cause joint pain.
- **Avascular necrosis.** The death of bone tissue due to limited blood flow.
- **Bursitis.** Pain caused by joint inflammation.
- **Chondromalacia patellae.** The softening and breakdown of cartilage on the underside of the kneecap.
- **Complex regional pain syndrome.** Chronic pain caused by a dysfunctional nervous system.
- **Dislocation.** The ends of the bones are forced from their normal positions.
- **Paget's disease of bone.** A condition that causes bones to become fragile and misshapen.
- **Fibromyalgia.** A condition causing widespread musculoskeletal pain, fatigue, and localized tenderness.
- **Gout.** Arthritis caused by excess uric acid.
- **Hypothyroidism.** An underactive thyroid.
- **Infections** caused by a virus.
- **Leukemia.** A malignant, progressive disease affecting bone marrow and other blood-forming organs.

Joint Pain

- **Other Causes of Joint Pain:**

- **Lupus.** A systemic autoimmune disease that occurs when the immune system attacks the body's own tissues and organs.
- **Sarcoidosis.** A collection of inflammatory cells in the body.
- **Lyme disease.** An inflammatory disease caused by bacteria transmitted by a tick.
- **Osteomyelitis.** A bone infection.
- **Polymyalgia rheumatica.** An inflammatory disorder causing muscle pain and stiffness.
- **Pseudogout.** A form of arthritis causing sudden, painful swelling of the joints.
- **Psoriatic arthritis.** A type of arthritis affecting people with psoriasis.
- **Tendinitis.** An inflammation or irritation of a tendon.
- **Reactive arthritis.** Joint pain and swelling occurring from an infection in another part of the body.
- **Rheumatic fever.** An inflammatory disease that can be a complication of an inadequately treated strep throat or scarlet fever.
- **Rheumatoid arthritis.** An inflammatory joint disease.
- **Rickets.** The softening and weakening of bones in children.
- **Septic arthritis.** A joint infection caused by a bacterial, viral or fungal infection.
- **Sprains and strains.** Common injuries involving the stretching or tearing of ligaments (sprain) or muscles (strain).

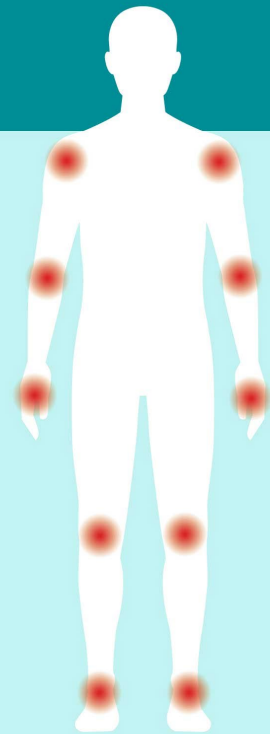
Joint Pain

- **Other Causes of Joint Pain:**

- **Widespread pain.** The pain associated with fibromyalgia often is described as a constant dull ache that has lasted for at least three months. To be considered widespread, the pain must occur on both sides of your body and above and below your waist.

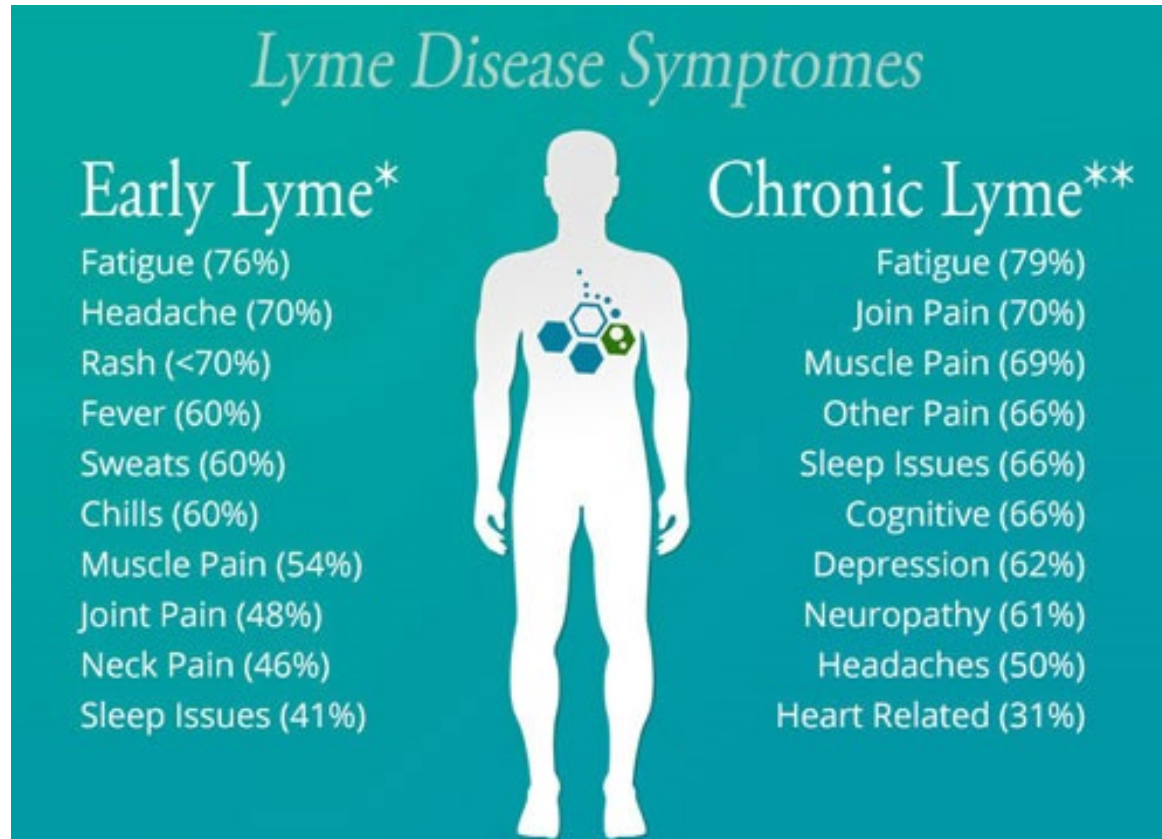
Fibromyalgia Mimics

- **Lupus**
- **Multiple sclerosis**
- **Rheumatoid arthritis**
- **Polymyalgia rheumatica**
- **Axial spondyloarthritis**
- **Thyroid disease**
- **Type 2 diabetes**
- **Anemia**
- **Chronic fatigue syndrome**



Joint Pain

- **Other Causes of Joint Pain:**

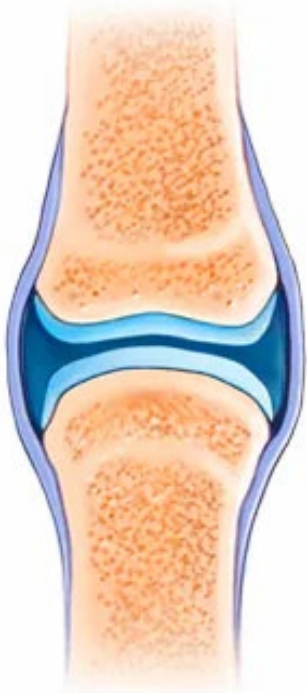


Joint Pain

- Other Causes of Joint Pain:



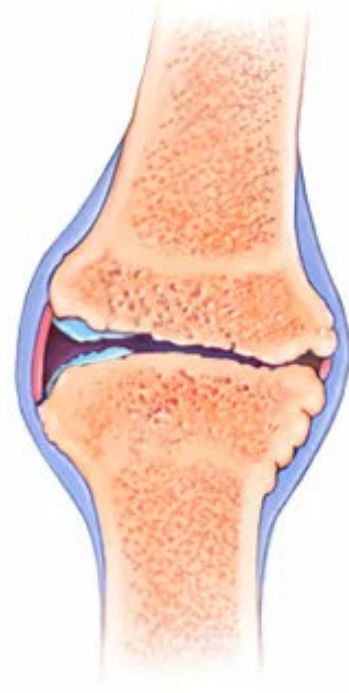
Joint Pain



Healthy joint



Rheumatoid arthritis



Osteoarthritis

Symptoms of Joint Pain

Joint Pain

- **Symptoms:**

- Joint pain may last only after a few weeks (considered acute), usually after injury
- Joint pain may last for several weeks, months, or years (chronic).
 - Don't minimize; even short-term pain and swelling of joints can affect your patient's quality of life.
- Most common symptoms and signs associated with joint pain include:

Joint redness.	Joint weakness.
Joint stiffness.	Limping (antalgic gate).
Joint swelling.	Locking of the joint (usually indicative of meniscal tear).
Joint tenderness.	Loss of the joint's full range of motion.
Joint warmth.	Pain with movement.
- Not wanting to use the limb (especially in children)



Diagnosis

Joint Pain

- **Diagnosis**

- **A search for the source of the pain.**

- The diagnosis and treatment of joint pain begins with the provider diagnosing the cause of the pain:
 - Starts with a detailed history of the symptoms and the patient's general condition
 - Traumatic or none traumatic Hx
 - Lifestyle habits.
 - When symptoms began (how long have they been present)
 - The severity of the pain
 - What makes it better (Usually Movement of the joint)
 - What makes it worse (Usually rest and non-weight bearing on the joint)
 - Medications the patient is taking (prescribed / Over the counter medication)

Joint Pain

- **Diagnosis**

- **A search for the source of the pain.**

- An evaluation of the affected area
 - Look for signs of; inflammation/ redness/ swelling/ tenderness/ and any stiffness
- A range of motion test.
 - Understand that your patient is in pain so while performing physical exam ensure your not exacerbating the situation. If injury is traumatic then x-ray first.
 - Anterior/Posterior Drawers // Varus and valgus stress test // McMurray's etc.
- Evaluate movement, noting how painful, impaired, or stiff the motion is and whether there is pain when the examiner moves the joint or when the patient moves it. Record ROM.

- **Treatment goal:**

- Decrease the level of pain (absolve if possible)
- Preserve and/or improve the function of the joint.
 - Weight Bearing
 - Range of Motion

Joint Pain

- **Diagnosis**

- **A search for the source of the pain.**

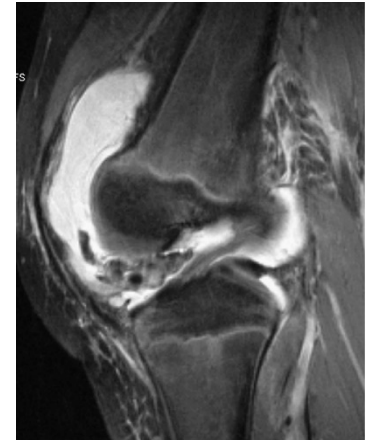
- Is the problem inside the joint or outside of the joint.
 - The affected area could be referred pain from an area near the joint.
 - Can be hard to determine which means the appropriate test must be ordered.
 - Also, if injury traumatic be sure to look at the joints immediately proximal and distal to the affected joint.
 - The following slides will display disease processes that maybe/are outside of the joint space.

Joint Pain

1. Infection of the pre-patella bursa?
2. Superficial skin infection that has reached deeper tissue?



MRI Showing Effusion



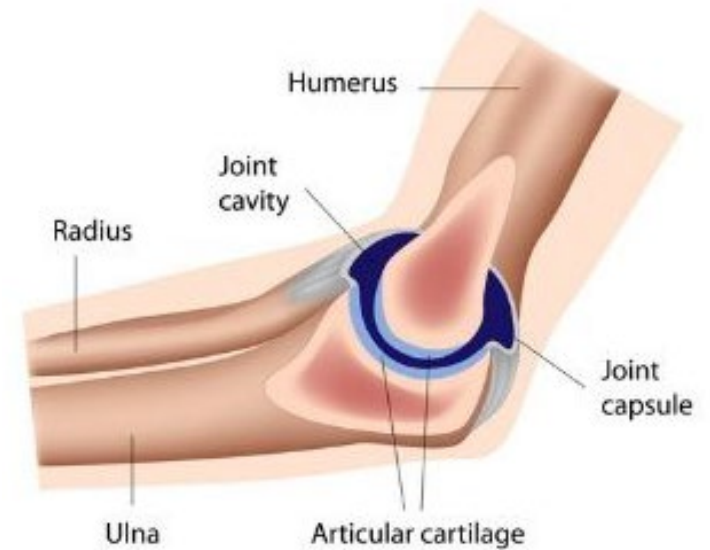
Bone Cancer at the knee
Osteosarcoma



Joint Pain

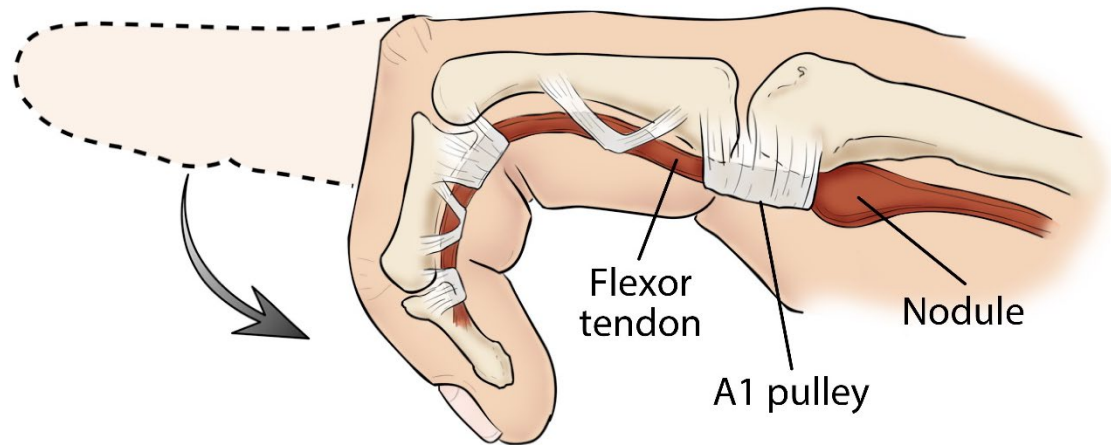
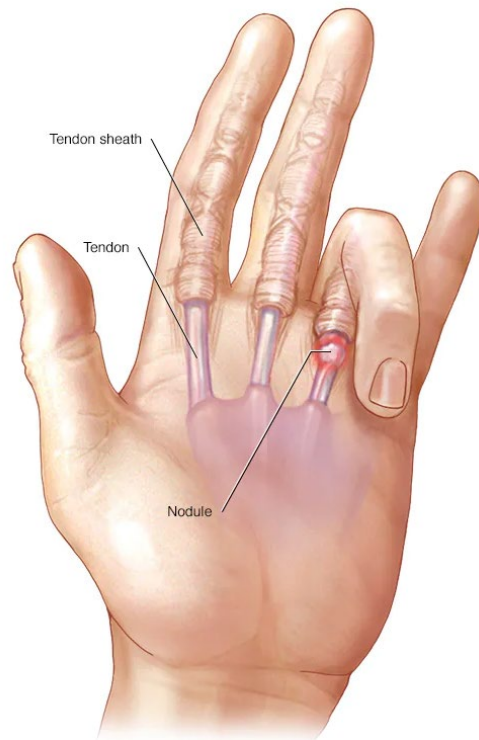


1. Olecranon Bursitis?
2. Gouty tophus?



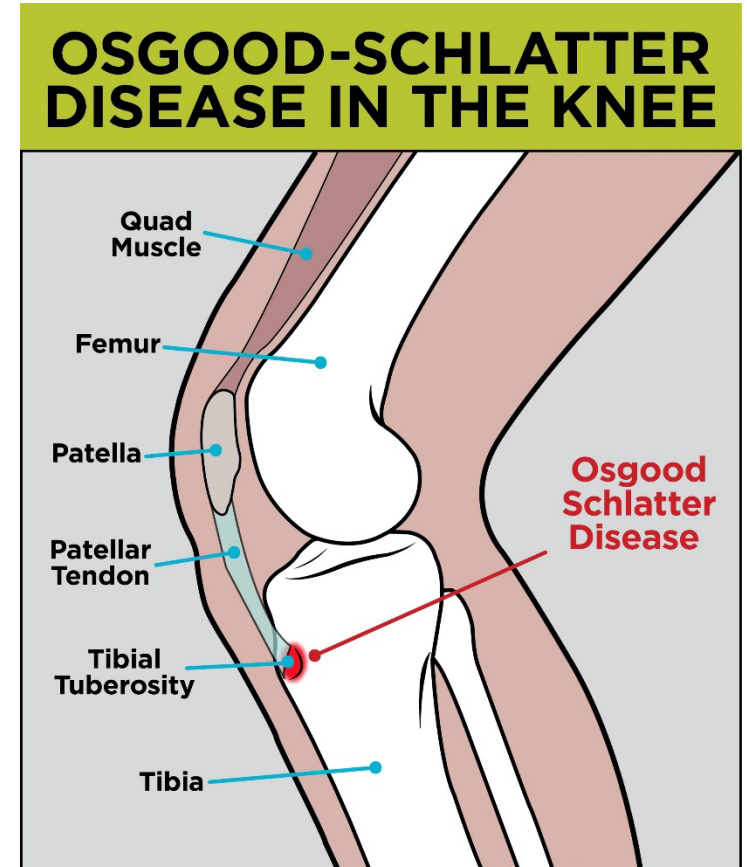
Joint Pain

- Trigger Finger
- Trigger Finger is outside the joint but may present as referred pain.
 - The metacarpophalangeal (MP or MCP) joint



Joint Pain

- **Osgood-Schlatter disease (OSD)** is swelling and irritation of the growth plate at the top of the shinbone.
- A growth plate is a layer of cartilage near the end of a bone where most of the bone's growth happens. It is weaker and more at risk for injury than the rest of the bone.



Diagnostic Testing

Joint Pain

- **Diagnostic Testing**
 - **Testing to find the source of the pain.**
 - **The provider may want to order**
 - **lab tests:**
 - Blood / Urine / Aspirate
 - **Imaging tests** to examine for any suspected joint damage (keep pregnancy in mind when ordering).
 - X-ray (pregnancy caution)
 - Depending on the circumstances, it might be possible to postpone the X-ray or modify it to reduce the amount of radiation (Mayo Clinic).
 - CT scan
 - With few exceptions, radiation exposure through radiography, computed tomography (CT) scan, or nuclear medicine imaging techniques is at a dose much lower than the exposure associated with fetal harm. (American College of Obstetricians and Gynecologists, ACOG)
 - MRI
 - There is no evidence to suggest that MRI poses any direct risk to the fetus (NIH)
 - Ultrasonography and magnetic resonance imaging (MRI) are not associated with risk and are the imaging techniques of choice for the pregnant patient (ACOG).

Joint Pain



Medial Unloader Brace



Joint Pain

Shoulder Pain

MRI: Subacromial Bursitis



Joint Pain

Proximal Humerus Fractures

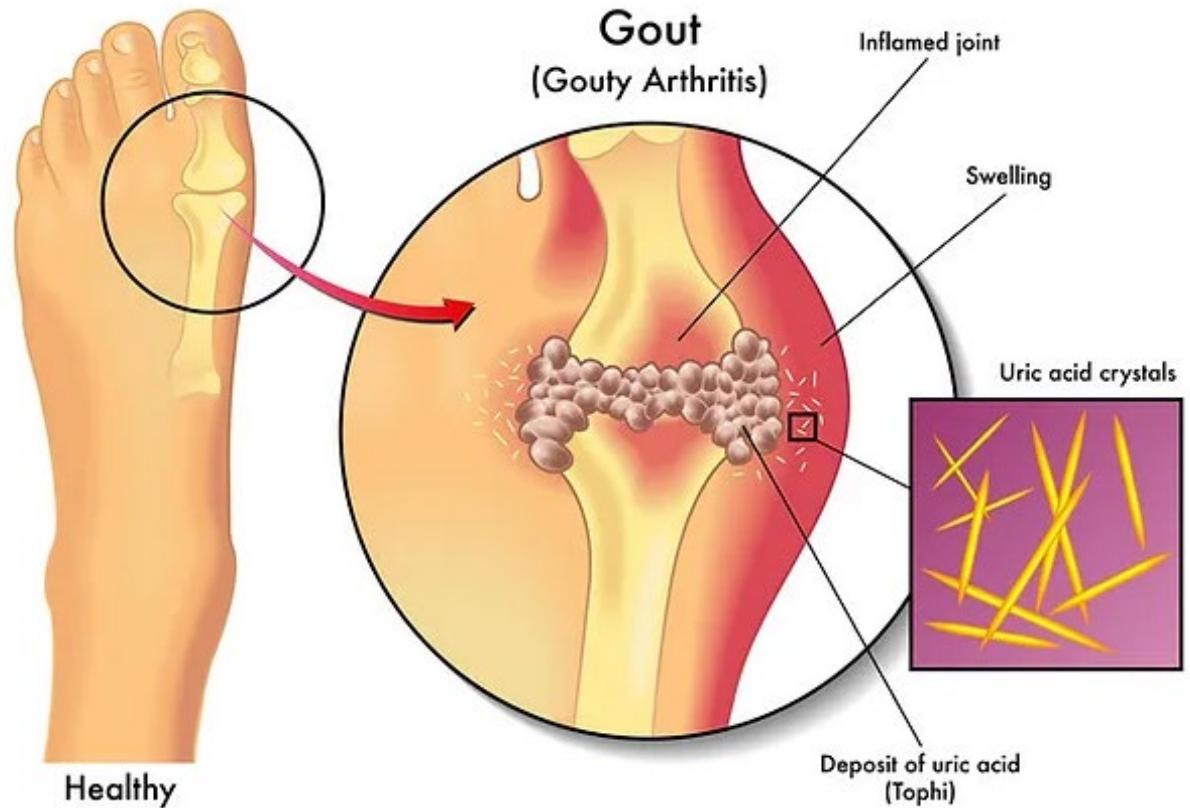


Joint Pain

1. Joint Aspirate sent to lab.

2. Generally, your uric acid level is high when:

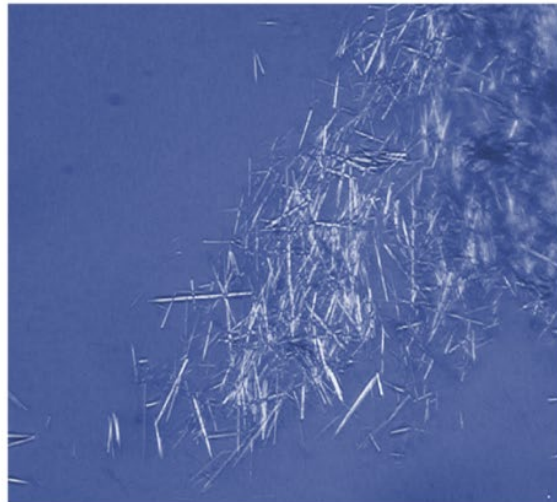
- For females, it's over 6 mg/dL
- For males, it's over 7 mg/dL



Joint Pain

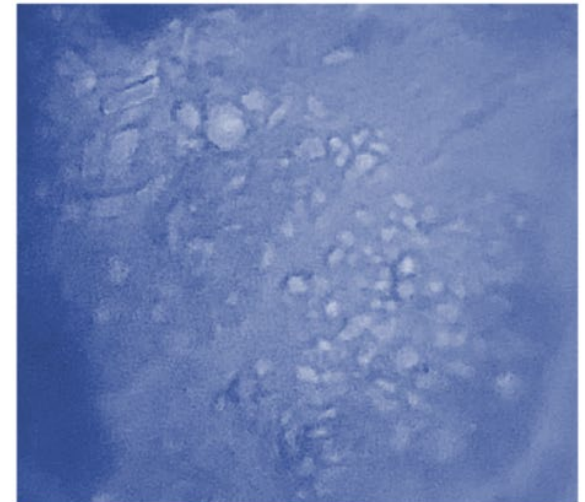
1. Joint aspirate crystals are not always gout.
2. Pseudogout: A form of arthritis characterized by sudden, painful swelling in one or more of the joints.
3. Pseudogout is formally known as calcium pyrophosphate deposition disease or CPPD.
4. Episodes can last for days or weeks.

MONOSODIUM
URATE
(GOUT) CRYSTALS



Monosodium urate crystals, which cause gout, appear needle-shaped when viewed under a microscope.

CALCIUM PYROPHOSPHATE
DIHYDRATE DEPOSITION DISEASE
(CPPD, PSEUDOGOUT) CRYSTALS



The crystals in the joint fluid in pseudogout appear rhomboid-shaped under a microscope.

Joint Pain

1. Urinalysis: White blood cells (WBCs), red blood cells (RBCs), and small amounts of protein are present in urinalysis findings, indicating pyuria.
2. Urine culture findings may be positive for Chlamydia or Ureaplasma, though test results may be negative if obtained several weeks after the onset of symptoms.

❖ A positive test means HLA-B27 is present. It suggests a greater-than-average risk for developing or having certain autoimmune disorders.

Reactive Arthritis Facts

- Triggered by a bacterial infection (sexually transmitted or foodborne illness)
- More likely among people with an HLA-B27 gene
- Often improves on its own within a few weeks or months



Joint Pain

If surgery is not possible / warranted / desired
chronic pain control may be the final option

Some cases require surgical procedures

Podiatrist / Physiatrists / Rheumatologist /
Chiropractor

Some cases require Braces/Physical therapy

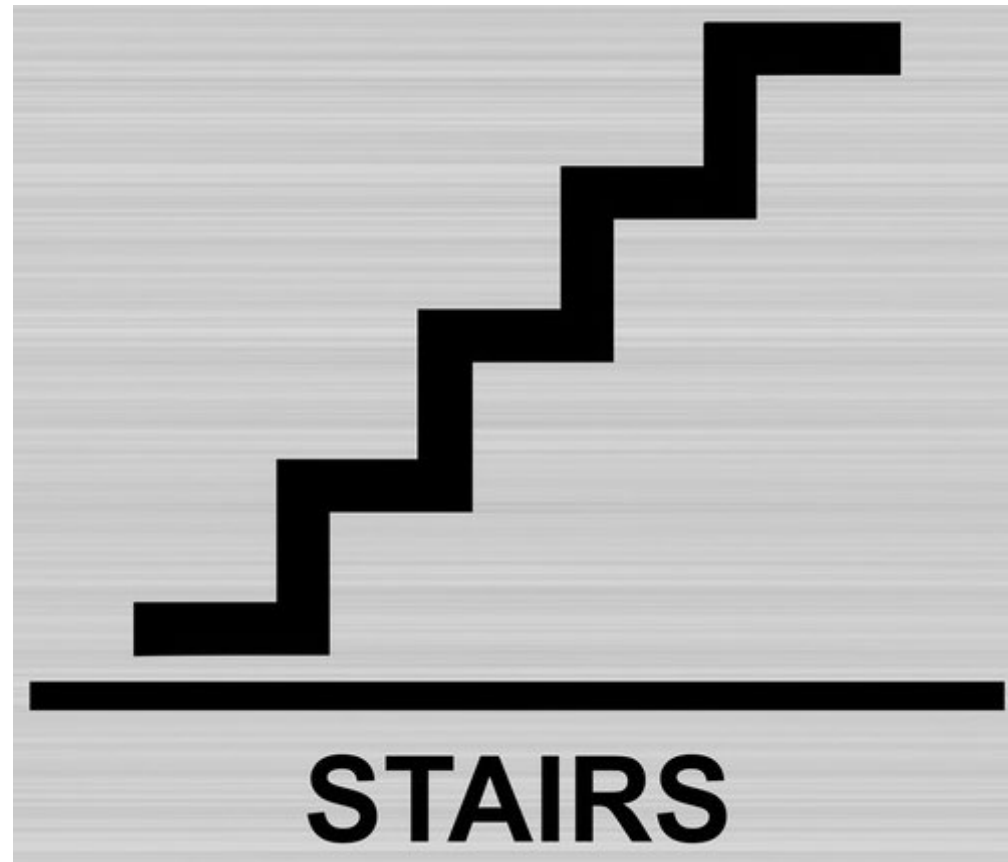
Some cases require joint aspiration / Steroid Inj.

Some cases require narcotic intervention
(Usually, acute traumatic cases when appropriate)

Some cases require prescription medication.

Non-traumatic complaints self-care.

❖ I recommend a stairstep methodology
least invasive to more invasive.



Other Health Professionals Involved with treating Joint Pain

Joint Pain

- Other Health Professionals Involved with treating Joint Pain:
 - Podiatrists (for foot/ankle), etc
 - Medical specialists who help with problems that affect your feet or lower legs.
 - They can treat injuries as well as complications from ongoing health issues like diabetes.
 - Podiatrists treat conditions such as:
 - Fractures and sprains
 - Podiatrists regularly treat these common injuries when they affect a foot or ankle.
 - Bunions and hammertoes
 - Nail disorders
 - Diabetes
 - Handle toenail care and evaluates diabetics feet.
 - If a diabetic cuts their own toenails and injures the soft tissue could become a significant problem since diabetics have decreased circulation in the lower extremities.
 - Morton's neuroma:
 - Nerve problems between the third and fourth bones of your foot can cause pain, burning, and a feeling that there's something in the shoe.

Joint Pain

- Other Health Professionals Involved with Treating Joint Pain:
 - Physiatrists
 - (PM&R) physicians
 - Physiatrists are physicians who have completed medical school plus four years of residency training
 - Have completed training in the specialty of Physical Medicine and Rehabilitation (PM&R).
 - May be subspecialty certified in:

Brain Injury Medicine	Hospice and Palliative Medicine
Neuromuscular Medicine	Pain Medicine
Pediatric Rehabilitation Medicine	Spinal Cord Injury Medicine
Sports Medicine.	
- Most work hand-in hand with orthopedic surgeons. They can offer other none surgical Modalities prior to surgical consideration.

Joint Pain

- Other Health Professionals Involved with treating Joint Pain:
 - **Rheumatologists:**
 - A rheumatologist is a board-certified internist (a physician of internal medicine) or pediatrician who is qualified by additional training and experience in the diagnosis and treatment of arthritis and other diseases of the:
 - Joints / Muscle / Bones / Systemic processes.
 - In general Rheumatologist treats disease processes that are inflammatory and autoimmune in nature (systemic).
 - Musculoskeletal pain disorders / Rheumatoid arthritis / Lupus / Fibromyalgia / Gout
 - **Chiropractor:**
 - is a licensed healthcare professional who focuses on your body's capability to heal itself.
 - Cares for your neuromusculoskeletal system—the bones, nerves, muscles, tendons, and ligaments.
 - Helps manage back and neck pain through the use of spinal adjustments to maintain good alignment.

Joint Pain

- A podiatric surgeon, or doctor of podiatric medicine (DPM), is a comprehensive foot and ankle physician and surgeon.
 - Completed four years of undergraduate school
 - Four years at a certified podiatry school,
 - Three to four years of surgical residency in podiatric foot and ankle care.



PHYSIATRY SERVICES



Treatments

Joint Pain

- **Self Care**

- Treating mild joint pain at home include:
 - For moderate-to-severe pain with swelling, the patient can take an over-the-counter pain reliever, such as:
 - Nonsteroidal anti-inflammatory drugs (NSAID) like
 - Aspirin
 - Keep Reye's syndrome in mind when considering for children
 - Ibuprofen (Advil or Motrin IB)
 - Naproxen sodium (Aleve)

- ❖ **Keep in mind NSAIDS may be contraindicated and/or may affect the stomach.**

- For milder pain without swelling, taking acetaminophen (Tylenol) can be helpful.

Joint Pain

- **Self Care:**
 - **Avoid using or moving the joint in ways that cause or worsen the pain.**
 - Recommend no running, jumping, prolonged standing, lifting etc.
 - If work note is needed, please give them one.
 - **Apply ice (or a package of frozen peas) to the painful joint for 15 to 20 minutes a few times each day to relieve the pain.**
 - I like the Styrofoam cups in a circular motion for a few minutes
 - Warn against leaving ice in place too long with or without barrier (frost bite)
 - **Apply a heating pad, soak in a warm tub, or take a warm shower to relax muscles, increase circulation and help aid healing.**

Joint Pain

- **Other aspects of self-care**

- An easy acronym to remember when assigning self-care to relieve short-term joint pain is known by the, PRICE:
 - **P**rotect the joint with a brace or wrap.
 - **R**est the joint, avoiding activities that cause pain.
 - **I**ce the joint for about 15 minutes, several times each day.
 - **C**ompress the joint using an elastic wrap.
 - **E**levate the joint above the level of your heart.

- ❖ Ice can help ease joint pain and inflammation. For muscle spasms, a heating pad or hot wrap several times a day can help.

Joint Pain

P

Protect



Protect your injury from further damage, for example, by using a support or splint.

R

Rest



Rest your injury for the first two to three days. You may need to use crutches if you've injured your leg and you want to remain mobile. Then reintroduce movement gradually so you don't delay your recovery by losing muscle strength.

I

Ice



Ice the painful area with a cold compress such as ice or a bag of frozen peas wrapped in a towel. This will help reduce swelling and bruising. Do this for 15 to 20 minutes every two to three hours. Don't apply ice directly to your skin as it can damage it.

C

Compress



Compress the injured area with an elastic bandage or elasticated tubular bandage to help limit swelling and movement. But don't leave the bandage on while you sleep.

E

Elevate



Elevate your injury by resting it above the level of your heart and keep it supported. This could mean lying on the sofa with your foot on some cushions if you've injured your leg.

Joint Pain

- **Physical Therapy: (or send to Physiatrist)**
 - **Physical therapy can help**
 - Strengthen the muscles around the joint
 - Stabilize the joint
 - Improve the joint's range of motion
 - **Other techniques used in physical therapy:**
 - Ultrasound
 - Paraffin wax bath (hand or foot)
 - Heat or cold therapy
 - Electrical nerve stimulation
 - Manipulation are treatment options

Joint Pain

Jumper's Knee (Patellar Tendon Injury) Rehabilitation Exercises

1. Knee Physical Therapy



Standing hamstring stretch



Quadriceps stretch



Rectus femoris stretch



Straight leg raise



Prone hip extension



Side-lying leg lift



Clam exercise



Step-up



Wall squat with a ball

Joint Pain

1. Hand Physical Therapy



POWER GRIP



PINCH



THUMB EXTENSION

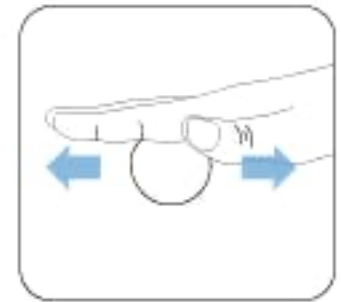
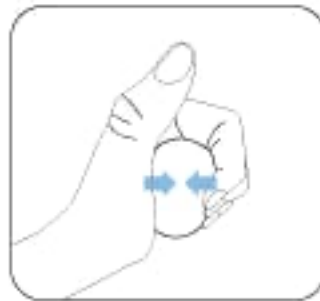


TABLE ROLL



FINGER FLEXION



THUMB ROLL



FINGER SQUEEZE



THUMB OPPOSITION

Joint Pain

- **In cases where the patient is overweight:**
 - **Losing weight can often help relieve pressure on painful joints.**
 - Don't make the conversation difficult but you must have this conversation.
 - Many surgeons will not perform total joint surgery on morbidly obese patients.
 - **Change in diet (healthier eating)**
 - Consider a consult to a dietician
 - **Exercise is an effective way to lose weight (along with diet).**
 - Low-impact exercises,
 - Like swimming
 - Bicycling
 - These two are among the best for preventing additional joint irritation

Medications (OTC / Prescription) to Consider

Joint Pain

- **Medications (prescription) to Consider:**
 - **Can consider NSAID**
 - NSAID warnings apply / Consider an antacid along with NSAIDS
 - May consider a COX-2 selective NSAID
 - Celecoxib
 - **Gout / Pseudogout (calcium pyrophosphate deposition disease or CPPD):**
 - Colchicine
 - Medications that block uric acid production / allopurinol (Aloprim, Lopurin, Zyloprim) and febuxostat (Uloric)
 - Steroids: excellent symptomatic relief with intra-articular injections.
 - Some evidence for short courses of oral/intramuscular steroids for polyarticular flares (NIH)
 - **Steroids:**
 - By way of Joint injections and Bursa Injections
 - Excellent symptomatic relief with intra-articular injections.
 - By way of a steroid dose pack (acute non-fracture traumatic spinal pain)
 - Some evidence for short courses of oral/intramuscular steroids for polyarticular flares

Joint Pain

- **Medications (prescription) to Consider:**
 - **Muscle relaxants to treat muscle spasms if found along with the joint pain:**
 - If used together with NSAIDs may increase the effectiveness
 - Cyclobenzaprine
 - Methocarbamol
 - **Narcotics:** Opioids etc.; Have a place (acute injury) but should not be a primary consideration
 - Tylenol # 3
 - Oxymorphone (Opana®)
 - Morphine (Kadian®, Avinza®)
 - Codeine
 - Fentanyl
 - **Some antidepressants and antiepileptic drugs**
 - Both drug classes have been found to interfere with pain signals
 - Amitriptyline
 - Pregabalin (may be used to treat fibromyalgia)
 - Gabapentin and duloxetine are both effective in reducing pain in knee osteoarthritis (NIH)
 - Duloxetine and venlafaxine (Effexor XR) treat both depression and chronic pain

Alternative Treatments

Joint Pain

- **Some Alternative Treatments:**

- **Acupuncture:**

- It can help relieve musculoskeletal pain resulting from fibromyalgia/ neck/ back

- **Massage Therapy:**

- An invigorating massage with warm essential oil can help relieve and/or lessen joint pain.

- **Supplements:**

- There is evidence that glucosamine and chondroitin supplements can help with joint pain and improve function.

- **Tai chi and yoga:**

- These low-impact activities can help by:
 - Increase the range of motion while strengthening joints and surrounding muscle tissue.
 - The gentle stretches in yoga can help prevent and alleviate chronic soreness in the shoulders, hips, and knees.

Joint Pain



What's Inside

- ⚡ 1500mg Glucosamine Sulfate
- ⚡ 1200mg Chondroitin Sulfate
- ⚡ 300mg Methylsulfonylmethane (MSM)
- ⚡ 60mg Vitamin C + 1mg Manganese



Physical Therapy Can Help:

- Improve mobility
- Address nerve-related conditions
- Manage pain
- Recover from a sports injury
- Manage a health condition
- Recover from surgery



Joint Pain Aspiration Injection Therapy

Joint Pain

- **Joint Pain Aspiration / Injection Therapy:**

- **Joint Aspiration**

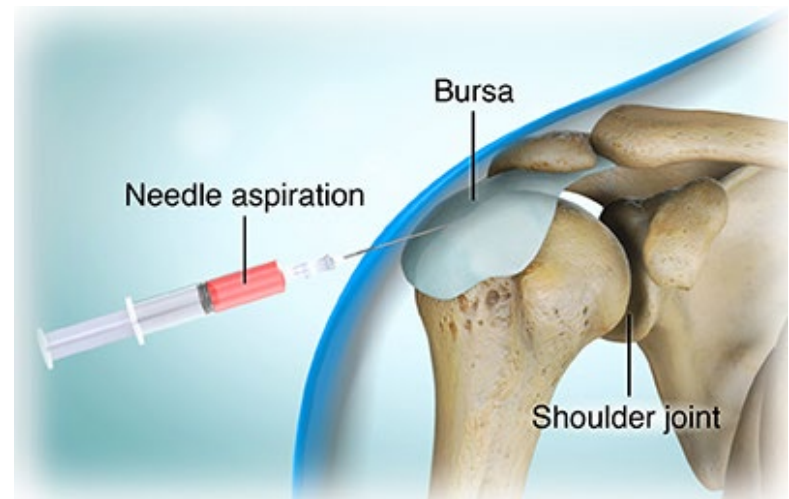
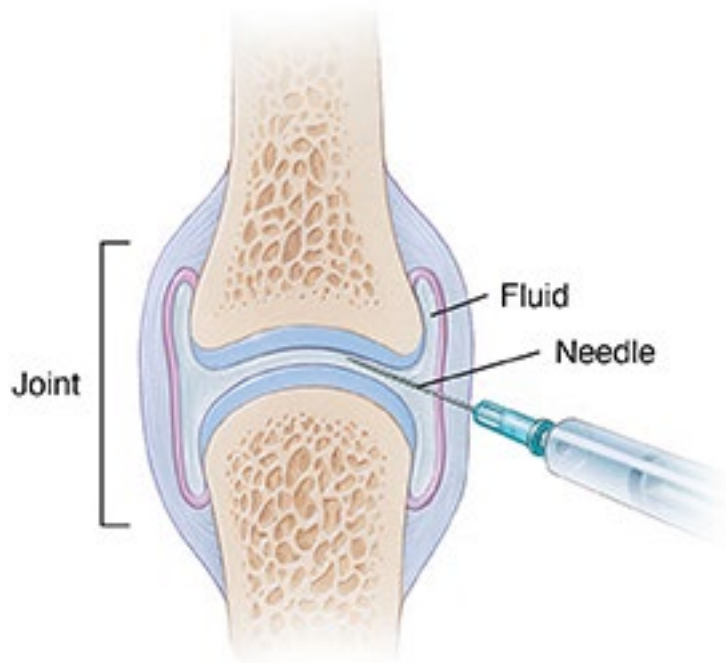
- Removing fluid from the joint (often in connection with a steroid injection)
 - If hemarthrosis is noted “Don’t inject steroid into joint”.
- Be sure to send aspirate to the lab (infection / crystal's)

- **Steroid injections:**

- Injected directly into the joint
 - Often combined with an anesthetic (Lidocaine / Marcaine)
 - Can be given every three to four months
 - Steroid injections can be effective when other medications do not provide relief.
 - Commonly used with
 - Arthritis / Joint disease / Tendinitis
 - Helpful, but in most situations unfortunately the effect is only temporary

❖ **Warning:** Know patients' diabetic status before giving a steroid injection. Injection may significantly elevate blood sugar.

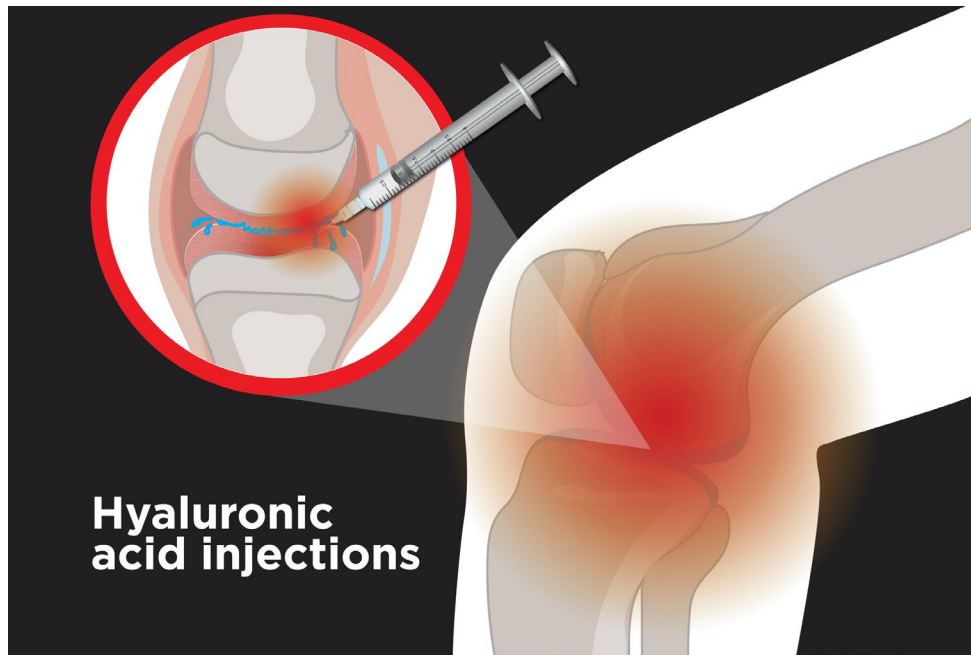
Joint Pain



Joint Pain

- **Joint Pain Aspiration / Injection Therapy:**
 - **Hyaluronan injections Knee**
 - It is an injection of a synthetic version of the natural joint fluid
 - Is most often used in treating osteoarthritis
 - Used to keep joints moving and reduce pain (especially when other treatments haven't worked)
 - **For Shoulder:**
 - Osteoarthritis of the shoulder or glenohumeral joint is a painful condition that can be debilitating.
 - Intra-articular injection with hyaluronic acid should be considered for patients not responding adequately to physical therapy or anti-inflammatory medication.
 - NASHA hyaluronic acid for the treatment of shoulder osteoarthritis: a prospective, single-arm clinical trial
 - 2019 Jun 12

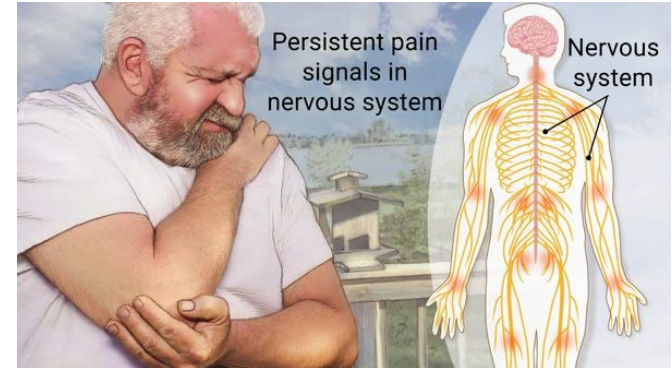
Joint Pain



Chronic Pain Control

Joint Pain

1. If surgery is not an option (or patient declines surgery) and medication/joint injections/physical therapy etc. do not work, then chronic pain control is an option.
 1. NSAIDs
 2. Acetaminophen
 3. COX-2 inhibitors
 4. Antidepressants and anti-seizure medications
 5. Narcotic
 1. Follow your facilities protocols
 2. Pain/prescription contract
 3. Bottom line. Opioids are a last resort for chronic pain management.
2. Recommend consulting patient to a pain control clinic.
 1. Can offer nonsurgical blocks etc.
 2. Somewhere in here a spinal cord stimulators may be discussed (implant for pain control).
 1. It is an implanted device that sends low levels of electricity directly into the spinal cord to relieve pain.



Surgical Intervention

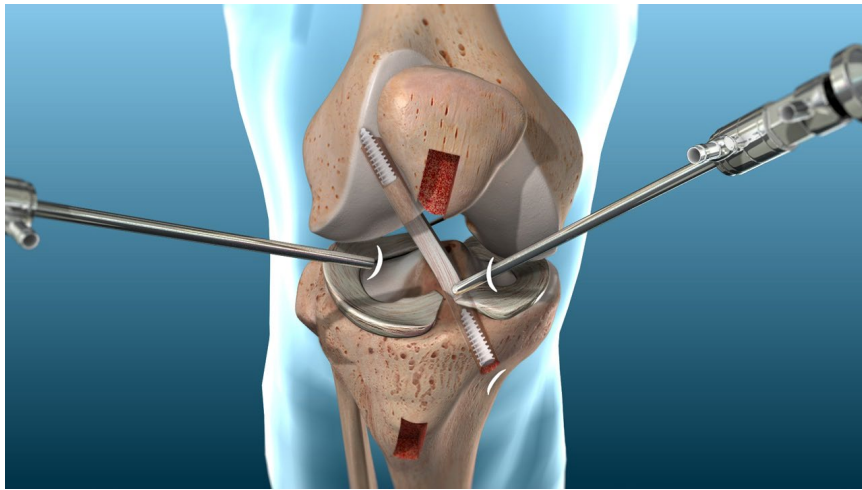
“Not Just Total Joint Surgery”

Joint Pain

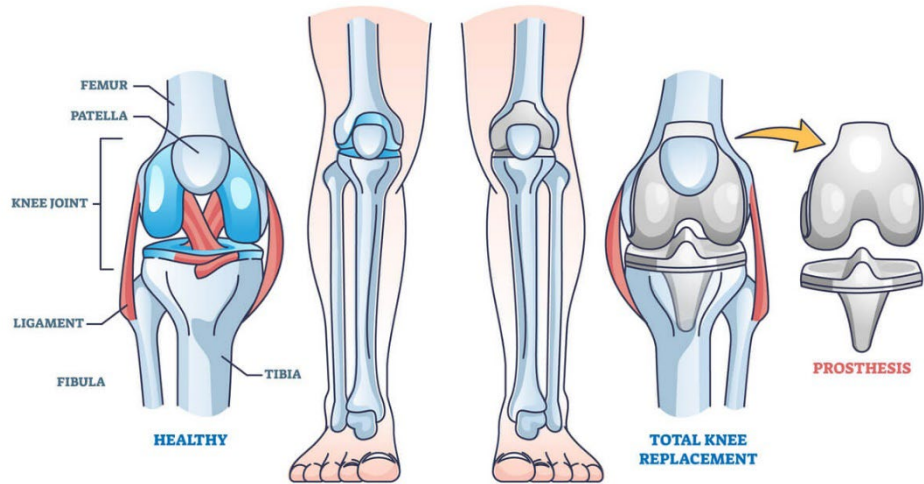
- **Surgical Intervention:**
 - **If all other less invasive treatments fail:**
 - Total knee
 - Total shoulder
 - Total hip
 - Total ankle
 - Anterior cruciate ligament repair
 - Posterior cruciate ligament repair
 - Lateral collateral ligament repair
 - Meniscus repair
 - Meniscus removal no longer recommended, found to accelerate presentation of arthritis.
 - Achilles Tendon Repair
 - Carpal tunnel surgery
 - Ligament manipulation

Joint Pain

Surgical Intervention:



ACL Repair

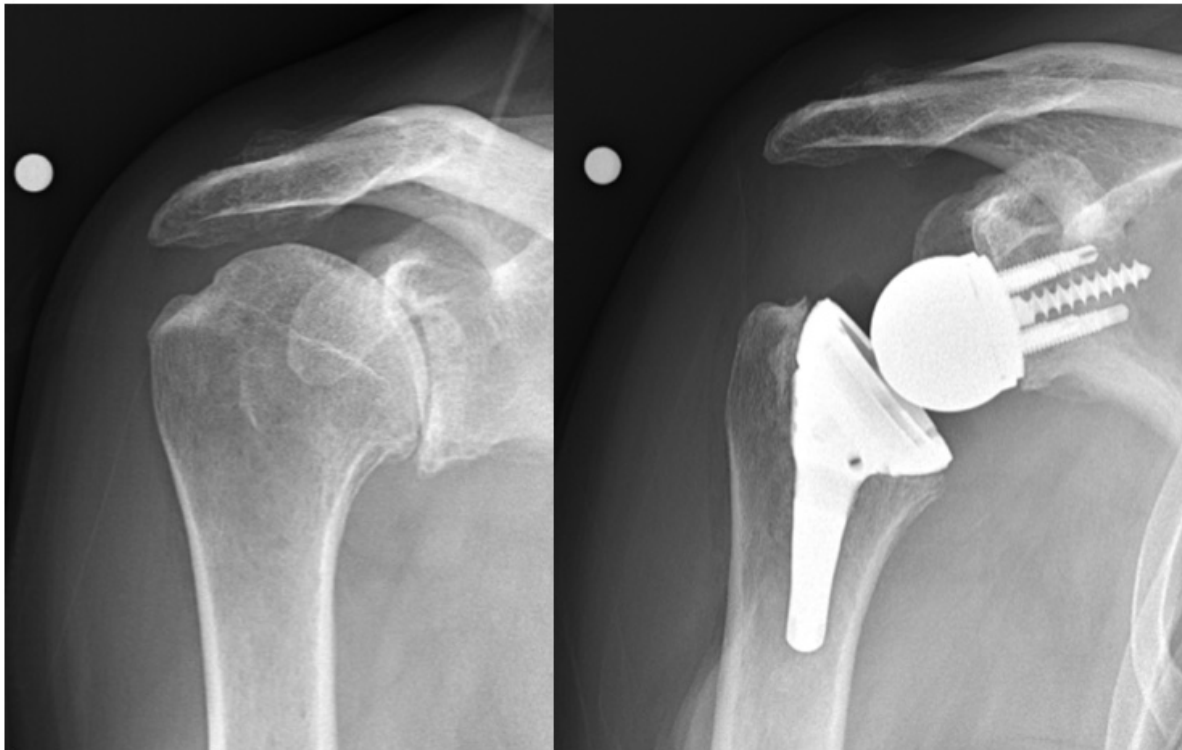


Total Knee Replacement

Joint Pain

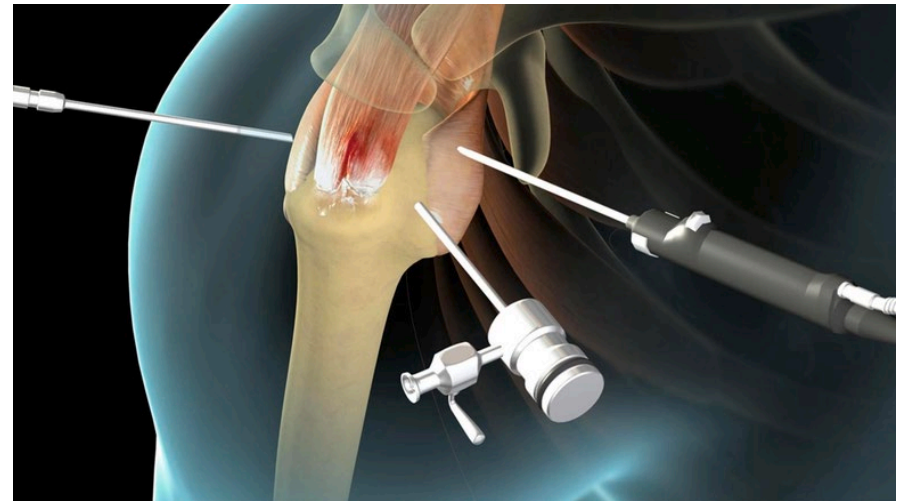
glenohumeral osteoarthritis

reverse total shoulder

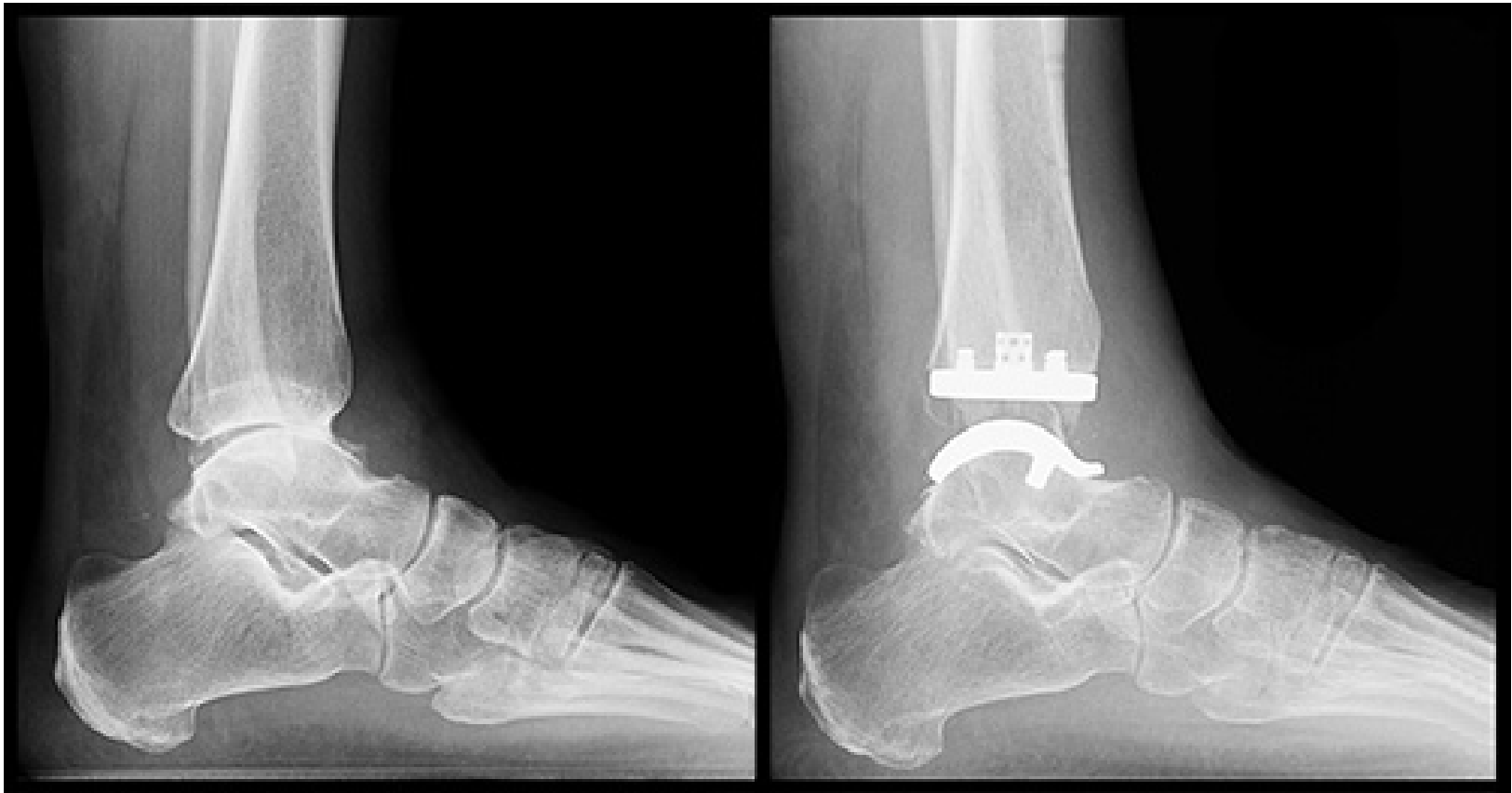


Joint Pain

Rotator Cuff Tear Repair Supraspinatus



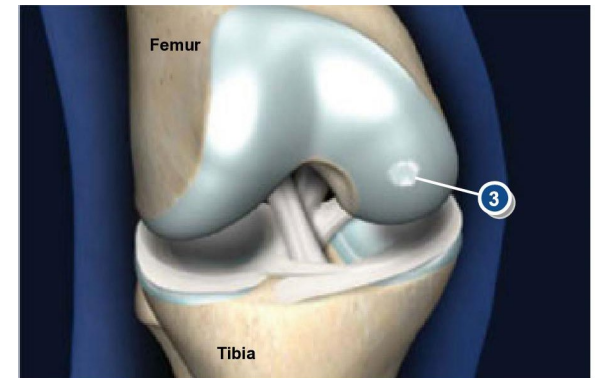
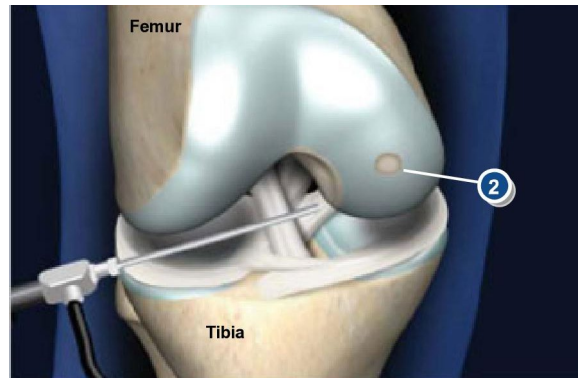
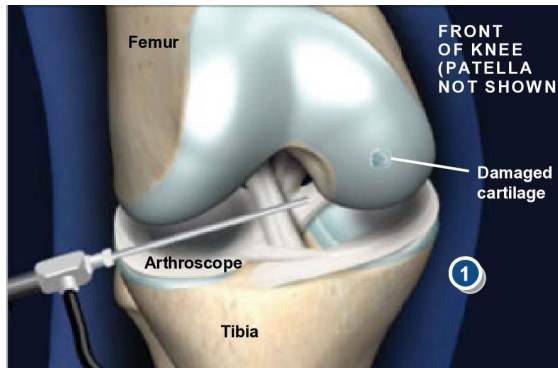
Joint Pain



Joint Pain

1. Any part of the joint can be a source of pain

CHONDROPLASTY



Joint Pain



References

- American Academy of Orthopedics Surgeons
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 - Joint (Wikipedia)
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 - What You Need to Know About Cartilage Damage (Medical News Today)
 - Hand Facts and Trivia (E-Hand.com Electronic Textbook of Hand Surgery)