

# Arthritis of the Knee, Hip and Shoulder

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# Topics

- Anatomy of the Knee, Hip and Shoulder
- Types of Arthritis
- Diagnosis of Arthritis
- Treatment Options



# The Knee

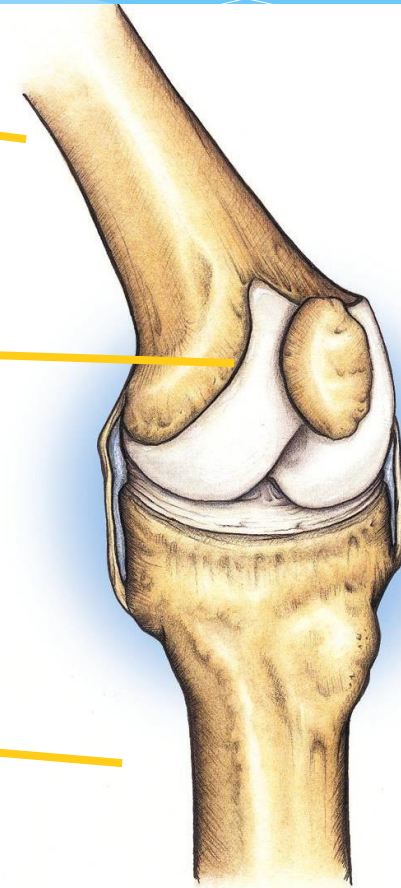
# Anatomy of the Knee

## Bone View

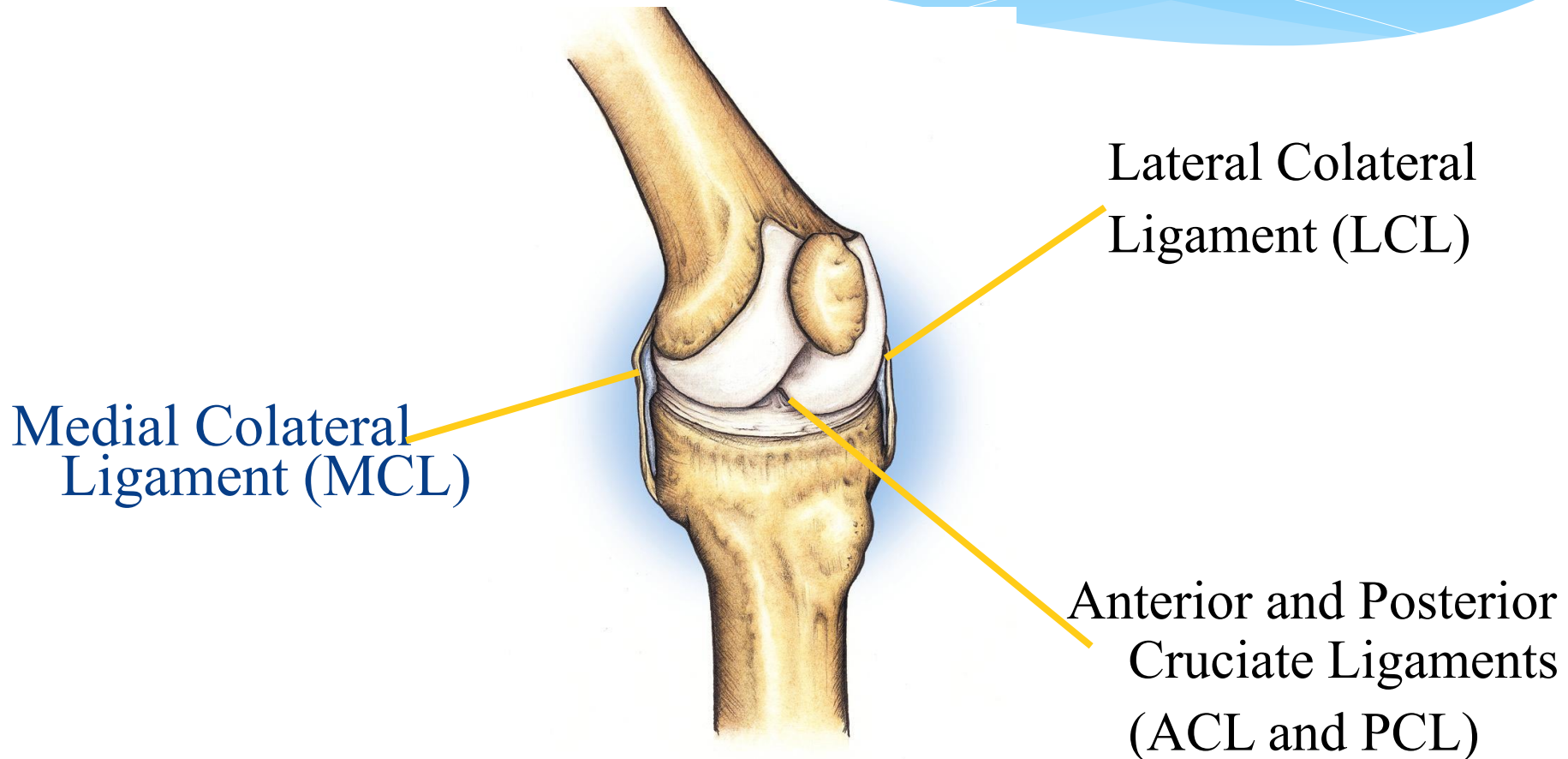
Femur

Patella

Tibia

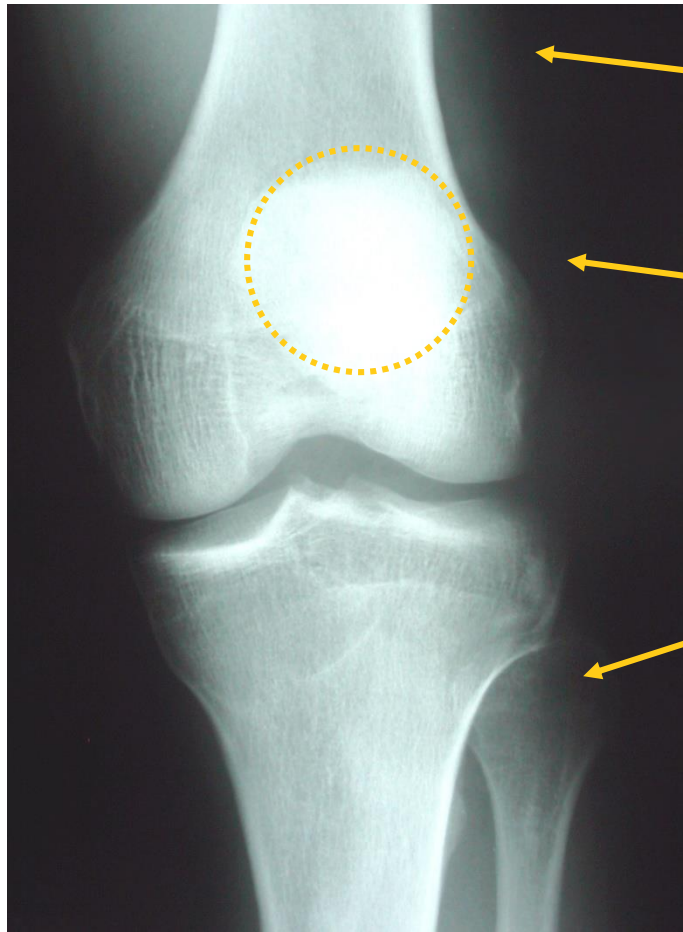


# Anatomy of the Knee Ligaments



# Radiographic Anatomy of the Knee

## X-Ray View



Femur (Thighbone)

Patella (Kneecap)

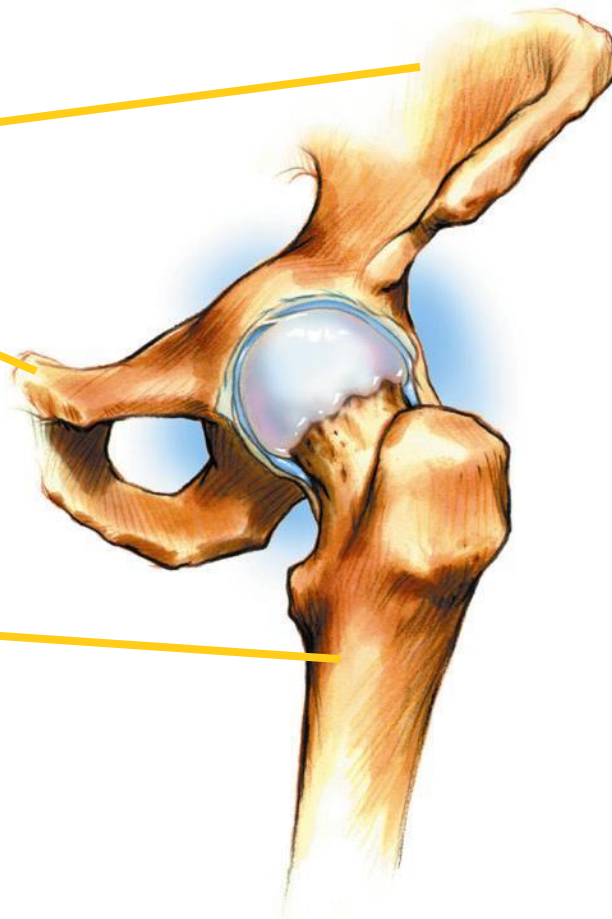
Tibia (Shinbone)

# The Hip

# Anatomy of the Hip Bone View

Pelvis

Femur

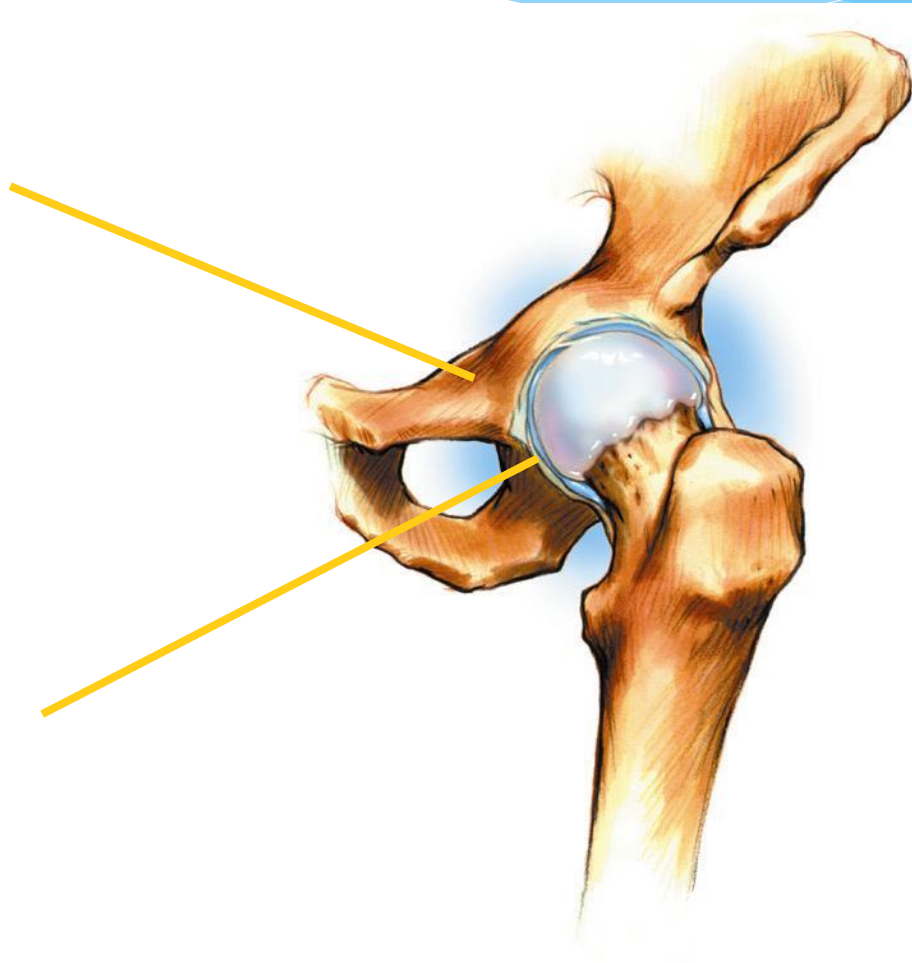




# Anatomy of the Hip Bone View

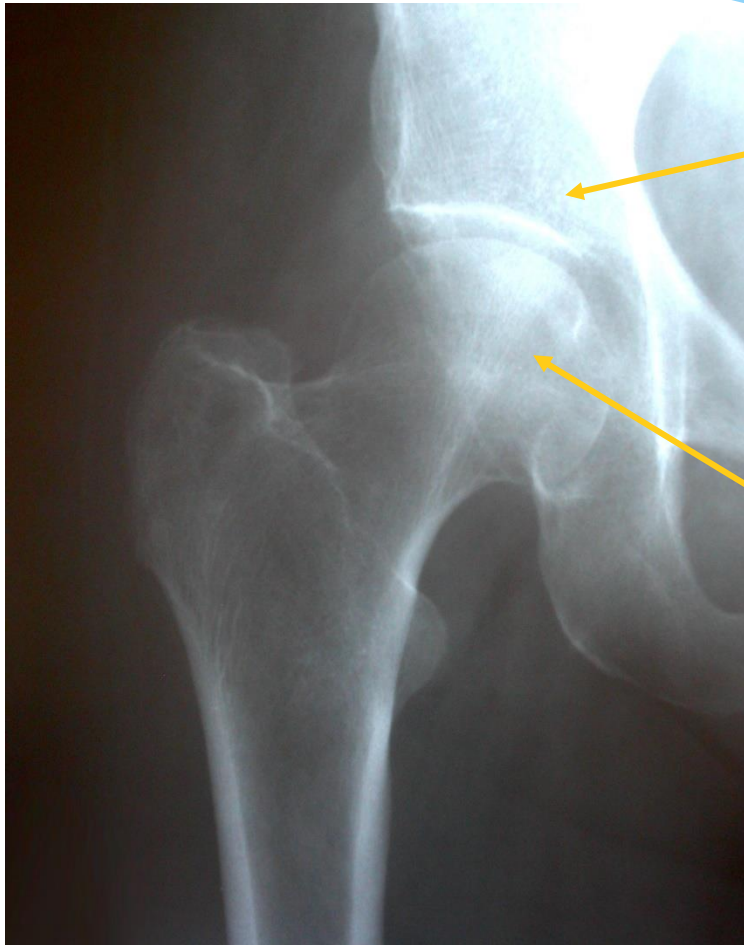
Acetabulum  
(Hip Socket)

Femoral Head  
(Hip Ball)



# Radiographic Anatomy of the Hip

## X-Ray View



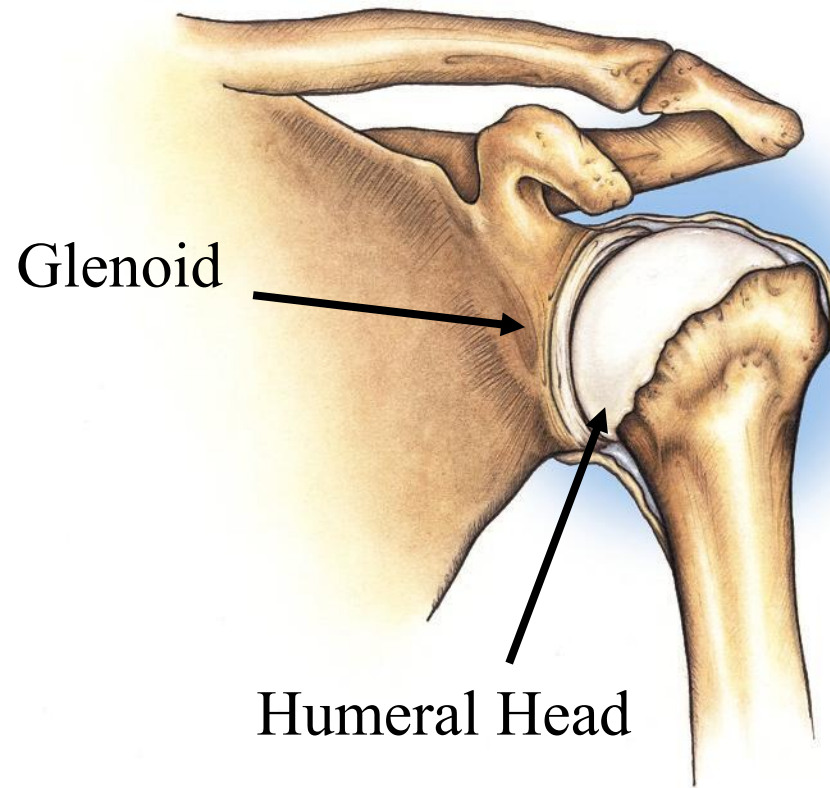
Acetabulum (Socket)

Femoral Head (Ball)

# The Shoulder

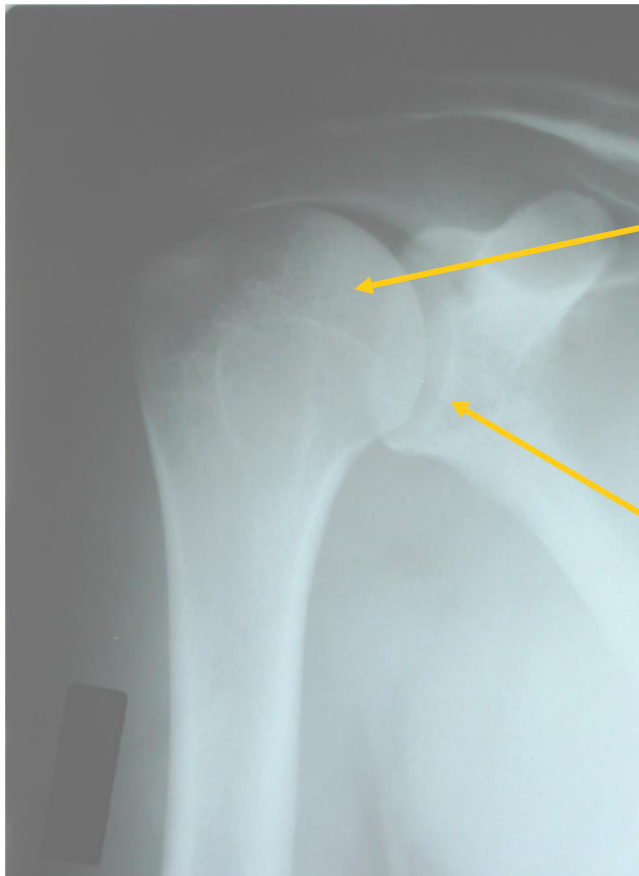
# Anatomy of the Shoulder

## Bone View



# Radiographic Anatomy of the Shoulder

## X-Ray View



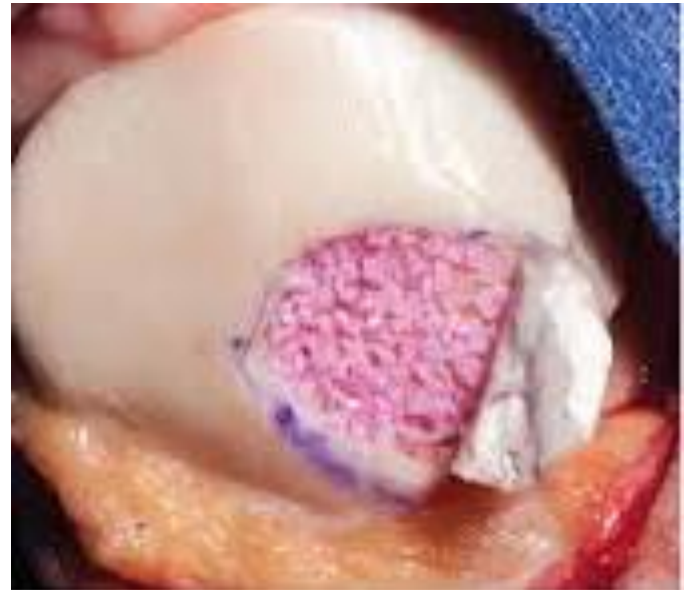
Humeral Head (Ball)

Glenoid (Socket)

# Cartilage

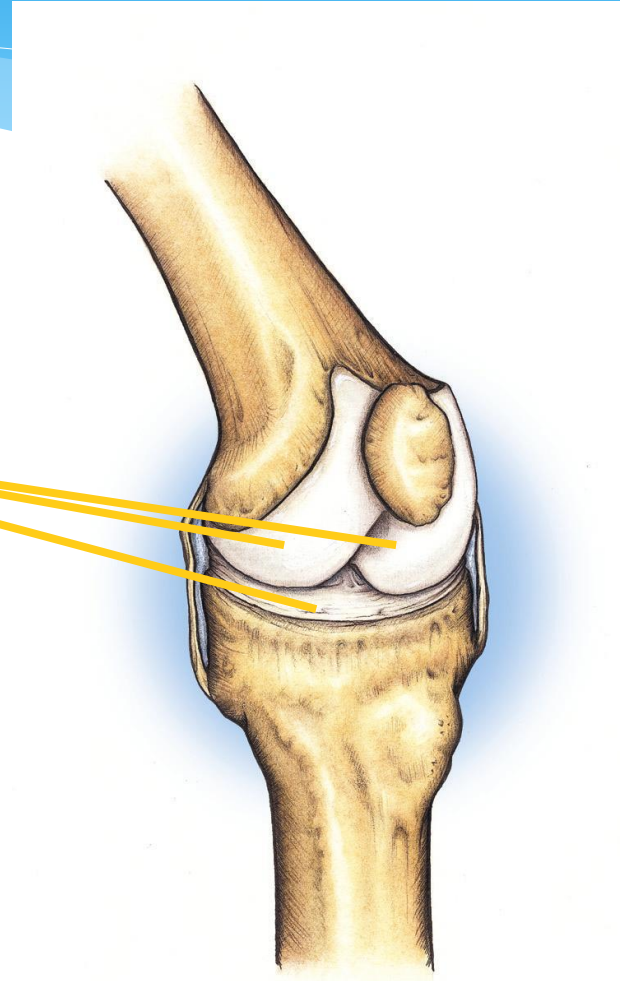
# Cartilage

- Rubbery tissue found in joints
- Cushions and protects the ends of bones
- Provides smooth gliding surface for bones



# Anatomy of the Knee

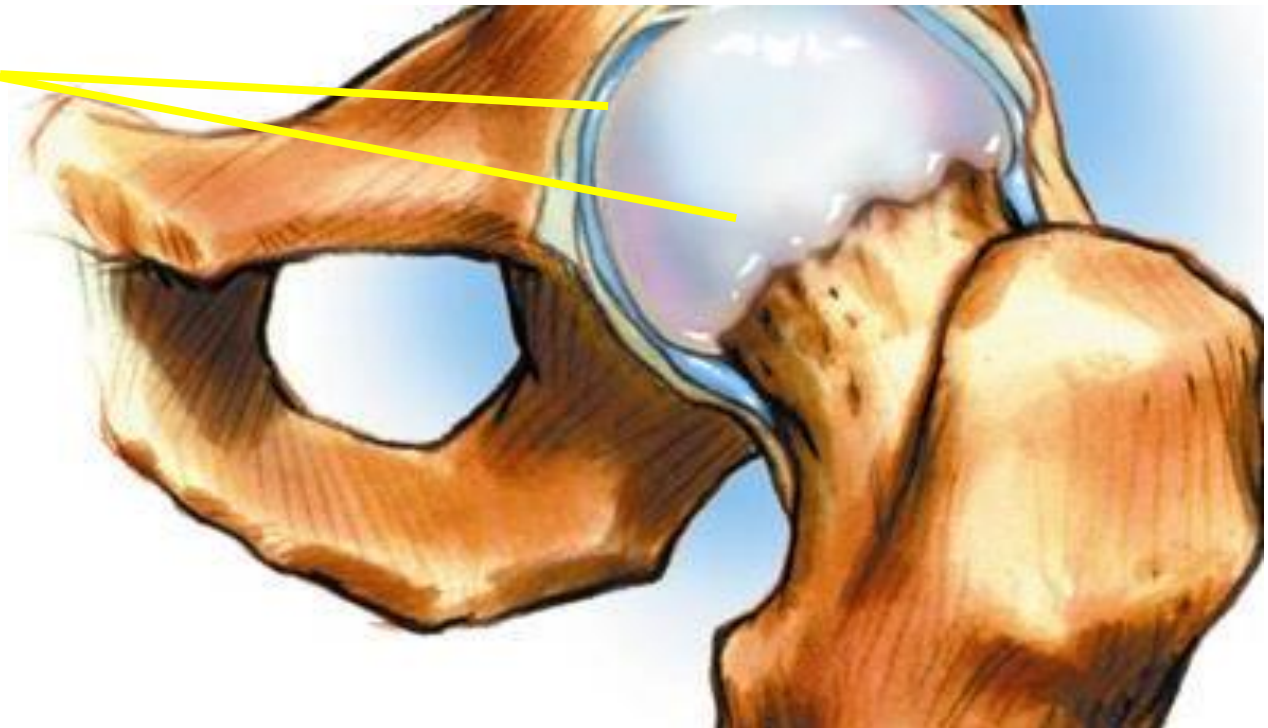
Cartilage



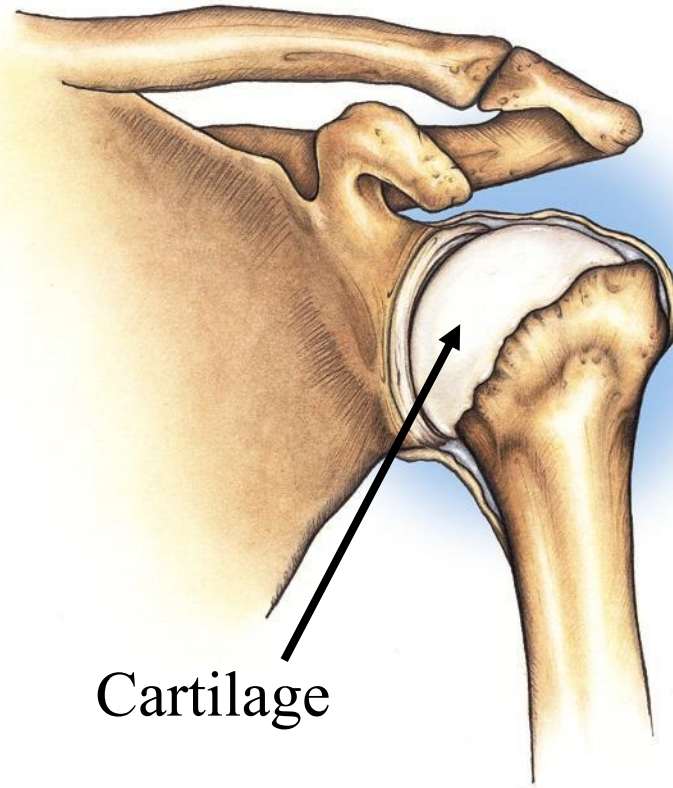


# Anatomy of the Hip

Cartilage



# Anatomy of the Shoulder



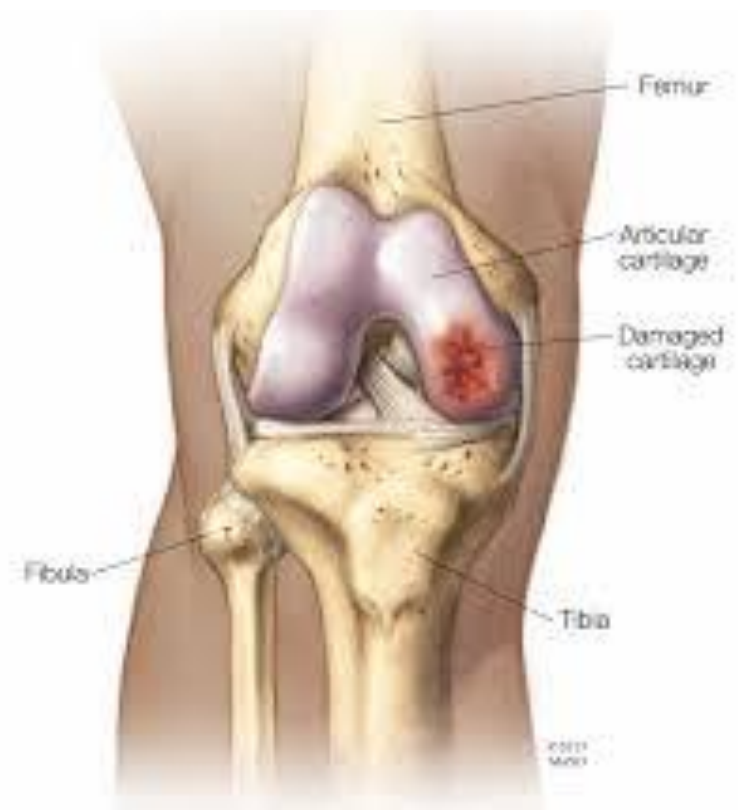
Cartilage

# Arthritis

The background is a solid blue gradient. At the bottom, there are several overlapping, wavy white lines that create a sense of depth and movement, resembling a stylized horizon or a series of waves.

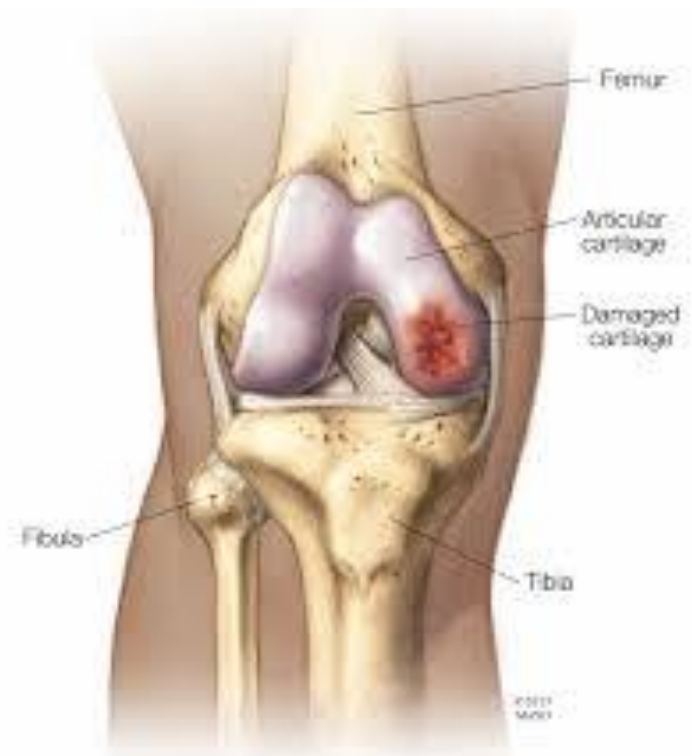
# Arthritis

- Affects 43 million Americans each year
- Over 100 different types
- Defined as inflammation of the joint



# Two Primary Types of Arthritis

- Osteoarthritis
- Rheumatoid arthritis



# Rheumatoid Arthritis



# Rheumatoid Arthritis

- Affects about 2.5 million Americans annually
- Physically disabling disease
- Medical disabling disease



# What is Rheumatoid Arthritis?

- An autoimmune disorder
- Usually affects more than one joint at a time
- Inflammatory joint condition
  - Joint's lubricating fluid increases pressure inside joint
  - Synovium thickens
  - Erode the cartilage



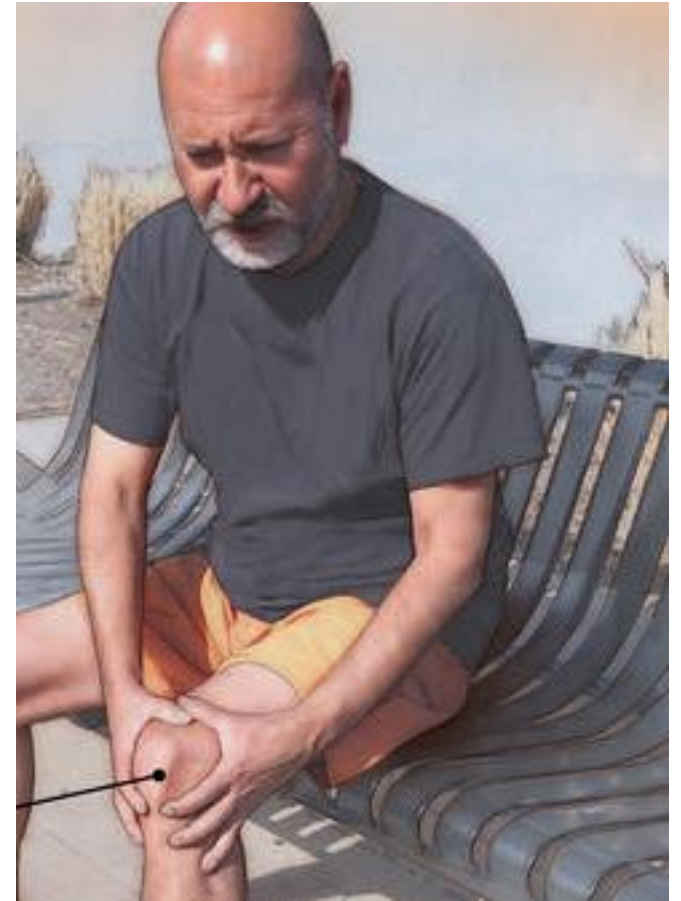


# Osteoarthritis

The bottom of the slide features a series of overlapping, wavy, light blue lines that create a sense of movement and depth, transitioning from a darker blue at the top to a lighter blue at the bottom.

# Osteoarthritis

- Affects 23 million Americans
- 10x more common than RA
- Less physically disabling disease
- Not typically medical disabling disease



# What is Osteoarthritis?

- Not an autoimmune disorder
  - Degenerative disease
- Usually affects ONE joint at a time
- Degenerative joint condition
  - Wear and tear



# Knee Osteoarthritis: Disease Progression

- **Early-stage: Mild disease**
  - Minimal pain
  - Sports related injuries
  - Minor defects/ loss of cartilage
- **Mid-stage: Moderate disease**
  - Increased or moderate pain
  - Reduced mobility
  - Changes to lifestyle/sports activities
  - Moderate cartilage defects
  - One or two compartments
- **Late-stage: Severe disease**
  - Severe pain
  - Leading cause of disability
  - Walking, stair climbing challenging
  - Severe cartilage loss and limb deformity
  - All three compartments



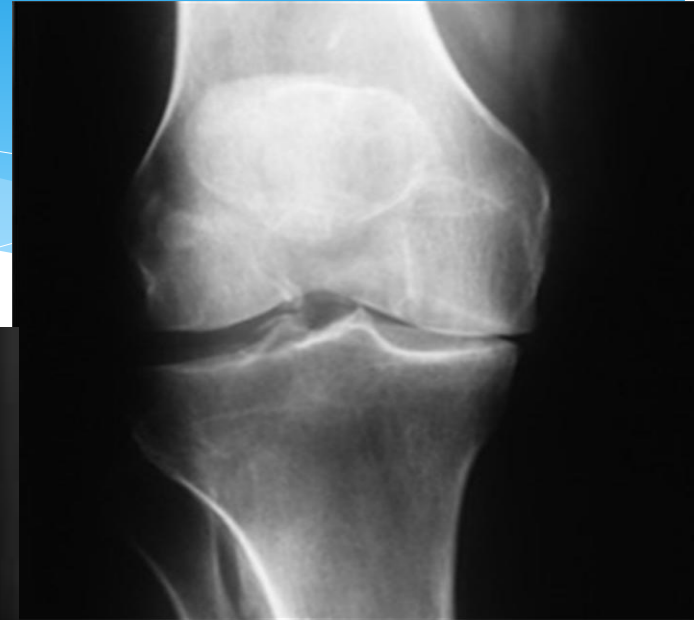
# Knee Osteoarthritis: Radiographic Grades



**Normal or Early Stage**



**Late or Severe**



**Mild or Moderated**

# Knee Osteoarthritis: Causes

- Injury or Trauma
  - Sports
  - MVA
- Long Term activities
  - Running controversial
- Obesity
  - Joint Reactive Forces
  - 1 lbs. = 7 lbs. knee
- Heredity
  - Known causes
  - Unknown causes

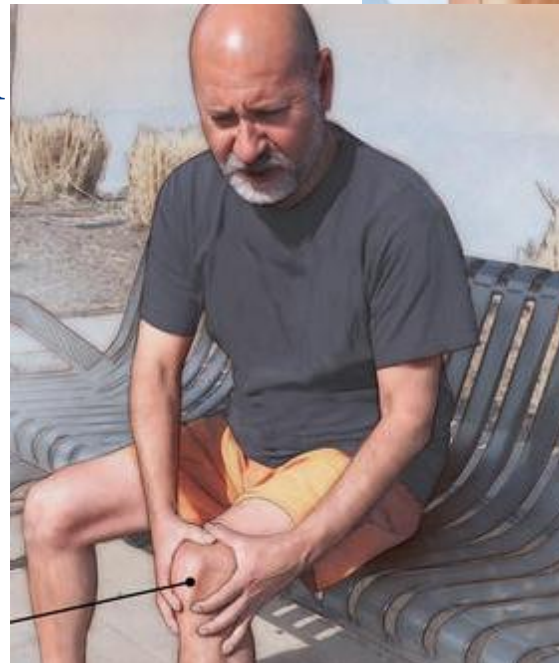
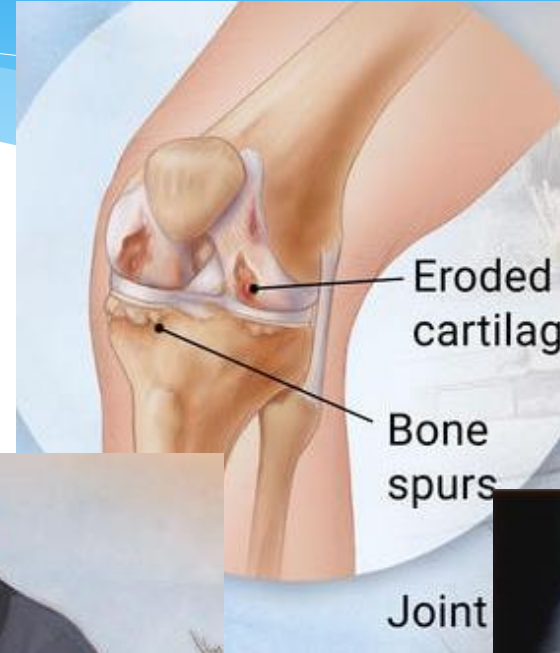


# Diagnosis



# Diagnosing Osteoarthritis

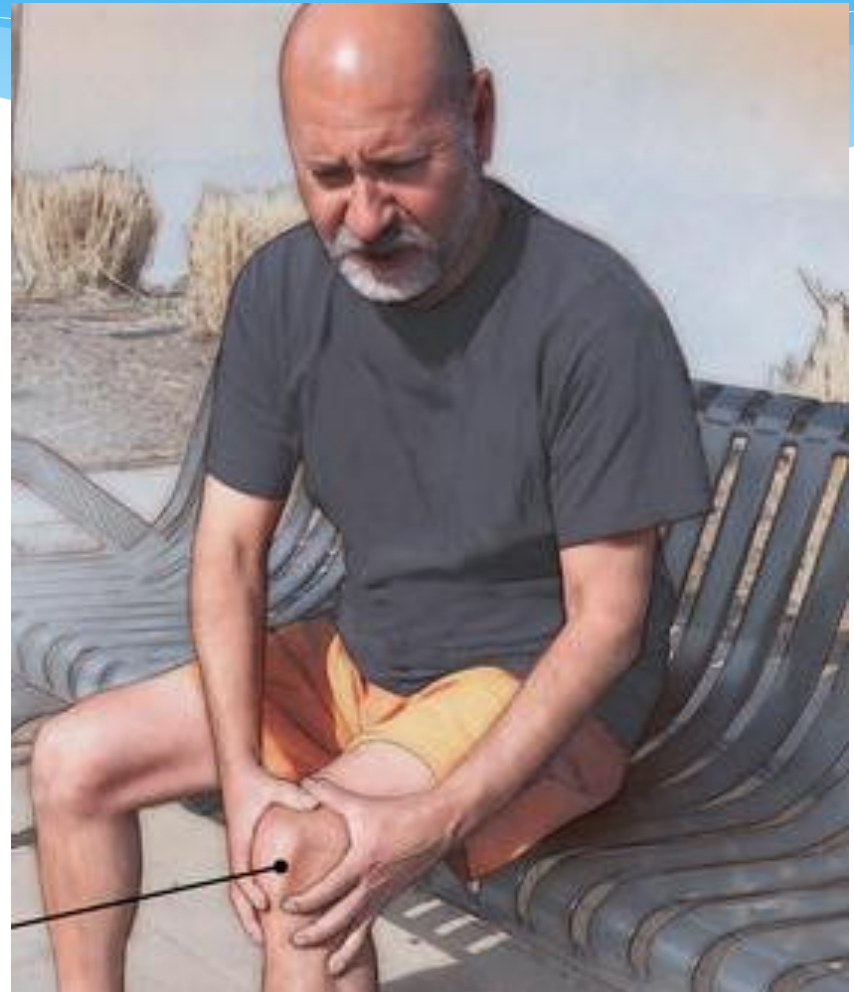
- History
  - Symptoms
- Physical Exam
- X-Rays
- Blood Tests





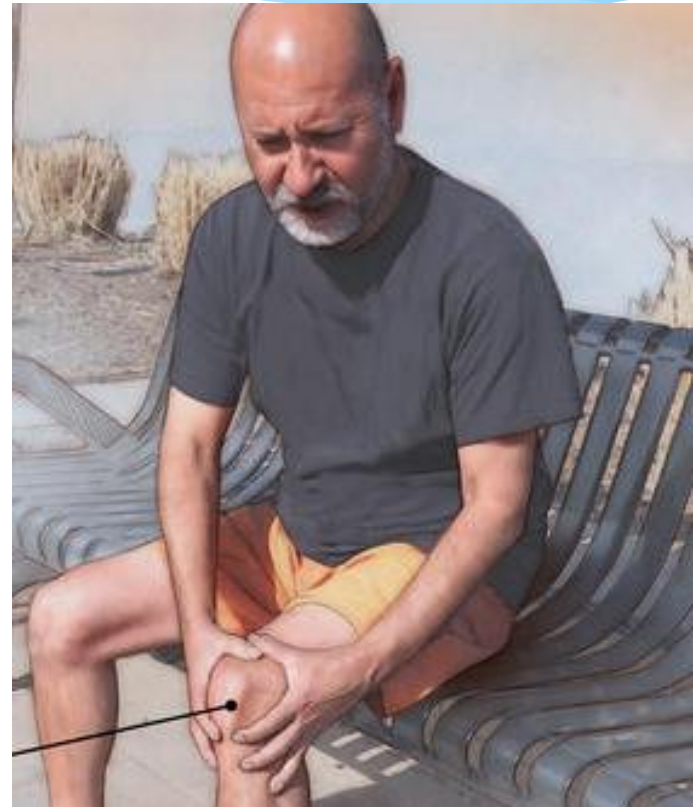
# Symptoms of Arthritis

- Pain
- Joint Swelling
- Stiffness
- Decreased activity
- Impaired lifestyle



# Physical Examination

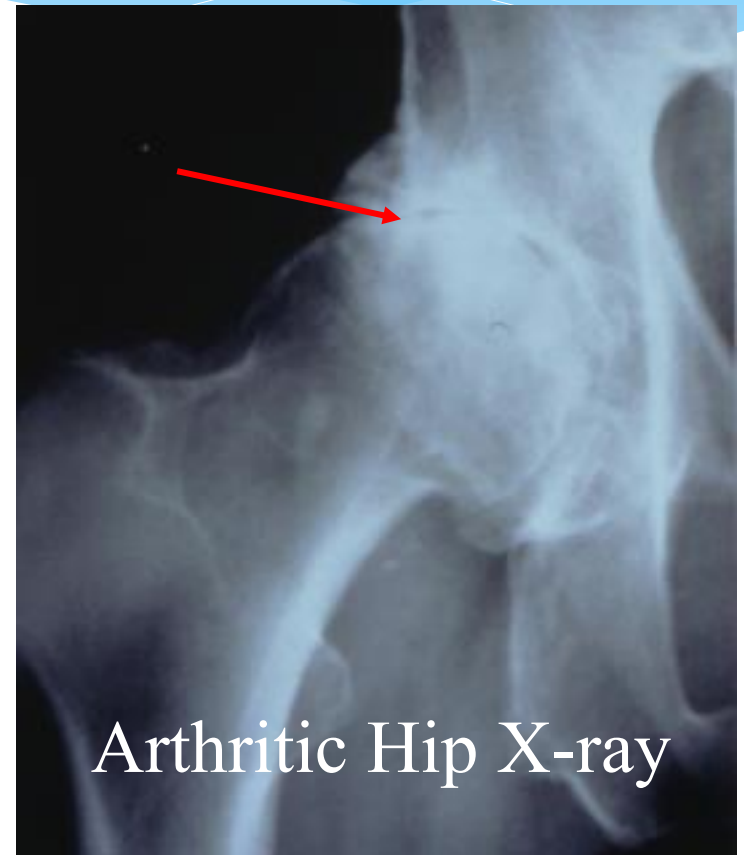
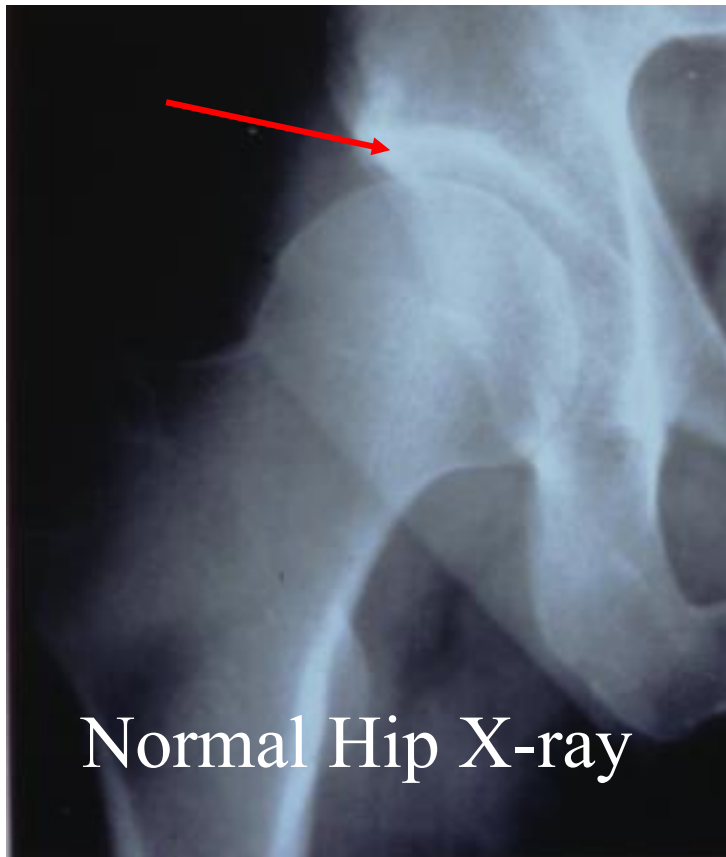
- Decreased range of motion
- Tenderness
- Joint deformities
- Swelling
- Crepitus



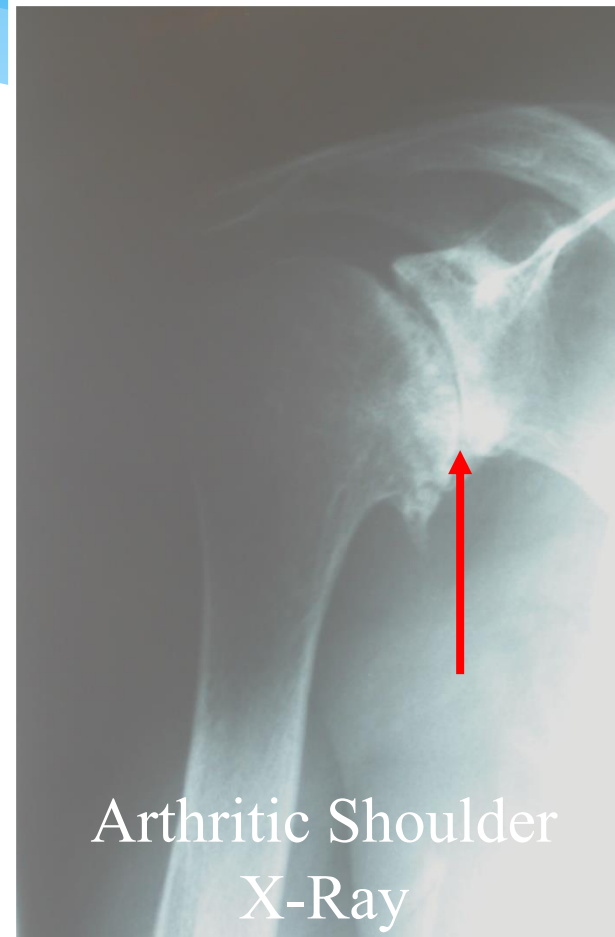
# X-Ray Analysis



# X-Ray Analysis



# X-Ray Analysis

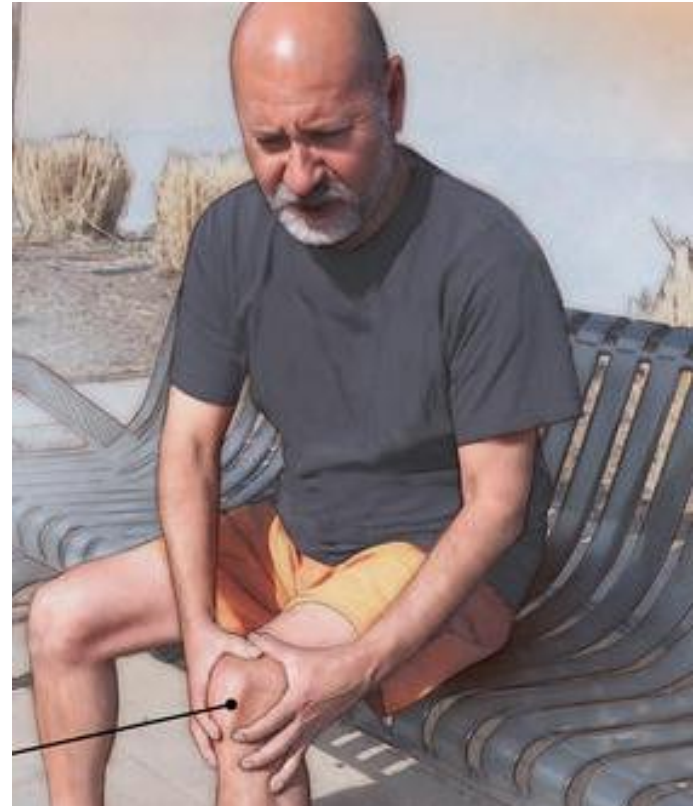


# Treatment Options

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# Treatment Options

- Weight Loss
- Home Exercise
- Physical Therapy
- Ice
- Medication
- Dietary supplements
- Walking devices
- Braces
- Injections
- Surgery





# Diet/Weight Loss

- Excess weight places
- Excess pressure on joints
- Causes osteoarthritis
- Aggravate osteoarthritis
- Lower extremity not upper





# Exercise/Physical Therapy

- Low Impact
- Improves joint mobility
- Strengthen muscles
  - Provides support for joints



Walking



Cycling



Swimming

# Exercise/Physical Therapy

- High Impact



# Ice

- Decreases inflammation
- Decreases swelling
- Decreases pain



# Medication

- Tylenol/Acetaminophen
- Anti-Inflammatory Medications
  - Ibuprofen
  - Aleve
  - Naprosyn
  - Celebrex
  - Relafen



# Dietary Supplements

- Chondroitin Sulfate
- Glucosamine Sulfate





# Braces

- Braces
  - Multiple types
- Help re-align joints
- Compression



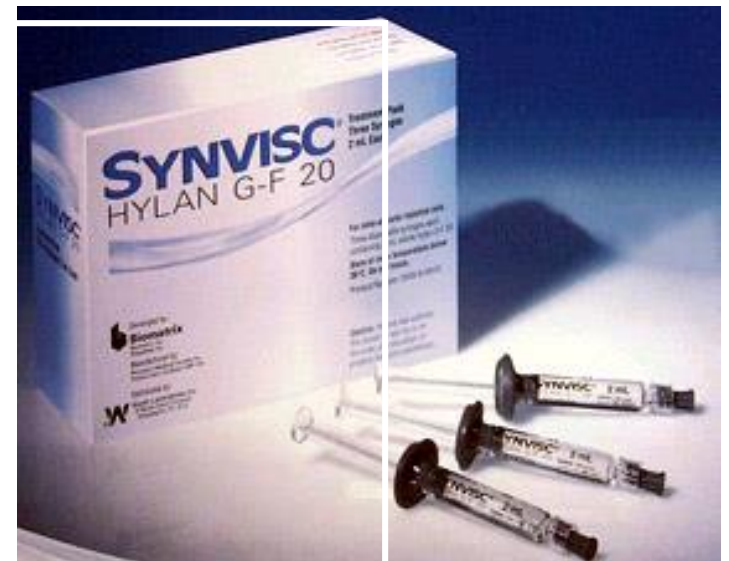
# Walking Device

- Walking Devices
  - Cane
  - Walker
- Helps reduce pressure



# Injectons

- Cortisone (Steroid)
  - Decreases inflammation
- Viscosupplimentation
  - Synvisc
  - Hyalgan





# Ultrasound-Guided Injections



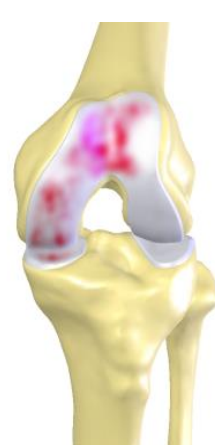
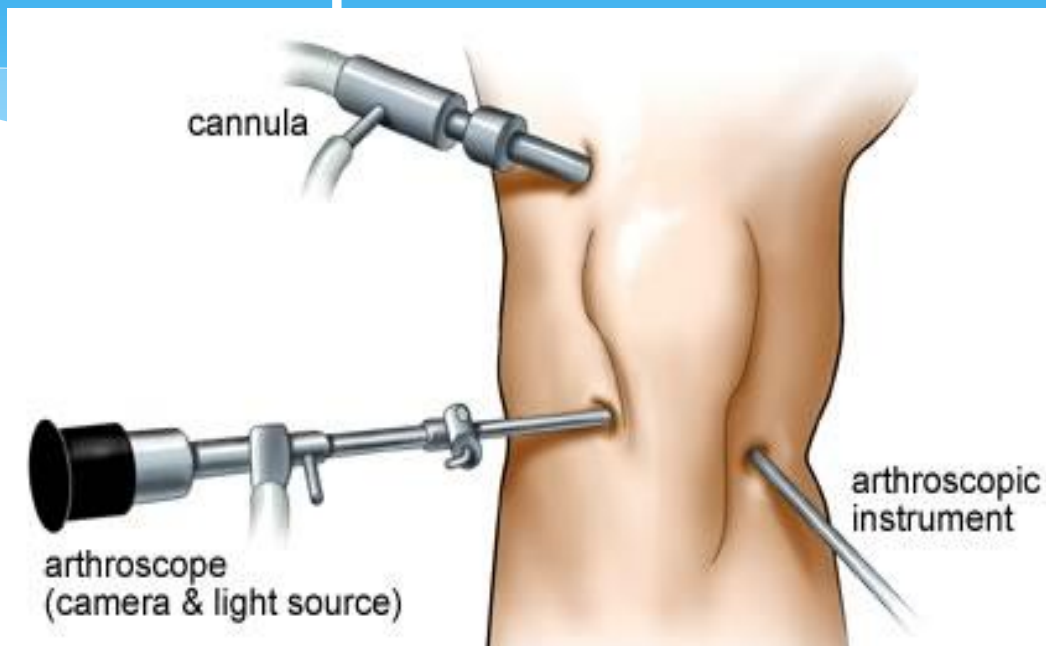
# Surgery

- Arthroscopic Debridement
- Joint Replacement

# Knee Osteoarthritis: Surgical Treatment Options

## Arthroscopic Surgery

- Early OA
  - Repair uncommon
- Mild- Mod OA
  - Debridement
  - Variable benefits
- Severe OA
  - Contraindicated



# When Should Total Joint Replacement be Considered?

- Pain negatively affects daily living
- Conservative options failed
- Extensive cartilage damage
- Joint deformity



# Benefits of Total Joint Replacement

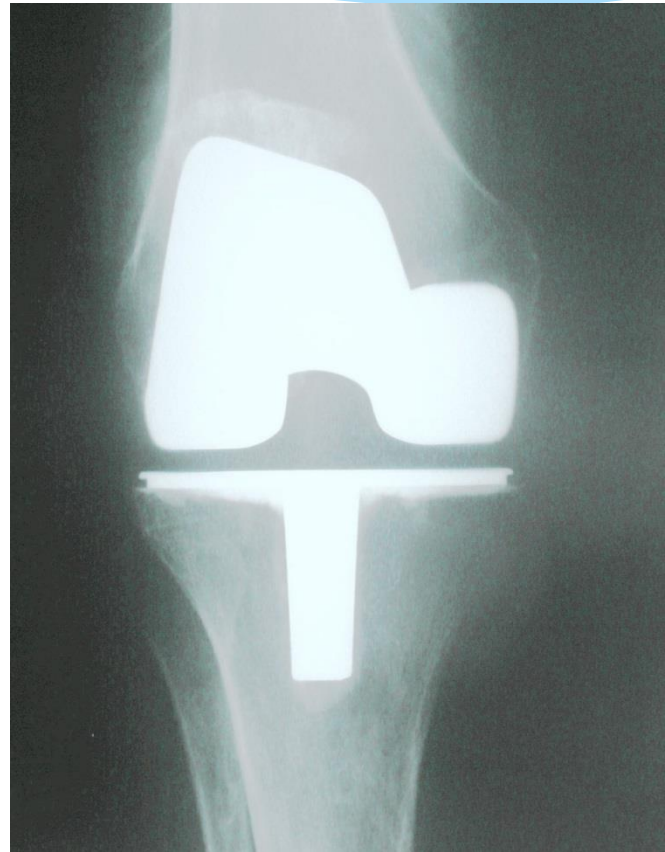
- Eliminate or reduce pain
- Enhance mobility
- Can improve quality of life
  - Return to normal activity
  - Low impact sports and activities



# Total Knee Replacement

- Damaged bone resurfaced
- Components made
  - metal alloy
  - Polyethylene

# Total Knee Replacement



# Primary Knee Components



Femoral Component

Polyethylene Bearing  
(Acts as cartilage)

Tibial Tray  
(supports polyethylene bearing)



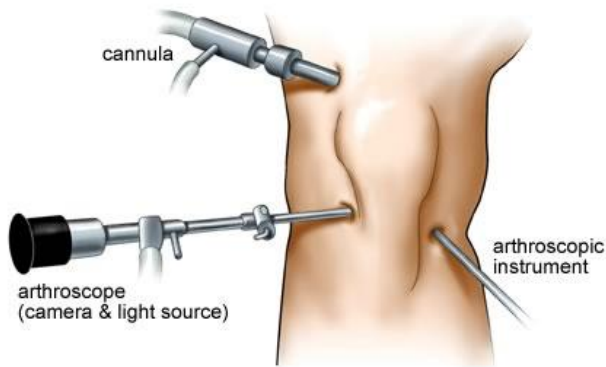
# Knee Osteoarthritis: Traditional Treatment

Early Stage Sports Injuries

Early to mid-stage OA

Late stage OA

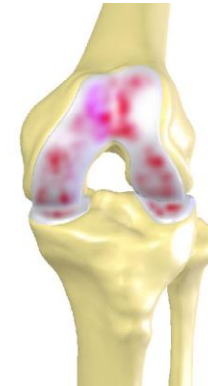
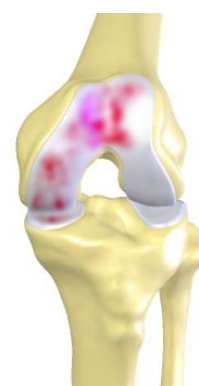
**“MIS” Arthroscopy**



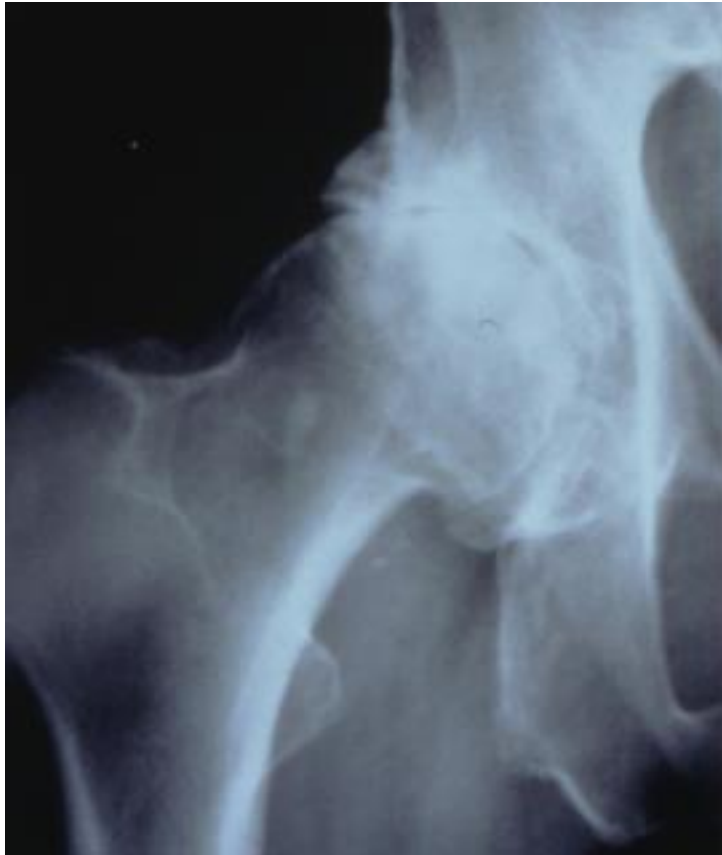
**Partial (Uni) Knee Arthroplasty**



**Total Knee Arthroplasty (TKA)**



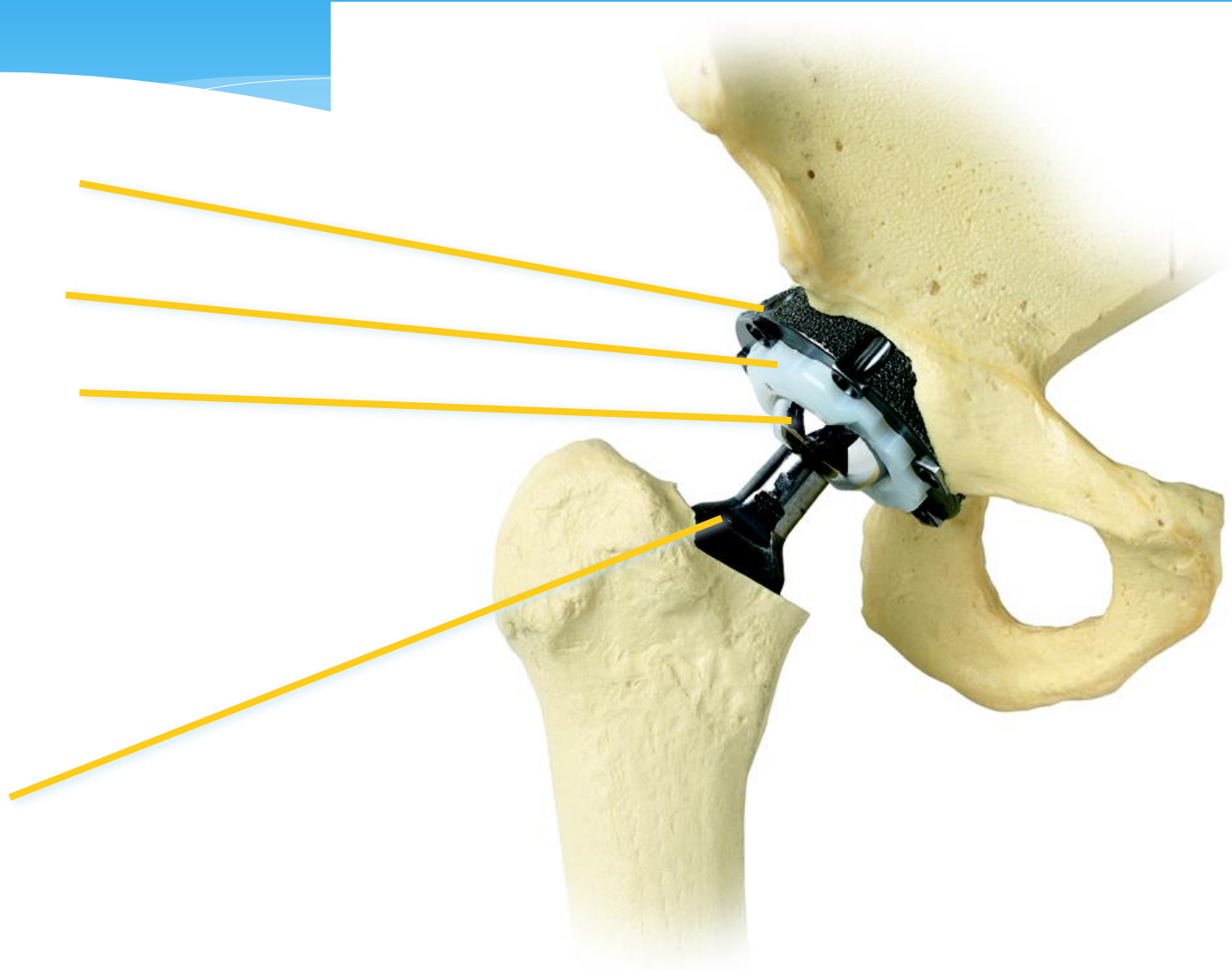
# Total Hip Replacement



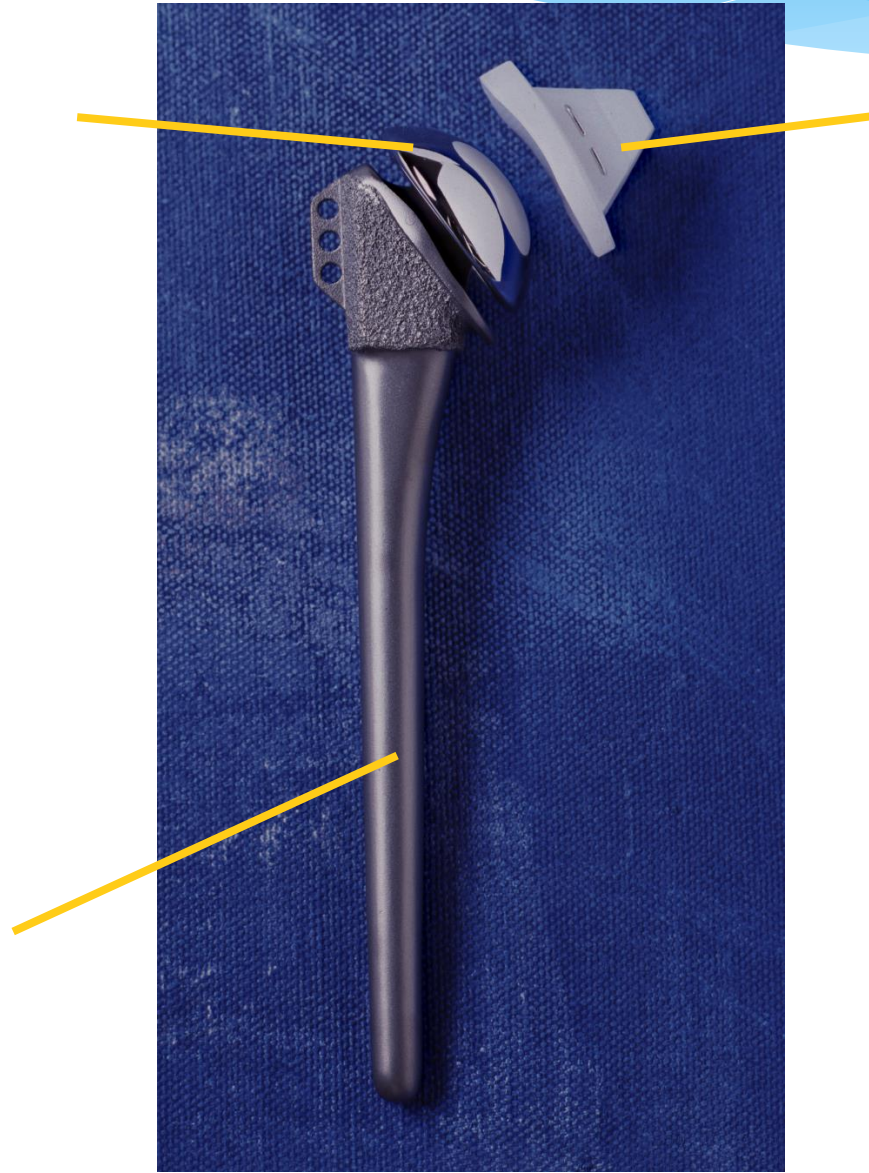
# Hip Implants

Shell  
Liner  
Head

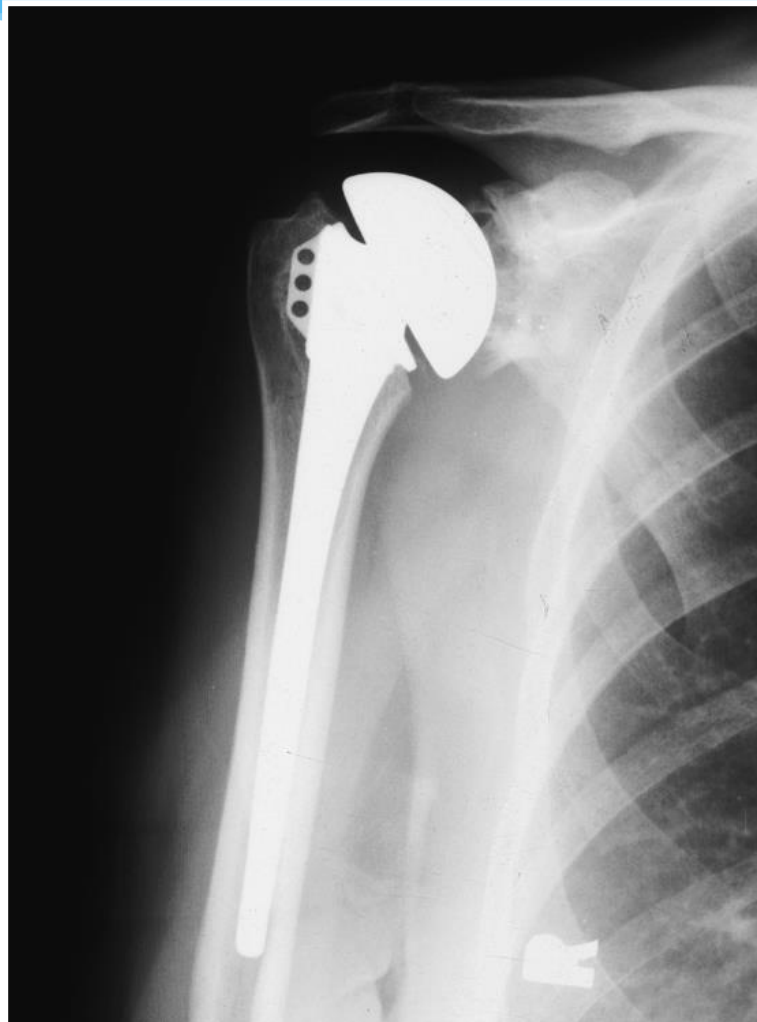
Stem



# Primary Shoulder Components



# Total Shoulder Replacement





# Joint Replacement Surgery

- Hospital stay approximately 1-2 nights
- Assisted walking within 24 hours
- Pain medication
- Physical therapy
  - Key to recovery
  - Help prevent swelling, stiffness, and pain
  - Regain strength and mobility



# Recovery

- 2-4 weeks of discomfort
- Physical Therapy for 4-6 weeks
- Home exercise program as directed by physician



# Resume Usual Activities

- Routine Activities
  - 2-4 weeks
  - Walking (un-assisted)
  - Driving
  - Gardening
  - Shopping
  - Housework





# Resume Usual Activities

- Low-Impact Activities
  - 1-2 months
  - Golfing
  - Dancing
  - Bowling
  - Swimming
  - Bicycling
  - Work



# Recent Advances in Joint Replacement

- Minimally Invasive
  - 4 to 5 inch incision
  - Shorter and less painful recovery
- Alternative Materials
  - Polyethylene
  - Ceramic
- Partial Knee Replacement
- Customized Patient-Specific Surgical Instruments

# Closing

- \* Your symptoms should be diagnosed to help you get relief
- \* There are many different treatment options
- \* Osteoarthritis and rheumatoid arthritis are treatable, manageable conditions

Thank You