Arthritis of the Knee, Hip and Shoulder

Michael W. Schwepppe, M.D.
Orthopedic Associates of Dutchess County
Chief of Orthopedics, Northern Dutchess Hospital
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

- Medial Colateral Ligament (MCL)
- Lateral Colateral Ligament (LCL)
- Anterior and Posterior Cruciate Ligaments (ACL and PCL)
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

- Glenoid
- Humeral Head
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
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
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

Mild or Moderated

Late or Severe
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

Normal Knee X-Ray

Arthritic Knee X-Ray
X-Ray Analysis

Normal Hip X-ray

Arthritic Hip X-ray
X-Ray Analysis

Normal Shoulder X-Ray

Arthritic Shoulder X-Ray
Treatment Options
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

- Multiple types
- Help re-align joints
- Compression
Walking Device

- Walking Devices
  - Cane
  - Walker
- Helps reduce pressure
Injections

- 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

- Humeral Head
- Polyethylene
- Glenoid Component
- Stem
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