Arthritis

- What is arthritis?
- Who is affected?
- What treatment options are available?

What is Arthritis?

arth - joint

itis – inflammation

Arthritis – inflammation of the joint(s).

What is Inflammation?

Inflammation is one of the body's normal reactions to injury or disease. It is part of the body's natural defenses, and works to repair the problem. When injury occurs in a damaged or diseased joint, the end result is swelling, pain, and stiffness.

Arthritis Facts

- Arthritis affects nearly 70 million Americans, or one in every three adults.
- Arthritis is the leading cause of disability in the United States – accounting for 17.5 percent of those on disability.
- A survey conducted by the Centers for Disease Control and Prevention projects that the number of Americans over 65 who suffer from osteoarthritis will double to 41 million by 2030.

Osteoarthritis

There are more than 100 different types of arthritis. The most common type is called osteoarthritis, which is sometimes known as degenerative joint disease (DJD). It is most often the result of normal “wear and tear” and occurs to some extent in all people as they age.

Joints Affected by Osteoarthritis

Hip

Knee

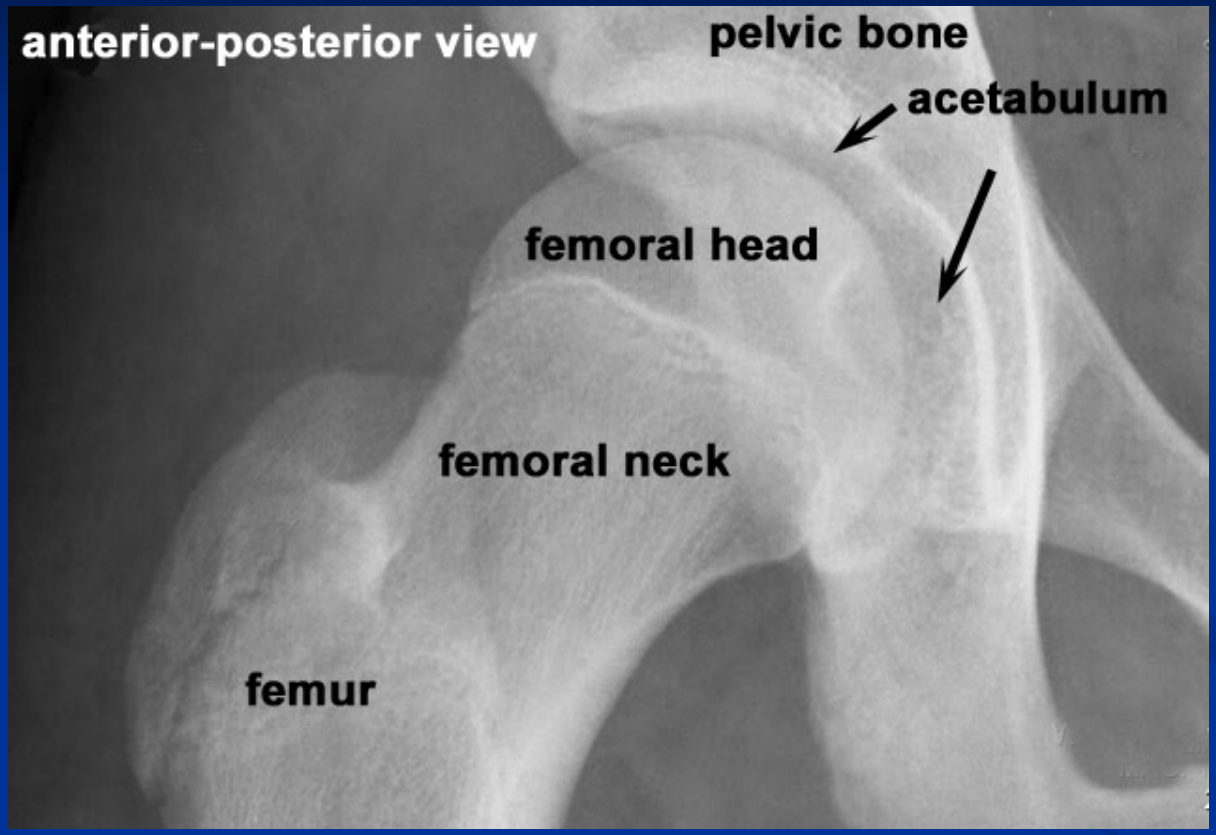
Spine

All joints can be effected, however, the most commonly involved are the weight bearing joints such as the hip, knee and spine. They must withstand the significant forces generated by walking and running, and therefore are prone to wearing out.

What are Joints?

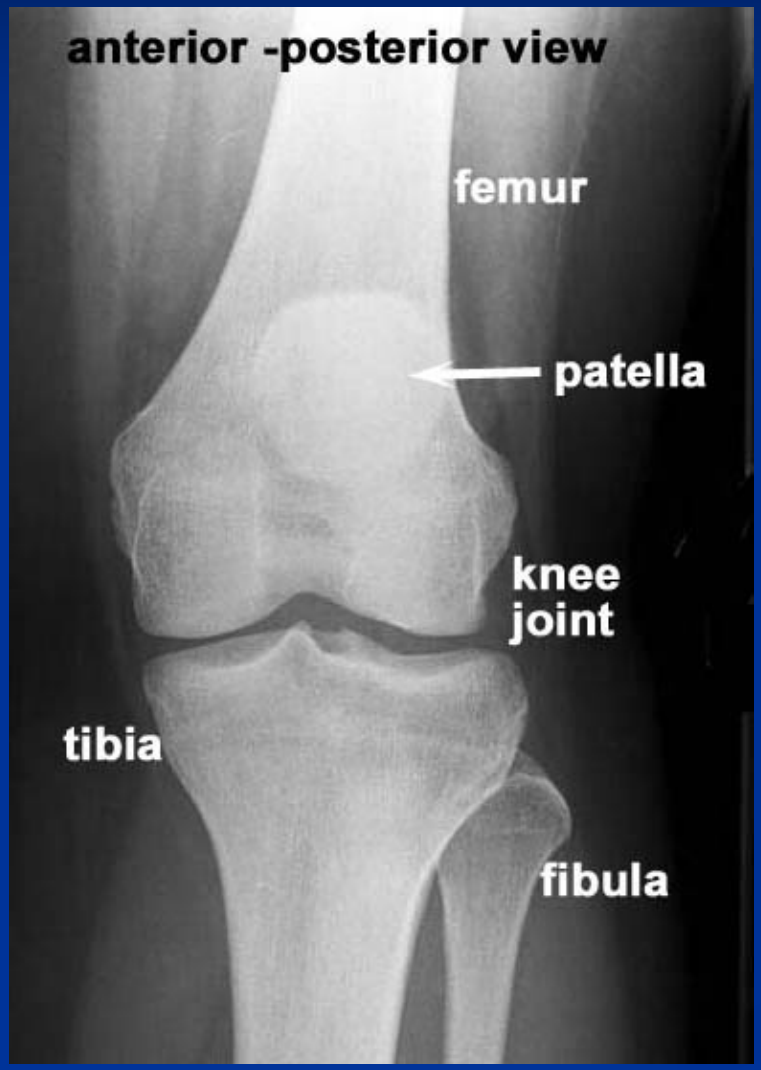
Joints are the places where the bones meet. The body would be immobile if not for the movements afforded by the joints. Joints can be large or small, and permit movements as varied as walking, bending, reaching, and performing fine motor skills.

Hip joint



The hip is a simple ball and socket joint. The upper end of the thigh bone (femur) is the ball. It fits snugly into the socket, a part of the pelvis called the acetabulum.

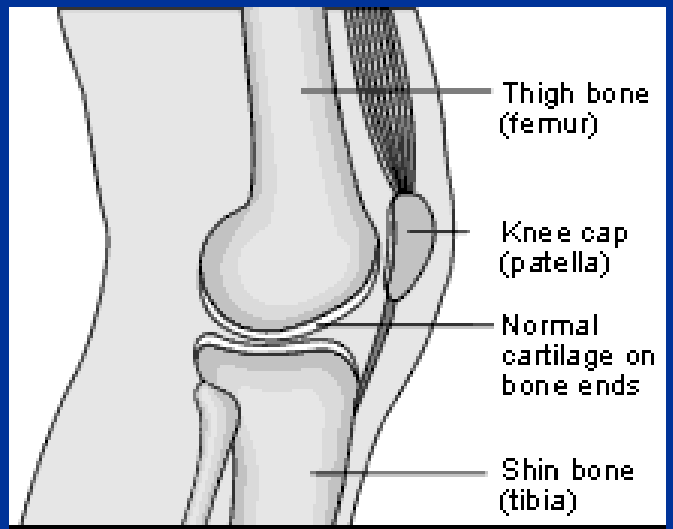
Knee Joint



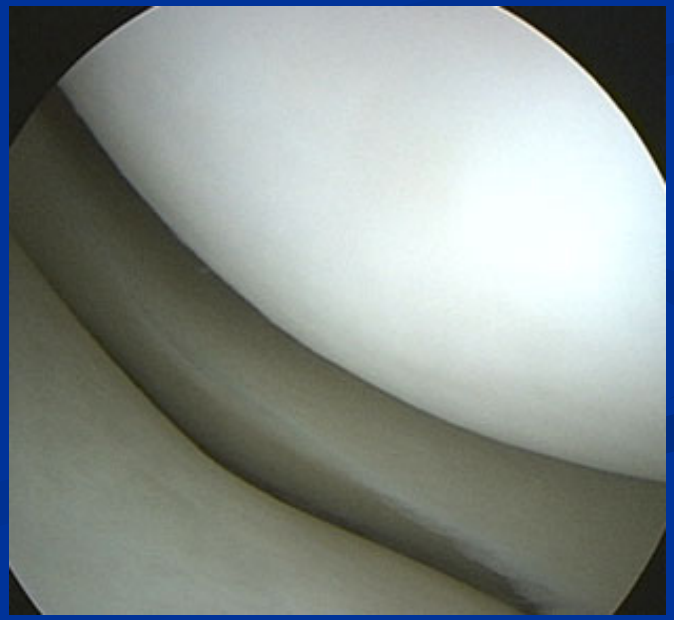
The knee is the largest joint in the body, and one of the most easily injured. It is made up of the lower end of the thighbone (femur) which rotates on the upper end of the shinbone (tibia), and the knee cap (patella) which slides in a groove on the end of the femur.

Cartilage

Within the joints, the ends of the bones are covered with a smooth, white, glistening material called **hyaline cartilage.** When normal, this material cushions the underlying bone against excessive pressure and allows the joint to move easily and without pain.

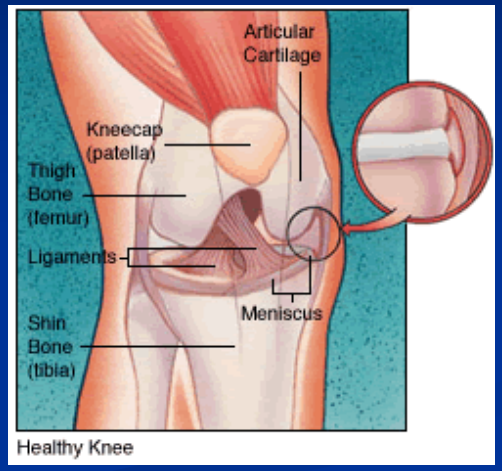


Side view of a normal knee joint

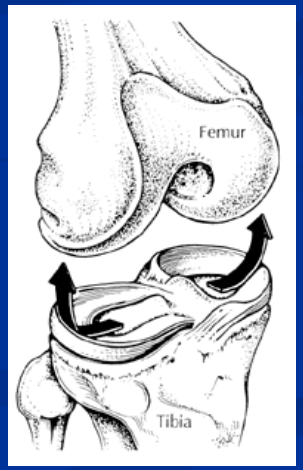


Menisci

- The articular cartilage on both ends of the knee joint never actually come in direct contact with one another. They are separated by a thin film of joint fluid and two “shock absorbers” made of a different type of cartilage and known as the **menisci** (meniscus).

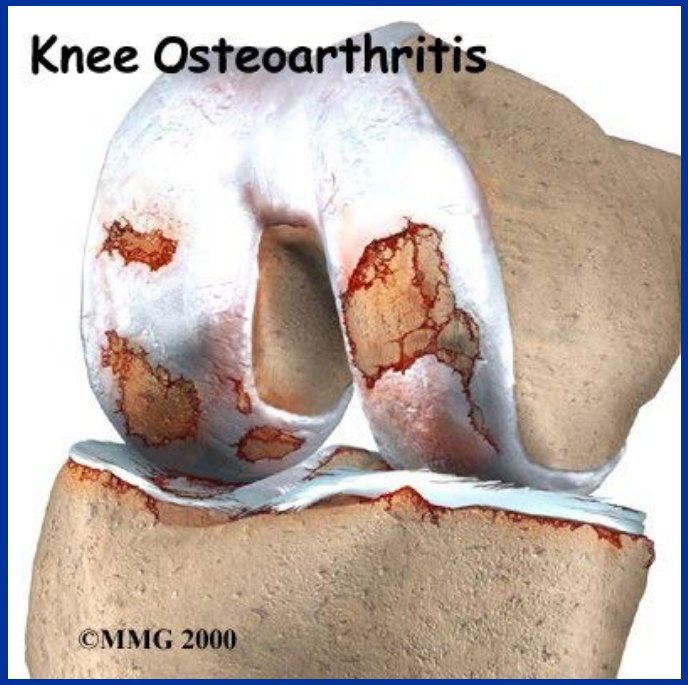


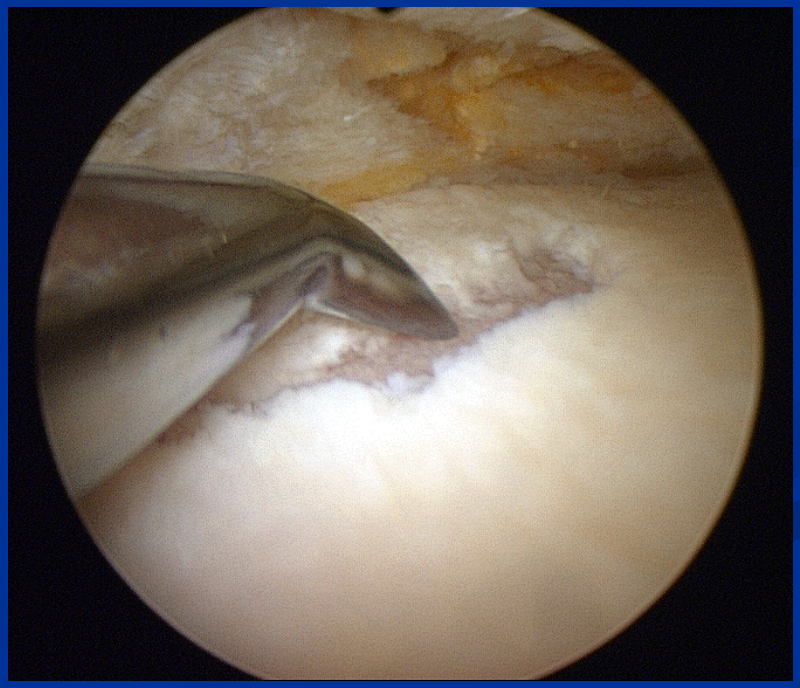
Healthy Knee



Cartilage

When the articular cartilage is damaged or injured, it usually goes through a staged process of softening, flaking, fragmenting, and finally complete loss, where the underlying bone is exposed. This process is commonly known as osteoarthritis or OA.

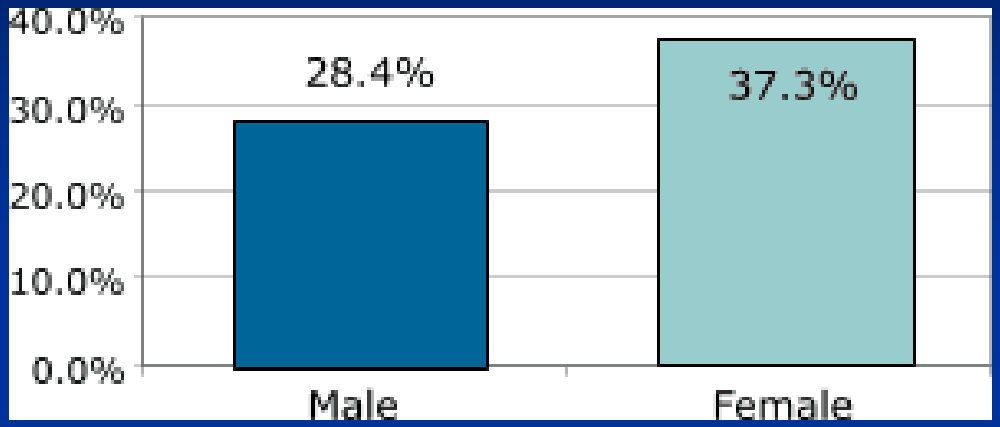




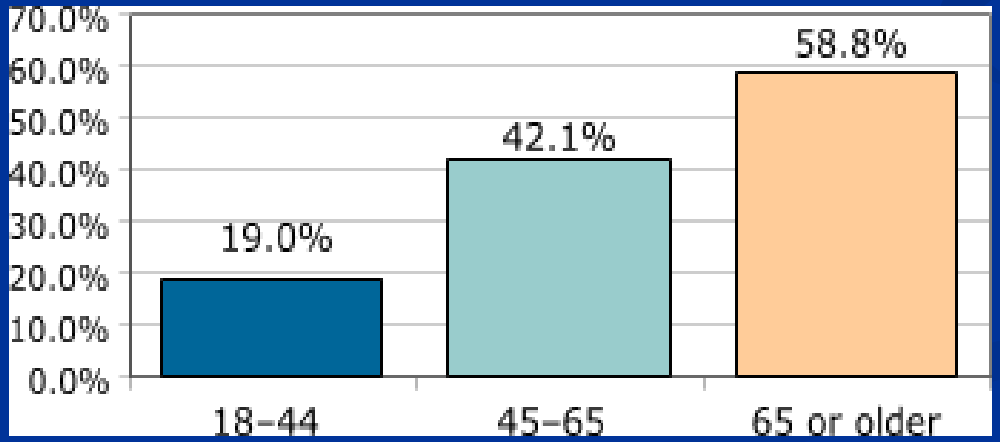
Arthritis Risk Factors

- **Obesity** - Generally, the more weight a person carries, the greater the pressure on weight-bearing joints of the body.
- **Past injury in a joint** - There is an increased risk of developing OA in a joint that is not properly aligned or one that has been injured.
- **Occupational factors** - Repetitive tasks, overworking the joints and overtiring muscles that protect a joint increase the risk for OA in that joint.
- **Genetics** - osteoarthritis in all its various forms appears to have a strong genetic connection. Gene mutations may be a factor in predisposing individuals to develop OA.

Who is At Risk For Arthritis ?

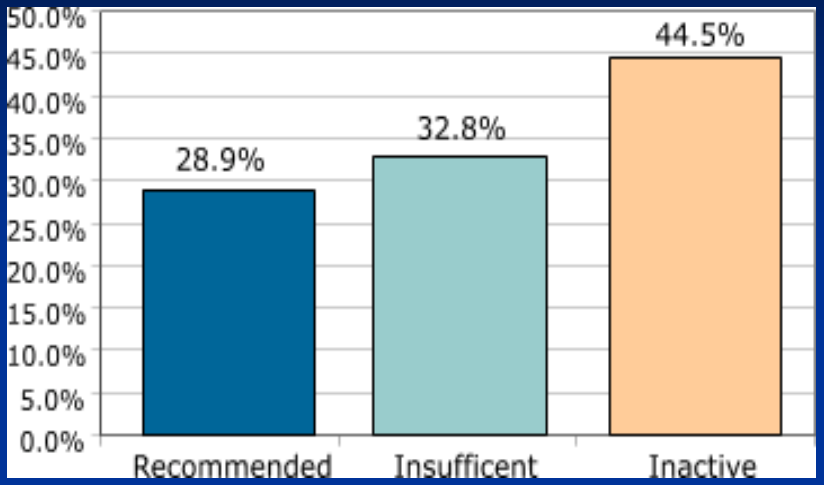


Prevalence of arthritis, among U.S. adults by gender

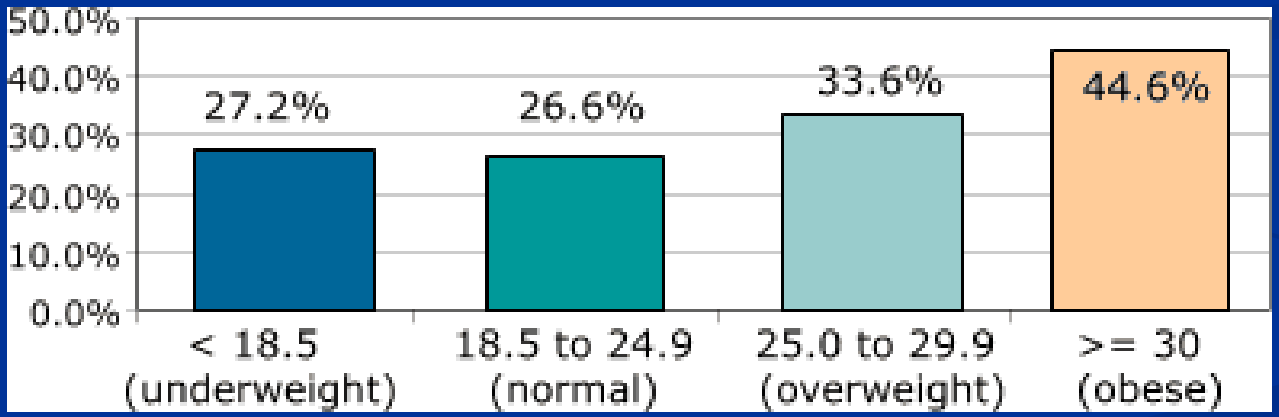


Prevalence of arthritis, among U.S. adults by age group

Who is At Risk For Arthritis ?



Prevalence of arthritis among U.S. Adults by physical activity level.



Prevalence of Arthritis or Chronic Joint Symptoms (CJS) Among U.S. Adults by Body Mass Index

Arthritis signs and symptoms

- Joint Pain
- Crepitis (grinding)
- Joint Deformity
- Osteophytes
- Joint Stiffness

Arthritis signs and symptoms

Joint Pain and Stiffness

- The main symptoms associated with osteoarthritis are painful and stiff joints.
- The symptoms can be quite debilitating.
- Typically, stiffness is worse in the morning, lasting less than 30 minutes.

Arthritis signs and symptoms

Creaking or Grinding Sounds

- **Crepitis** is the medical term for the grinding sound often heard when attempting to move the affected joint.

- Sometimes moving the joint through the full normal range of motion may not even be possible.

Arthritis signs and symptoms

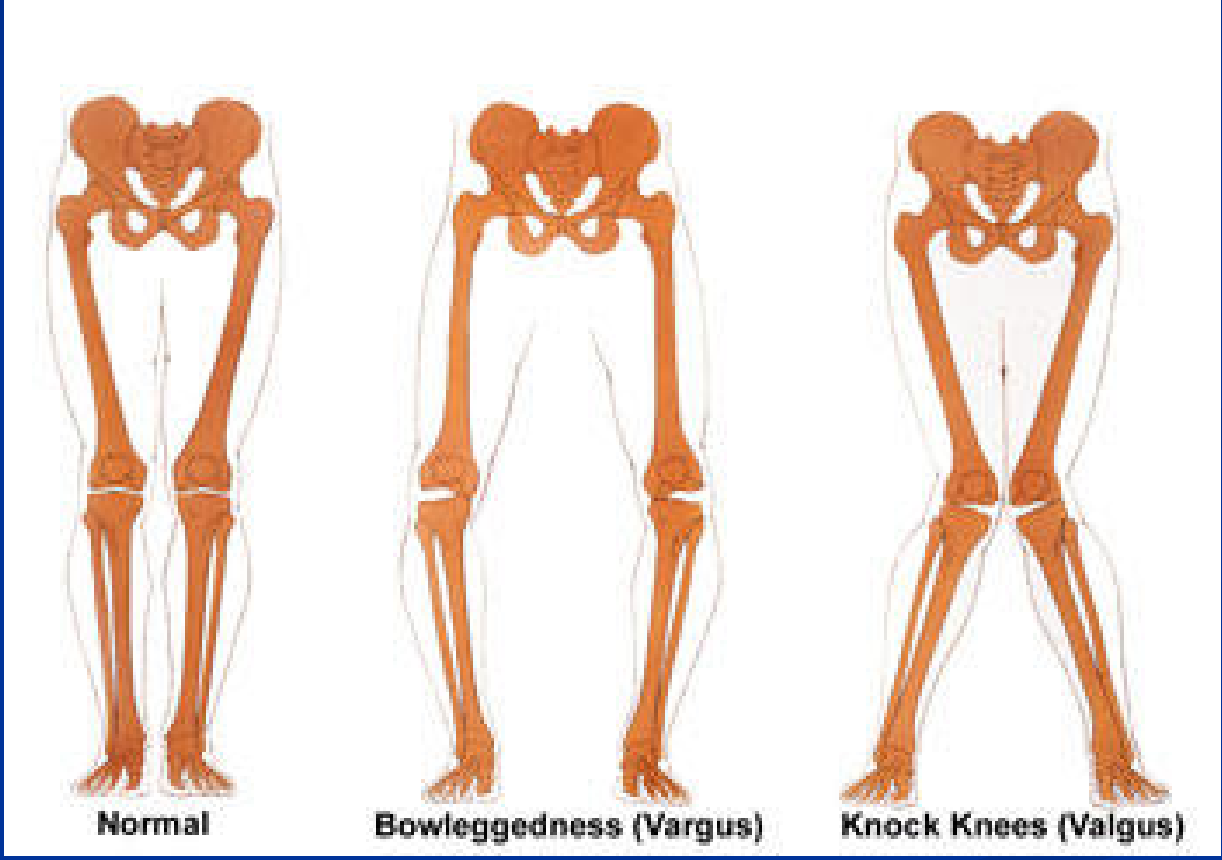
Joint Deformity

The arthritic knee joint can develop a deformity in which the joint itself becomes angled.

Valgus deformity is the term used to describe what many people commonly refer to as being “knock kneed.”

Varus deformity is the term used to describe what is referred to as being “bowlegged.”

Joint Deformity



Arthritis signs and symptoms

Osteophytes

Joints also may appear swollen, caused by new bony growths called osteophytes (bone spurs) or sometimes, by extra fluid in the joint.

How is Arthritis Diagnosed?

- Signs and symptoms
- History and physical examination
- X-Rays
- Blood Tests
- Analysis of Joint Fluid

Treating Arthritis

- Although there is no cure for osteoarthritis, proper treatment can help relieve the symptoms and prevent or correct serious joint problems.

- There are two general classes of treatments, surgical and nonsurgical.

Treating Arthritis

- Nonsurgical

  1. Health and behavior modifications - physical therapy, exercise, weight loss.

  2. Drug therapy – Pain relievers, NSAIDs, COX2 inhibitors

  3. Intra-articular injections – steroids, viscosupplementation

- Surgical

  1. Arthroscopy - Day surgery, done through small holes

  2. Arthroplasty - Total Joint Replacement

Drug Therapy

NSAIDs

NSAIDs – Non Steroidal Anti-inflammatory Drugs

- NSAIDs are first line therapy drugs that are used to both relieve pain and to decrease inflammation.
- Some examples of NSAIDs are Motrin, Feldene, and Indocin.
- Many people cannot take NSAIDs because of there side effects including GI upset and an increased risk of bleeding

COX2 Inhibiters

- COX2 Inhibiters are a relatively new class of medicines that also relieve arthritis pain by decreasing inflammation.
- COX2 Inhibiters have fewer side effects than NSAIDs. However, recent studies have shown that they may cause an increased risk of heart problems in some patients.
- Examples include Celebrex, as well as Bextra and Vioxx which were recently removed from the market.
- COX2 Inhibiters tend to be expensive and are not always covered by insurances.

Intra-articular Injections

There are two main types of intra-articular injections.

1. Steroids – Injected into the joint to decrease inflammation.

2. Viscosupplementation – Injected into the joint to provide lubrication.

Steroids

- Steroid injections are commonly referred to as “cortisone shots.” However the steroid we most commonly used is Kenalog.
- Kenalog is a potent anti-inflammatory medication that relieves the symptoms of arthritis but doesn’t treat the disease itself.
- All patients have different results with cortisone shots.
- As a general rule only three steroid shots should be given in one years time.

Viscosupplementation

- Viscosupplementation is a relatively new method of treatment that in some cases can be effective for treating osteoarthritis of the knee.

- The active ingredient in the injections is called hyaluronic acid. Hyaluronic acid is a naturally occurring substance found in the synovial (joint) fluid. It acts as a lubricant to enable bones to move smoothly over each other.

- There are five major preparations of hyaluronic Acid available; all have similar properties and none has been clinically proven more effective.

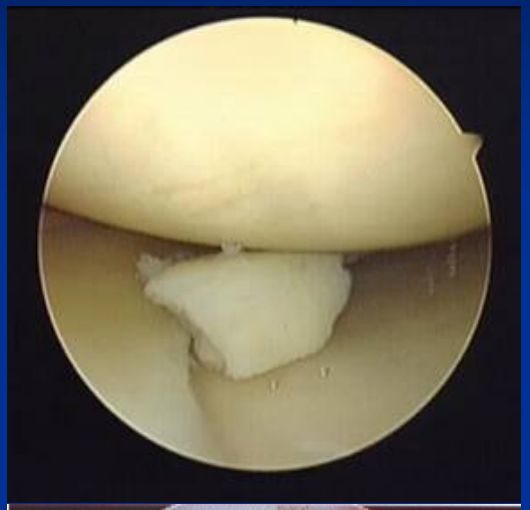
Viscosupplementation

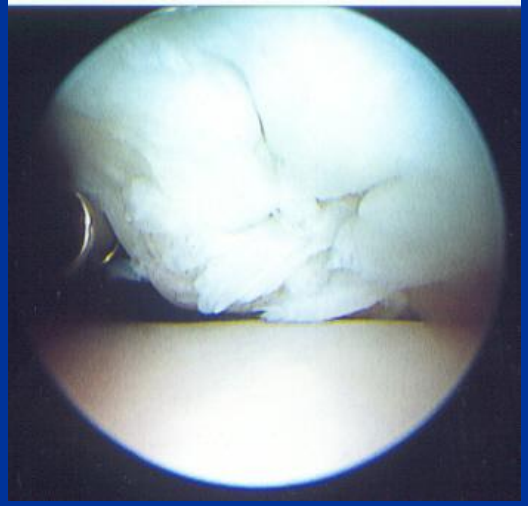
- Orthovisc is injected into the knee once a week for three weeks.
- There is a very low incidence of adverse reactions.
- Results differ from patient to patient.
- The beneficial effects of orthovisc can last for up to one year.

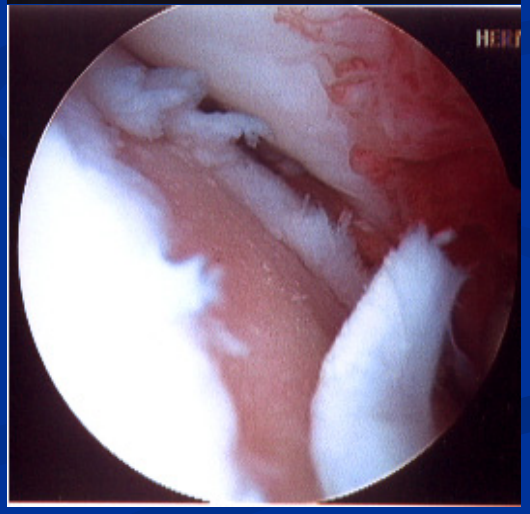
Arthroscopy

- Arthroscopy is a day surgery that is done using instruments and a camera that are placed into the joint through small holes.
- Arthroscopy can be helpful to both diagnose and treat arthritis.
- Recovery from knee arthroscopy is much faster than recovery from traditional open knee surgery.
- In most cases arthroscopy is not a permanent solution to arthritic joint pain. * * *

Arthroscopy







Arthroscopy- What Can Be Done

1. Cleansing and removing debris from the joint.
2. Removing any free-floating pieces of bone or cartilage from the joint.
3. Smoothing out rough or irregular joint surfaces.
4. Limited removal of inflamed tissues in larger joints.

Arthroplasty Facts

- Total joint replacement is a surgical procedure in which a diseased or damaged joint, such as a hip or knee, is removed and replaced with artificial components.
- Modern-day joint replacement surgery has been performed in the United States since the 1970s.
- More than 700,000 individuals had hip or knee replacement surgery in 2002.
- Total joint replacement is considered to be the gold standard definitive treatment for advanced arthritis of the hip and knee.

Arthroplasty

- Joint replacement is an **inpatient** operation done in a hospital setting by an orthopedic surgeon.
- Arthroplasty is commonly performed under general or spinal **anesthesia.**
- Post Operative pain control is often times managed with a machine called a PCA pump which allows patients to control their own **pain medicine** usage.
- Most patients require **hospitalization** for three to five days following joint replacement.

Arthroplasty

- Many patients require some additional **therapy** outside of the hospital setting. This can be done at a rehabilitation center or at home by a visiting physical therapist.
- As with any surgical procedure there are **risks** associated with total joint replacement. Precautionary measures are taken with every patient to avoid the known complications.
- As with other procedures requiring prosthetic implants, patients are required to take **antibiotics** before many surgical procedures following their joint replacement.

Total Knee Replacement

Total Knee Replacement involves the surgical removal of the end of the femur, the beginning of the tibia and the under surface of the kneecap. These once arthritic areas are then replaced with metal and plastic components. The implants are typically cemented in place.

Total Knee Replacement

Normal Knee

Arthritic Knee

Replaced Knee

Total Knee Replacement

- There are many different companies that produce total knee implants.
- There are various types of implants available to orthopedic surgeons. Some implants are better suited to specific patient populations.
- Total knee implants themselves can wear out with time. Most implants have been shown to last fifteen to twenty years.
- In recent years surgeons have been able to reduce the length of incision needed for a knee replacement.

Total Knee Replacement

- A shorter incision doesn't necessarily mean a better surgery or a shorter rehab.
- There are some benefits to having a smaller incision. However, there may also be more risks.
- Most patients and surgeons alike realize that a good replacement is what is most important.

Total Knee Replacement

- The major goals of total knee replacement are to relieve pain and to restore proper joint motion.
- Patients are able to return to most of their normal activities following total knee replacement.
- Patients are discourage from participating in contact sports or activities that cause excessive load on the knee such as running, jumping, and kneeling.

Total Hip Replacement

Total hip arthroplasty involves the surgical removal of the arthritic ball and socket joint and replacement with prosthetic implants.

Total Hip Replacement

- Much like knee implants there are many different hip implants available to orthopedists.
- Over the years various combinations of materials have been used to make hip implants. Most surgeons today are implanting a metal ball into a plastic or metal socket.
- Advances in surgical technique have enabled surgeons to perform hip replacements through smaller incisions.

Total Hip Replacement

Normal Hip

Arthritic Hip

Replaced Hip

Total Hip Replacement

- Total hip replacement is very successful at both relieving hip pain and restoring joint function.
- There are precautions that patients must follow after a hip replacement to prevent dislocation. Physical therapists help to teach these precautions to all patients.
- Patients are able to return to normal activities however high-impact activities such as running, vigorous walking, and downhill skiing should be avoided.

Computer-Assisted Surgery

- In the best of hands, adds 15 minutes to 2 hours to the length of the case……? increased **infection** rate?
- Software is still being developed and **fine-tuned** for precision.
- At this time, there is **no hard evidence** that computer assisted total joint surgery will make your joint replacement function better or last longer.

Computer-Assisted Surgery

- Do I think that computer-assisted total joint arthroplasty will have a place in the future?

- YES!!!!!!

  - But probably not just yet!

Risks

- Bleeding--------Blood Bank
- Infection--------Antibiotics
- Damage to nerves, blood vessels, tendons, ligaments
- Failure of Procedure, Fracture, Dislocation (esp. hips)
- BLOOD CLOTS-------Blood Thinner (e.g. Coumadin) for 6 weeks after surgery

What to Expect

- **Three or four days** at Morton Hospital
- PCA Pump----self-controlled **pain** button
- CPM Machine----knee range of **motion**
- Out of bed on **first day** after surgery
- Intensive **physical therapy**
- Transfer to **rehab facility**

Transitional Care Unit

Treating Arthritis

Weight loss, Physical Therapy, Exercise

Anti-inflammatory medications

Steroid injection

Viscosupplementation

Arthroscopy

Total Joint Replacement

Summary

- Arthritis is major problem for millions of people.
- All people develop some osteoarthritis as they age.
- Although there is no cure for arthritis there are ways to treat the symptoms.
- The first step in relief from your arthritis related pain is making an appointment with an orthopedic surgeon.

Thank You!

Saperia Orthopaedics and Sports Medicine

Barry S. Saperia MD

Trent Hiles PA-C