

Advanced Treatment Options for Knee and Hip Arthritis

James J. York, MD

Chesapeake Orthopaedic & Sports Medicine Center
200 Hospital Drive; Glen Burnie, MD 21061

410-768-5555

7556 Teague Road; Suite 240; Hanover, MD 21076

888-313-5209

www.ChesOrtho.com www.OrthopedicDoc.net

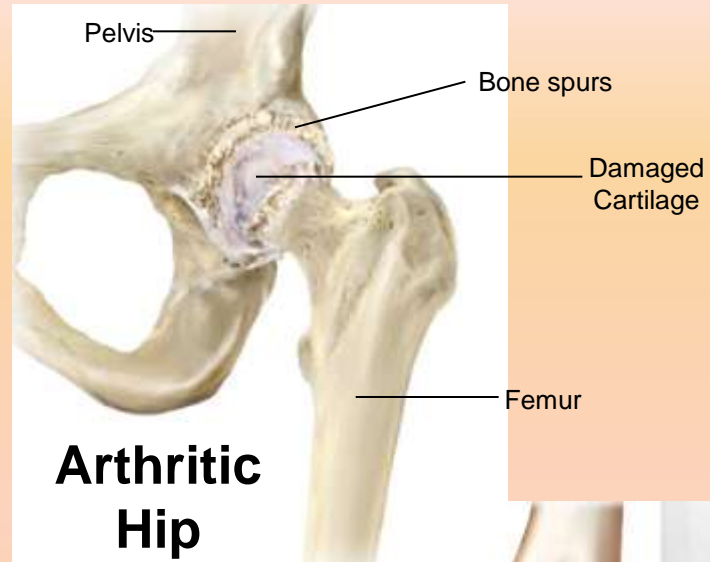


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Sports Medicine Center



What is Osteoarthritis or OA?

- The most common form of arthritis and often called the “wear and tear” arthritis.
- Joint lining becomes pitted, eroded, uneven...and painful.
- Bone spurs, or osteophytes, often form around the joint.
- The common activities of daily living become limited by extreme pain.
- Most of the people who have osteoarthritis are older than age 45, and women are more commonly affected than men.



Arthritic Knee



Osteoarthritis Symptoms

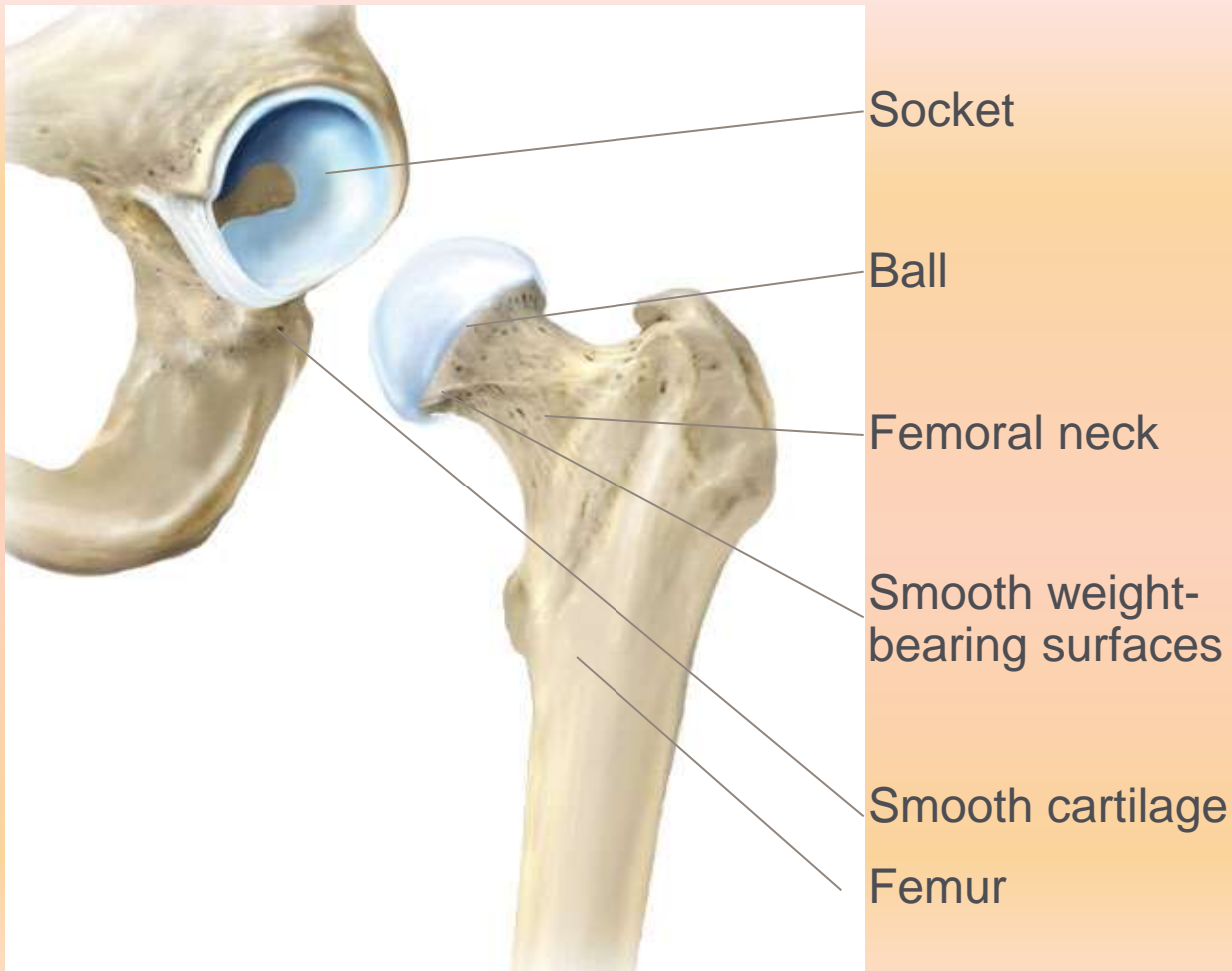
- The main symptom of osteoarthritis is **PAIN**.
- You may feel pain during movement and even at rest.
- Your joints may also be stiff and swollen, and you may even experience a loss of range of movement in the joint.
- The symptoms of osteoarthritis may interfere with your normal activities, such as walking and dressing, and they may also disrupt your sleep.



Osteoarthritis Causes

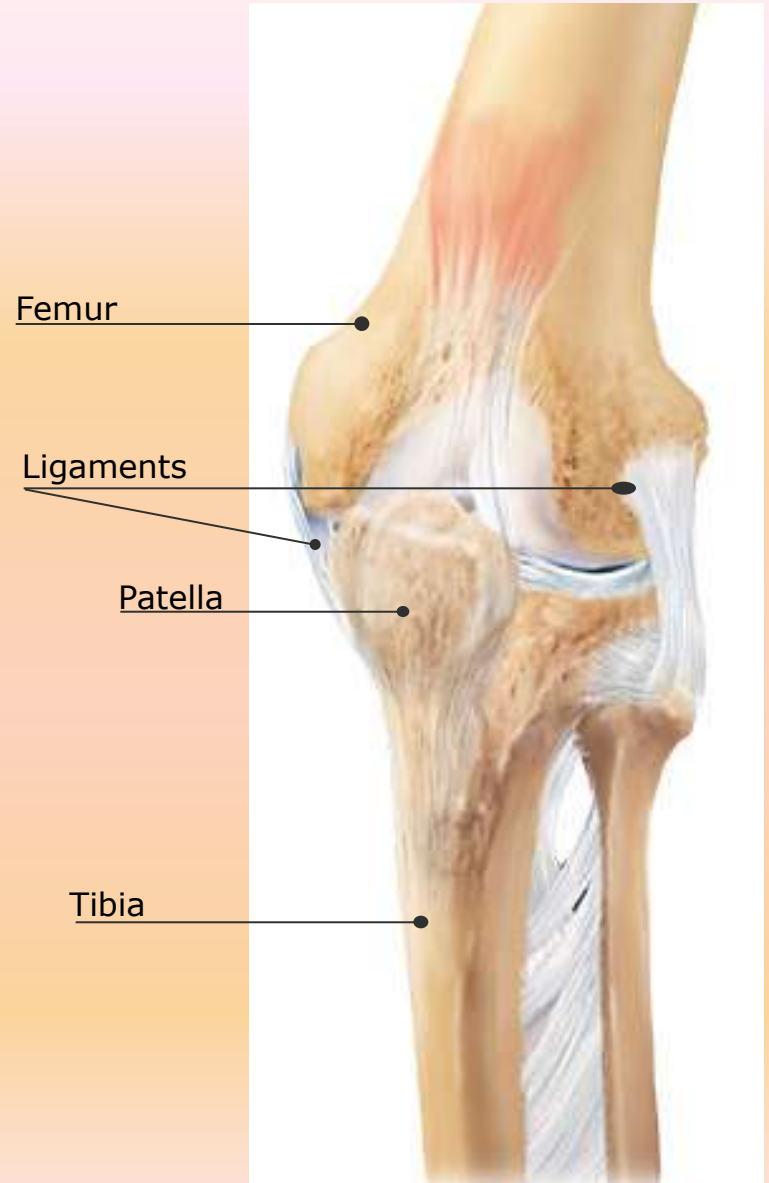
- Excessive wear on the joints
- Joint injuries from sports and other high-impact activity
- Age, although osteoarthritis does not occur in all people as they age
- Obesity, especially with osteoarthritis of the knees
- A small deformity of the bones in a joint
- Work-related activities or accidents

Hip Anatomy



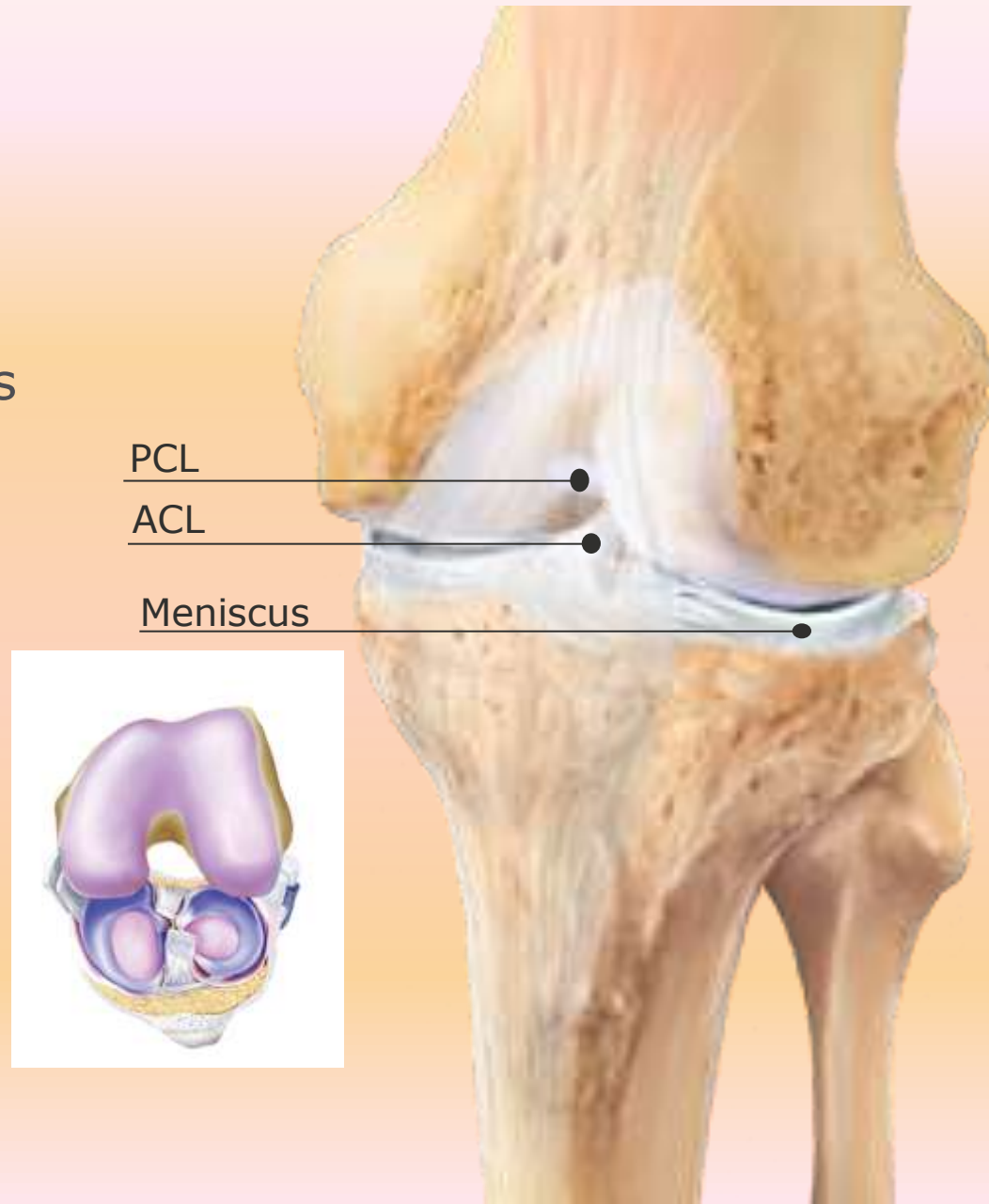
Knee Anatomy

- The lower femur and upper tibia are covered in cartilage
- LCL/MCL ligaments provide stability
- The patella tracks through the trochlear groove, aligning the quadriceps muscle during flexion and extension



Knee Anatomy

- Hinge joint
- Two menisci - cushion pads
 - Stabilize
 - Distribute body weight
- ACL/PCL – ligaments that stabilize knee from front to back



Disease Progression

In the beginning stages of osteoarthritis, you may have no symptoms, but signs of the disease may be seen on an x-ray.

According to the Arthritis Foundation, most people over age 60 show signs of osteoarthritis on an x-ray, but only about one third of them have symptoms.



Disease Progression

The surface of the smooth cartilage covering the joint softens.

The cartilage begins to lose its ability to absorb the impact of movement and is now more easily damaged from excess use or injury.



Disease Progression

Large sections of cartilage may wear away completely with time.

The joint may lose its normal shape as the cartilage breaks down.



Disease Progression

Bony growths or spurs called osteophytes may form on the edges of bones in the joint.

Open cysts may form in the bone near the joint, and bits of bone or cartilage may float around in the joint space.



Non-surgical alternatives

Non-surgical alternatives

- Lifestyle modification
- Weight Control
- Exercise and physical therapy
- Anti-inflammatory medication
- Steroid Injection
- Joint fluid therapy (hyaluronic acid)



Exercise & Weight Control

- Research shows that exercise is one of the best treatments for osteoarthritis.
- Exercise decreases pain, improves flexibility and helps maintain weight.
- A healthy diet can facilitate weight loss resulting in reduced stress on weight-bearing joints and limiting further injury.



Medication

- Heat and Cold are non-drug ways that may relieve pain.
 - warm bath/hot packs or cold packs
- Medicines commonly used in treating OA include:
 - acetaminophen
 - NSAIDs (nonsteroidal anti-inflammatory drugs)
 - topical pain-relieving creams and sprays
 - narcotic painkillers
 - corticosteroids
 - hyaluronic acid
- Many medicines used to treat OA have side effects, so it is important for patients to learn about the medicines they take.



Joint Fluid Therapy

- Joint Fluid Therapy is a treatment to help treat the pain of osteoarthritis of the knee.
- It provides long-lasting relief from arthritis pain for many patients.
- Joint Fluid Therapy involves injecting a substance called hyaluronic acid into the knee.
- This substance is similar to the fluid that occurs naturally in the knee – synovial fluid – which helps to lubricate the knee, reducing friction and protecting from pain.



Surgical Solutions

Total Knee Replacement

Total knee replacement



Degenerative knee

Cuts

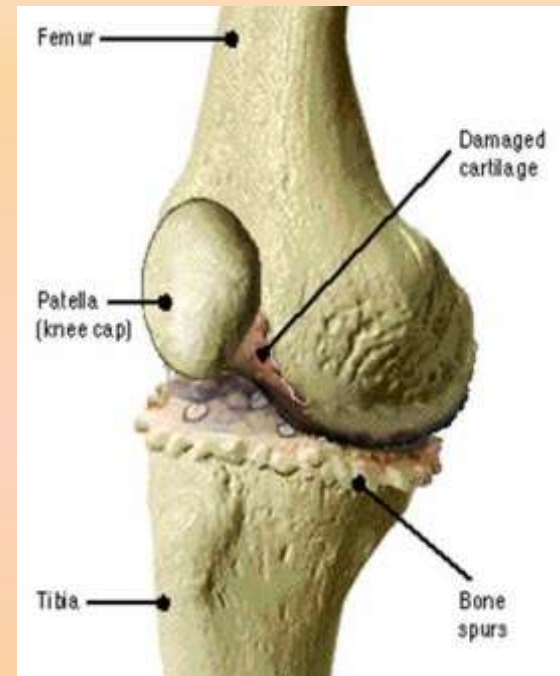


Implant components

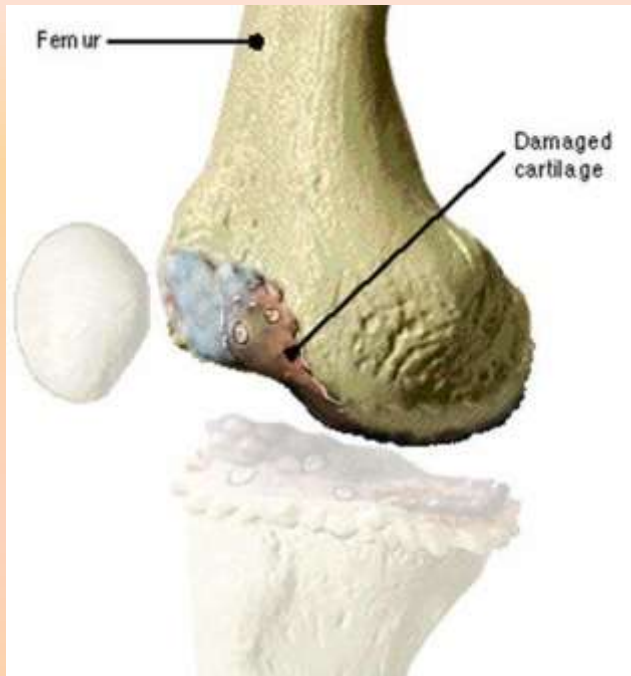
Implanted

Total Knee Replacement

- With your total knee replacement surgery, the damaged parts of your knee that need repair will be removed and replaced with metal and plastic implants.
- During surgery, an implant, especially selected to match your needs, will be affixed to the underlying bones.



Total Knee Replacement



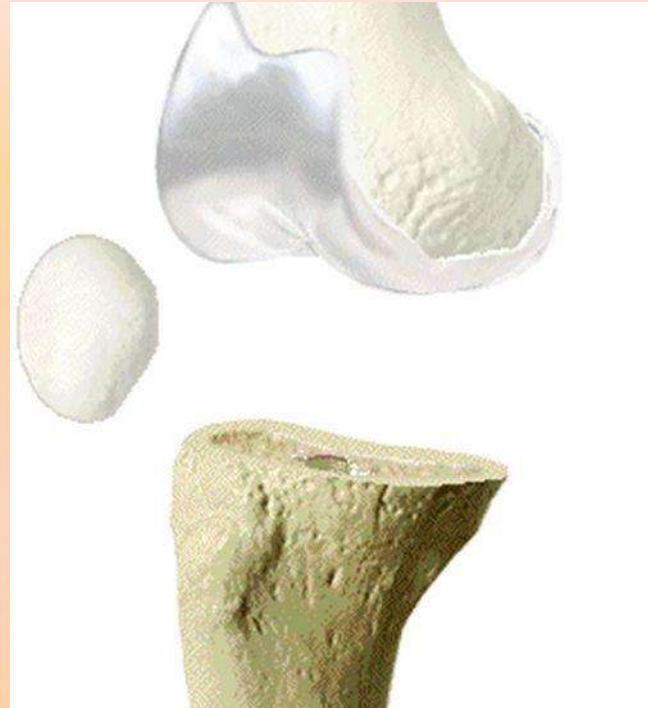
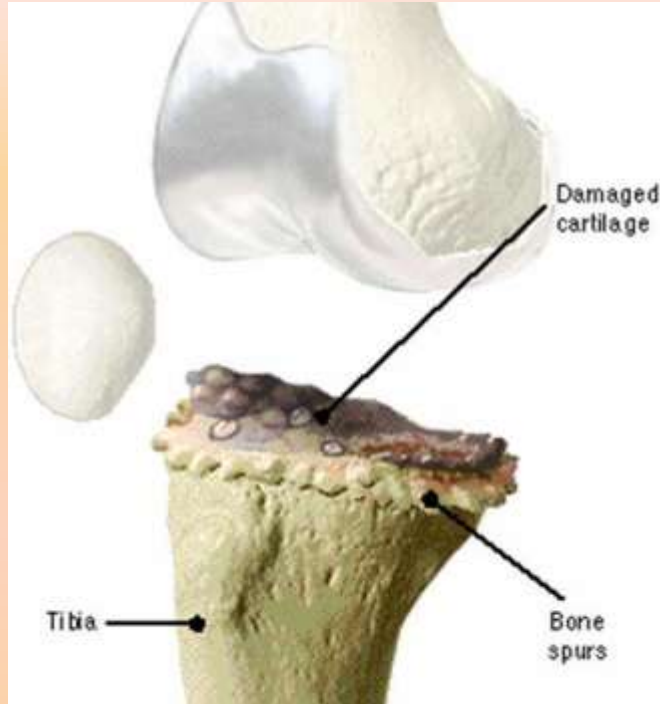
- The damaged portions of the femur and cartilage are cut away. The end of the femur is reshaped to allow the metal femoral component to fit onto it.

Total Knee Replacement

- The metal component is attached to the end of the femur using bone cement.



Total Knee Replacement



- The damaged area of the tibia and cartilage are cut away. The tibia is reshaped to receive the metal tibial component.

Total Knee Replacement



- The metal baseplate is cemented in place and the plastic insert is snapped in to the baseplate.

Mini-Incision Surgery

- Uses the same clinically proven implants of traditional knee replacement surgery
- The surgical instruments have been reduced in size.



Mini-Incision Surgery

What does this mean?

- Reduces incision length and scar to 3.5 to 4 inches.
- Does not “evert” the patella or cut the quad tendon
- Less post-operative pain
- Speeds rehabilitation time and returns you to your life more quickly.



Total Replacement

After surgery

- The patient is sent to recovery
- Physical therapy begins day 1 post-op
- Discharge from the hospital in 3 days
- Follow-up with the surgeon at 1, 3, 6 and 12 month intervals.



Longevity of the implant

OXINIUM™ Oxidized Zirconium

- Zirconium – a biocompatible metal similar to titanium
- The outer surface takes on low-friction ceramic qualities during patented process
- Surface becomes 4,900-times more resistant to the commonly experienced metal abrasion that wears through plastic components
- The oxidized surface reduces plastic component wear by up to 85% when compared to cobalt chrome.



Traditional
implant material

OXINIUM material

Longevity of the implant

OXINIUM™ Oxidized Zirconium

- May extend the life of the implant due to wear
- Weighs 20% lighter than same-sized implant made from cobalt chrome
- Safe for patients with metal allergy
- Appropriate for physically active adults



VERILAST™ Knee Technology

For Knee Replacement
Implants

Traditional Material vs. VERILAST™ Technology

Traditional Material

- Typically combines cobalt chrome with high-density plastic
- Expected to last 10-15 years before wear becomes an issue

VERILAST

- Combination of Smith & Nephew's patented OXINIUM™ metal alloy and “highly cross-linked” polyethylene
- A knee implant technology that combines two low-friction materials



OXINIUM

Cross Linked Poly

VERILAST™ Wear Study

- Smith & Nephew LEGION™ Cruciate Retaining Knee with VERILAST Technology was subjected to extensive lab testing and it surpassed expectations:
 - After 5 million simulated steps, wear was reduced by 98% compared to implants made from traditional materials.
 - After 45 million steps, wear was reduced by 81% when compared to traditional material implants at 5 million steps
 - **45 million steps = 30 years of typical use under normal conditions**

About VERILAST™ Knee Technology

Based on laboratory wear simulation testing, the LEGION Primary Knee System with VERILAST technology is expected to provide wear performance sufficient for 30 years of actual use under typical conditions.

- Results of wear simulation testing have not been proven to predict actual joint durability and performance in people
- Reduction in wear alone may not result in improved joint durability and performance
- Other factors such as bone structure, can affect joint durability and performance and cause medical conditions resulting in additional surgery
- These other factors were not studied

About Knee Replacement Surgery Patient Information

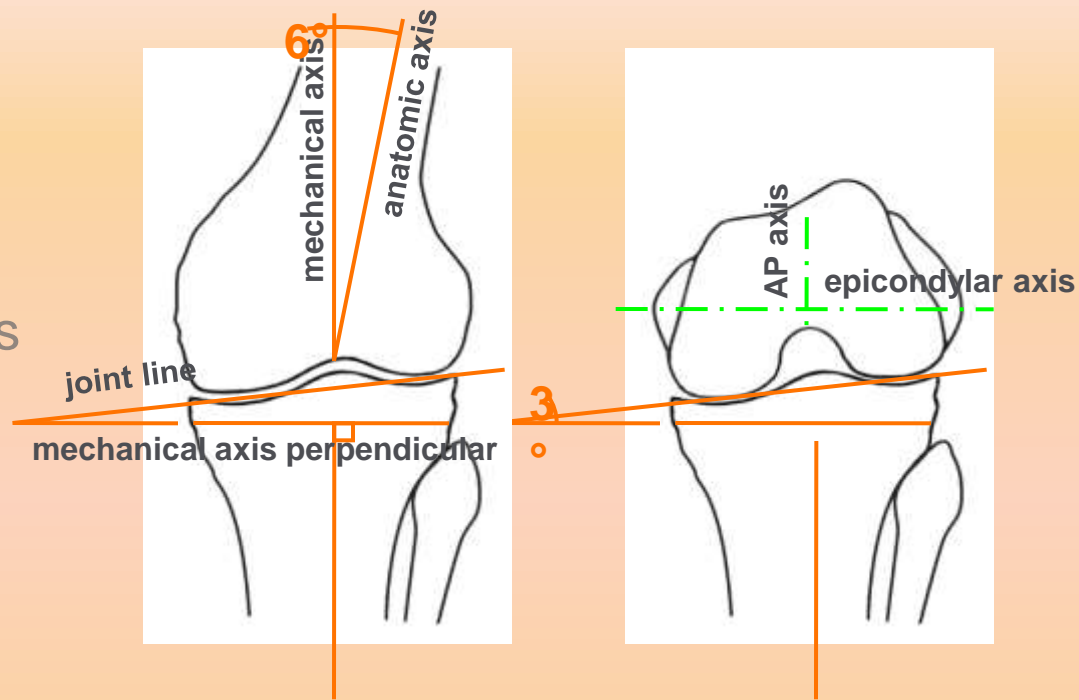
- There are potential risks with knee replacement surgery such as loosening, fracture, dislocation, wear and infection may result in additional surgery
- Do not perform high impact activities such as running and jumping unless your surgeon tells you these activities are acceptable
- Early device failure, breakage or loosening may occur if you do not follow your surgeon's limitations on activity level
- Early failure can happen if you do not guard your knee joint from overloading due to activity level, failure to control body weight or accidents such as falls
- Knee replacement surgery is intended to relieve knee pain and improve knee functions
- Talk to your doctor to determine what treatment may be best for you
- Additional information available at www.RediscoverYourGo.com

Why choose VERILAST™ Knee
Technology?

Visionaire Technology

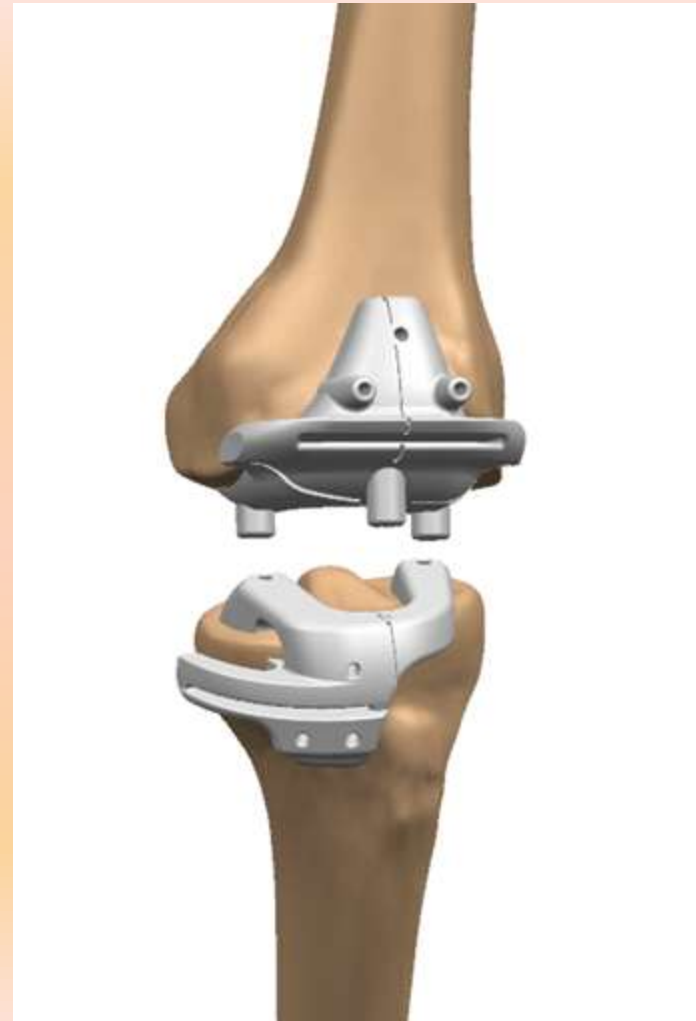
Background

- Over 30% of total knee replacement failures are due to misalignment during surgery
- Patient-specific alignment may result in better surgical outcomes for patients



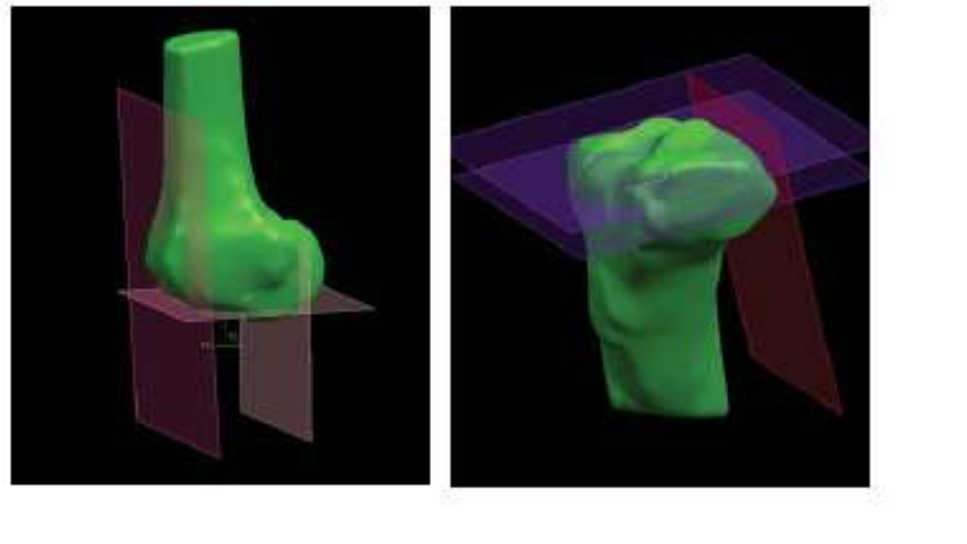
What is Patient Matched Technology?

- VISIONAIRE™ Patient Matched Technology utilizes your own X-Ray and MRI to design surgical instrumentation that is unique to you
- Custom cutting blocks and guides are produced to match the exact shapes and angles of your anatomy
- This provides a custom-fit, more accurately aligned knee implant



Why is it special?

- May eliminate time in the operating room, which reduces time under anesthesia and the risk of infection
- Precise alignment may result in a longer lasting implant
- May lower risk of complications from surgery, such as Deep Vein Thrombosis (DVT)



New Designs

Patello-femoral replacement

Arthritis only affecting the patello-femoral joint

Only the “kneecap” joint is replaced



New Designs - Partial Replacement: “The Deuce”



Knee Replacement Surgery: Results



Knee Replacement Surgery: Results



Less/Minimally Invasive



Results



Total Hip Replacement

Surgery - Total Hip Replacement



Cuts



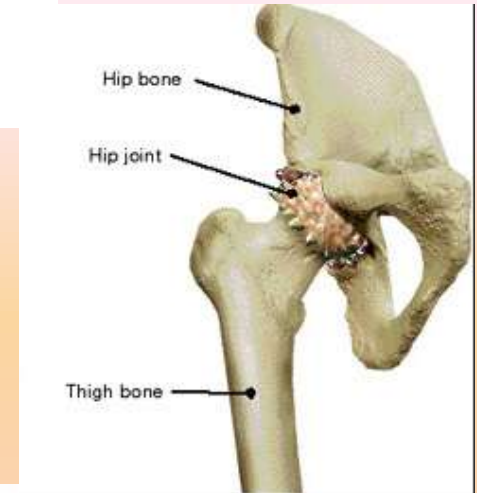
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Total Hip Replacement

- The uppermost portion of the femur (the ball) is removed. The end of the femur is reshaped to allow the metal “hip stem” component to fit onto it.
- The acetabulum, or socket, is prepared and replaced by a metal cup. A smooth plastic liner is inserted into the cup.



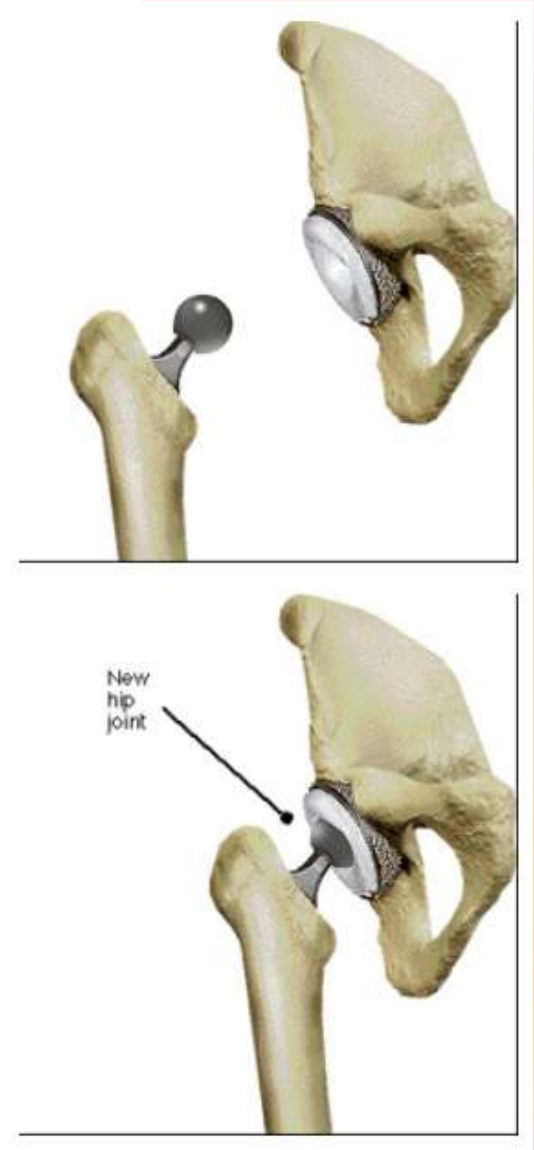
Total Hip Replacement

- A metal hip stem is inserted into the femoral canal.
- Bone cement may be used to fix the implant in place, although some stems are designed to allow natural bone to grow into a textured surface in order to achieve fixation.



Total Hip Replacement

- A femoral ball is placed on top of the hip stem.
- This ball makes contact with the plastic liner to replicate your original ball and socket hip joint.
- The ball may be made from cobalt chrome, ceramic or oxidized zirconium.



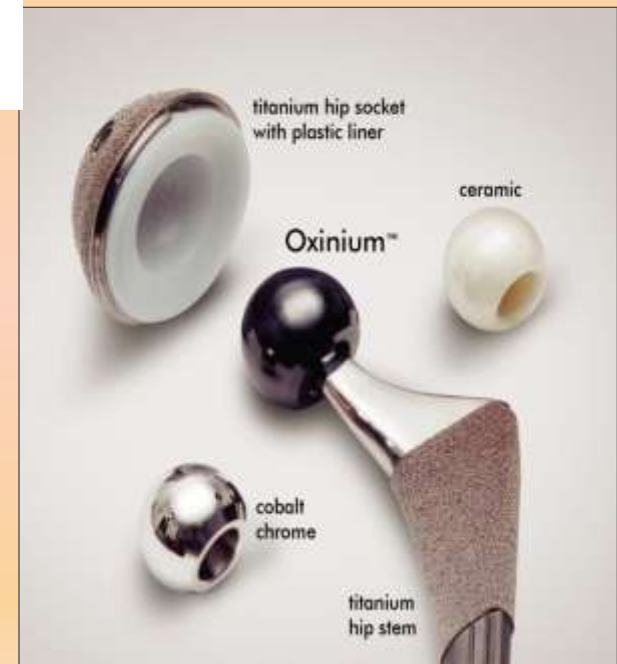
Longevity of the implant

OXINIUM* Oxidized Zirconium

- Zirconium – a biocompatible metal similar to titanium
- The outer surface takes on low-friction ceramic qualities during proprietary heating process
- Surface becomes 4,900-times more resistant to the commonly experienced metal abrasion that wears through plastic components
- The oxidized surface reduces plastic component wear by 85%
- May substantially extend the life of the implant and reduce need for future surgeries
- Safe for patients with metal allergy
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Traditional
implant material



OXINIUM material

Total Replacement

After surgery

- The patient is sent to recovery
- Physical therapy begins day 1 post-op
- Discharge from the hospital in 3 days
- Follow-up with the surgeon at 1, 3, 6 and 12 month intervals.



After surgery

- You will undergo a rehabilitation protocol designed to strengthen muscles and maximize flexion; This is vital to your success!
- After physical therapy: Low-impact activities as your bones and muscles adjust to the new stresses (swimming, walking, bicycling)
- You may feel years younger than expected—the excruciating bone-on-bone pain is gone!



THANK YOU

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