

A TOUR AROUND THE TOTAL HIP AND TOTAL KNEE ARTHROPLASTY WORLD IN 60 MINUTES

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The background of the slide features a photograph of The Andrews Institute building at night. The building is a large, multi-story structure with a prominent central entrance and several wings. It is illuminated with warm lights, and the surrounding area is dark. In the foreground, there is a parking lot and some landscaping. The image is partially obscured by a large, semi-transparent blue graphic on the right side of the slide.

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Arthritis: An Epidemic

- More than 43 million people have some form of arthritis. It is estimated that the number of people affected by arthritis will increase to 60 million by 2020.



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Trends

- In 2008 there was 300,000 total hip, and 500,000 total knee replacements performed in the U.S.
- Projected 600,000 and 1.2 million by 2020



This program will touch upon the following topics:

- Preoperative assessment and optimization
- Short term goals
 - Hospital
 - Immediate rehabilitation
- Long term success
 - Preserving the new joint replacement



The Hip Joint

- **Ball and socket**
 - A ball (femoral head) at the top of the thigh bone (femur)
 - A rounded socket (acetabulum) in the pelvis
 - Labrum

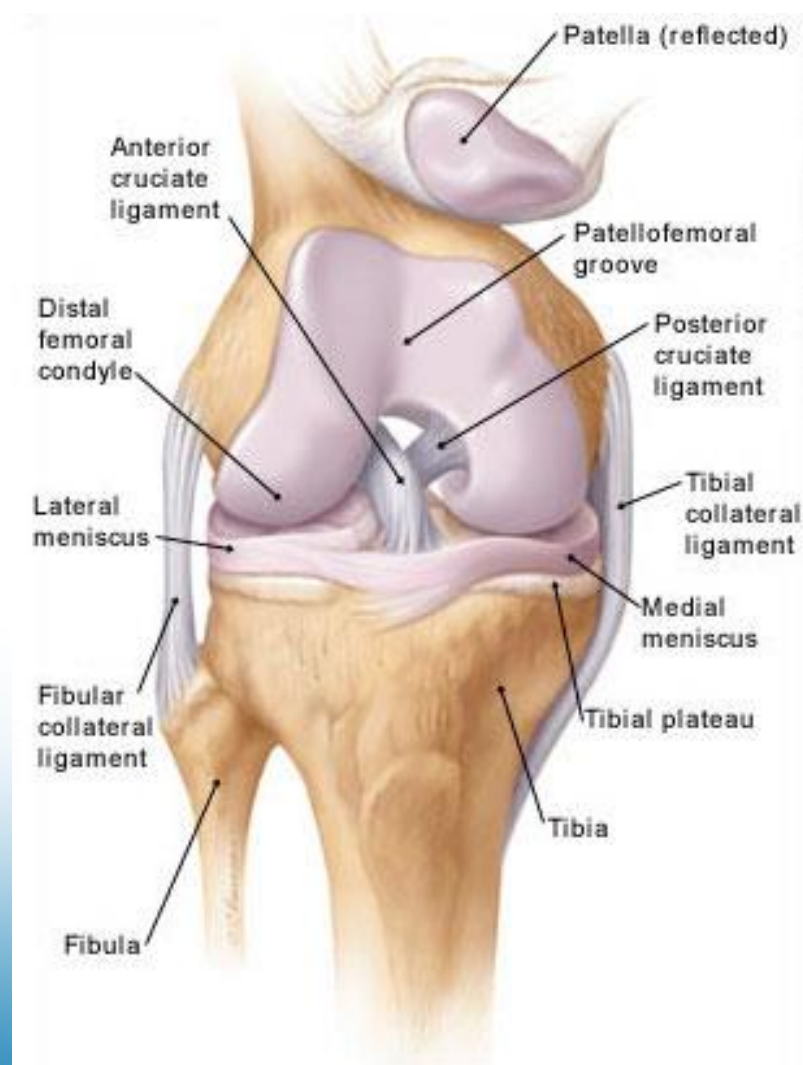


Normal hip joint, showing healthy articular cartilage

Knee Joint

- **Hinge Joint**

- Femur (end of thigh)
- Tibia (top of shin)
- Patella (knee-cap)
 - Ligaments ACL-PCL
 - Meniscus
 - Muscles



Reasons for joint pain other than: “ARTHRITIS”

- **Hip**
 - Labral tears
 - Referred pain from back
 - Trochanteric bursitis
- **Knee**
 - Meniscal tears
 - Ligament tears
 - Bone bruises

Hip Arthritis

- The most common types of arthritis are:
 - Osteoarthritis (OA)
 - Rheumatoid Arthritis (RA)
 - Post-traumatic Arthritis
 - Avascular Necrosis (AVN)



Diseased hip joint, showing worn cartilage

Rheumatoid Arthritis, Post-traumatic Arthritis, Avascular Necrosis

Rheumatoid Arthritis

- Membranes or tissues lining the joint become inflamed

Post-traumatic Arthritis

- Irregularities lead to more wear on the joint

Avascular Necrosis

- Bone may collapse and damage the cartilage



The Initial Doctor's Visit

- The Orthopaedic Evaluation
 - A thorough medical history
 - A physical examination
 - X-rays
 - Standing
 - Notch view
 - Additional tests, as needed



The Orthopaedic Evaluation Medical History

- A thorough medical history includes:
 - A list of all medications the patient is taking
 - Information on prior surgeries and/or treatments
 - Prior diagnoses
 - Family history

The information that the surgeon gathers during the medical history usually suggests the possibility of several different diagnoses.



Physical Examination

The physical examination enables your surgeon to evaluate important aspects of the joints, including:

- Size and length
- Strength
- Range of motion
- Swelling
- Reflexes
- Skin condition



The Orthopaedic Evaluation

- X-Rays help show how much joint damage or deformity exists
- An abnormal X-ray may reveal:
 - Narrowing of the joint space
 - Cysts in the bone
 - Spurs on the edge of the bone
 - Areas of bony thickening called sclerosis
 - Deformity or incorrect alignment



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Additional Diagnostic Tests

- Occasionally, additional tests may be needed to confirm the diagnosis or further guide treatment. These may include:
 - Blood tests
 - Urine analysis
 - Analysis of joint fluid
 - Magnetic Resonance Imaging (MRI)
 - Bone scan



Treatment Options: 2 Stages

- Non-Operative
 - Activity Modification
 - Medications (NSAIDs)
 - Physical therapy
- Operative
 - Total Hip Replacement
 - Total Knee Replacement

Medications

- Aspirin-free pain relievers: acetaminophen (Tylenol)
- Nonsteroidal anti-inflammatories (NSAIDs)
 - Motrin/Ibuprofen
 - Naproxen/Aleve
 - Mobic
 - Celebrex
- Corticosteroids—injection/pill form

Other Treatments

- Viscosupplementation
 - Synvisc, Orthovisc, Euflexxa
- Bracing
 - Deformity
- Canes/Walkers



Physical Therapy

- Passive range-of-motion exercises may help:
 - Reduce stiffness
 - Keep joints flexible
- Isometric exercises help build muscle strength



Who needs surgery?

- Pain
- Quality of life
- Progressive deformity leading to dangerous ambulation
- Exhausted all non-operative interventions
- What are the patient goals?

Total Hip Replacement

- Total Hip Replacement is a surgical procedure in which certain parts of an arthritic or damaged joint are removed and replaced with an artificial joint. The artificial joint is designed to move just like a healthy joint.

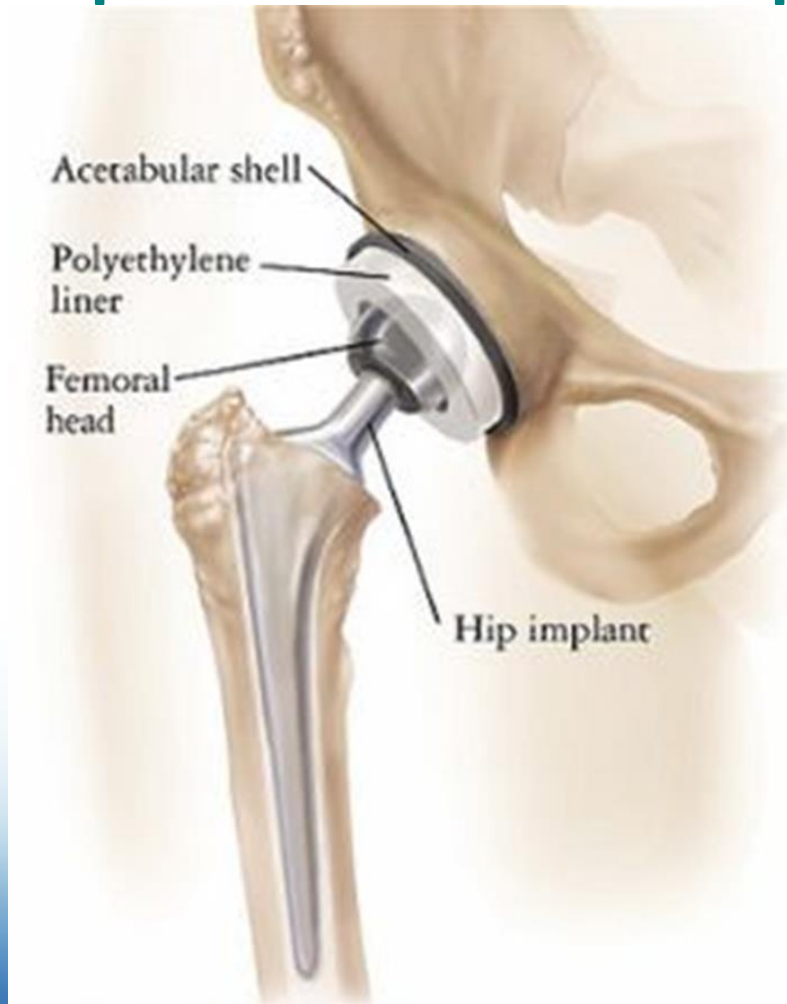


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Types of Hip Replacement

- Hip resurfacing
- Half or hemi – arthroplasty
- Minimally invasive
 - Direct anterior
 - Mini-posterior
 - Two incision

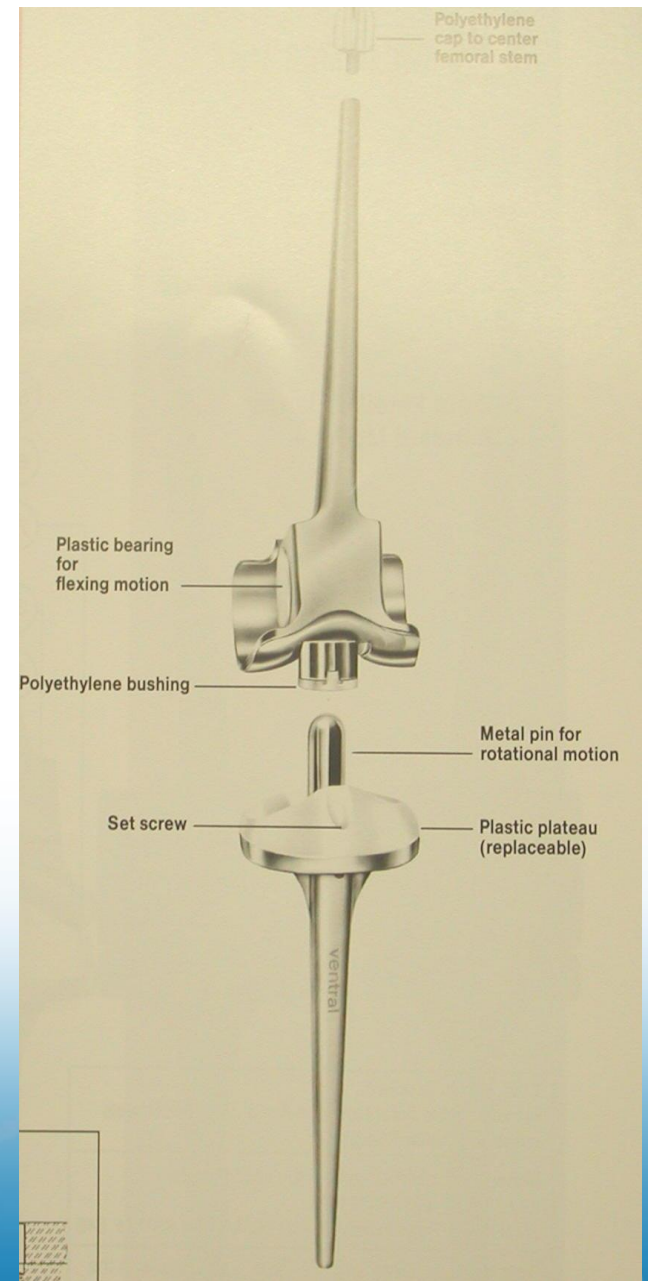
Hip Joint with Hip Replacement



Types of Knee Replacements

- Different implants for different problems
- Increasing level of constraint in prosthesis to substitute for failed ligaments





Surgery – Now What?

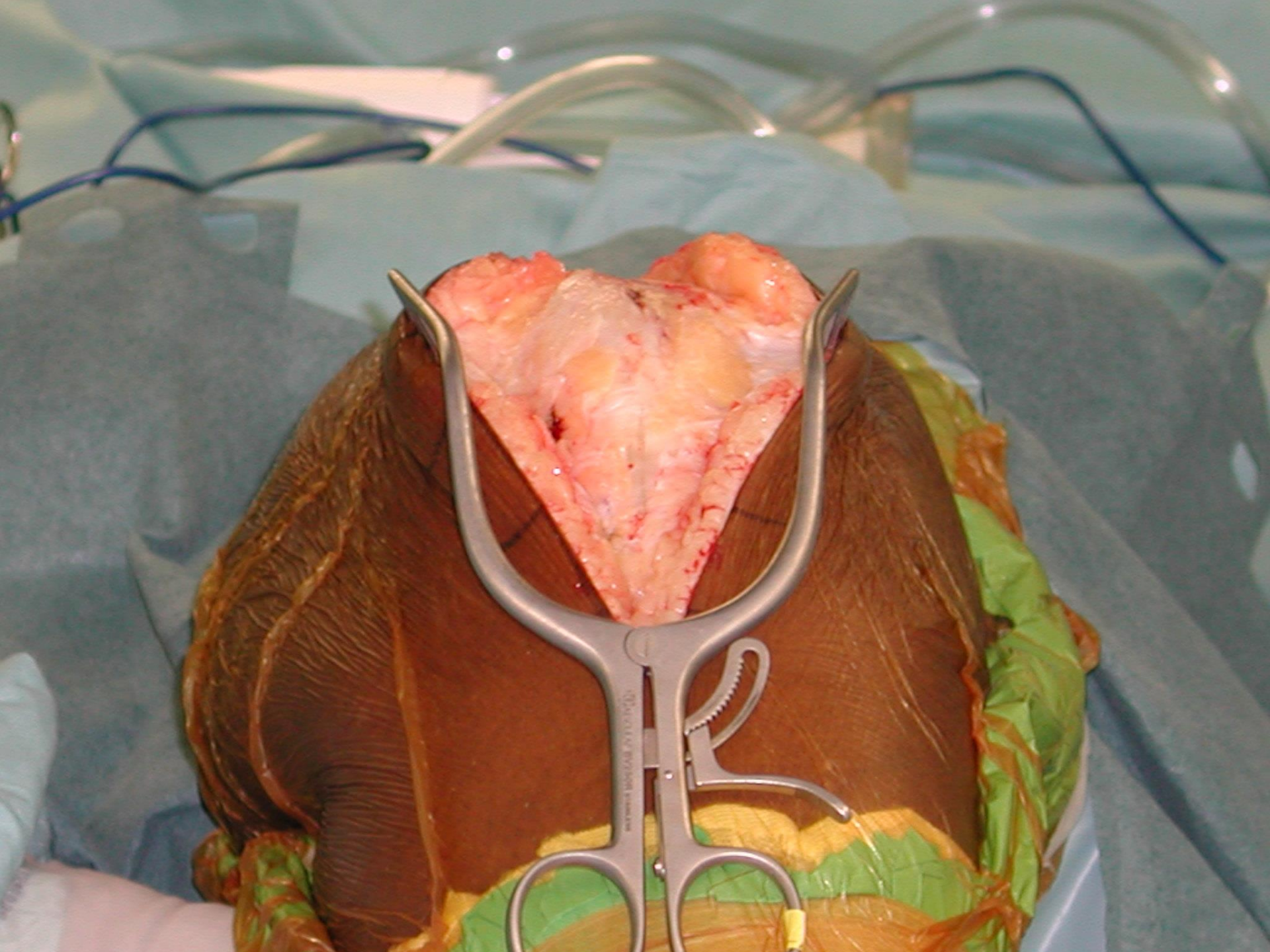
- Surgical goals
 - Decrease pain
 - Increase function
 - Restore mechanical alignment
 - Return to activity

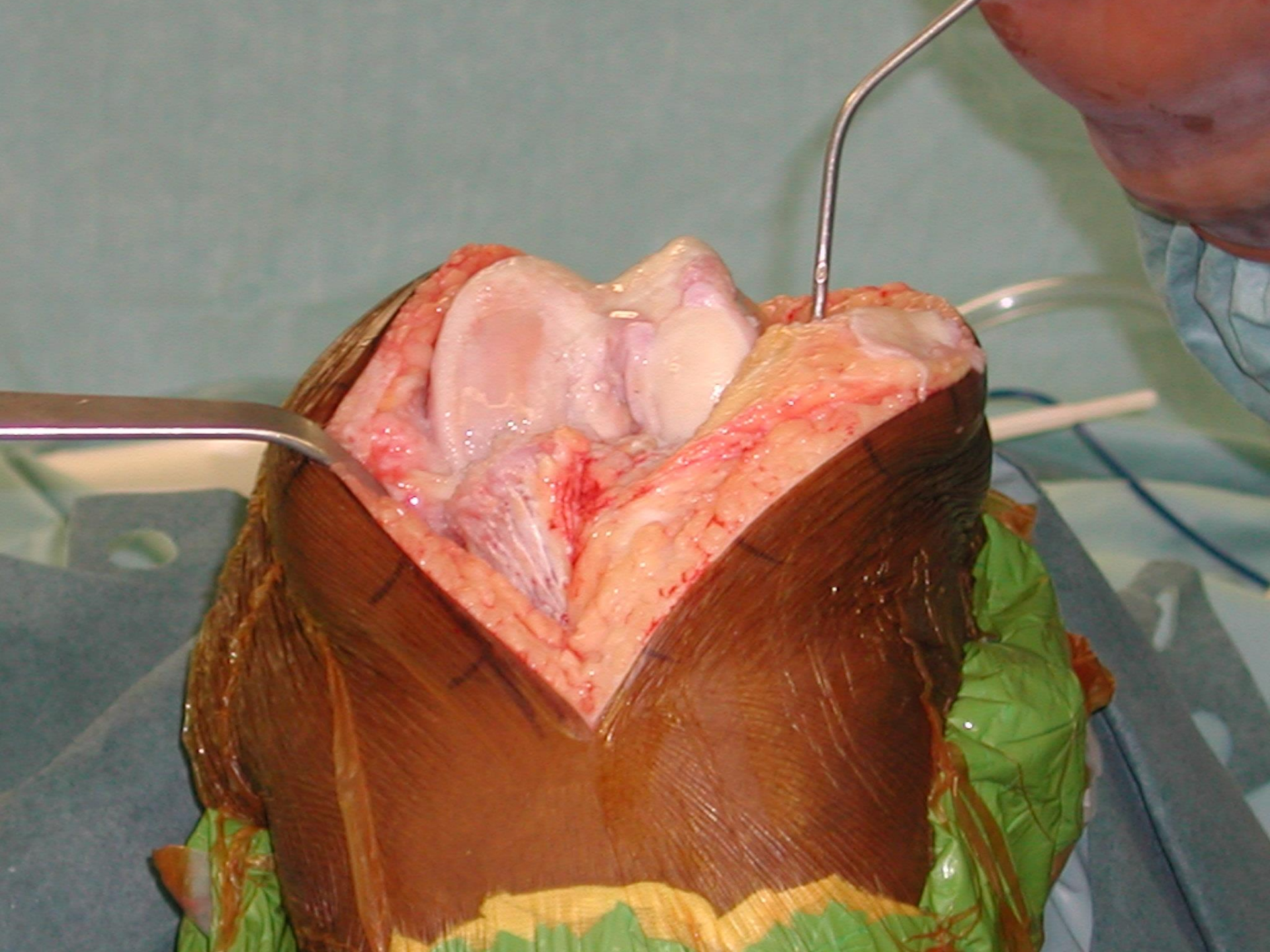


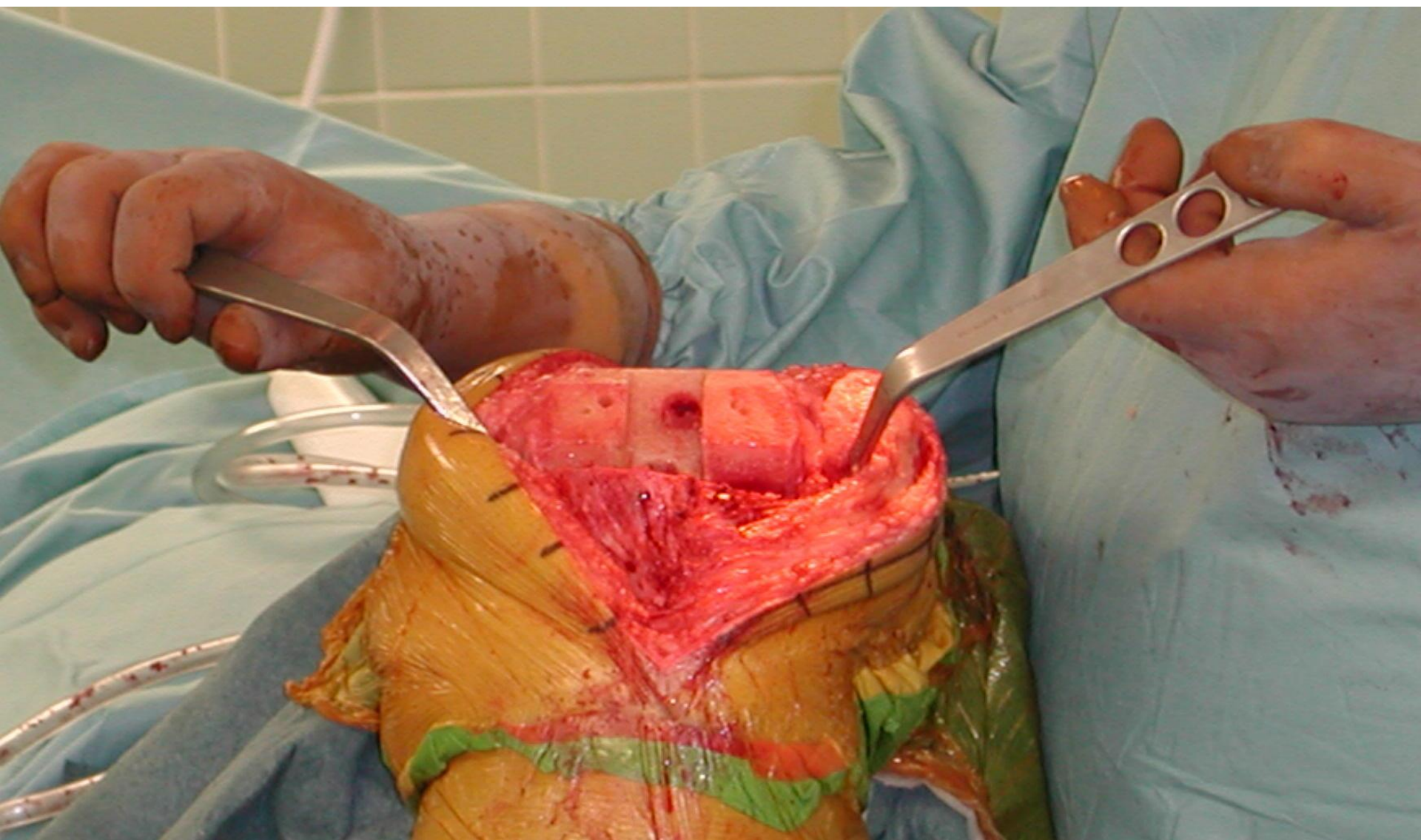
Surgery

- **Close your eyes for the next few slides if you are squeamish**









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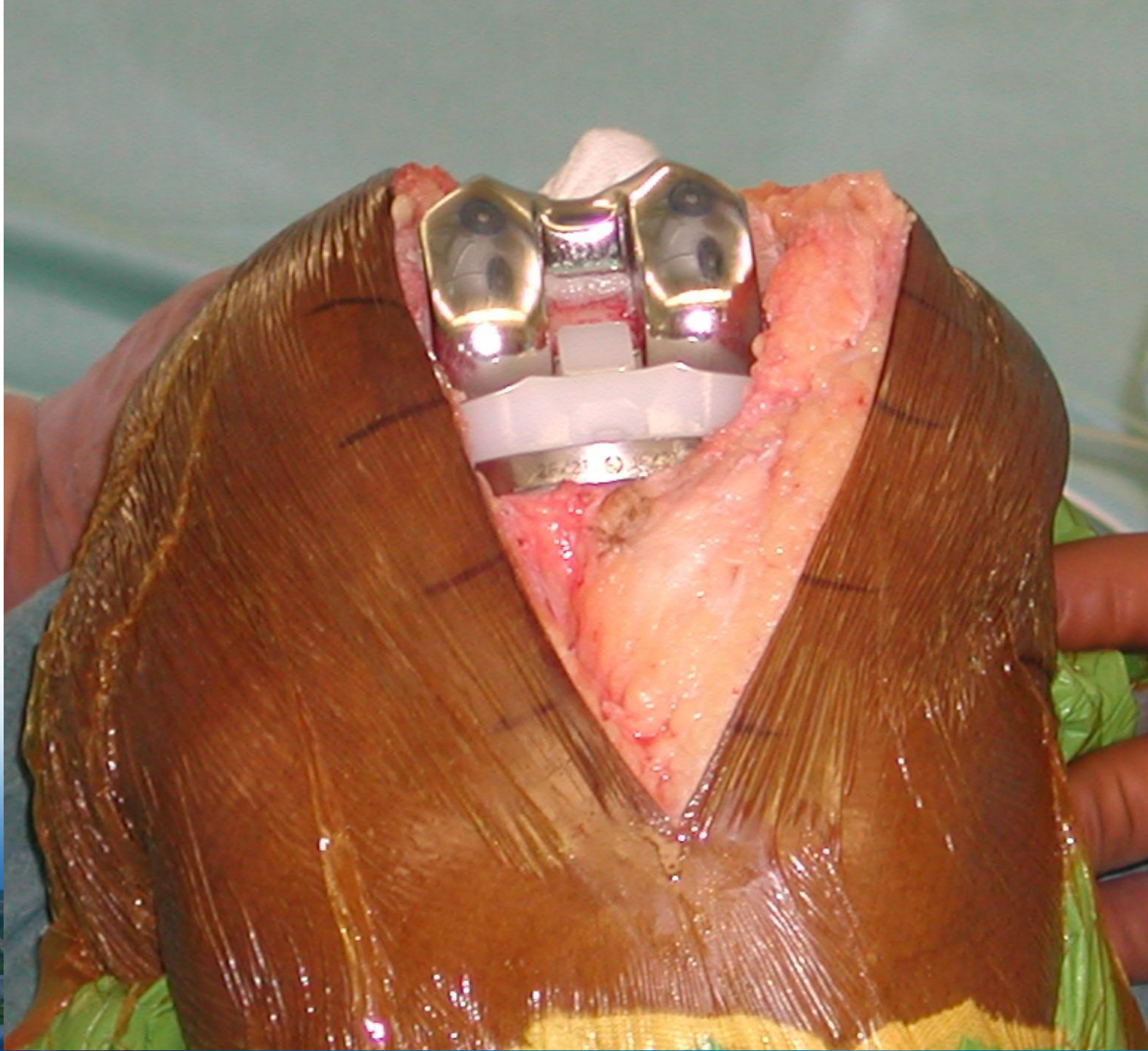
Knee Replacement

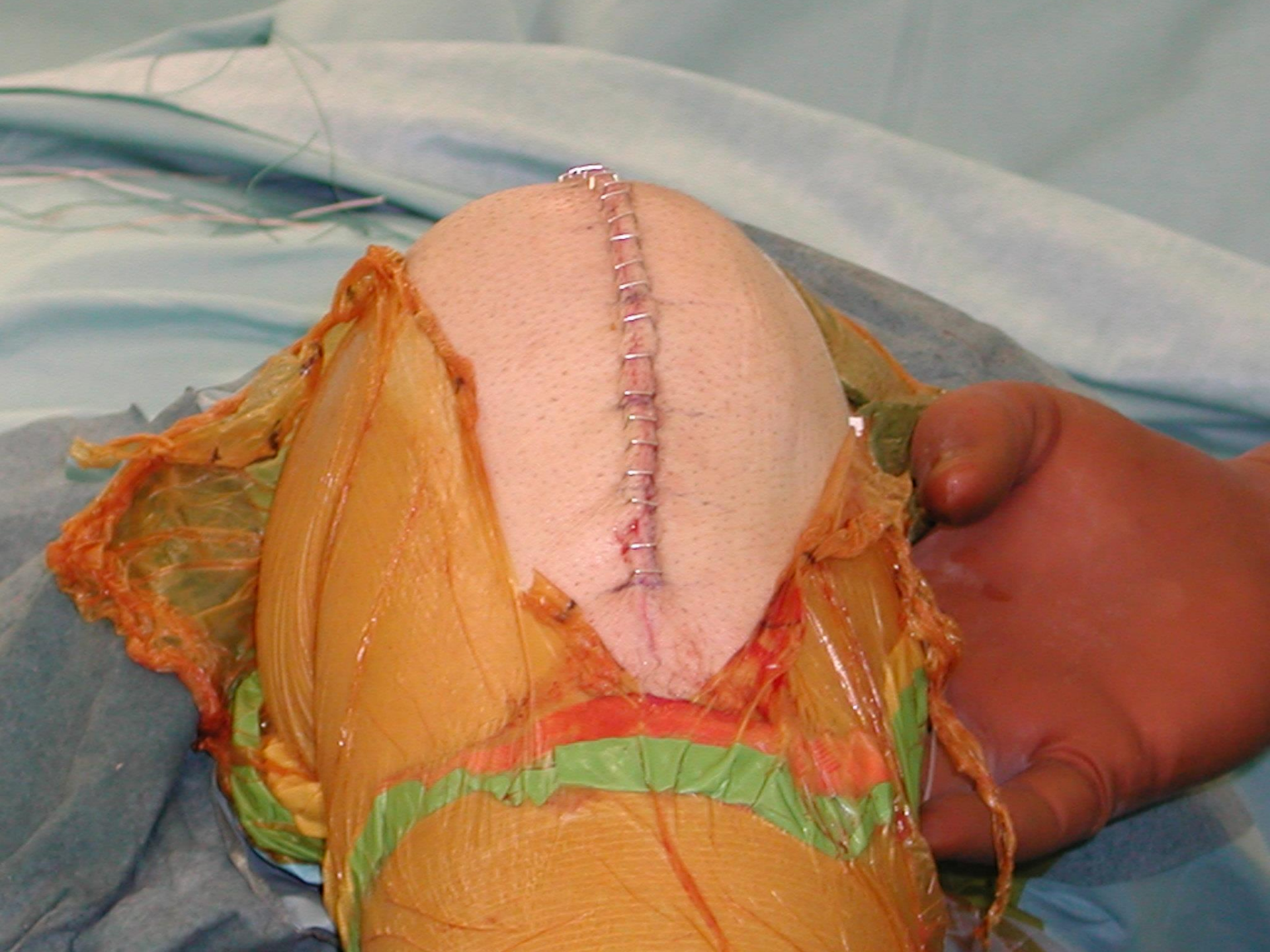
- The end of the femur is 'resurfaced' with a metal femoral component
- Likewise the top of the tibia with a metal tray
- Between is a modular plastic insert that allows the metal components to articulate

TKA

- The undersurface of the patella is usually resurfaced with a plastic button as well.
- The components are usually held in place with bone cement.









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What are the potential risks?

- Results may vary from patient to patient
- Surgery time may be extended
- Risk factors relating to anatomy, weight, and prior joint replacements

Risks

- Infection
- Blood clots
- Bleeding
- Mechanical failure
- Hips
 - Dislocation
 - Leg length inequality
- Knees
 - Stiffness

After Surgery

- Recovery time ?
- Assistance at home, how long?
- Physical therapy?
- Return to normal activity?
- Which sports can I play?
- Can it break, can it come loose?

After Surgery (continued)

- In hospital
- Going home
- Physical therapy
- Realistic return to activities
- Sports

Success

- How many people does it take for a successful total joint replacement?
 - Patient
 - Family
 - Surgical team
 - Physical therapist
 - Nursing (hospital and at home)



Preoptimization

- No longer the primary care physician
- A dedicated team to assess all aspects of the patient's health
 - BMI
 - Cardiac risk
 - Kidney function, etc
 - Laboratory studies
 - MRSA screening

Peoptimization

- A dedicated coach/caregiver
- Outpatient therapy versus SNF and/or home health care
 - The risks are much higher with anything other than outpatient therapy, approximately 7%



Short Term Hospital Goals

- Anesthesia cohorts on board
- Prevent complications
- Assist in RAPID RECOVERY
- Coach the caregiver
- Assist in facilitating outpatient therapy



Immediate Rehabilitaion

- Number one is patient safety
- Number two is supporting the coach to assist the patient to return to independence



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Long Term Success

- Activity modification and preservation of the new hip or knee replacement
- Returning to a healthy lifestyle



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Hot Topics

- Direct Anterior versus any other approach
- Minimally invasive total knee arthroplasty



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Direct Anterior Approach

- No proven benefit from multiple well respected centers
- Risks/complications are higher
 - Fracture for one
 - Nerve injury number two
- Visualization is a problem
- Hospital stay and post operative complications are the same

Minimally Invasive Knee Replacement

- Same issues as the direct anterior hip replacement



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Comprehensive Care for Joint Replacement

- Joint replacements are 5% of the total medicare spend
- Encompasses the entire 90 days following the surgery
- Hospitals are at most risk



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Hopefully an Interactive Discussion?

- Question and answer session



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