

Understanding Hip Arthritis

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Does this sound familiar?

“It would be embarrassing to get out of a car because everybody had to help me. Somebody would have to pull me up. I felt like this old woman.”

“My life got progressively less active, less fun, and less participative.”

“Just a day on my feet was exhausting and the pain became greater and greater until Advil and ibuprofen and all of those kinds of drugs couldn't numb it out. It just got worse and worse.”

You're Not Alone

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.

Source: CDC

This program will touch upon the following topics:

- Review of Hip Anatomy
- Discussion of Arthritis
- Latest Treatment Options for Hip Arthritis
- Expectations/Outcomes

Your Treatment Options
Hip Pain



About Myself

Oldest of six
Identical twin
Colorado native
Two young boys



Your Treatment Options
Hip Pain



About Myself

Oldest of six
Identical twin
Colorado native
Two boys
I enjoy traveling and
languages



Your Treatment Options
Hip Pain



About My Practice

Undergraduate at CU Boulder
University of Colorado School of Medicine for
medical school and residency
Board certified in 2005, 2015
Fourteen years at the Boulder Medical Center
In addition to the management of arthritis, I enjoy
trauma, sports-related, and hand injuries

Your Treatment Options
Hip Pain



ANATOMY

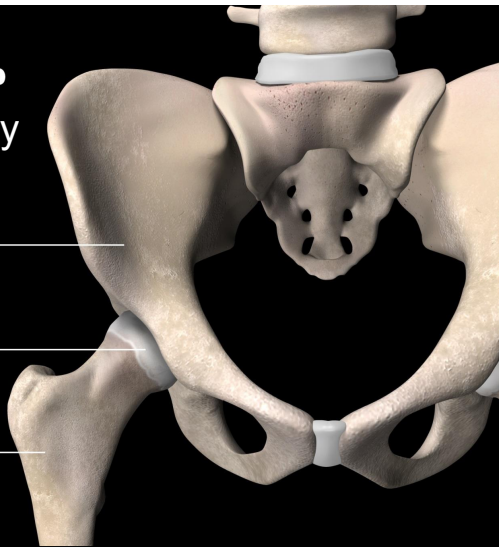
Normal Hip

A Normal Hip Bony Anatomy

Pelvic Bone

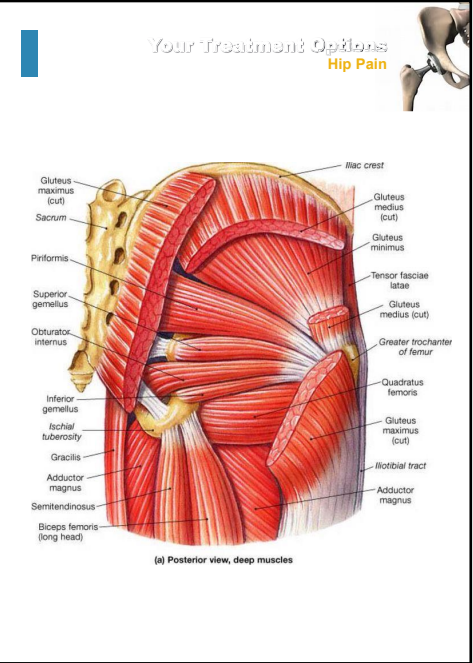
Healthy Cartilage

Femur (thigh bone)



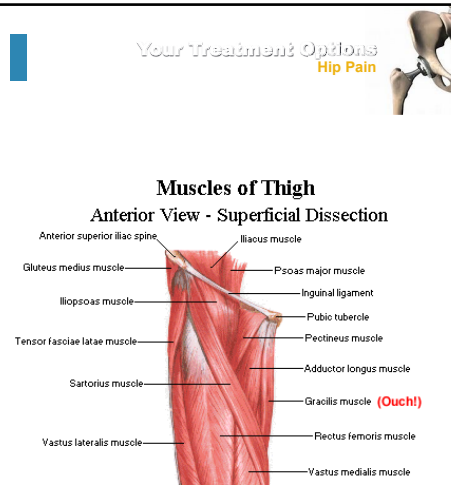
The Hip Joint Musculature

- Multiple muscles enveloping the hip joint
- Provide additional stability to the hip joint



The Hip Joint Musculature

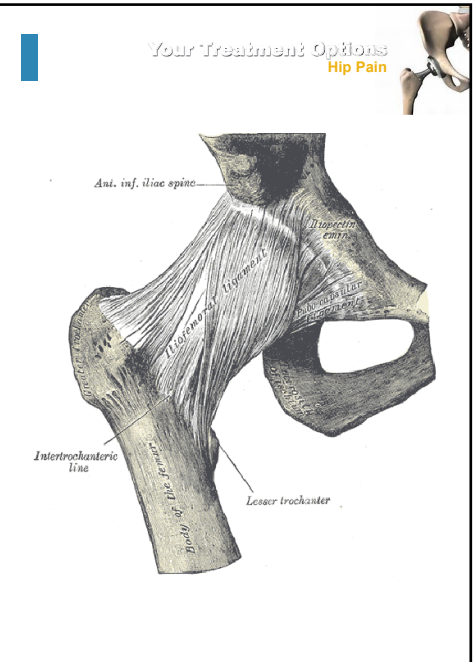
- Multiple muscles enveloping the hip joint anteriorly as well



The Hip Joint Ligaments

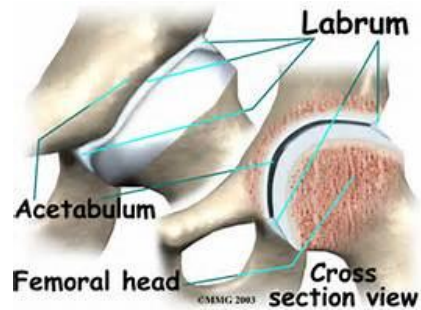
Stability

- Complex array of ligaments
- Augments stability to the ball and socket



The Hip Joint Cartilage

Cartilage is critical in understanding arthritis



Your Treatment Options
Hip Pain



The Hip Joint Cartilage

- Transmits applied loads across mobile surfaces
- Lines the ends of bones
- Surfaces roll or slide during motion
- Hyaline cartilage is fluid-filled wear-resistant surface
- It reduces friction coefficient to 0.0025.



Your Treatment Options
Hip Pain



Normal Cartilage

“Like the tires on your car”



Healthy, normal cartilage rolls easily
Smooth motion

Your Treatment Options
Hip Pain



Damaged Cartilage



When the cartilage is thinned or absent, problems such as pain, instability, limited motion occur.

This mechanical wearing of the cartilage surface leads to deterioration in the joint or ARTHRITIS

Your Treatment Options
Hip Pain



ARTHRITIS



Definition: Inflammation of a joint, usually accompanied by pain, swelling, and stiffness.

ARTHRITIS



Definition: The mechanical wearing of the cartilage surface resulting in pain and limited function.

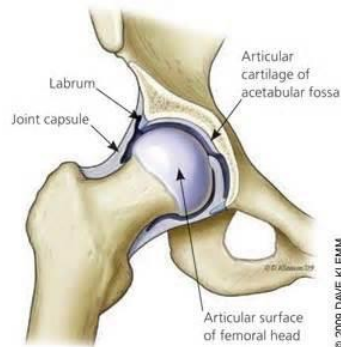
Importantly, this mechanical change is accompanied by biochemical changes

ARTHRITIS



Normal Anatomy

Normal Xrays



ARTHRITIS



Arthritis Anatomy

Arthritic Xrays



Most Common Causes of Arthritis

Your Treatment Options
Hip Pain



Degenerative – “wear and tear”

Osteoarthritic – traumatic

Rheumatoid – inflammatory

Bacterial - infectious

Evaluation of Hip Arthritis

Your Treatment Options
Hip Pain



Diagnosing Hip Pain

Your Treatment Options
Hip Pain



- Medical history
- Physical examination
- X-rays, Radiographic Studies
- Other tests

Symptoms

Your Treatment Options
Hip Pain



PAIN

- Weight-bearing activities
- While sleeping at night
- Located over groin, lateral hip, sometimes buttock pain
 - *Important to evaluate for spinal source
- Usually slow in onset



Diagnosis

- How and when did the pain start?
- If the pain has occurred before, how was it treated?
- What activities aggravate the pain?
- What activities relieve the pain?

Your Treatment Options
Hip Pain



Diagnosis

- Tenderness to the touch
- Weakness in the muscles
- Extent of passive and active range of motion
- Crepitation



Your Treatment Options
Hip Pain



Diagnosis

X-rays of an arthritic hip:

- narrowing of the joint space
- cystic changes in the bone
- formation of bone spurs (osteophytes)



Your Treatment Options
Hip Pain



Diagnosis

- Blood tests
- Computerized Topography (CT) scans
- **Magnetic Resonance Imaging (MRI) scans**
 - Best non-surgical modality to identify focal cartilage defects
 - RARELY NECESSARY FOR HIP ARTHRITIS
- Arthroscopy
 - Small areas of traumatic arthritis, loose bodies



Your Treatment Options
Hip Pain



Non-Surgical Treatment Options for Arthritis

Nonsurgical treatment options

Your Treatment Options
Hip Pain



Physical Therapy

- Almost always start with physical therapy
 - Improve range of motion
 - Improve strength
 - Decreases pain



Nonsurgical treatment options

Your Treatment Options
Hip Pain



Medications

- NSAIDS
 - Decreases inflammation
 - Decreases pain



Nonsurgical treatment options

Your Treatment Options
Hip Pain



Supplements

- *Lots of claims*
- **NONE** have passed FDA testing as proven
- Personal trials



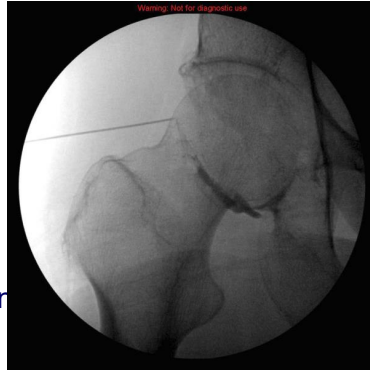


Nonsurgical treatment options

Cortisone injection

PROS

- Relatively easy procedure under fluoroscopy
- Excellent diagnostic tool
- Well-tolerated
- Very predictable reduction in pain



Nonsurgical treatment options

Cortisone injection

CONS

- Must be placed carefully
- Masks symptoms
- Can soften cartilage
- Used to “buy” time



Nonsurgical treatment options

Viscosupplement

Purify Hylauronic acid from rooster combs or bacterial growth

“Oil-additive” to joint fluid

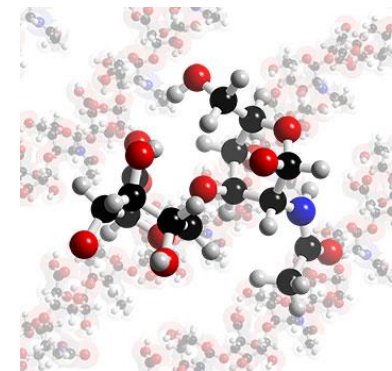


Nonsurgical treatment options

Viscosupplement

PROS

- Protects remaining cartilage
- Improves biochemical environment of joint
- Reliable reduction in pain





Nonsurgical treatment options

Viscosupplement

CONS

- “Off label use”
- Currently, approved for knees only
- Currently being studied

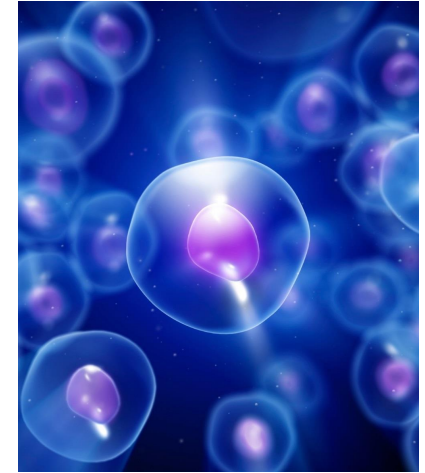
Illustration © Robert Margulies, CMI 2011



Nonsurgical treatment options

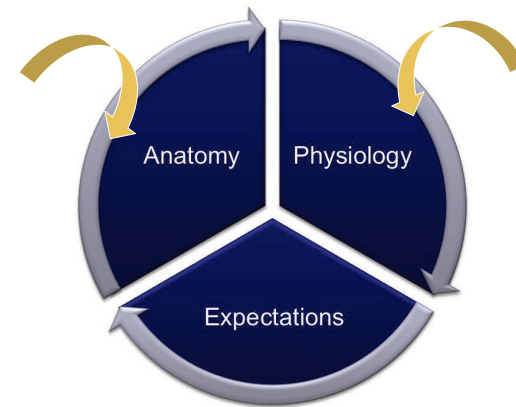
Stem Cell Therapy

- Great claims of what can be treated
- Promising early anecdotal reports
- Expensive
- Likely the best future option for moderate arthritis



Surgical Treatment Options for Arthritis

Decision Variables



Decision Variables

Your Treatment Options
Hip Pain



Surgical Treatment

Cartilage

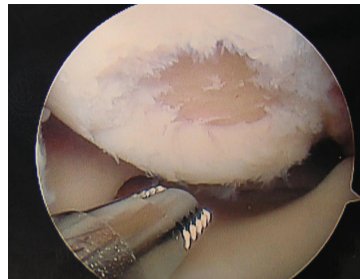
Surgical treatment

Your Treatment Options
Hip Pain



Moderate cartilage damage

- Must catch damage early
- Best treated before secondary changes occur within the hip



Surgical treatment

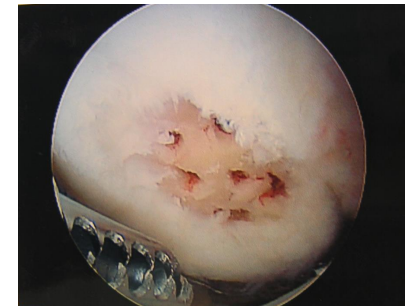
Your Treatment Options
Hip Pain



Focal cartilage damage

Microfracture

- Largely treated arthroscopically





Surgical treatment

Focal cartilage damage

Cartilage Transplantation

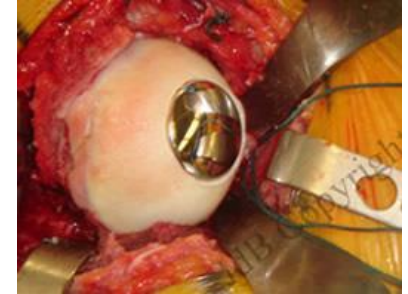


Surgical treatment

Focal cartilage damage

Partial replacement

Resurfacing



Surgical Treatment

Advanced Arthritis

Surgical treatment

Advanced Arthritis

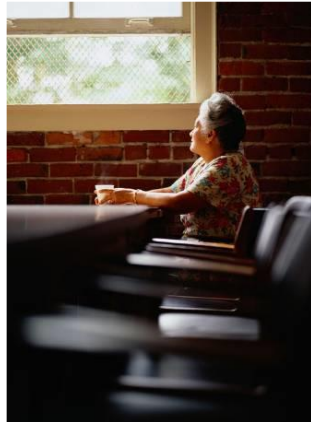
- Because hip replacement is predictably so good in restoring function and pain relief, the choice is really replacement or not.



Surgical treatment

Advanced Arthritis

- Patient determines the appropriate time for surgical intervention
- Not determined by X-ray
- Can't really "miss the boat" with hip arthritis

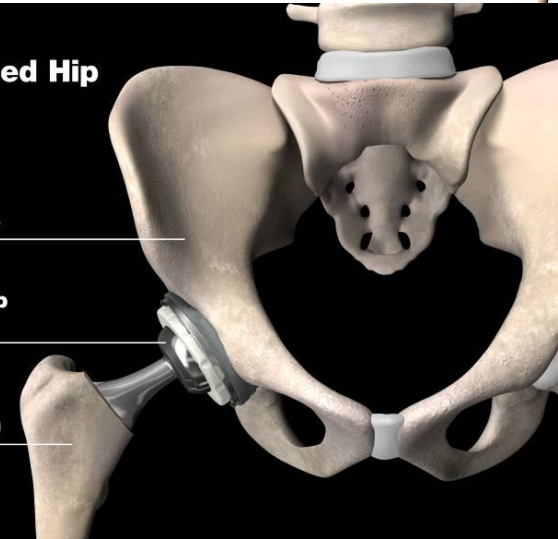


A Replaced Hip

Pelvic Bone

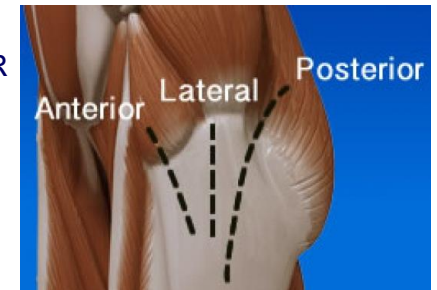
Artificial Hip Implant

Femur (thigh bone)



ANTERIOR HIP REPLACEMENT

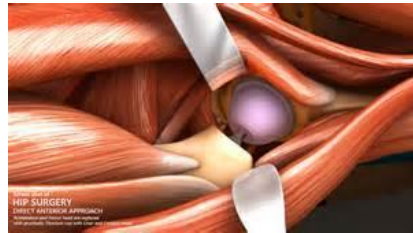
- What is it?
 - The DIRECT ANTERIOR approach





Anterior Hip Replacement

- Advantage(s)
 - True intermuscular approach to the hip joint
 - *Originally described in 1883*
 - Regained popularity

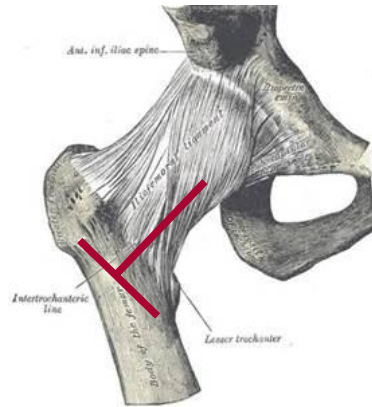


- Advantage(s)
 - Patient is positioned supine (on their back)
 - Sometimes use specialized leg holder
 - Easier for patient, surgeon and anesthesia



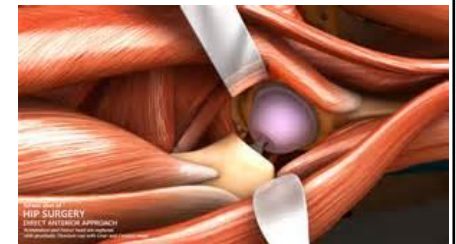
Anterior Hip Replacement

- Advantage(s)
 - Intermuscular
 - Limited trauma to muscles and tissue
 - Anterior capsular incision
 - No disruption of the posterior structures to the hip at all



Anterior Hip Replacement

- Advantage(s)
 - Allows excellent visualization
 - With more limited surgical dissection
 - Faster recovery
 - Less pain





Anterior Hip Replacement

- Advantage(s)
 - Patients are up walking on the hip the same day
 - Most patients go home after just one night in the hospital
 - No pillows between legs
 - Minimal positional precautions

	anterior	traditional
hospital stay	1-2 days	3-5 days
incision size	4-5 inches	10-12 inches
muscle trauma	no muscle detachment	muscles are cut, detached, then repaired
recovery time	2-6 weeks	6-10 weeks



Surgical Treatment

COMPUTER ASSISTED HIP REPLACEMENT



Computer Assisted Hip Replacement Makoplasty

- Rationale:
 - Allows extreme precision when performing hip replacement surgery



Computer Assisted Hip Replacement Makoplasty

- Rationale:
 - Correct positioning of the components leads to lower wear rates and reduced risk of dislocation





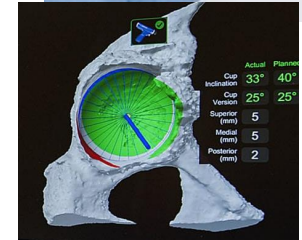
Computer Assisted Hip Replacement Makoplasty

- Technique:
 - Preoperative CT scan data is synced to intraoperative data with a probe
 - Implant positioning and surgical resection can be planned before any cuts are actually made



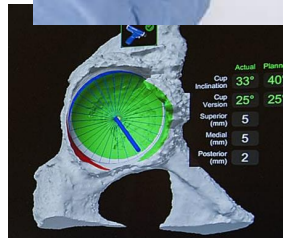
Computer Assisted Hip Replacement Makoplasty

- Technique:
 - Robotic arm assists with controlled resection of bone
 - Real-time evaluation



Computer Assisted Hip Replacement Makoplasty

- Technique:
 - Allows single stage reaming
 - Solid, stable fit of the acetabular component



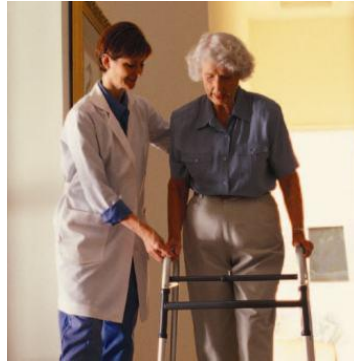
Recovery





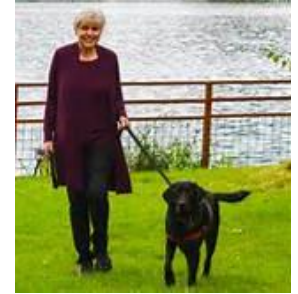
Recovery

- Begins immediately
- Improvements in anesthesia also facilitate immediate mobility
- Start working with therapy to get out of bed
- WBAT
- Anterior hip precautions



Summary

- You choose the time to intervene for hip replacement
- *Gold Standard* of all joint replacements
- Very predictable outcome with a painless and fully functional hip joint



Summary

- Combining techniques of computer assistance with an anterior hip surgical approach utilize the best of current technologies to maximize your recovery and outcome



Thank You

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Replaced Hip X-ray

Your Treatment Options
Hip Pain

