

Advances in Hip Arthritis Treatment State-of-the-Art Care: Less Pain, Quicker Recovery

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Credentials:

- University Of Washington- SOM
- University of New Mexico- Residency
- Coon Joint Replacement Institute- Fellowship and Practice
- AAOS and AAHKS



- CJRI performs 1,200+ joint replacement surgeries annually
- Focus on minimally invasive surgical techniques combined with advanced technology
- 99% of cases done under spinal anesthesia
- Avg LOS: TKA 1.1 days, THA 1.5 days
- 91% of patients discharged to home with outpt PT



What is Arthritis?

Osteoarthritis- Worn out articular cartilage

Inflammatory Arthritis- Systemic Process ex:
Rheumatoid, Psoriatic, etc.

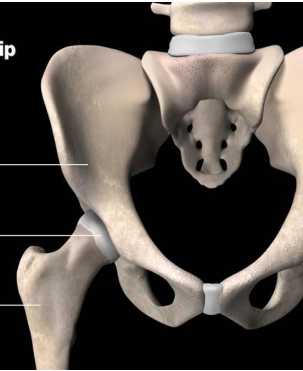
Hip Stages

A Normal Hip

Pelvic Bone

Healthy
Cartilage

Femur
(thigh bone)

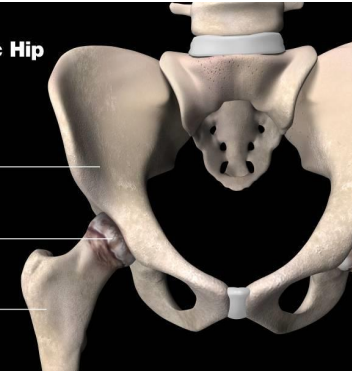


An Arthritic Hip

Pelvic Bone

Diseased
Cartilage

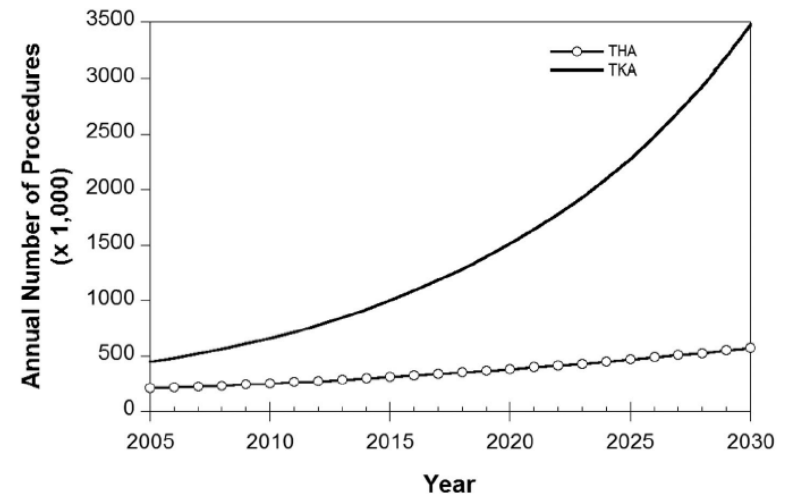
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X-ray Showing Arthritis



Primary Hip and Knee Replacement



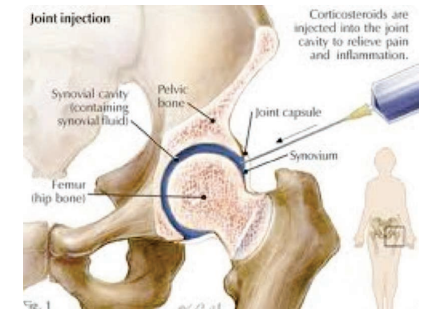
New Generation of Patients

- Many patients (usually 45-64 years old) have different expectations
 - Want to maintain their quality of life and active lifestyles
- Patients are often better informed today
 - Internet allows access to more information

Today's middle-aged patients often do not want to suffer through the pain of OA or accept a sedentary lifestyle.

Treatment Options for Knee and Hip Pain

- Rest, ice, and heat applications
- Medications for inflammation and pain
- Lifestyle modification
- Physical therapy
- Joint fluid supplements
- Knee arthroscopy
- Total joint replacement



RICE and NSAIDs

Rest, Ice, Compression, Elevation

Ibuprofen, Alleve, Tylenol, Celebrex

Topical compounds

Glucosamine



Activity Modification and Weight Loss

Avoiding high impact activities, i.e., running, jumping

Weight Loss: Goal BMI < 40



Joint Injections

- Cortisone
- Visco-supplementation
- Platelet rich plasma (PRP)
- Stem Cells



Visco-supplementation

“Chicken Shots”- Hyaluronic acid injections

*Not covered by insurance
Off-Label use



PRP: Platelet Rich Plasma

Injections of concentrated blood products to enhance healing

*Not covered by insurance, expensive



The Promise of Stem Cells

Obtain stem cells, concentrate them and inject them into the joint to decrease inflammation and promote healing.

*Not covered by insurance, very expensive



Stem Cell Results:

Regenexx-SD vs. knee and hip replacement?

Data Collection

This data was collected by Regenexx network physician Mitch Sheinkov, M.D. As an orthopedic surgeon, he collected knee and hip replacement data in 2007. He also used the same methods to collect data on the Regenexx-SD procedure for knees and hip arthritis. Regenexx had 22 practitioners in the data collection over 14 preparation.



Caution! This is a comparison trial, which is not the same as a drug company style controlled trial.

How does a major surgery compare to an injection of stem cells?

What does this mean?

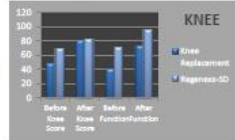
The Harris Hip Score and hip range of motion improved in both hip replacement and Regenexx-SD patients. While hip replacement patients saw greater improvements, given that the Regenexx-SD patients had a significantly less invasive procedure, the risk/benefit ratio is good.

What does this mean?

The Knee Society Assessment Score and the Function Score improved in both knee replacement and Regenexx-SD patients. Regenexx-SD knee patients saw greater joint procedure benefits in both measures. Given that the Regenexx-SD patients had a dramatically less invasive injection, the risk/benefit ratio is excellent.



73% of Regenexx-SD hip patients returned to sporting activities!



Details: Hip-04 THA surgery performed in 2007, mean age of 62 years, mean BMI of 30. 23 Regenexx-SD procedures performed in 2012, mean age of 51 and BMI of 26. 24 THA patients were available for follow-up at one year and 18 Regenexx-SD patients were available at 1 year. Harris Hip Score administered to both groups by the same technician and clinician. Knee-111 knee THA knee surgery performed in 2007, mean age of 67 years, mean BMI of 33. 37 Regenexx-SD procedures performed in 2012 with a mean age of 55 years and a BMI of 27. At one year there were 73 THA and 26 Regenexx-SD patients available for follow-up. Knee Society Assessment Score and Knee Society Function Score administered to both groups by the same technician and clinician.



Hip Demographics

- 94 THA in 2007*
 - Mean age of 62.22
 - Mean BMI of 30.18
- 28 BMAC Hip interventions in 2012
 - Mean age of 51.44
 - Mean BMI of 26.40



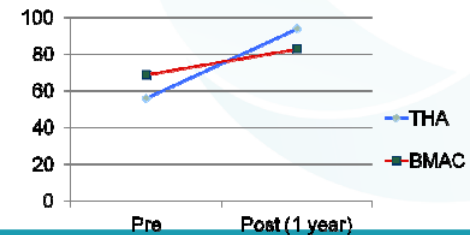
Available for follow-up at one year

- THR (24) 14 Males/ 10 Females
- BMAC at Hip (18) 12 Males/6 Females



Mean Harris Hip Score

- THA Preop (101) 56
- THA Post(24) 94
- BMAC Preop (28) 68.75
- Post BMAC (18) 82.89



Harris Hip Pain Score

- **THA**

Pre op

Mod to marked: 77%

Post op

None: 80.0%

- **BMAC**

Pre op

Moderate: 93%

Post op

None: 25%

Slight: 50%

Moderate: 25%

Is that a true comparison?



Limitations with Treatment Options

- Oral drug therapy may not provide significant and lasting relief for chronic pain and may have serious adverse effects¹
- Cortisone injections can weaken bone and cartilage and should not be given continuously²
- Arthroscopy, physical therapy, and bracing do not address progressive and degenerative process of OA
- Ease of movement with intra-articular hyaluronic acid viscosupplementation may be limited to 6 months³

1. <http://www.webmd.com/osteoarthritis/live-better-10/pain-relief> , accessed: Dec. 15, 2010.
 2. http://www.rxlist.com/cortisone_injection/page3.htm . accessed: Dec. 14, 2010.
 3. <http://www.webmd.com/osteoarthritis/features/injections-for-osteoarthritis-pain> , accessed: Dec. 15, 2010.

Consequences of Delaying Surgery

- Surgery is a difficult decision
- OA is a degenerative disease
- Better outcomes are reported in patients who had a total joint operation earlier in the disease process¹
- At 2 years post-operation, patients who chose surgery earlier in disease process vs. those who waited¹
 - Had improved function
 - Had reduced pain

1. Fortin PR, et al. *Arthritis Rheum.* 2002;46:3327-3330.

Modern Approach to Hip Arthroplasty

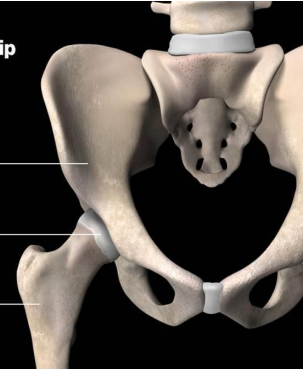
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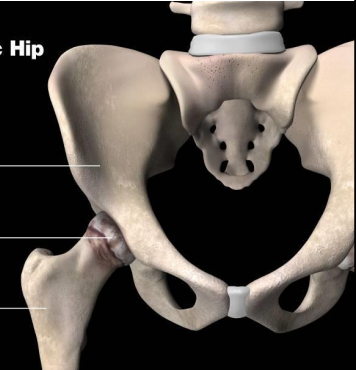


An Arthritic Hip

Pelvic Bone

Diseased Cartilage

Femur (thigh bone)



The Very Important Bearing Surface Hip Arthroplasty

- The bearing affects

- Performance
- Flexibility
- Durability
- Longevity

The bearing surface:
The two parts that glide together throughout motion



Femoral head and acetabular insert in hips

- Options for bearings in hip replacements

- Ceramic-on-ceramic
- Metal-on-plastic
- Metal-on-metal
- Ceramic-on-plastic

MIS Hip Replacement Direct Anterior Approach

What is the 'Direct Anterior Approach'?

- The direct anterior approach is a minimally invasive hip replacement technique that allows the surgeon good access to the hip without detaching any muscles or tendons.

Traditional vs. Direct Anterior Approach

Traditional Hip Replacement

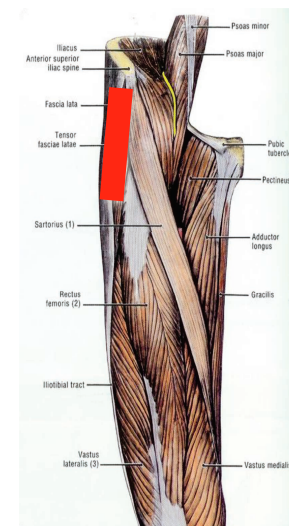
- 8-12 inch incision
- Surgical approach - side (lateral) or back (posterior)
- Disturbance of the joint and connecting tissues

MIS with Direct Anterior Approach

- 4-5 inch incision
- Surgical approach – front (anterior)
- Muscles or tendons not detached

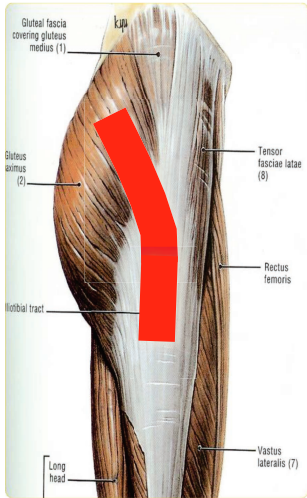
Why I Do The Direct Anterior Approach?

Why Direct Anterior?



- Hip closer to the front of the body
- Surgical anatomy
- Doesn't detach any major muscles
- Minimal risk to nerves
- Truly MIS

Why Direct Anterior?



- Less pain
- Quicker restoration of function
- Shorter hospital stay
- Probably more economical

Direct Anterior Hip Replacement



Why?

- Ideal soft tissue interval
- Ease of patient position
- Simple socket instrumentation

Direct Anterior Hip Replacement

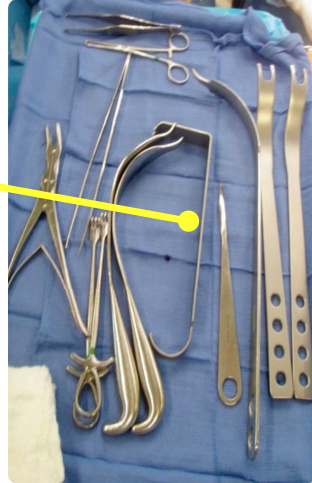
Why Not?

- Unfamiliar territory
- Femoral exposure is difficult
- Specialized equipment

How it's done

Special Instruments

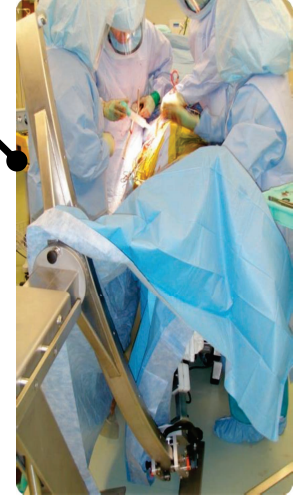
Retractors



Special Equipment

Lighting

Arch table



Typical Precautions: Traditional vs. Direct Anterior

Traditional Hip Replacement

- Do not cross legs
- Do not bend hip more than a right angle
- Do not turn feet excessively inward or outward
- Use a pillow between your legs when sleeping

Direct Anterior Approach

- Under doctor's supervision, may be immediately allowed to move their hips
- May potentially avoid restrictions associated with traditional hip replacement¹

1. <http://www.anteriorhip.org/anterior-hip-replacement.html> accessed Nov 2010.

Potential Benefits of MIS with Direct Anterior Approach

- Decreased hospital stay and quicker rehabilitation.²
- Smaller incision and reduced muscle disruption may allow patients a shorter recovery time and less scarring.¹
- Potential for less blood loss, less time in surgery, and reduced post-operative pain.^{1,3,4}
- Risk of dislocation reduced.²
- May allow for a more natural return to function and activity.^{1,3}

1. Wenz, J, Gurkan, I, JIbodh, S., "Mini-Incision Total Hip Arthroplasty: A Comparative Assessment of Peri-operative Outcomes," Orthopedics Magazine, 2002.

2. www.anteriorhip.org/anterior-hip-replacement.html accessed Nov 2010.

3. Keggi, Kristaps, I., "Total Hip Arthroplasty Through a Minimally Invasive Anterior Surgical Approach," JBJS, Vol. 85-A, 2003.

4. Baerga-Varela, L., Malanga, G.A., "Rehabilitation after Minimally Invasive Surgery." Hozack, W., Krismer, M., Nogler, M., Bonutti, P., Rachbauer, F., Schaffer, J., Donnelly, W., ed. Minimally Invasive Total Joint Arthroplasty. New York, NY: Springer-Verlag; 2004: 2-5.

Advantages of Direct Anterior

- MIS approach is better for patients
- No Hip Precautions
- Improved Control over Component Position

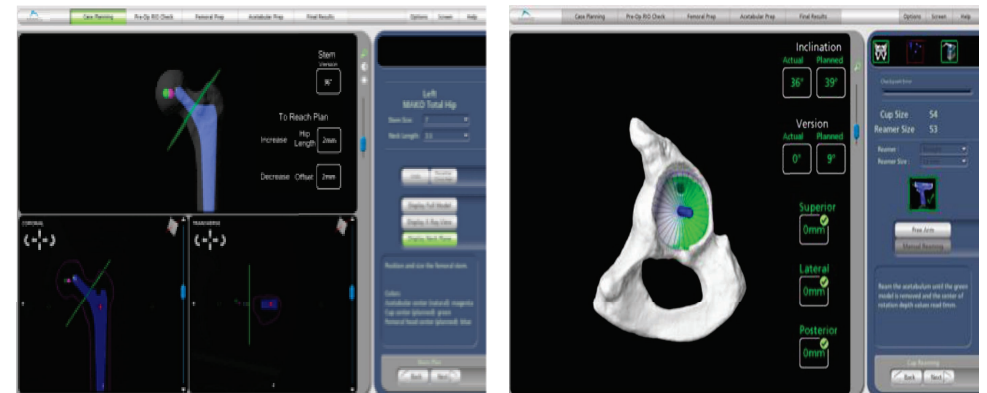
The Use of Technology in Hip Replacement

Why Navigation?

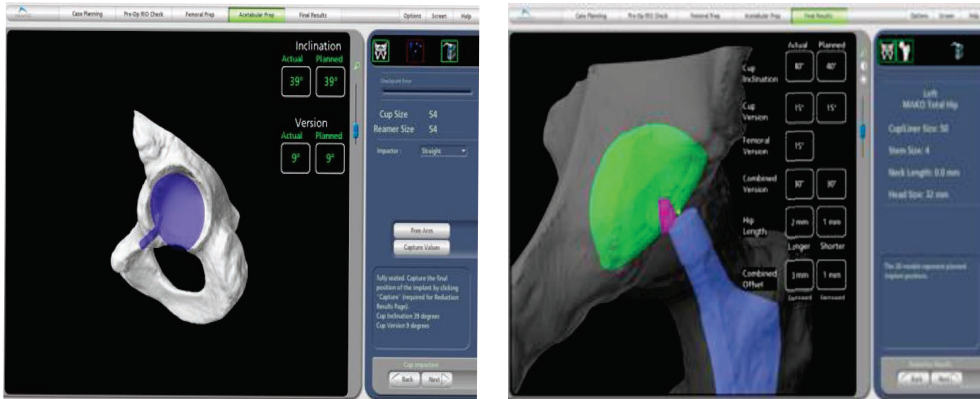
- Increased level of precision
- Confidence in component position
- Recovery room film is too late for changes
- Optimize surgical results

Robotics

- Advanced surgical planning

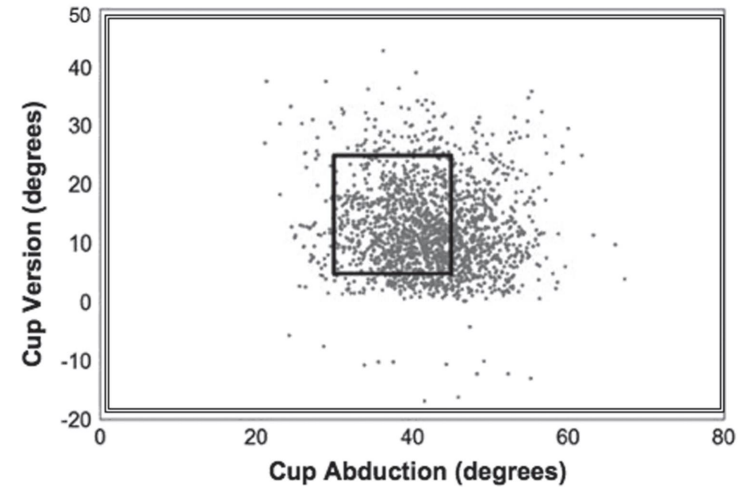


Robotics

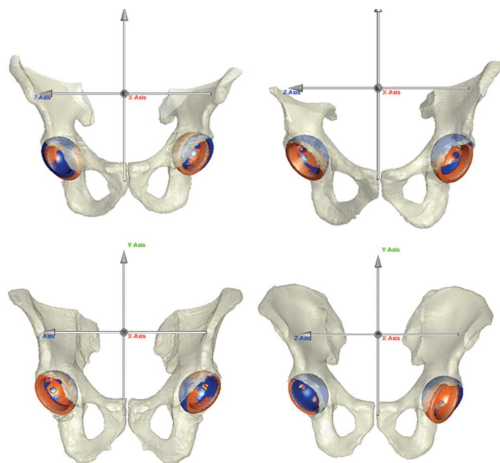


50% within the safe "Box" at MGH

All Patients (n=1,823)



Robotic Assistance increased accuracy 4-6x compared to Manual



Technique with Technology

Surgical goals of hip replacement

- Pain relief
- Restoration of function/lifestyle
- Optimize patient outcomes
- Economics

DA THA

- Provide early and exceptional analgesia
- Low trauma surgery
- Early discharge and rapid rehab

Prevent the Bad Effects

- Pre-emptive analgesia
 - Celebrex
 - Spinal Narcotic
- Pre-emptive anti nausea
 - Reglan
 - Pepcid

Operative Management



- SPINAL anesthetic
- IV sedation
- Capsular injection

Post-Operative Management



- Gait training POD1
- Stairs and PT instruction
- Ideally same day ambulation

Questions?

Thank You

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