Hip and Knee (Total Joint) Replacement:
What? How? Why?
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Disclosures

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Joint Replacement

- The removal of arthritic joint surfaces (cartilage and bone) and damaged or poorly functioning tissues, followed by the implantation of metal, ceramic, and/or polyethylene components (“parts”) designed to replicate the normal shape and function of the damaged joint.
Why Do We Do This?

“Or, “Doctor, do I need to have my joint replaced?”

HOUSTON Methodist
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Joint Replacement

• No one truly “needs” to have a joint replacement. It is not a life-saving procedure.

• Knee and Hip Replacement are considered “elective” surgeries: YOU, the patient, choose to have your joint replaced to improve your QUALITY of life when nothing else relieves your joint pain.
Why Do We Replace Joints?

- The primary indication, and the goal, of joint replacement surgery is to relieve pain in the arthritic joint.

- Simply having the surgery does not guarantee that you will be able to go back to specific activities, or perform new activities.

- The goal is to relieve your pain and give you a joint that works and moves, so that you can try to improve your activity level and quality of life.
Knee Replacement: What Does That Mean?
What is a Knee Replacement?

Is it THIS?
Thankfully, not usually
Typical Knee Replacement
How Do We Do This?

- Make an incision through the skin—usually down the front of the knee
- Split the quadriceps (muscle on the front of the thigh)
- Remove 8-10 mm (about 3/8") of bone from the arthritic parts to be replaced
- Perform trials
- Implant the parts
Total or Partial Knee Replacement?
Indications for Each

- **Total Knee (“Total”)**
  - Arthritis in 2 or 3 compartments of the knee
  - Rheumatoid arthritis
  - Severe joint deformity
  - Obesity
  - Arthritis with ligament damage

- **Partial Knee (“Uni”)**
  - Arthritis limited to 1 of 3 compartments in the knee
  - Minimal or mild deformity
  - Intact, well-functioning ligaments

In the end, your surgeon will advise you on the correct procedure
Knee Resurfacing

• An option for some people who have small, “pothole” areas of arthritis or joint damage and intact ligaments and meniscus
• The whole joint does not need to be replaced.
• The damaged area is removed and replaced with a small metal or polyethylene plastic part
• May allow for higher levels of activity
Patient Specific Knee Replacement

• Your surgeon orders a CT scan or MRI of your knee, which is used to make a 3-D model of your joint
• The model is used by a computer to make custom surgical instruments and custom made knee replacement parts
• Has been shown to improve the precision and accuracy of component placement and limb alignment
What is a Hip Replacement?
Hip Replacement: How Do We Do This?

• Make an incision on the buttock, side of the hip, or front of the hip
• Split or elevate muscle to get into the hip joint
• Cut off the femoral head and neck
• Shave off arthritic cartilage and bone from the hip socket
Hip Replacement

- A metal or polyethylene “cup” is implanted into the hip socket and sometimes held with screws
- A metal (titanium) “stem” is implanted into (inside the bone) the femur (thigh bone)
- A metal or ceramic “ball” is impacted onto the top of the stem
- The ball is rotated into the cup
What About Hip Resurfacing? What is That?
Hip Resurfacing: Metal on Metal

• Similar to total hip replacement
• The hip socket is reamed, and a metal cup is impacted into the bone
• Difference: the arthritic cartilage and bone of the femoral head is shaved from the surface
• A small metal stem is driven into the core of the femoral head and neck
• The stem is covered with a metal cap
Hip Resurfacing: What’s the Big Deal?

• Bone Preserving
  – May preserve natural hip length and offset
  – May make revision surgery easier or less traumatic later in life

• Metal on Metal
  – Hard on hard joint surfaces intended to allow higher impact (running, sports) activity without leading to joint replacement failure: as opposed to polyethylene plastic of standard hip replacement
  – Metal rubbing on metal may cause release of metal (cobalt, chromium) ions into the local tissues or bloodstream, leading to tissue destruction and causing concern for long-term disease/health problems
Metal on Metal Hip Replacement and Resurfacing

• Only a small percentage of surgeons will perform this procedure using this combination of joint surfaces, due to implant recalls and concern over complications of metal ion release.

• Therefore, if you are interested in undergoing this type of hip replacement surgery, talk with your surgeon or use online resources to find a surgeon who uses metal-on-metal.

• I do not use metal on metal or perform resurfacing. However, we do have surgeons in the Houston Methodist system who do these procedures.
So, Doctor, Should I Have my Joint Replaced?
In other words, how do we know if joint replacement is right for me?
Clinical Evaluation

• Your assessment begins with a visit to your surgeon
• An accurate history of your symptoms is a VERY important part of the decision-making process.
• You need to tell your doctor how much pain you have, for how long, and under what circumstances it occurs; where the pain is located; what makes it better or worse; and how your joint pain limits your life
• Inform your doctor regarding other treatments you have had for your joint: medicines, physical therapy or exercise, injections (shots), other surgeries
History

• Your past medical and surgical history is very important

• Do you have any **significant medial problems** that could cause complications with joint surgery: diabetes, rheumatoid arthritis, anemia, bleeding problems, blood clots, severe heart disease or poor heart function, kidney or liver problems, etc.

• Do you have a history of recurrent infections or infection in the joint to be replaced?

• **Do you smoke or use tobacco products?**
  - Smoking is the Number 1 cause of surgical complications with joint replacement.
  - I require my patients to quit smoking for at least 1 month prior and 3 months after joint replacement
Medication allergies: will limit the kinds of antibiotics or sterilization methods your surgeon may use to reduce your risk of infections

Metal Allergy: it is EXTREMELY important to inform your surgeon of any sensitivity or reaction to metals on or in your body (jewelry, piercings, watches, other implants, etc.). Because the joint replacement parts are mostly made of metals, your body could have an allergic reaction to your joint replacement

- Your surgeon can send you for testing to certain metals and other substances used in joint replacements
Clinical Evaluation: Physical Exam

- Your surgeon will look at the shape and alignment of your leg (straight, bowed, knock-kneed, twisted)
- Your range of motion: the stiffer your joint before surgery, the harder it will be to restore “normal” movement after surgery
Physical Exam

• The health of **your skin**: the skin, ligaments, and muscle protect your new joint from the outside environment. The healthier your skin and soft tissues, the better chance you have of avoiding complications.

• Your surgeon will assess your joint stability, muscle strength, sensation, and blood flow. All are important to your recovery from surgery.
Your surgeon will assess your X-rays, looking for how bad your arthritis is (mild, moderate, “bone-on-bone”)

Based on your X-rays, your surgeon may choose to get a CT scan or MRI for more detail on your individual anatomy.
Time to Decide

• Now that you and your surgeon have gone through all of that, it is time to make a decision
• In the end, your surgeon will provide you with information, not tell you whether or not to have surgery
• YOU, THE PATIENT, WILL BE THE ONE TO CHOOSE TO HAVE YOUR JOINT REPLACED
When You Know It Is Time to Have Joint Replacement

• The most common words you use are, “I can’t…”
• You have pain not relieved by non-narcotic medication (Tylenol, Advil, Aleve, etc.)
• You cannot perform your job duties
• You cannot engage in simple activities of daily living: activity around the house, daily walk, grocery shopping, visiting with friends
• You cannot spend time with your friends and family doing special activities, going on trips or vacation, playing with grandchildren, etc.
• You cannot enjoy living because of your painful joint
You May not be Ready for Joint Replacement If...

• Your joint only bothers you occasionally
• Your pain does not occur every day
• Your pain responds to over the counter (OTC) or prescription strength non-narcotic medicines
• Your pain is improved with bracing, physical therapy, medicines, or injections
• You are still able to perform your job
• You are still able to enjoy nearly all aspects of your life
So, you decided to have surgery

Now What?
We already talked about how the surgery is done.

What else do you need to know?
Pain Management
How much pain will I have after surgery?

Let’s face it, no one wants to feel like this after joint replacement surgery. But, is it realistic to expect that you will feel like this?
The answer, sadly and realistically, is NO

You are having an invasive procedure. Surgery hurts. Pain is normal and expected.
So, what is the goal of pain management with surgery?

- The goal is to achieve “tolerable discomfort”
- This means that you have some pain, but you are able to handle it so that you can sleep, eat, go the bathroom, and participate with physical therapy

Something between this

And this
What can we (your doctors) do to make you feel better and have less pain?
Before (Preoperative) and During (Intraoperative) Surgery

- Anesthesia
- Regional anesthesia: making the surgical site numb so you do not feel pain. Includes:
  - Spinal/epidural anesthesia
  - Nerve blocks: femoral, adductor canal, sciatic, popliteal, fascia iliaca
- Preoperative medication loading: some surgeons may provide anti-inflammatories (NSAIDs) and/or pain medicine in the “preop” area
- Intraoperative medications: IV Tylenol
- Local injections
Local (Pericapsular) Injections

- Your surgeon may use a combination of medicines as an injection around your surgical site to help reduce your pain after surgery

- My “cocktail”: Marcaine (local anesthetic or numbing medication), Morphine (pain medicine), Toradol (injectable NSAID), with saline

- The medicines are mixed together and injected into the tissues right around the joint

- These injections have been shown to help reduce postoperative pain after joint replacement
Postoperative Pain Control

• PCA
  – Patient-controlled analgesia or “pain pump”
  – Patient pushes a button to release a small dose of narcotic pain medicine
  – May temporarily relieve pain
  – Many adverse effects: nausea, altered mental status, constipation, lethargy

• Multimodal analgesia
  – Uses a variety of different pain-relieving oral medicines, usually given “around the clock,” to achieve pain control
  – The different medicines attack different kinds of pain
  – My “cocktail”: Norco (narcotic pain medicine); Robaxin (muscle relaxer); Gabapentin (nerve pain reliever); Celebrex or Mobic (NSAID)
Postoperative Pain Control

• **Nursing:**
  - **Ice:** applying an ice pack to the surgical site up to 45 minutes every hour will help numb the area and relieve pain
  
  - **Position changes:** shifting your weight in bed or in a chair can help you achieve a position of comfort
  
  - **Elevation:** keeping your operative leg elevated will reduce swelling, which can be a source of pressure and pain at the operative site
Recovering from Joint Replacement Surgery
Your recovery begins in the hospital

- **Rapid Recovery**
  - The goal is to reduce length of stay in the hospital, return patients to independent function more quickly, and increase the chances you will go straight home from the hospital after your surgery
Rapid Recovery

• **Regional anesthèsia**: improves initial pain relief, allowing patients to achieve functional range of motion and weight bearing earlier.

• **Multimodal Analgesia**: keeps pain controlled effectively enough to allow patients to work more aggressively and actively with Physical Therapy.

• **Early Mobilization**: new protocols, including those utilized in the Houston Methodist St. John Joint Replacement Program, encourage Physical Therapy starting ON THE DAY OF SURGERY.
  – That’s right! You can WALK on the day you have your joint replaced!
Rapid recovery protocols and programs have become so successful that some surgeons even offer same day hip replacement

So, we know this stuff works
Physical Therapy/Rehab
I’m sure many of you are concerned that this is what PT feels like after surgery.
• Your Physical therapists will help you learn how to:
  – Get out of bed or chair;
  – Walk and use a walker, crutches, or cane;
  – Perform range of motion and strengthening exercises;
  – Maintain hip precautions (if prescribed by your surgeon)
Inpatient Rehab

• Reserved for patients who are not safe to go home and recover mostly independently
• Patients who live alone, are very weak going into surgery, or may be older and thus unable to recover as quickly
• Patients are managed by doctors who specialize in Physical Medicine and Rehabilitation for their postoperative needs
• Your care is overseen by an independent physician who may or may not know you, your doctors, or the ways in which your surgeon wants you to be taken care of
Home Rehab

• I encourage all of my patients to go home directly from the hospital after surgery
• At home, you get to sleep in your own bed, sit on your own chairs and sofa, eat your own food, watch your own TV, use your own computer, etc.
• If you go home, your care will continue to be directly overseen by your surgeon and your own primary care doctor
• You will receive Home Health Care: visiting therapists and nurses will supervise and guide you through your immediate post-op rehab
Rehabilitation after surgery

- The success of your surgery depends heavily on your effort and participation with physical therapy.

- How well your joint works for you depends on YOU.
• **What about stairs?** Stair training is part of your post-op rehab

• **What about driving?** I let my patients drive after 4 weeks for a right hip or knee surgery, and anytime after they are off the narcotic pain medicine for a left hip or knee

• **What about sports, running, etc.?** Most surgeons recommend against repetitive high impact activities after joint replacement. This includes running and sports that require running and jumping

• **How much does a joint replacement weigh?** About 2 pounds. So, yes, your leg will feel heavier after surgery
• Will I set off a metal detector at the airport? Yes. Your surgeon may give you an “implant card” – essentially an ID card for your joint.

• How long does it take to recover from surgery? This is the most difficult question to answer, as recovery means different things to different people. The majority of patients are able to walk independently by 6-12 weeks after surgery. Muscle strength takes about 1 year to recover.

• When can I go back to work? It depends on your job. For desk jobs, you may return once you are either off narcotic pain medicine or are able to make good decisions on the medicine. For more active jobs, you must be able or allowed to perform your job-specific activities.

• Will I be able to engage in sexual activity? Yes, although certain activities or positions may not be advised due to the risk of causing damage to or dislocation of your joint replacement.
So, joint replacement...

- Is indicated for patients with regular, unrelenting pain in a joint that is not relieved by other, less invasive means

- Involves removing a minimal amount of damaged cartilage and bone to allow the arthritic joint to be resurfaced

- Is expected to provide pain relief to 85-95% of patients

- Depends on optimization of your medical conditions by your primary care doctor, a well-done operation by your surgeon, active involvement by a team of nurses and physical therapists, your compliance with your surgeon’s instructions, and your effort and determination to get well
Thus, in the end, joint replacement...

- Depends on a whole team to bring about success: you, your family (for support and encouragement), your surgeon, your nurses and physical therapists, and your primary care doctor.

- Is a reproducible and reliable means to treat severe joint pain, giving patients the opportunity to be more active and experience more joy in their lives.
Because our goal, as your doctors and nurses here at Houston Methodist St. John Hospital, is for you to feel like this after you have had joint replacement surgery
Additional Resources

- www.aahks.org
- www.aaos.org
- www.houstonmethodist.org/stjohn
  - We now offer a Joint Replacement Program, including twice monthly joint seminars
  - The program is designed to help you through your entire episode of care, including preoperative education, perioperative management, and postoperative care coordination
Thank You!