TOTAL KNEE ARTHROPLASTY: A LOOK INTO THE FUTURE

HARVEST THE FRUITS OF ORTHOPEDIC CARE 2017

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ABOUT MY PRACTICE

- Began my practice in St. Cloud in 1999
- Emphasis on minimally invasive knee replacements and arthroscopic knee and shoulder procedures
- Work one on one with my physician extender to provide comprehensive patient care
- Offer all ancillary services through our office, including x-ray, MRI and physical therapy

What should we accomplish today?

Understand the current outcome objectives of Total Knee Arthroplasty

Discuss emerging technology being used to realize those outcomes

Review technologic advances that will improve outcomes
OUTCOME OBJECTIVES

Patient Satisfaction - Subjective

Longevity - Objective

Functional - Objective

WHERE HAVE WE BEEN?
IMPLANT DESIGN

- Single radius vs. Multi-radius
  - Gender specific?
    - Modular
    - Cemented
  - Press-Fit/Ingrowth
    - Fixed bearing
    - Mobile bearing

MATERIALS

- Polyethylene Technology
  - Cross linking/Irradiation
  - Melting/Annealing
  - Cycling of irradiation and annealing
  - Ethylene oxide/Gas plasma sterilization
  - Alpha tocopherol soak
A GIANT STEP FORWARD IN JOINT REPLACEMENT

Computer-Assisted Surgery

- Helps your surgeon more precisely align your knee implant with computer monitoring, helping improve the overall function of your new joint.5
Navigation is a visual enabler for MIS Surgery facilitating more accurate placement of prosthesis
- Implant alignment is an important factor that may reduce joint wear and extend the life of the implant.7,8

**STRYKER KNEE NAVIGATION**

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**How it Works**

Orthopaedic navigation technology is similar to directional tracking systems used in cars and ships – it is, in effect, a global positioning system (GPS) in the OR.

- Infrared sensors act like satellites constantly monitoring the location of markers and instruments placed along your anatomy.
- Wireless instruments transfer the data to a computer in the OR.
- Information supplies the surgeon with the measurements of your unique anatomy.
ROBOTIC ASSISTED SURGERY

Unicondylar Knee Arthroplasty (UKA) (also known as Partial Knee Arthroplasty)
- Less than 50,000 partial knee procedures in the United States in 2007
  - ACL and PCL remain intact
  - Traditionally performed with manual instruments
RIO® ENABLES CONSISTENTLY REPRODUCIBLE PRECISION

Pre-operative Planning (CT Scan)

Intra-operative Registration (confirms the data)
MAKOPLASTY® IS ENABLED BY THE RIO® ROBOTIC ARM INTERACTIVE ORTHOPEDIC SYSTEM

RIO® ENABLES CONSISTENTLY REPRODUCIBLE PRECISION

Partial Knee Replacement
RIO® ENABLES CONSISTENTLY REPRODUCIBLE PRECISION

Post-operative X-rays - Unicondylar

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Post-operative X-rays - Patellofemoral
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Post-operative X-rays - Bicompartmental

**POTENTIAL BENEFITS OF MAKOPLASTY®**

- Performed through a smaller incision than that required for traditional total knee replacement surgery. (++)
- Only the arthritic portion of the knee is removed, preserving healthy bone and tissue. (++++)
- Implants are optimally positioned in the knee joint to allow the knee to move smoothly again. (++++)
  - Improved surgical outcomes
  - Less implant wear and loosening
  - Bone sparing
  - Smaller incision, Less invasive
  - Less scarring
  - Reduced blood loss
  - Minimal hospitalization
  - Rapid recovery
  - Ligaments remain intact for a more natural feeling knee

*Individual results may vary. There are risks associated with any knee surgical procedure, including MAKOplasty®. Your physician can explain these risks and help determine if MAKOplasty® is right for you.*
Total Knee Arthroplasty (TKA) is considered the Gold Standard

- 600,000 performed annually in U.S.
- Proven long term survivorship 90% out 15 years
- Can correct large deformities

RIO® ENABLES CONSISTENTLY REPRODUCIBLE PRECISION

Total Knee - St. Cloud was one of only 6 sites in the US to be an “early user”

Announcing availability of Mako Total Knee
To date at least 225 Mako total knees have been done by St. Cloud Orthopedic surgeons

- St. Cloud Orthopedics is number 2 in Mako TKA volume in the US
- St. Cloud Orthopedics is number 1 in percentage of volume done with robotic assistance.
- Volumes and usage are accelerating with an estimated 45 TKA to be done in October with Mako assistance.

We believe in the technology.

MAKO ROBOTIC KNEE REPLACEMENT

SO WHAT’S NEXT?!
IMPLANT DESIGN

- Truly “custom” implants

3-D PRINTING
THANK YOU

Questions?

THANK YOU