Adult Reconstructive Surgery Fellowship
About Massachusetts General Hospital

Founded in 1811, Massachusetts General Hospital is the third oldest general hospital in the United States.

- 90,000 inpatients and 2.5 million visits annually
- The largest hospital-based research program in the US, the annual research budget exceeds $1.5 Billion
- Nine Nobel Laureates, including one of last year's recipients, Jack W. Szostak, PhD, either trained or worked at the MGH
History of Fellowship

The Mass General Arthroplasty Fellowship is the oldest continuous arthroplasty training program in the United States.

• Widely recognized at the national and international levels
  o Premier educational and research curriculum for orthopaedic surgeons

• Graduates of this program
  o Around the world
  o Many academic and private practice leaders
MGH Arthroplasty Pioneers

Marius N. Smith-Petersen, MD
- MGH Chief of Orthopaedics 1929-1946
- Anterior approach to the hip
- Cup arthroplasty for arthritis

William H. Harris, MD, DSc
- MGH Chief of Arthroplasty 1975-2000
- Harris Hip Score (HHS)
- Designed the first modular metal-backed acetabular component
- Developed highly crosslinked polyethylene in 1999 (used 2 million worldwide)
Our Faculty

The dynamic team leads to a vibrant intellectual environment for faculty, fellows, residents, researchers, students, and international visitors.

• Dr. William Tomford
• Dr. John Siliski
• Dr. Hany Bedair
• Dr. Christopher Melnic
• Dr. John Esposito
• Dr. Young-Min Kwon
Dr. William Tomford is an accomplished surgeon and a leading authority on musculoskeletal tissue banking.

Dr. Tomford earned his BA from the University of North Carolina and his MD from Vanderbilt University School of Medicine. He trained at Johns Hopkins Hospital in general surgery and graduated from the Harvard Combined Orthopaedic Residency Program. Following his residency, he was a Scientific Investigator and Director of the U.S. Navy Tissue Bank at the Naval Medical Research Institute in Bethesda, Maryland.

Following his work at the Navy Medical Research Institute, Dr. Tomford became a faculty member at the Massachusetts General Hospital. He also was appointed as Director of the then-newly formed MGH Bone Bank. Dr. Tomford developed the clinical program at MGH in bone banking and transplantation. He has worked with the American Association of Tissue Banks to develop standards for banking bone and other musculoskeletal tissues. Dr. Tomford authored a book on tissue banking that is used nationally and internationally by those interested in the banking and transplantation of allografts in orthopaedics.

Dr. Tomford's clinical practice focuses on hip and knee replacement surgery.
Dr. John Siliski focuses on all knee conditions, including arthritis, and fractures of the hip. He is actively involved in teaching medical students, residents and fellows.

Dr. Siliski is a board-certified orthopaedic surgeon. He earned his BA from Harvard College in 1973 and his MD from Harvard Medical School in 1977. He completed his residency at the Harvard Combined Orthopaedic Residency Program. Following his residency, Dr. Siliski completed his first fellowship at the Brigham and Women’s Hospital in Orthopaedic Surgery and a second AO Fellowship in Europe.

Dr. Siliski treats fractures and arthritic conditions of the hip. He also treats all knee conditions and performs joint replacement, arthroscopy, ligament repair and reconstruction, fracture management, osteotomies, and patellofemoral realignment.
Dr. Hany Bedair specializes in minimally invasive primary hip and knee replacement surgery to help patients quickly return to an active lifestyle. He also has expertise in complex revision hip and knee replacements.

Dr. Bedair is a fellowship-trained hip and knee replacement orthopaedic surgeon. He earned his BS from the University of North Carolina-Chapel Hill, where he completed his degree with highest honors while earning many accolades of distinction from the university. Dr. Bedair completed his medical education at the Yale University School of Medicine (2002), during which he also completed a prestigious research fellowship at the National Institutes of Health in Bethesda, MD. Dr. Bedair finished his residency training at the University of Pittsburgh and fellowship training at Rush University in Chicago, IL.

Since joining the Department of Orthopaedic Surgery at Mass General, Dr. Bedair has been nationally recognized with distinguished awards from the Knee Society and the Hip Society. He was one of two surgeons representing North America to travel to the United Kingdom for the 2010 Hip Society British Traveling Fellowship.
Dr. Christopher Melnic is a fellowship-trained hip and knee surgeon specializing in minimally invasive hip and knee replacements as well as complex revision surgeries. He believes in creating a personalized experience with the highest level of service for his patients.

Dr. Melnic attended Boston College where he majored in Biology and minored in Mathematics. He was granted early acceptance into Tufts University School of Medicine where he obtained his medical degree. He completed his residency in Orthopaedic Surgery at The Hospital of the University of Pennsylvania followed by a fellowship in Adult Joint Reconstruction at the prestigious Rush University in Chicago. During his fellowship, he focused on complex hip and knee replacement surgery, partial knee replacements, as well as minimally invasive surgical techniques.

Dr. Melnic’s practice focuses on minimally invasive joint replacement that enables less pain and faster recovery times, complex primary and revision hip and knee replacement, and partial knee replacements. Dr. Melnic utilizes efficient pain management pathways that allow for rapid recovery and faster return to normal activity. Select patients may qualify for outpatient joint replacement and go home the same day as surgery.
Dr. John Esposito is a dual fellowship trained orthopaedic trauma and adult hip and knee reconstruction surgeon specializing in direct anterior approach hip replacement surgery and robotic assisted surgery.

Dr. Esposito obtained a Master of Science degree at the University of Toronto and his medical degree at the University of Ottawa. He completed a residency in orthopaedic surgery at the University of Calgary and is certified by the Royal College of Physicians and Surgeons of Canada. He subsequently completed two subspecialty fellowships: the first in orthopaedic trauma through the Harvard Orthopaedic Trauma Fellowship at Massachusetts General and Brigham and Women's Hospitals, and the second through the Western University Adult Hip and Knee Reconstruction Fellowship at University Hospital in London, Ontario, Canada. During his second fellowship he received extensive training in complex hip and knee replacement surgery, including direct anterior hip arthroplasty.
Young-Min Kwon, MD, PhD, FRACS, FRCS, FACS, FAOA, is an accomplished surgeon, researcher and educator specializing in minimally invasive total hip and knee replacements and complex revision surgeries. Dr. Kwon's practice is dedicated to caring for patients who require joint replacements.

Dr. Kwon earned his MD with Honors from the University of Sydney, Australia and completed his orthopaedic residency at the Royal Australasian College of Surgeons. He completed his Fellowship in Adult Reconstructive Surgery at Mass General and then completed a Hip Reconstruction Fellowship at the Balgrist University Hospital, Switzerland. He earned a PhD from the University of Oxford. He is board certified in Orthopaedic Surgery with the American Board of Orthopaedic Surgery, the Royal College of Surgeons of England (FRCS) and the Royal Australasian College of Surgeons (FRACS). He is a Fellow of the American College of Surgeons (FACS) and the American Orthopaedic Association (AOA). He is an Active member of The Hip Society and The Knee Society.

Dr. Kwon serves as Director of the Adult Reconstructive Surgery Fellowship Program, the Bioengineering Laboratory and The Center for Metal-on-Metal Total Hip Replacement. He's the recipient of numerous awards and honors, including the Sir John Irvine Hunter Prize in conjunction with the title of Prosector, the AOA Traveling Fellowship Award, the FRCS's Traveling Fellowship Award, the New Investigator Recognition Award from the Orthopaedic Research Society, the Kappa Delta Award from the American Academy of Orthopaedic Surgeons (AAOS) and the John Charnley Award from The Hip Society.
Fellows participate in an educational program based at Massachusetts General Hospital and work with seven different surgeons both in the outpatient and inpatient setting. Fellows work very closely with different attending surgeons during operative treatment.

Highlights of the educational program include a daily 7:00 am Conference where we review surgical indications, techniques, complications, and new technologies. There are also lectures from various faculty members including our diverse research staff. In addition to these conferences, Fellows participate in the CORE Lecture Series for the Harvard Combined Residency Program. Research activities are reviewed on a weekly basis and there is dedicated time during the Fellowship for work in our Laboratories and also time to prepare presentations and manuscripts. One of the unique features of our Fellowship includes our daily and ongoing links between clinical work and research activities. Fellows are able to be involved in all aspects of our clinical care and scientific research and development activities.
First fellows in the country to demo a new Virtual Reality program from Stryker.
Clinical Experience

Four 3-Month Rotations with Attending Surgeons

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<td>Esposito/Melnic</td>
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Clinical Experience

Arthroplasty Fellow/Academic Year:
• 500-600 cases/year
  o Primary THA: 180
  o Primary TKA: 200
  o Revision THA: 70
  o Revision TKA: 50

Credentialing
• Credentialed as a Junior Attending
• Appointment at Harvard Medical School
Clinical Experience
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Education

Teaching program

Daily Arthroplasty Conference 7:00am - 7:30am

- Attendings, Fellows, Residents, HMS Students, Visiting Fellows
- Review and evidence-based discussion of clinical cases
- Opportunity for Fellows to teach Harvard Residents and HMS Students

Core curriculum:
- Didactic lecture series covering all Chapters
- Faculty Contributors and Editors of OKU
Current research interests include biomechanics and robotics, biomaterials for implants, pharmacological therapies, and prevention of thromboembolic disease, outcome studies and minimally invasive knee surgery.

Although there is emphasis on skills useful for today's challenges in reconstructive surgery, a critical component of the fellowship is development of future techniques and clinical practices.

- Outstanding history of translational research
- Utilizing our research facilities
- Solve major problems in the arthroplasty specialty.
- Expectation: Two published papers

Orthopaedic Research Labs:
- Harris Orthopaedic Biomechanics and Biomaterials Laboratory (HOBBL)
- Bioengineering Laboratory
- Cartilage Research Lab
- Bone Tumor Research Lab
Research

Harris Orthopaedics Laboratory

- Biomaterials Innovations
- Improve mechanical and wear properties of polyethylene: HXPE; Vitamin E-poly
- Clinical Outcome Innovations:
  - Participation in the development of American Joint Replacement Registry (AJRR) 
  - Clinical evaluation of new biomaterial through clinical and radiographic (RSA) studies.
Research

Bioengineering Laboratory

• Goal: Biomechanical Study of Joints
• Approach:
  o In-vitro Methodology – Robotic Testing System
  o In-vivo Methodology – Dynamic Dual Fluoroscopic Imaging
Research

Dynamic Dual Fluoroscopic Imaging

- To measure 6DOF WB flexion
  - DFIS technique
  - Accuracy (0.1mm, 0.3°)
  - Minimal Radiation Dosage
Academic Conferences

• AAOS
  o Attend & submit abstracts
• AAHKS
• ISK NY Course
• Vail Course in February
• Cadaver Workshops