ACCELERATING SCIENCE – ADVANCING MEDICINE

Fractures, joint arthritis, and tendon injuries are leading causes of pain and suffering, and often result in impaired mobility and reduced quality of life. At the Leni & Peter W. May Department of Orthopaedic Surgery at Mount Sinai School of Medicine, our world-class scientists and physicians are working together to dramatically change the way we understand and treat musculoskeletal injuries.

Karl J. Jepsen, PhD, Associate Professor of Orthopaedics, has revolutionized thinking about the genetic basis of skeletal fragility. Through ongoing National Institutes of Health (NIH)–funded research using inbred and chromosome-substitution mouse strains, his work has helped us understand how fracture risk is related not just to bone mass but to inherited variants in skeletal structure. Dr. Jepsen recently received an additional $1.1 million NIH grant to use these concepts to better understand spine fracture susceptibility, and a U.S. Department of Defense grant to examine functional interactions among heritable traits in the human hip. He showed that many key fracture risk traits that were previously attributed to aging actually develop early during growth, opening up the possibility of novel preventive interventions.

Following collaborations with Dr. Jepsen, Sheeraz A. Qureshi, MD, Assistant Professor of Spinal Surgery, developed innovative surgical techniques to treat complex spine injuries. He also set up a comprehensive orthopedic spine trauma service at Elmhurst Hospital Queens, a Mount Sinai affiliate, where he is Chief of Orthopaedic Spine Trauma.

To advance our understanding of tissue disease, Herb B. Sun, PhD, Assistant Professor of Orthopaedics, is investigating the effects of motion and loading on cartilage degeneration, a major cause of arthritis. In his NIH-funded studies, he innovated techniques to dissect the molecular pathways of joint damage and identified a mechanically inducible DNA transcription regulator, CITED2, which controls matrix enzymes important to maintaining cartilage health. This research closely complements the work of James Gladstone, MD, Associate Professor of Orthopaedics, Sports Medicine Service, who is investigating cartilage restoration.

Dr. Gladstone was the first surgeon in the U.S. to use a breakthrough technique of tissue-engineered cartilage, developed in Israel, to restore arthritic joints without metallic replacements.

My own NIH-funded research team has pioneered an innovative animal model of tendon fatigue injury, and to further advance tendon repair treatment, Bradford O. Parsons, MD, Assistant Professor of Orthopaedics, and I have developed and tested arthroscopic and minimally invasive techniques of rotator cuff tendon repair.

We have also investigated rehabilitation protocols to best return patients to sports and active use after tendon repair.

Through this publication, I look forward to sharing with you these and other outstanding achievements taking place every day at Mount Sinai’s Department of Orthopaedic Surgery.

Mount Sinai will help care for retired NFL players.

Distinguished by Service

Spine and Joint Care for the NFL

Mount Sinai is one of only two New York City hospitals—and just 14 across the country—selected by the National Football League (NFL) and the NFL Players Association to assist eligible retired players in need of joint replacement surgery. Under another newly created program, Mount Sinai is one of five programs in the nation—and the only one on the east coast—chosen by the NFL to provide spine evaluation and treatment for retired players. Andrew C. Hecht, MD, Co-Chief of Orthopaedic Spine Surgery and Assistant Professor of Orthopaedics and Neurosurgery, leads a team of neurosurgeons and physiatrists. Dr. Hecht is also the spine surgical consultant for the New York Jets and the New York Islanders. Michael J. Bronson, MD, Chief of Joint Replacement Surgery and Associate Professor of Orthopaedics, leads the joint-replacement team in providing the latest techniques in minimally invasive surgery for retired players.
In January, the Department of Orthopaedic Surgery opened a state-of-the-art Joint Replacement Center that focuses on both clinical care and patient education. Housed on one floor, the 5,000-square-foot Joint Replacement Center gives patients easy access to all areas of care, from preoperative assessment to therapy and recovery.

The center also features the progressive new Samuel and Ethel LeFrak Center for Patient Education, which is distinct among city hospitals. Supported by Richard and Karen LeFrak in honor of their parents, the multimedia center has HDTV monitors for video presentations on joint replacement and other surgical and postsurgical information. Computer banks are queued with dynamic and visually striking programs on knee and hip education, safety, and rehabilitation.

Headed by Michael J. Bronson, MD, Chief of Joint Replacement Surgery and Associate Professor of Orthopaedic Surgery, the center treats patients who have arthritis of the knee and hip, as well as other conditions. Physicians are skilled in the most current technology in joint replacement surgery. “We are extremely appreciative of the LeFrak family’s contribution toward establishing what we believe is the most complete, modern facility for joint replacement surgery, while providing the latest in patient education in our media center,” said Dr. Bronson.

Abigail Lynn, MD, has been named Director of the Pediatric Orthopaedic Clinic, where she will focus on the surgical treatment of scoliosis, hip disorders, fractures, and other pediatric orthopedic conditions.

A graduate of Penn State College of Medicine, Dr. Lynn completed her orthopedic surgery residency at Emory University and a pediatric orthopedic fellowship at Children’s Hospital San Diego, where she worked with some of the most celebrated surgeons in the field.

Dr. Lynn has presented on pediatric scoliosis nationally and internationally, and she has volunteered and worked in China, Honduras, and Austria.

Ilya Iofin, MD, has joined the sarcoma research team led by James Wittig, MD, Associate Professor of Orthopaedics. An Assistant Professor, Dr. Iofin specializes in limb-sparing surgery and treatment of benign and malignant bone and soft-tissue tumors.

After graduating from Washington University in St. Louis, Dr. Iofin completed an orthopedic surgery residency at New York University Hospital for Joint Diseases and then a fellowship in orthopedic oncology at the Washington Hospital Center/Georgetown University.

Dr. Iofin’s clinical interests also include complex joint reconstructions and minimally invasive techniques in the treatment of bone tumors.

Immediately after a 7.0-magnitude earthquake devastated the Haitian capital of Port-au-Prince in January, The Mount Sinai Medical Center organized an effort to gather and transport desperately needed medical and surgical supplies to the Caribbean nation. Three days later, Ernest Benjamin, MD, Chief of the Division of Critical Care in the Department of Surgery and Director of the Surgical ICU, arrived at National Hospital in Port-au-Prince and immediately began to set up a makeshift operating room for victims of the earthquake.

The next week, a second team of 27 volunteer surgeons, anesthesiologists, nurses, and technicians from Mount Sinai and other hospitals flew to Haiti to contribute to the relief work. The team, including James Gladstone, MD, Associate Professor, and Abigail Lynn, MD, Assistant Professor, both of Orthopaedics, brought additional surgical instruments, pain medication, antibiotics, bandages, and surgical dressings.

The Mount Sinai–led team also assembled operating rooms, a recovery room, and an intensive care unit, and created systems for patient identification, documentation, and equipment sterilization. Despite the challenges posed by strong aftershocks, the team performed between 10 and 20 operations each day and treated an additional 50 children.

Having treated many patients in the early days after the disaster, and with hundreds of physicians on hand from other organizations, the team returned to New York on Wednesday, January 27. “It’s an incredible experience, but really just a drop in the bucket of what they need from here on out,” Dr. Gladstone says.