LIFE IN MOTION

SUPPORTING MUSCULOSKELETAL HEALTH

1850 MELIORA

UR MEDICINE

MEDICINE *of* THE HIGHEST ORDER

LIFE IS MOTION

From the moment we are born, our instinct is to move. Our first step is a cherished milestone to our parents, the first of millions of steps we'll take in life. And throughout our lives, we depend on our ability to move for everything that's vital to us: our independence, our livelihood, our health, our happiness.

Our musculoskeletal system of bones, joints, muscles, tendons, ligaments, and other connective tissues make these miracles of movement a part of everyday life—second nature, easily taken for granted. But too often, people lose the ability to move because of congenital debility, disease, age or accident. Injuries to, or diseases of, the musculoskeletal system are the leading cause of disability in the nation. They affect 50 percent of people in the United States by the age of 18, and 75 percent by age 65.

The University of Rochester's Department of Orthopaedics and Rehabilitation is all about movement. Our mission is to perfect today's treatments and create tomorrow's cures. We have one of the country's foremost musculoskeletal research programs, outstanding comprehensive care teams, and one of the largest and best training programs for New York's young surgeons.

Imagine where we could go in the future. An orthopaedic team takes an image of a patient's injured or infected bone before it's removed, and—using 3D printing technology—makes an exact copy of the bone, filling it with a combination of a biologically active drug or other molecule and the patient's own stem cells, to rebuild a living replacement. Through precise pre-operative testing, patients at risk of a MRSA infection—an antibiotic-resistant strain of staph—receive a vaccination that eliminates the risk prior to orthopaedic surgery. And drug and molecular treatments slow or reverse the development of age-related cartilage damage and arthritis, allowing weekend and serious athletes to continue the sports they love.

> ***"We will create a Musculoskeletal Institute to do more than imagine the future. We are building it—by combining our strengths in musculoskeletal research, clinical care, and education. Powered by these capabilities, and the medical, engineering, and data science resources across the University, we are a few short years away from making these and many other treatments a reality for patients the world over. With your help, we will get there—step by miraculous step."***

Mark B. Taubman, MD
CEO, University of Rochester Medical Center and UR Medicine
Dean of the School of Medicine and Dentistry

Paul T. Rubery, MD '94M (Flw)
Chair of the Department of Orthopaedics and Rehabilitation
Marjorie Strong Wehle Professor of Orthopaedics

5 FACTS ABOUT US

Top rated musculoskeletal research in U.S.

20 clinical programs—many driving U.S. care standards

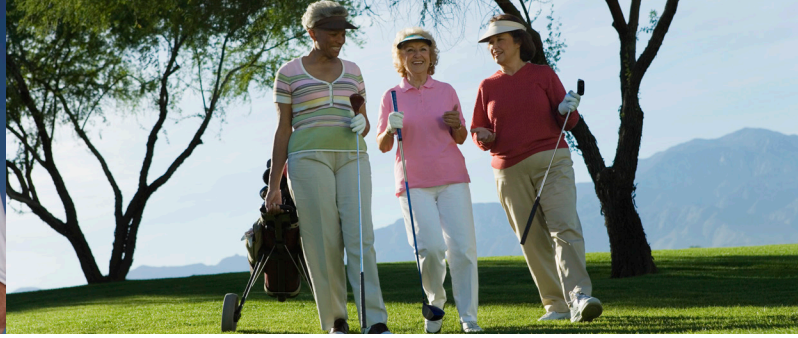
LEADERS IN ORTHOPAEDIC RESEARCH, PATIENT CARE, AND EDUCATION

RESEARCH

In the Center for Musculoskeletal Research (CMSR), more than 75 clinical and basic science researchers work together in one of the country's top-rated musculoskeletal science programs. Our scientists have discovered how tumors and debris from worn out joint replacements can destroy bones and cause the artificial joint to fail. We have also discovered the biochemical messages that cause arthritis, and are on the cusp of creating a vaccine to prevent deadly infections after surgery. Additionally, our researchers recently launched a clinical trial of a medication that may revolutionize the way osteoarthritis is treated.

PATIENT CARE

Rochester surgeons helped to introduce both arthroscopy and joint replacement to North America, and invented revolutionary approaches to both debilitating hand and thumb arthritis and massive rotator cuff tears. Today, more than 50 board-certified physicians perform 12,000 surgeries annually in seven locations, and help outpatients with a staggering 190,000 visits each year in six medical and four podiatry locations. We also direct more than 20 clinical programs—many of which lead the nation as models of care. In the clinics, we are using the Patient Reported Outcomes Measurement Information System (PROMIS®)—a tool developed for use by the National Institutes of Health—in a unique way in the nation. At each visit, patients fill out a sophisticated electronic survey asking questions about pain and functionality. This rapidly provides data that can be used to provide personalized care, assessing prior treatments, and predicting the likelihood of success with further treatment. Rochester is serving as a national model to improve health, while lowering health care costs.



Alumni are **international leaders**

New approach to injury prevention and sports medicine

New Musculoskeletal Institute will leverage University's interdisciplinary expertise

EDUCATION

Rochester has been a training ground for generations of outstanding physicians and surgeons dedicated to maintaining and restoring lives in motion. Our faculty provides intensive, encompassing exposure to disorders and diseases of the musculoskeletal system through our educational programs in all 12 subspecialties of orthopaedics and physiatry. Our alumni are national and international leaders in orthopaedics. They have served as presidents of every major orthopaedic association in the nation. We have educated 14 department chairs at academic health centers across the U.S. and Puerto Rico and five heads of divisions of sports medicine. Outside Rochester, six current orthopaedic chairs trained in our residency program. In addition, alumni who stay in the area become the region's orthopaedic physicians and scientists, providing important contributions not only to the health of people in the region, but also to its economy.

ATHLETIC PERFORMANCE AND INJURY PREVENTION

Thanks to advances in sports medicine care, people who once faced injuries that limited recreational activities, participation in school sports, or marked the end of a professional athletic career, now have the opportunity to return to the physically active life they love. At the Center for Human Athleticism and Musculoskeletal Performance and Prevention (CHAMPP), our goal is not only to help athletes and health-focused people reach their highest level of physical and mental performance, but also to do so while preventing injury. With your help, we will build a world-class training facility that is co-located and integrated with basic scientists, clinical researchers, educators, and clinicians. We will provide people of all fitness levels—serious athletes, fitness hobbyists, performers, and people whose jobs are physically demanding—with the best care and training, at various locations, to allow them to reach and maintain their peak fitness level.

YOU CAN MAKE AN IMPACT

ON THE WORK OF YOUNG SCIENTISTS AND CLINICIANS

SCIENTIST SEEKS TO HELP PEOPLE WITH INJURED TENDONS AND LIGAMENTS

Researcher Catherine K. Kuo, PhD focuses on tendons and ligaments injured due to aging, athletic endeavors, or everyday activities. After they heal they are weaker, and she seeks to understand "why they don't heal normally, and how we can enhance the healing process or grow new tendons using a combination of stem cells and engineered biomaterials."

SURGEON'S SPECIAL INTEREST IS CARING FOR PATIENTS WITH SPINE TUMORS

Orthopaedic spine surgeon Addisu Mesfin, MD is passionate about caring for patients with spine tumors—as both clinician and researcher interested in clinical outcomes. To him a patient is not "a person with back pain." Instead, he tells residents, treat patients as you would "your mom, your grandmother, your brother."

ON THE LIVES OF PATIENTS

NEW TECHNOLOGY MEANS MORE PLAY TIME

At the age of three, Lauren Gumtow's spine was curved so severely that, if untreated, her lungs would eventually fail. Three years later—after a series of casts, a flexible brace, and a grueling procedure to pull her spine into a straighter position—Lauren became one of the nation's first scoliosis patients outfitted with a growing rod that can be lengthened magnetically in the clinic, eliminating multiple surgeries. Today at age 10, Lauren is doing everything other 10-year-olds do, including playing soccer.

ACCIDENT SURVIVOR WALKS AGAIN

David Murphy wasn't supposed to survive, let alone walk again. On July 6, 2013, David was hit by an SUV while riding his motorcycle. He had a severe leg injury, broken ribs, fluid in his lungs, and a severe spinal cord injury. Thanks to our orthopaedic trauma and spine teams, three years after his accident David walked in a 5K event for his community, receiving their cheers and applause as he crossed the finish line.

To learn more about our impact, go to everbetter.rochester.edu/mski

YOU CAN HELP US CREATE A NEW MUSCULOSKELETAL INSTITUTE

Musculoskeletal disorders have a profound effect on patients' physical function, overall health, and quality of life. Immobility can lead not only to a breakdown of muscle mass and strength, but also to structural changes and life-threatening complications in the body's cardiovascular, respiratory, and neurological systems, and cause adverse psychological consequences.

The University of Rochester is at the forefront of musculoskeletal research, care, and education, all of which help keep you moving. Our faculty, residents, fellows, and graduate students are dedicated to, and passionate about, reducing the incidence of musculoskeletal disease and injury—and the burden it places on people worldwide. You can support their innovative ideas and programs in two ways:

CREATE A LEGACY

You can create a permanent legacy that funds the work of current and future scientists, clinicians or educators by establishing an endowment, a fund that is invested and managed by the University in perpetuity. You can endow:

- The institute
- Professorships and directorships
- A range of positions for our research or clinical faculty, residents, fellows or graduate students
- Best-in-class research, clinical or education projects and programs

MAKE AN IMMEDIATE IMPACT

Your support can help us hire the brightest faculty, trainees, and students, and give them the freedom **now** to seize opportunities and pursue creative ideas in research, care or education that will change the way we can help people around the world. You can support:

- Faculty recruitment
- Pilot projects/seed funds
- Young aspiring scientists
- Resident education

In July 2017, the Center for Musculoskeletal Research combined its long-standing symposium with one of the first regional meetings of the Orthopaedic Research Society (ORS)—an international society with nearly 4,000 scientists, surgeons, and clinicians as members. Pictured here are some of the 200 attendees from 24 different institutions around the world assembled to discuss the future of musculoskeletal health.

UR MEDICINE

For more information about how your gift to the Musculoskeletal Institute can make an impact, please contact Dianne Moll at (585) 273-5506 dianne.moll@rochester.edu or visit urmc.rochester.edu/orthopaedics