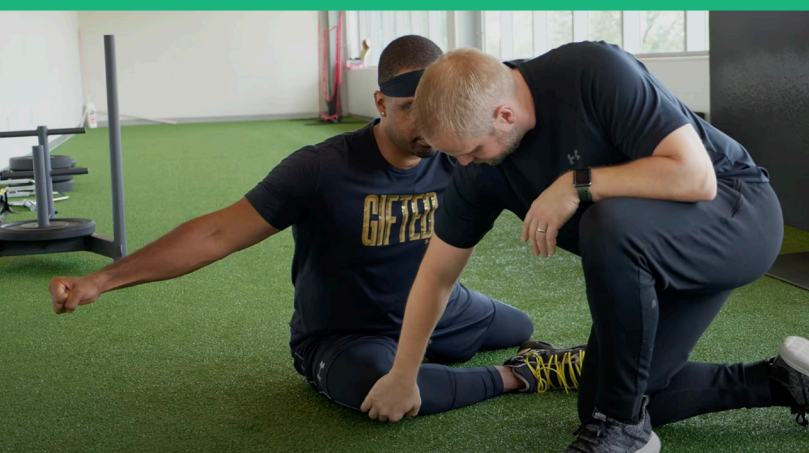


Sports medicine helps more than professional athletes. An estimated half of all American adults have a musculoskeletal condition affecting their mobility and quality of life. These impairments occur at twice the rate of chronic heart and lung conditions. More than an age-related nuisance, bone and joint disease is strongly associated with other conditions, including heart disease, diabetes and obesity. It has even been linked to the acceleration of dementia onset in older adults. Simply put: When it hurts too much to move, almost every facet of human health suffers.

For more than 50 years, the physician-researchers and bench scientists at RUSH University Medical Center — consistently ranked among the top five orthopedic programs in the country by *U.S. News & World Report* — have been dedicated to advancing new solutions in orthopedic care. The Division of Sports Medicine aims to eliminate pain for people from all walks of life and help them remain active.



At the Forefront of Innovation in Sports Medicine

Only a few decades ago, common orthopedic injuries, such as tears to the anterior cruciate ligament, or ACL, often resulted in lifelong disabilities or the end of athletic careers. Surgical treatments were risky and invasive, and outcomes were unpredictable. Effective non-operative treatments were all but nonexistent.

An unprecedented era of innovation beginning in the 1970s fundamentally changed how sports-related injuries are diagnosed and treated. The physician-scientists at RUSH have been at the forefront of this transformation, spearheading research advances that have helped countless elite athletes and weekend warriors return to activity, prevent injury and avoid major surgery.

Our team continues to lead the field and oversees more than 150 scientific studies that fall within four major categories:

Orthobiologics

Harnessing stem cells and the body's own natural substances to reduce symptoms and improve healing

Biomechanics

Understanding the link between human movement and injury to enhance treatments and prevent disability

Biochemistry

Studying tissues in the laboratory to advance cartilage repair and restoration and soft tissue healing

Clinical Outcomes

Evaluating novel treatments and techniques with scientific rigor to improve the outcomes of tomorrow's patients

Leading Research for Pain-Free Lives

To improve the quality of life for people with painful bone and joint conditions, RUSH physician-scientists are seeking better treatments through translational research. Key scientific priorities for our team include:

Accelerating progress through regenerative medicine

Our experts are engineering new ways to delay, reverse or even prevent some of the complications that most threaten our health and mobility. The biggest target is osteoarthritis, the leading cause of physical disability that damages the protective cartilage in joints. Our physician-scientists are harnessing the potential of patients' own stem cells and other emerging techniques — including gene editing— to deliver much-needed breakthroughs for arthritis and enhance treatments for musculoskeletal problems.

Analyzing biomechanics to prevent injuries

By examining the physics of how people move, researchers can find clues that prevent injury, improve performance and enhance clinical care. Researchers in the Motion Analysis Laboratory at RUSH University Medical Center use 3D motion capture assessments and other advanced techniques to identify movement signatures that reliably predict joint wear or injury. Additionally, in RUSH's Biomechanics Laboratory, our experts study how surgical techniques affect joint strength and stability and identify the best hardware placements for various procedures.

Studying the biochemistry of joint tissues to forge new treatments

Many of the biochemical mechanisms that contribute to osteoarthritis or promote joint healing are still unknown. Our current studies evaluate the effects of various therapeutic agents on inflammation and the biochemical environment of the knee. One of the goals of this work is to create a "time-zero" injection — a therapy administered at the time of injury that would accelerate recovery and prevent long-term damage.

Evaluating and improving clinical outcomes

With one of the busiest orthopedic specialty groups in the region, Midwest Orthopaedics at RUSH's clinical volumes allow us to study orthopedic interventions at scale. Each year, hundreds of our patients generously agree to participate in registry studies, where we examine outcomes over time to continually improve the delivery and personalization of care. For example, we've shown how 3D-printed jigs customized to each patient's anatomy help improve outcomes after shoulder replacement surgery by reducing complications and shortening time in the operating room.

Pain doesn't have to be a way of life. RUSH sports medicine experts are pioneers in evidence-based treatments to eliminate pain and restore patient mobility. Cited in more than 8,000 scholarly articles each year, we're among an elite handful of influential orthopedic research groups in the world.

Support a Future Free From Pain

RUSH's impressive track record of discovery in sports medicine is made possible by philanthropic partnerships. An investment in our research propels advancements in how orthopedic care is delivered and helps more people live active lives free from pain.

To make a gift or learn more about supporting sports medicine care and research at RUSH, contact:

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