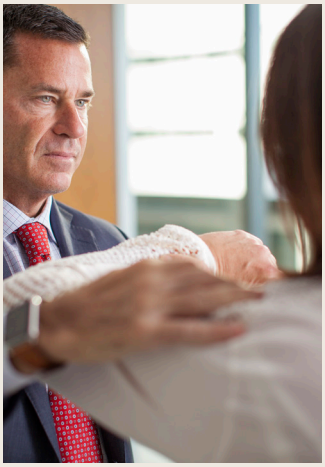

REGENERATIVE MEDICINE IN SPORTS MEDICINE AT RUSH

Imagine a future in which damaged tissue and cartilage can recover more quickly and injuries don't require repeat surgeries. Stem cells have been called our bodies' own repair kits, and research teams across Rush are engineering new ways to use these cells to determine if we can delay, reverse or even prevent some of the complications that most threaten our health and mobility.

Sports Medicine Helps More Than Professional Athletes

Rotator cuff injuries affecting the shoulder, tears of the meniscus in the knee and a variety of similar injuries are strongly associated with demanding physical activities. The fact is, these injuries affect people from all walks of life, especially those with joint wear and osteoarthritis.

While these men and women may not be playing in the major leagues, their lives are sidelined by joint pain and discomfort that require the most advanced approaches to care. Innovative stem cell treatments help anyone with a musculoskeletal injury — not just athletes — reclaim the lifestyle of their choosing.

More than 30 million Americans live with osteoarthritis, the leading cause of disability in the U.S., which occurs when the cartilage between joints breaks down and results in pain, stiffness and swelling.

Delivering on the Promise of Regenerative Medicine

Health care professionals are just beginning to tap into the potential stem cells have in treating challenging orthopedic conditions. But they are not magic cure-alls that can rewind time and eliminate disease in an instant. For us to fully unlock the potential of stem cells, we need to amplify the intensive, ongoing regenerative medicine research efforts at Rush.

Physicians and scientists view regenerative medicine as the next frontier in orthopedic research. In the field of sports medicine, researchers are working to harness the potential of stem cells and other regenerative medicine techniques to enhance the surgical and nonsurgical treatments of several musculoskeletal problems.

RUSH

THE CRITICAL NEED FOR BETTER TREATMENTS

Anyone who has experienced a shoulder or knee injury requiring surgery understands that the healing process can be arduous, often marked by acute pain or subsequent surgical procedures.

Even after the typical recovery period of six to 12 months, it is estimated that a staggering 50 percent of patients who receive rotator cuff surgery on their shoulders do not demonstrate sufficient tendon-to-bone healing. More troubling is the fact that as many as 1 in 5 patients with full-thickness tears experience re-tears that require additional surgery.

And even after surgical repair for tears of the knee, the protective function of the meniscus — the rubbery, crescent-shaped disc that protects and cushions the knee joint — can be jeopardized, triggering damage to other knee cartilage and the progression of osteoarthritis. In addition to continued pain, over time advanced osteoarthritis may necessitate joint replacement surgery.

ONGOING RESEARCH

Physician-researchers at Rush led by Brian Cole, MD, MBA, are leading breakthrough research to improve patient outcomes and fundamentally transform shoulder and knee surgery worldwide. These studies, one in the knee (meniscectomy) and the other on the shoulder (rotator cuff repair), use the patient's own mesenchymal stem cells, or MSCs, to help minimize inflammation, speed healing, reduce pain and — investigators hope — improve the quality of the surgical repair.

Harnessing the Power of Bone Marrow-Derived Stem Cells

Bone marrow-derived stem cells are at the center of current surgical research at Rush. While the patient is undergoing surgery, the physician extracts a small amount of bone marrow from the patient's hip and uses a special centrifuge to separate out MSCs from the rest of the bone marrow. The cells are then delivered back into the patient at the surgical site.

In addition to recording the patient's level of post-surgical discomfort, researchers will have each patient undergo a series of MRIs to measure the physical changes before surgery, after surgery and periodically throughout the recovery process. Additionally, they will examine fluid from the knee for the presence or absence of certain biomarkers, information that may tell us even more about the health of the joint.

When they combine evidence from the MRIs, examination of the knee's fluid and the patient's own testimony, researchers hope to paint a very clear picture of the effects MSCs have on healing. Further, if the results of this study show a reduction in the progression of osteoarthritis, the news will change the way doctors approach surgical repair of the elbow, wrist, hip and ankle.

THE PHILANTHROPIC NEED

Despite a growing body of regenerative medicine research, costs associated with these studies remain extraordinary. Philanthropic investment allows physician-researchers to collect the data needed to demonstrate the clinical benefits of novel treatment techniques, many of which are not covered by insurance providers due to lack of scientific study — but could be with your support.

SUPPORT THIS RESEARCH

To learn more about these and other studies at Rush, or to make a gift in support of this research, please contact:

Derek Lambert
Director of Development
(312) 942-6289
derek_lambert@rush.edu