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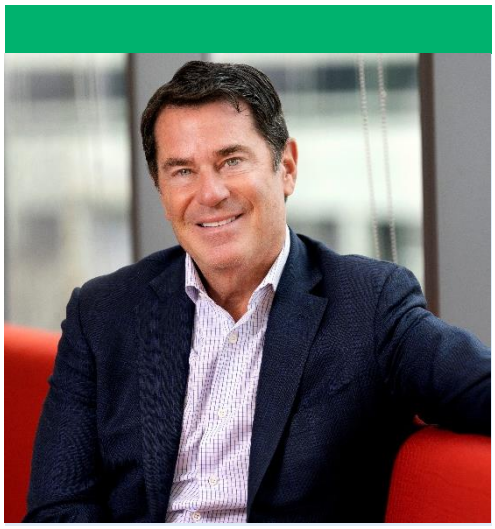
Brian J. Cole, MD, MBA

The Dr. Ralph and Marian C. Falk Professor of Biochemistry



Advancement of Medicine

As a practicing orthopedic surgeon at Midwest Orthopaedics at Rush, I treat patients with ligamentous and cartilage pathologies in the shoulder, elbow and knee. Working to improve treatments for articular cartilage defects has fueled much of my clinical and basic science research and remains a current active area of interest. My research in this field is instrumental in advancing treatment for cartilage damage in young people and has resulted in over 1000 publications. In April 2023, I was recognized as the *American Journal of Sports Medicine's* featured author for these achievements. In 2024, our research organization under my oversight was awarded the most prestigious research award available, the OREF Clinical Research Award, for our research in osteochondral allograft transplantation over the last 25 years. This award recognized more than 200 individuals who contributed to this research as PhDs, post docs, clinicians, research assistants, residents and medical students.

As a faculty member in the Department of Anatomy and Cell Biology, I investigate emerging cartilage restoration treatments and factors influencing their efficacy, further elucidating the changes taking place on a cellular level that will enhance operative approaches to cartilage restoration. Much of my clinical research focuses on clinical outcomes following treatments for cartilage damage and augmentation of cartilage restoration procedures and ligament reconstruction. I am passionate about investigating risk factors for treatment failure and complications, which guides my clinical practice. My experience with minimally invasive cartilage restoration techniques provides me with expert insight into the factors that influence successful treatment of chondral pathologies, or cartilage degeneration.

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Research

Your generosity has significantly contributed to the advancement of orthopedic research, education and clinical practice at Rush. The allocation of funds is instrumental in supporting comprehensive programs that foster the development of pre-medical and medical students through research fellowship. These funded positions are thoughtfully designed to enable highly qualified applicants to dedicate a full year to orthopedic research outside of their academic commitments. This initiative not only allows students to dive deep into the field of orthopedics but also gain mentorship and contribute meaningfully to its body of knowledge.

Ongoing research in cartilage restoration, regenerative medicine, and cell growth and proliferation includes an evaluation of the efficacy of an allogeneic-unrelated mesenchymal stem cell suspension in treating defective cartilage and decreasing pain in human subjects with articular cartilage defects.

Furthermore, your support plays a pivotal role in the dissemination of research findings. It covers the costs associated with conference submissions and publication fees, encouraging the sharing of knowledge within the scientific community and beyond. This not only enhances the visibility of the students' and faculty members' scholarly work but also contributes to the ongoing dialogue in orthopedic research and practice.

In addition to original research, I have been a part of several review articles and expert opinion papers in joint preservation. These have been critical in establishing expectations for patients undergoing cartilage restoration procedures and determining risk factors for clinicians to consider before determining treatment for patients with osteochondral damage.

Clinical Trials

I am the primary investigator on numerous multi-center clinical trials examining a range of different cartilage restoration techniques. I have published several articles on emerging biologic therapies, such as platelet-rich plasma, stem cells and growth factors, in improving healing outcomes.

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Selected Publications

- "*Correlation Between Articular Cartilage Status and Outcomes Following Meniscal Allograft Transplantation: A Systematic Review,*" Knee Surgery, Sports Traumatology, Arthroscopy. 2024.
- "*Bone Marrow Aspirate Concentrate Harvest Technique for the Sports Medicine Surgeon,*" Arthroscopy Techniques. 2024.
- "*Acute Tear Versus Chronic-Degenerated Rotator Cuff Pathologies Are Associated with Divergent Tendon Metabolite Profiles,*" The American Journal of Sports Medicine. 2024.
- "*The Gut Microbiome and Joint Microbiome Show Alterations,*" Cartilage. 2024.
- "*Arthroscopic Debridement of Mild and Moderate Knee Osteoarthritis Results in Clinical Improvement at Short-Term Follow-Up: A Systematic Review,*" Arthroscopy. 2024.

Instructional Courses, Symposia, and Service

- American Orthopaedic Society for Sports Medicine Annual Meeting 2024:
    - Presentation: "BMAC Augmentation Of Allograft Anterior Cruciate Ligament Reconstruction Improves Patient Reported Outcomes In The Presence Of Intra-Articular Pathology."
    - Presentation: "Racial Disparities in Utilization and Perioperative Metrics in Rotator Cuff Repair in a US Inpatient Database."
    - Presentation: "Time to Achievement Of Clinically Significant Outcomes Following Isolated Arthroscopic Meniscal Repair."
- AAOS/AOSSM/AANA 24th Annual Sports Medicine Course 2024:
    - Speaker: Technique Spotlight: Mini-Open Biceps Tenodesis.
    - Moderator: Shoulder/Elbow - All the Other Things.
    - Panelist: Shoulder Instability – Part 2: Case Based Learning.
    - Speaker: Technique Spotlight: Cuff Augmentation with a Patch.
- America's Best Physicians 2023, Nominating Committee Chair, Arthroscopy Association of North America 2022-2023.

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The Year Ahead: 2025 and Beyond

In the upcoming year, my priorities will include a focus on orthopedic research, particularly targeting areas that have the potential to enhance patient care and surgical outcomes and advance the field. I will also continue the educational component of my work by offering mentorship programs for medical students, residents and fellows, aiming for meaningful research work in the field of orthopedics. Additionally, our team plans for ongoing community outreach efforts to better serve and educate the diverse populations to which we are committed. These ambitions are aligned with Rush's mission to improve health through outstanding patient care, education, research and community partnerships, underpinned by our core values of innovation, collaboration, accountability, respect and excellence.

With Gratitude

I am profoundly grateful for your generous support of our mission at Rush. Your investment empowers our research, education and community outreach, particularly in orthopedics. It enables significant advancements and nurtures the next generation of health care leaders. Your belief in our values of innovation, collaboration, accountability, respect and excellence drives us forward, making a real difference in the lives we touch. Thank you for being pivotal to our journey and for your unwavering commitment to improving health care for all.