UNC Sports Medicine Institute
2024 YEAR IN REVIEW

UNC | SCHOOL OF MEDICINE
Sports Medicine Institute

The **UNC Sports Medicine Institute (SMI)** continues to make great strides in improving sports medicine patient care and research. In August 2024, we opened the **Sports Medicine Center**, which is the hub for our multidisciplinary collaborative practice allowing patients access to all of our clinical services and research activity. The Center serves as a one-stop-shop for orthopaedic care, physical therapy, imaging, and our state-of-the-art research facility. All of this helps us support our vision of keeping active people active.

The Sports Medicine Institute aims to create best practices for patient care and research through our vision, mission and values.

OUR VISION

To be the #1 destination for integrated research and life-long sports medicine care serving the physically active

OUR MISSION

To keep active people operating at peak performance by preventing and treating injuries and implementing innovative research

OUR VALUES

PATIENT-FOCUSED

Value-based, accessible, personalized care

DATA-DRIVEN

Innovation and research to develop best practices

COLLABORATIVE

Interdisciplinary and comprehensive

NEW PROGRAMS IMPROVING PATIENT CARE

LOWER EXTREMITY ASSESSMENT PROTOCOL (LEAP) PROGRAM

We launched the Lower Extremity Assessment Protocol (LEAP) program to test athletes and active patients as they recover from injury or surgery. This series of tests is designed to precisely evaluate strength and functional performance to inform providers and patients about readiness to return to play and to customize their plan of care. This program was created by **Dr. Joe Hart, PhD**, and is supported by a team of physical therapists and research staff.

For more information, email **LEAP@med.unc.edu**.

JOINT MOTION PROGRAM

We are developing an innovative osteoarthritis program, Joint Motion, with a mission to improve care of patients with hip and knee osteoarthritis. This program will utilize a collaborative, multidisciplinary team to assist patients in changing health behaviors that impact their pain and quality of life. The program development team includes **Dr. David Berkoff, Karen Blake, BSN, Carla Hill, PT, DPT, and Christopher Green PT, DPT, MBA,** from UNC Health Care Redesign.

WILDERNESS MEDICINE PROGRAM

We are developing a Wilderness Medicine program which will provide training for medical providers and the public to improve care of injuries that occur in the wilderness and following natural disasters when resources are scarce. This program is spearheaded by **Stephen Scott, DNP,** and **Todd Williams, PA,** and the leadership team includes members from the Departments of Orthopaedics, Surgery, and Emergency Medicine.

HIP PRESERVATION PATHWAY

We developed a young hip pain care pathway for patients under 40. This pathway provides a guided, stepped care approach to standardize how we care for these patients and help them return to prior activities as quickly as possible. This pathway serves as the foundation for our growing hip preservation program that is being led by **Drs. Joseph Stone, Samantha Tayne, Ganesh Kamath and Gregory Summerville**.

For more information on these programs, scan QR code or visit go.unc.edu/smiprograms

UNC SCHOOL OF MEDICINE Sports Medicine Institute

OUTREACH

UNC Orthopaedics provides ongoing sports medicine coverage for UNC Athletics, Chapel Hill and Chatham County high schools, and multiple other sporting events. In addition, UNC Therapy Services' physical therapists provide education and onsite support at local running events.

At the SMI, we are building collaborations with community organizations that provide important resources to our patients and support research that can improve musculoskeletal care. In December, **Dr. David Berkoff**, was the medical provider honoree at the Arthritis Foundation's Jingle Bell Run held at Fenton in Cary, NC. The event raised more than $53,000 for arthritis resources and research.

ANNUAL SPORTS MEDICINE CONFERENCE

In September of 2024, we hosted our third annual Sports Medicine conference. More than 200 medical providers, rehabilitation specialists, and researchers from across the country came together to share best practices and innovative research with a goal of improving care for our patients.

The 12 educational sessions focused on how to diagnosis and treat complicated hip conditions as well as improving holistic care to athletes highlighting sleep, sport psychology, and nutrition. Presentations were provided by experts from within and outside of UNC. The speakers represented medical faculty, physical therapists, rehabilitation specialists and more.

Each year at the meeting we hold a raffle for anyone who donates to the SMI. The funds are used to support student education and research. Over the past three years, attendees have donated more than $2,000 through this raffle.

SMI's orthopaedic providers, physical therapists, and researchers play an integral role in the education of future sports medicine providers and researchers.

ANNUAL FELLOWSHIP AND RESIDENCY EDUCATION AND MENTORING INCLUDES:

- 2 orthopaedic surgery fellows in partnership with **Raleigh Orthopaedics**
- 3 primary care sports medicine fellows in partnership with **UNC Department of Family Medicine**
- 25 **orthopaedic residents**
- 4 orthopaedic physical therapy residents in partnership with **UNC Department of Health Sciences**
- Multiple rotating residents from other departments
- Students from the **UNC School of Medicine**
- Research mentoring consists of numerous UNC undergraduate, graduate and medical students as well as post-doctoral researchers and orthopaedic residents who are seeking clinical and translational research experiences. These experiences and opportunities are supported by many research and clinical faculty from UNC Orthopaedics and Exercise and Sport Science who serve as mentors and collaborators to interdisciplinary research teams.

SPORTS MEDICINE CENTER

The new Sports Medicine Center located at 6118 Farrington Road

brings together our multidisciplinary team under one roof. It is a collaborative and innovative space that merges a variety of specialties to create a unique, comprehensive care and research center for patients and families. Currently, our team includes orthopaedic providers, physical therapists, musculoskeletal researchers, and support staff. The Sports Medicine Center is unique in integrating clinical research within healthcare delivery, which enhances innovative care and informs best practices to create better patient outcomes.

Our new Sports Medicine Center encompasses 25,000 sq ft of space including:

9,200 sq ft
for orthopaedic patient care, featuring 30+ exam and consult rooms as well as the **OrthoNow Urgent Care**

2,900 sq ft
for physical therapy, featuring a full-service clinic

1,650 sq ft
for radiology, including expanded X-ray capability and a dual X-ray absorptiometry (DEXA) scan to measure bone health

3,150 sq ft
supporting a state-of-the-art research facility

ORTHOPAEDICS

The orthopaedic clinic offers best-in-practice diagnostics and treatment for a wide variety of injuries to bones, tendons, and muscles. This includes the use of musculoskeletal ultrasound, orthobiologic treatments (such as platelet-rich plasma and Alpha-2 Macroglobulin), minimally invasive surgery with Tenex and TenJet devices, cartilage restoration and repair, and surgery to address ligament, tendon, and bone injuries.

ORTHONOW

OrthoNow offers same-day, walk-in orthopaedic visits for a variety of conditions including acute sprains and strains, joint pain, sports injuries, and possible fractures—no appointment needed.

THERAPY SERVICES

Our physical therapists (PT) are board-certified specialists in orthopaedic physical therapy and/or have specialized training to be able to provide exceptional rehabilitation services for a wide spectrum of musculoskeletal conditions and post-operative care. During one-on-one appointments, our PTs provide personalized care to address the unique needs and goals of each patient. The full-service clinic includes six exam tables and specialized equipment such as an AlterG (reduced gravity) treadmill for partial body weight walking and running training, an array of resisted strength training equipment, multiple cardiovascular machines, and blood flow restriction training cuffs.

IMAGING

The center features three full-service X-ray machines, portable ultrasound machines, and a DEXA enhanced X-ray machine that can be used to measure bone density and body composition.

SMI RESEARCH FACILITY

The dedicated research space enables seamless patient access to clinical trial opportunities. The unique proximity of this space allows for point-of-care research involvement in an accessible location for the community. The space allows for expanded collaboration among orthopaedic providers, physical therapists, and exercise and sport science researchers. This will grow our understanding of musculoskeletal conditions and treatments to optimize patient recovery.

The research area features state-of-the-art equipment for precise measurement of human movement, strength, balance and physiologic and biological function. Equipment includes a 10-camera motion capture system with markerless capabilities, a multi-mode strength dynameter, limb loading sensor mats and shoe inserts, a metabolic cart for exercise testing, and biospecimen storage. The research equipment and personnel make our Sports Medicine Center a world-class research facility.

SMI RESEARCH ACROSS THE UNIVERSITY

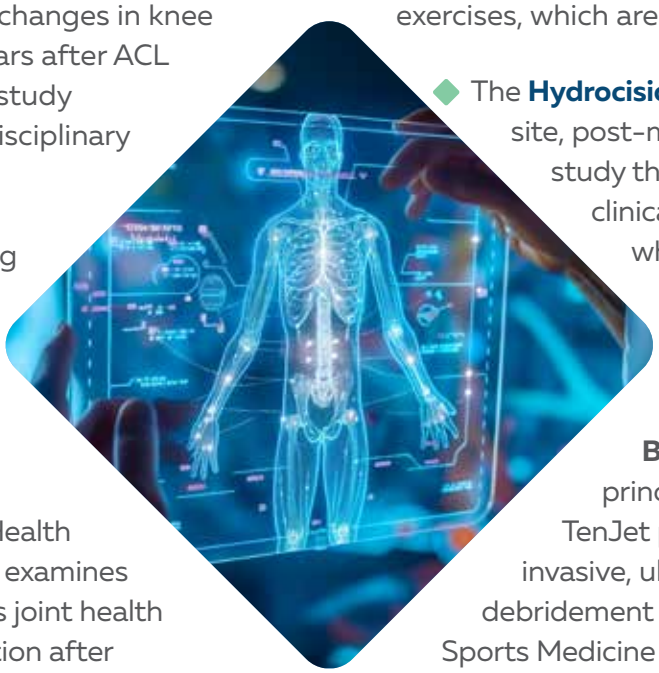
$10.6M
IN FUNDING FOR CURRENT RESEARCH TRIALS

134
JOURNAL PUBLICATIONS 2023-2024

- The **Preventing Injured Knees from osteoArthritis: Severity Outcomes (PIKASO) trial**, led by **Drs. Brian Pietrosimone and Joe Hart**, and funded by the Arthritis Foundation, involves nine locations across the US, including UNC Orthopaedics and Exercise and Sport Science. PIKASO is tracking changes in knee cartilage for the first two years after ACL reconstruction surgery. The study leverages an amazing interdisciplinary research team and UNC-based resources such as the Biomedical Research Imaging Center, Investigational Drug Services and the Sports Medicine Center research facility.

- The **ACL Rehab trial**, funded by the National Institute of Health and Department of Defense, examines how vibration therapy affects joint health and quadriceps muscle function after ACL reconstruction. This trial, led by **Dr. Troy Blackburn**, aims to improve joint movement, muscle function, and quality of life while reducing the risk of developing osteoarthritis. It features a collaboration across multiple UNC departments, including Exercise and Sport Science, Therapy Services (Physical Therapy), Radiology, and Orthopaedics.

- The **Knee Biofeedback Rehabilitation Interface for Game-based Home Therapy (KneeBRIGHT) trial** is a clinical trial led by UNC Orthopaedics' Vice Chair of Research, **Dr. Joe Hart**, in collaboration with Therapy Services and the Department of Health Sciences. It is testing if physical therapy that utilizes a video game is more engaging and effective than standard care for patients with knee osteoarthritis. The KneeBRIGHT platform uses sensors on the skin to measure muscle contractions during exercises, which are used to play the game.



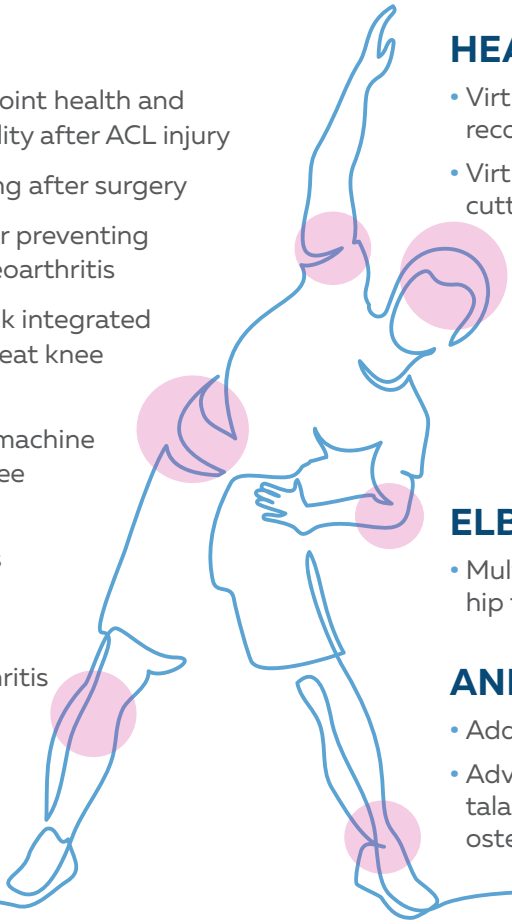
- The **Hydrocision TenJet trial** is a multi-site, post-market clinical trial to study the early and long-term clinical outcomes of patients whose tendon degeneration at the elbow, hip or shoulder is treated with Hydrocision's TenJet device. **Dr. David Berkoff** is the UNC site principal investigator. The TenJet procedure is a minimally-invasive, ultrasound-guided tendon debridement that takes place at the Sports Medicine Center. Patients are followed for wo years after the procedure with physical tests and patient reported outcomes.

- The **Shoulder Arthroplasty Research Committee (ShARC)** data registry is an industry-led research initiative across multiple sites and **Dr. Alex Creighton** serves as the UNC site leader. This study records and analyzes data about strength and function for ten years after total shoulder replacement surgery to improve care for patients with advanced shoulder arthritis.

For more information on these and other trials, scan QR code or email **smiresearch@med.unc.edu**

KNEE

- Effects of vibration on joint health and quadriceps muscle quality after ACL injury
- Return to activity testing after surgery
- New medication trial for preventing injured knees from osteoarthritis
- Quadriceps biofeedback integrated with a video game to treat knee osteoarthritis
- Wearable sensing and machine learning to optimize knee joint health
- Biomechanical changes following revision ACL reconstruction
- Prevention of knee arthritis with diet and exercise
- Gait retraining to prevent posttraumatic osteoarthritis



HEAD

- Virtual reality mindfulness meditation after ACL reconstruction
- Virtual reality based assessments of running and cutting maneuvers

SHOULDER

- Total Shoulder Arthroplasty Multi-Center Registry
- Effectiveness of hydrodilation in treatment of adhesive capsulitis
- Outcomes after shoulder stabilization surgery

ELBOW/HIP

- Multi-Center Registry for patients with elbow and hip tendinosis treated utilizing the TenJet device

ANKLE

- Addressing neuromuscular deficits after ankle sprain
- Advancing management and assessment of talar cartilage health to reduce posttraumatic osteoarthritis

RESEARCH FACULTY HIGHLIGHTS

Dr. Abbie Smith-Ryan is a Professor and Associate Chair for Research in the **Department of Exercise and Sport Science**, while also serving as the Director of the **Applied Physiology Laboratory**. Her expertise spans body composition, metabolism, exercise performance, and nutrition, with significant contributions to female health and wellness. Dr. Smith-Ryan's lab is currently exploring how training and nutritional strategies can be optimized across the menstrual cycle to enhance performance, recovery, and reduce injury. Additionally, her research includes projects on metabolism, cardiometabolic, and muscle health during the perimenopause transition, aiming to develop evidence-based lifestyle recommendations to improve health and quality of life for mid-life women.

Dr. Jeffrey Spang is an Associate Professor in the **Department of Orthopaedics** and was awarded the **Laurence E. Dahners Research Grant** in the amount of $20,000 in collaboration with the Department of Exercise and Sport Science for his work on articular cartilage repair and replacement in the patellofemoral joint. Dr. Spang's research focuses on soft tissue and articular cartilage trauma of the knee, outcomes from primary and revision reconstruction of the anterior cruciate ligament (ACL), and meniscus and articular cartilage replacement.

Thank you to all our donors—it is with your support that we are helping to create a healthier North Carolina. The Sports Medicine Institute would like to give an extra thanks to:

- **Carol B. Smithwick**
- **Laura and Michael Brader-Araje**
- **Sallie Shuping-Russell**
- **The Barnhill Family Foundation**
- **Mrs. Sandra Henson, surviving spouse of Dr. Don Henson**

Donor support is critical to the long-term growth of the UNC Sports Medicine Institute and the mission of the Department of Orthopaedics. We are grateful for your continued partnership and your interest in the work happening here every day.

To learn more about supporting the people and programs of UNC Orthoapedics, please contact **Susan Ervin**, Director of Development, UNC Health Foundation at **susan_ervin@med.unc.edu** or call **919-537-3762**.




UNC Health Foundation hosted its Gratitude Heals celebration on November 21, 2024, at the Sports Medicine Center.

This annual event provides friends and donors of UNC Health and UNC School of Medicine a first-hand opportunity to see some of the ways in which their support is impacting the community.

This year's event also served as a recognition of the work happening at the UNC SMI and the grand opening of the Sports Medicine Center. Attendees had the opportunity to explore the cutting-edge equipment and newly designed spaces of the building.

The night highlighted the building's significance and its potential impact on the community by creating a collaborative space that elevates UNC Health and UNC School of Medicine's mission to promote the health and well-being of the people of North Carolina.

"We are North Carolina's healthcare system, and this building is the first major step in creating a one-stop-shop to care for patients and their families," said **Dr. David Berkoff**, physician and Vice Chair of Clinical Operations, during his welcome speech.

Susan Peacock, a long-time supporter of UNC Health and UNC School of Medicine, also spoke at the event, emphasizing the impact UNC has on the the people of North Carolina and beyond.

"What inspires me to give to UNC Health is the impact they make—because their impact is always ten times what you planned or expected it to be," she said.

Both of Ms. Peacock's parents were physicians at UNC and often spoke of their love for the University. "My parents would always say, 'It's not the bell, it's not the well, it's the people.'"

"The Henson family decided to support the Sports Medicine Institute because of its leading research and innovation. I have personally benefited from its existence and want others in the state of North Carolina to have access to the great doctors, researchers and clinicians that are a part of the clinic."

—**Mrs. Sandra Henson**, wife of the late **Dr. Don Henson**

"It's not the bell, it's not the well, it's the people."

Interested in partnering with us?

Contact **Susan Ervin**, Director of Development at **919-537-3762**
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