INNOVATIONS IN ORTHOPAEDICS

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WINTER 2015
KICKING OFF A
NEW ERA IN SPORTS MEDICINE

We’re proud to feature our Sports Medicine Program in this issue of Innovations in Orthopaedics.

Our collaborative team of specialists offers the most advanced techniques available to help injured athletes and provides the best preventive care, both inside and outside of the traditional boundaries of orthopaedics. As you’ll read in our cover story, this means creating networks of health care providers who specialize in sleep and nutrition, as well as neurologists, physical therapists, family practice physicians and orthopaedic surgeons.

We are happy to welcome two new members to our Sports Medicine team. James Voos, MD, Chief of the Division of Sports Medicine at University Hospitals, Head Team Physician for the Cleveland Browns, and Associate Professor of Orthopaedics at Case Western Reserve University School of Medicine, brings his expertise working with all kinds of athletes and will lead the team effort to provide care for the Browns. Featured in our physician highlight, Sean Cupp, MD, Co-Director of the Sports Medicine Program, Lead Medical Physician for the Cleveland Browns, and Assistant Professor of Orthopaedics at Case Western Reserve University School of Medicine, has 10 years of experience in the medical side of sports medicine. Together, Drs. Voos and Cupp are working to take an already strong sports medicine program to the next level – coordinating multidisciplinary care for athletes of all ages and abilities.

Our research corner features innovative work to improve surgical repair of torn rotator cuffs. Ozan Akkus, PhD, a scientist in our Musculoskeletal Mechanics and Materials Laboratory and Professor of Mechanical and Aerospace Engineering and Orthopaedics at Case Western Reserve University, is developing a procedure that incorporates collagen and adult stem cells. These create a scaffold that shoulder surgeons can use as a patch and substrate to grow new tendon tissue. Robert Gillespie, MD, Chief of the Division of Shoulder & Elbow Surgery at University Hospitals Case Medical Center’s Department of Orthopaedics, and Assistant Professor of Orthopaedics at Case Western Reserve University School of Medicine, is a co-investigator on the project.

We always welcome your comments, questions and suggestions. Feel free to contact us via email, phone or our professional referral service.

Randy E. Marcus, MD
Charles H. Herndon Professor and Chairman
Department of Orthopaedic Surgery
University Hospitals Case Medical Center
Case Western Reserve University School of Medicine

The commitment to exceptional patient care begins with revolutionary discovery. University Hospitals Case Medical Center is the primary affiliate of Case Western Reserve University School of Medicine, a national leader in medical research and education and consistently ranked among the top research medical schools in the country by U.S. News & World Report. Through their faculty appointments at Case Western Reserve University School of Medicine, physicians at UH Case Medical Center are advancing medical care through innovative research and discovery that bring the latest treatment options to patients.
WELL-DESERVED RECOGNITION FOR ORTHOPAEDIC SUCCESS

Several members of the Department of Orthopaedics at University Hospitals Case Medical Center are receiving well-earned recognition. And new programs in Sports Medicine have reinvigorated the department’s mission to provide broader care for athletes while scoring a major vote of confidence from the Cleveland Browns.

A PRESTIGIOUS APPOINTMENT
Matthew Kraay, MD, Director, Joint Reconstruction and Arthritis Surgery; Director, Center for Joint Replacement and Preservation, UH Case Medical Center; and the Kingsbury G. Heiple and Fred A. Lennon Professor of Orthopaedics, Case Western Reserve University School of Medicine, has been appointed to the Board of Commissioners of the American Joint Replacement Registry (AJRR). The primary mission of the registry is to house a national database of hip and knee replacement surgeries for the use of clinicians and researchers who seek to improve quality patient care and track advances in orthopaedic procedures. The AJRR is the largest orthopaedic patient registry in the U.S. and is a landmark initiative of the American Academy of Orthopaedic Surgeons.

“It’s a national registry that includes top medical centers and shares outcome data on joint replacement – what works and what doesn’t – over large populations of patients,” says Randall Marcus, MD, Charles H. Herndon Professor and Chairman, Department of Orthopaedic Surgery, UH Case Medical Center and Case Western Reserve University School of Medicine. “It’s terrific that Dr. Kraay and UH Case Medical Center are recognized to lead this effort.”

STRENGTHENING THE SPORTS MEDICINE PROGRAM
The Cleveland Browns announced the hiring of James Voos, MD, Chief, Division of Sports Medicine at University Hospitals, as Head Team Physician, and partnered with UH to handle all medical services for the NFL team. “We are delighted and honored to be able to provide the very best health care for Browns players, coaches and indeed the entire organization and their families,” Dr. Marcus says.

Two new staff hires this year will bring Sports Medicine at UH into the forefront of health care. Dr. Voos came from the University of Kansas School of Medicine in Kansas City and trained at the Hospital for Special Surgery in New York. He brings extensive NFL experience, having worked with the New York Giants and the Kansas City Chiefs, and now leads the UH team effort for the Cleveland Browns.

Sebastian Cupp, MD, Co-Director, Sports Medicine, UH Case Medical Center; and Lead Medical Team Physician, the Cleveland Browns, was in practice in Lawrence, Kansas, where he gained experience working with University of Kansas athletic teams. Dr. Cupp is board-certified in both family medicine and medical sports medicine. “We welcome both doctors to the UH Case Medical Center orthopaedic staff,” says Dr. Marcus.

RECOGNITION FOR DISTINGUISHED PHYSICIANS
George Thompson, MD, Chief, Division of Pediatric Orthopaedics, UH Rainbow Babies & Children’s Hospital; and Professor of Orthopaedics and Pediatrics, Case Western Reserve University School of Medicine, is the recipient of the Society of 1866 Mather Distinguished Physician Award. Dr. Thompson is being honored for his lifetime contributions to the field of pediatric orthopaedic surgery.

“The Mather award is the highest award that University Hospitals gives out to physicians and is in recognition of Dr. Thompson’s leadership and his many contributions to the field of children’s musculoskeletal problems,” Dr. Marcus says.

A new endowed annual lectureship has been created in the name of Victor M. Goldberg, MD, who was Chair of the Department of Orthopaedic Surgery from 1989 to 2002. “Dr. Goldberg has been on the faculty for more than 40 years. His colleagues, friends, family and grateful patients have endowed this lectureship in honor of this renowned surgeon, educator and clinical scientist,” Dr. Marcus says. The annual lecture will be used to bring prominent surgeons and scientists to visit the department.
A Winning Game Plan

UH SPORTS MEDICINE PROGRAM SETS THE BAR HIGHER

Sports Medicine has always been a highly regarded specialty at University Hospitals Case Medical Center, but with new leadership and a new NFL partnership, UH is creating an innovative sports medicine program that seeks to enhance player performance, injury prevention and overall health for athletes at all levels of play.

Elite athletes are included in the mix, now that UH handles all medical services for the Cleveland Browns. UH specialists know how to provide top-notch care, not only for professional athletes whose jobs rely on being able to perform at world-class levels week after week, but also for school-aged athletes and middle-aged weekend warriors.

NEW LEADERSHIP

“University Hospitals is a thought leader in Northeast Ohio, indeed in the whole country, on sports medicine,” says James Voos, MD, Chief of the Division of Sports Medicine at University Hospitals. “The sports medicine program we’re developing changes the way we care for athletes.”

Dr. Voos, who is board-certified in sports medicine and orthopaedics, achieved a career dream in the summer of 2014 when he was selected by the Cleveland Browns to serve as Head Team Physician. He says he was also lured by the opportunity to take the helm of the UH Sports Medicine Program and oversee the continued development and expansion of sports medicine across the UH health system.

Included in Dr. Voos’s orthopaedic sports division are several highly experienced experts, including orthopaedic surgeons Allison Gilmore, MD; Donald Goodfellow, MD; Shana Miskovsky, MD; Michael Salata, MD; and Brian Victoroff, MD.

Complete care doesn’t mean only treating injured athletes, Dr. Voos emphasizes, but also must include injury prevention and viewing the athlete as a whole. “We’ve always done a great job of caring for athletes after they’re injured, treating them efficiently, safely and getting them back to play in a timely manner,” he says. Sports medicine’s new mission is to coordinate efforts among different medical specialties, such as injury prevention, physical therapy, nutrition, sleep, cardio-fitness and concussion care – “things that fall outside of the typical musculoskeletal injuries,” Dr. Voos says. “We want to be a resource for the entire athlete. Come to University Hospitals for any sports-related health problem, and we’ll help you optimize your performance and your overall well-being.”

OTHER KEY PLAYERS

With the arrival of Dr. Voos and Sean Cupp, MD, Co-Director of Sports Medicine, this coordinated system of care will continue to grow. Dr. Cupp’s expertise in both family medicine and musculoskeletal care enables him to take a broader view of medical care for athletes, well beyond surgical interventions.

“Widening the focus beyond the musculoskeletal system to the overall health and conditioning of athletes will allow us to better prevent sports-related injuries and illnesses,” says Dr. Cupp, who brings expertise in the medical management of athletic injuries, as well as the treatment of neurological and cardiovascular issues.

LEARN MORE

To make an appointment, learn more or refer a patient to the Sports Medicine experts at University Hospitals, call 216-844-7200 or 1-866-UH4-CARE.
Drs. Voos and Cupp have confidence in their vision and trust in each other, as their career paths overlapped in Kansas. Now, their working relationship is formalized as they create their shared vision of caring for the whole athlete. They join a high-functioning department, which includes both an orthopaedic surgical sports medicine fellowship and a primary care sports medicine fellowship to train the next generation of sports medicine specialists.

“We are definitely a program that is growing substantially, in expertise and in cutting-edge thinking,” adds Michael Salata, MD, Director of the Joint Preservation and Cartilage Restoration Center at UH and Associate Team Physician for the Cleveland Browns. Typically, sports medicine is about getting injured athletes back on the field, he says. “Now we’re thinking, ‘How do we prevent injuries and keep the athlete from needing our surgical interventions?’”

One way to address the athlete in total is by focusing on injury and risk prevention, both for health and to prolong career success. For example, Dr. Salata says, when a young patient comes in with hip pain, he doesn’t only work to fix the injury but looks for underlying problems such as morphological signs that predispose the joint to arthritis. “In treating labral tears of the hip, it is paramount to address the cause for the tear, which is often femoroacetabular impingement. By correcting this underlying condition, we can hopefully prolong the life of the patient’s joint.”

For the youngest athletes, Amanda Weiss Kelly, MD, Division Chief of Pediatric Sports Medicine at UH Rainbow Babies & Children’s Hospital, provides expertise. “We are one of the bigger pediatric sports medicine centers in the country,” she says. It’s a fairly small specialty with about 200 practitioners in the United States. Dr. Weiss Kelly leads the division at UH Rainbow Babies & Children’s Hospital, which also includes Susan Briskin, MD, and Mary Solomon, MD. “Our specialty is important in no small part because pediatric orthopaedic surgeons tend to focus on surgical issues rather than overuse and other nonsurgical injuries,” she says.

When a young athlete is injured, seeing a pediatric sports medicine physician first can add value and efficiency, Dr. Weiss Kelly says. For example, a 16-year-old female soccer player with knee pain can see a doctor who will answer her questions, show her a model of the knee and recommend follow-up care, which might include a referral to a physical therapist or an orthopaedic surgeon. “It’s good from a health care efficiency standpoint, and the patient is getting better care,” Dr. Weiss Kelly says.

Along with Dr. Cupp, Dr. Weiss Kelly and her colleagues have forged relationships with local colleges and high school athletic trainers. Dr. Weiss Kelly also directs a fellowship program in primary care sports medicine to train the generations to come and to expose resident physicians to the care of patients with musculoskeletal injuries.

UH’s innovative and comprehensive Sports Medicine Program enhances athletic performance and wellness for professional athletes as well as weekend warriors.
Primary care sports medicine specialist Sean Cupp, MD, is the Co-Director and newest member of University Hospitals’ Sports Medicine Program. “I have over 10 years of experience treating professional, college and high-level high school athletes, taking care of medical sports medicine needs and nonsurgical orthopaedics,” he says.

Dr. Cupp was introduced to sports medicine at age 15, when his twin sister tore her ACL. A multi-sport athlete himself, Dr. Cupp was intrigued by the injury as well as the treatment for it. “I fell in love with sports medicine and knew I wanted to pursue that path,” he says. He earned his medical degree from the University of Oklahoma College of Medicine, but wavered when faced with choosing between orthopaedic surgery or family medicine. One of his mentors, James Barrett, MD, Residency Director of the Department of Family Medicine at OU (who also specializes in sports medicine), tipped the balance.

After finishing his family medicine residency at the University of Alabama at Birmingham-Huntsville, Dr. Cupp returned to Oklahoma City to complete a fellowship in primary care sports medicine, where he served as a team physician for professional, college and high school sports teams. After that, he joined an orthopaedic practice in Lawrence, Kansas, where he was the team physician for athletes at the University of Kansas and Baker University. While in Kansas, he became acquainted with James Voos, MD, who was a team physician for the Kansas City Chiefs. “I sent my patients who needed hip arthroscopy to him,” says Dr. Cupp.

In his new role at UH, Dr. Cupp is working closely with Dr. Voos to develop the Sports Medicine Program. One of their main goals is to provide comprehensive care to athletes. This means creating networks of health care providers who specialize in sleep and nutrition, neurologists to call in for severe concussions, physical therapists to help with injury prevention and rehabilitation and primary care physicians for the care of musculoskeletal injuries.

Dr. Cupp also is the Lead Medical Physician for the Cleveland Browns. Serving professional athletes allows Drs. Cupp and Voos to bring their vision of whole-athlete care to the highest level of professional sports. By extension, it means that Dr. Cupp and the sports medicine team at UH can bring the same comprehensive care model to athletes of any age or level, whether it’s a weekend softball league pitcher, a daily runner or a high school soccer player.

Indeed, Dr. Cupp is working with UH pediatric sports medicine specialist Amanda Weiss Kelly, MD, and colleagues to provide better-educated athletic trainers to more high school and college-level teams.

Above all, Dr. Cupp believes in the power of education at all levels. “I love to educate residents, medical students and especially my patients,” Dr. Cupp says. “If my patients understand their pathology and their treatment plan before they leave the exam room, that’s half the battle.”
SHOULDERING THE BURDEN
Using stem cells to help heal rotator cuff injuries

Rotator cuff injuries are all too common, and as people age, they become harder to repair. That’s why Ozan Akkus, PhD, a scientist in the Musculoskeletal Mechanics and Materials Laboratory, is partnering with Robert Gillespie, MD, an orthopaedic surgeon at UH Case Medical Center who specializes in shoulder and elbow surgeries, on exciting new research to help address this problem.

A COMMON INJURY
One of the most difficult aspects of treating rotator cuff injuries is the age-related degeneration of tendons. “The blood supply declines, the interface attachment can detach from the bone and the tendon becomes fatty,” Dr. Akkus says. “You use your rotator cuff for so many everyday tasks. It helps you raise your arm, reach up to the high shelf, brush your hair,” he says. But rotator cuffs are particularly susceptible to injury. And there currently are no biomaterials for repairing them, he explains.

“As a surgeon, I know how hard it is to get the rotator cuff to heal,” says Dr. Gillespie. The fundamental biology of the shoulder leads to high failure rates, even with perfect surgery. Various studies put that failure rate at anywhere from 20 to 90 percent. “There’s a big search to improve this number,” he says.

A NATURAL OPTION
With the support of a five-year, $1.7 million grant from the National Institutes of Health, Drs. Akkus and Gillespie are studying the use of adult stem cells to reconstitute collagen into tendon fibers. “Because purified collagen is like Jell-O, it’s not suitable to help reattach torn tendons,” Dr. Akkus says. “We process collagen with electric currents, which compacts the collagen molecules. This ‘electrocompacting’ of collagen makes highly robust threads, which can be spun into yarns and then woven into fabric. We use this collagen fabric as a scaffold for marrow-derived adult stem cells, which then differentiate to make new tendon tissue.”

Other researchers have tried to develop synthetic biodegradable polymers to aid rotator cuff tendon repair. Dr. Akkus says his approach is entirely novel and holds a clear advantage. “Ours is a naturally derived compound, something the body recognizes,” he says. “It’s a natural substrate with a simple chemical modification.”

LOOKING FORWARD
Drs. Akkus and Gillespie are focusing initially on optimizing the in-vitro process to obtain material that’s both durable and elastic. Then they will test the scaffold in animal models. Dr. Akkus says if things work well, the technology could be tested in humans in five to 10 years.

“It’s a great thing that Dr. Akkus has developed,” Dr. Gillespie says. “In theory, this patch will provide the tendon repair with enhanced strength, while at the same time provide a carrier for stem cells and growth factors that will lead to an increased chance of tendon healing.”

“Our technology has the potential to be used in other tendon repair situations,” Dr. Akkus says, such as patellar and Achilles tendons.

All National Institutes of Health (NIH) funding for basic and clinical research is awarded to the School of Medicine at Case Western Reserve University.
WHEN TO REFER FOR SOFT-TISSUE SPORTS INJURIES

A patient presents with a sprained knee or a sore shoulder. Primary care physicians can advise ice, rest, elevation and pain medication, as needed. But should the patient see a specialist?

James Voos, MD, Chief of the Division of Sports Medicine at University Hospitals and Head Team Physician for the Cleveland Browns, suggests referring a patient to a sports medicine specialist for any acute injury that limits the patient’s ability to perform daily activities. “You should refer if there’s swelling, bruising or limited mobility or if there’s any uncertainty on your part about the options for diagnosis and treatment,” he says.

The orthopedic surgeons and specialists in both adult and pediatric medical sports medicine at the Sports Medicine Program at UH have deep expertise in athletic injuries of every kind. The program’s coordinated approach means that a physician can do a complete work-up and treat the patient or refer to an orthopaedic surgeon, if necessary.

ORTHOPAEDIC TRIAGE SERVICE

To refer patients to specialists at UH Case Medical Center’s Department of Orthopaedics, call 216-844-7200. If your patient needs an immediate (same day or next day) appointment or if you’re having scheduling difficulties, please contact Clinical Nurse Manager Sandra Costello, RN, at 216-285-5169.

WHEN TO REFER TO A MEDICAL SPORTS MEDICINE SPECIALIST

A medical sports medicine specialist has unique training in a wide range of areas, including both medical and musculoskeletal conditions that may have implications for athletes.

The sports medicine physicians at UH are available for referral consultation on any type of orthopaedic or musculoskeletal injury, says Sean Cupp, MD. “We are also available for second opinions or anything a primary care physician is uncomfortable treating,” he adds. “I provide a qualitative exam and treatment plan, which may include imaging, bracing, joint or soft tissue injections and physical therapy.”

Dr. Cupp and his team evaluate both medical and musculoskeletal conditions affecting athletes. “What I add is accessibility and convenience in quality orthopaedic evaluation and treatment,” he says. “Unlike most surgeons, who must spend a substantial amount of time in the operating room, I am available daily in the office to see patients.”