



Our faculty and students are engaged in research that is focused on making a positive impact on society. Much of this work involves improving health, safety and performance; facilitating data driven decisions; and improving quality of life and function. Solving the most challenging problems requires a high level of collaboration and innovative thinking. To meet this challenge, the Department of Exercise and Sport Science is proud to be the home of five research centers/institutes and two health/wellness programs that focus on answering questions and developing solutions for the most pressing issues in our fields of study.



RESEARCH CENTERS/INSTITUTES

Center for Research in Intercollegiate Athletics:

The Center for Research in Intercollegiate Athletics is driven by a vision to maximize the impact of intercollegiate athletics on the academy and society by increasing the quality and quantity of educational experiences for athletes. The high-quality research conducted in this center is committed to facilitating data-driven decision making in intercollegiate athletics and improving the quality of life of student athletes. Specialized areas of expertise include strategic athletics administration, sport sustainability, revenue generation, marketing and branding, student-athlete development, sport ethics, legal issues, diversity, and cultural competence.

Center for the Study of Retired Athletes:

Investigating the spectrum of physical and mental challenges faced by retired athletes is a key focus for the Center for the Study of Retired Athletes. The primary goals of this center are to collect epidemiological data on retired professional athletes and to provide medical care for select retirees in a research setting. The hope is that the research findings will help improve the quality of life for many retired athletes. This information also will be used to prepare active athletes for a healthier and highly functional retirement.

Gfeller Sport-Related Traumatic Brain Injury Research Center:

This multidisciplinary research center has a mission to improve the prevention, evaluation, management, and rehabilitation of sport-related and military traumatic brain injuries through research, education, and clinical practice. In addition, the Gfeller Center is dedicated to translating new knowledge to clinicians who manage sport-related and military traumatic brain injury. These efforts inform safety and

rehabilitation guidelines for populations at risk for traumatic brain injury. Every other year, the Center hosts the Matthew Gfeller Neurotrauma Symposium, bringing more than 250 allied health care professionals to our campus. The most recent symposium was held in March 2017, and the next is scheduled for March 2019.

Musculoskeletal Injury Prevention (MOTION) Science Institute:

The most recent addition to the Department's group of centers/institutes, the MOTION Science Institute, has a vision to decrease the burden of musculoskeletal injury and promote movement without pain or disability. With a particular focus on the ACL injury prevention, ankle instability, osteoarthritis, and overuse injury, the MOTION Science Institute's mission is to explore cutting-edge research to minimize musculoskeletal injury and disability; educate the next generation of scientists and clinicians; and engage with the public to translate innovative approaches that improve quality of life and functional performance.

National Center for Catastrophic Sport Injury Research:

The goal of the National Center for Catastrophic Sport Injury Research is to improve the prevention, evaluation, management, and rehabilitation of catastrophic sports-related injuries. This is accomplished by conducting surveillance of catastrophic injuries and illnesses related to participation in organized sports. In working through a Consortium for Catastrophic Injury Monitoring, the National Center for Catastrophic Sport Injury Research aims to track cases through a systematic data reporting system that allows for longitudinal investigation of athletes suffering from catastrophic injuries and illnesses. The work of this center aims to improve the safety of sports participation via data-driven decision making.



Hello from Chapel Hill.

On behalf of our faculty, I would like to welcome you, our alumni and friends, to the Department of Exercise and Sport Science (EXSS).

In January 2014, we launched a strategic plan to achieve our vision of transforming society by developing leaders and translating scientific knowledge into practical applications. Since this time, the efforts of our faculty and students have allowed us to make significant strides toward achieving key objectives in research, teaching, and community engagement. I am pleased to report that this has been another successful year and that we have achieved many of our strategic priorities. As a result, we have a renewed strategic plan beginning this year.

One of our objectives in 2014 was to increase the amount of external research funding to \$800,000 annually. Our faculty have gone above and beyond as our external research funding surpassed \$4,000,000 in total funds during the 2016–17 academic year. Moving forward, we seek to continue to remain focused on maintaining and increasing our success by improving our research facilities and support. In addition, we are working to increase undergraduate student engagement with EXSS research and experiential learning so that our students can learn by connecting, doing, and making.

Our major continues to draw increased interest with more than 1,300 undergraduate students declared as EXSS majors. The department is committed to providing the best educational experience possible and ensuring that students are well prepared for their next steps upon leaving Carolina. We are pleased that over the past four years, more than 90% of our students report to have received an excellent educational experience and feel well prepared upon leaving Chapel Hill. This has been no easy task, given that the number of majors in EXSS has doubled over the past 10 years. Our renewed strategic plan calls for us to expand our academic offerings by implementing a bachelor of science degree in EXSS as well as new online graduate degree/certificate programs. We hope to hire several new faculty in the coming years so we may continue to support our existing students and implement new academic programs.

We have worked to highlight the work of our faculty and students through various mechanisms, such as our weekly EXSS Impact Blog posts, Twitter feed (@UNCCESS), and department Facebook page (@uncexss). We invite you to follow our department on these various sites to stay up to date on the latest news and developments in the department. Our future plans involve the continued promotion of our mission, vision, goals, and accomplishments during the 2017–18 academic year and beyond. We strive to keep our alumni and friends informed of the great work being done to improve health, safety and performance in sport and work populations; enhance quality of life and function in cancer survivors, older adults, children, and women; facilitate data-driven decisions in intercollegiate athletics. To strengthen our impact, we are developing an EXSS Advisory Board to help with fundraising and future departmental growth areas. We are also beginning to explore new international collaborations for students.

As you can see, there are many great things happening and yet to come in our department. However, our ability to advance many of these new strategic initiatives will depend on private funding. Your private giving is crucial to achieving our strategic goals in research, teaching, and engagement for current and future students. For all those who have supported us over the years, we thank you for your generous support.

I hope you enjoy this year's newsletter, and be sure to visit when you come home to Carolina.

Sincerely,

Darin A. Padua, Ph.D., ATC
Chair of the Department of Exercise and Sport Science

DATA-DRIVEN DECISION MAKING:

CRIA assists collegiate athletes industry



JONATHAN JENSEN

Over the past year, the Center for Research in Intercollegiate Athletics (CRIA), housed within the Department of Exercise and Sport Science's Sport Administration program, has been busy showcasing its role as a leader in data-driven decision making in intercollegiate athletics with the publication of two ground-breaking reports.

In March, CRIA published its inaugural "Intercollegiate Multimedia Rights Agreement Report," which details the nature of rights agreements between National Collegiate Athletic Association (NCAA) athletic departments and third-party rightsholders such as IMG, JMI, Learfield, and Fox Sports Net. The publication of the report was accompanied by a series of articles produced by *American City Business Journals' Portland Business Journal*, which featured commentary from CRIA Co-Director and EXSS associate professor Erianne Weight and report co-author Jonathan A. Jensen, an assistant professor of sport administration. Among other findings, the report detailed that guaranteed rights fees for Power Five institutions (members of the ACC, Big Ten, Big 12, Pac-12, and SEC) averaged \$5.5 million, compared to \$1.6 million for Group of Five institutions (members of the other five major athletic conferences), with the disparity predicted to grow even wider in future years.

In September, CRIA published its inaugural "Intercollegiate Apparel Agreement Report," which included an analysis of 85

current licensing and sponsorship agreements between NCAA institutions and apparel brands, such as Adidas, Nike, Russell Athletic, and Under Armour. These comprehensive agreements typically provide the brands with on-field apparel rights, a licensing agreement, and sponsorship assets that deliver exposure to an increasingly desirable and hard-to-reach demographic. CRIA's analysis estimated that universities will receive \$350 million in cash and apparel during the 2017–18 academic year, with nearly 85% of the total (almost \$300 million) allocated to the 65 Power Five institutions.



Emblematic of EXSS' emphasis on providing research opportunities for its students, both reports were a collaborative effort between EXSS faculty members and students in EXSS's Sport Administration program, including graduate student Jacob Spreyer and undergraduate students Akash Mishra and Tyler Wisnewski. The reports can be found on CRIA's website at www.cria-unc.com.

ABOUT CRIA

The Center for Research in Intercollegiate Athletics (CRIA) at the University of North Carolina at Chapel Hill facilitates data-driven decision making in intercollegiate athletics.

The CRIA Advisory Board consists of more than 20 leaders in the intercollegiate athletics industry, including university presidents, athletic directors, and conference commissioners.

For more information visit WWW.CRIA-UNC.COM



CENTER FOR RESEARCH IN
INTERCOLLEGIATE ATHLETICS

BIOMECHANICS AND BIOLOGY:

Decreasing the risk of osteoarthritis following a knee injury



BRIAN PIETROSIMONE

Knee osteoarthritis is a major cause of disability throughout the world, and approximately 16% of North Carolinians over the age of 45 report a significant disability related to this disorder.

People who sustain a serious knee injury are four times more likely to develop knee osteoarthritis, which is specifically described as post-traumatic osteoarthritis (PTOA). Our research team recently reported that one in three people who sustain an anterior cruciate ligament (ACL) injury will develop PTOA within the next 10 years even after undergoing surgical ACL reconstruction and rehabilitation. Unfortunately, most serious knee injuries occur in young people who are more physically active, leading to the development of PTOA and associated disability early in life. The factors that cause PTOA are not fully understood; therefore, no cure exists for this joint disorder that affects a large group of people. Knee biomechanics (i.e. how the knee is loaded during physical activity) and the joint tissue biology (i.e. increased joint inflammation, cartilage breakdown, bone turnover) are altered

following ACL injury, and together these factors can lead to the development of PTOA. Our goal is to understand how these factors relate and then optimize movement biomechanics following knee injury in order to limit the breakdown of joint tissues that leads to PTOA.



We have developed an interdisciplinary team, comprised of multiple researchers within EXSS and the UNC School of Medicine, and a new comprehensive approach for studying the biomechanical and biological changes that lead to PTOA in young people with an ACL injury. Recent funding from the National Institutes of Health and the National Athletic Trainers' Association Research and Education Foundation have allowed us to explore how the intricate alterations in walking biomechanics following ACL injury are linked to changes in blood markers of joint tissue breakdown. Our early findings are contrary to the conventional thought that higher joint loading following injury leads to PTOA, as our recent published work suggests that patients who insufficiently load the injured joint experience more harmful biological changes to knee tissues after an ACL injury. Our early efforts to manipulate loading during walking using real-time feedback are promising, as preliminary studies suggest that teaching people to increase joint loading while walking may reverse these harmful biomechanical and biological changes following injury. Over the next several years, EXSS undergraduate and graduate students will work collectively to determine the best ways to manipulate knee biomechanics following knee injury in order to promote joint healing and maintain long-term joint health following injury.

IT ONLY WORKS IF YOU STICK TO IT:

Creating feasible, evidence-based strategies for health



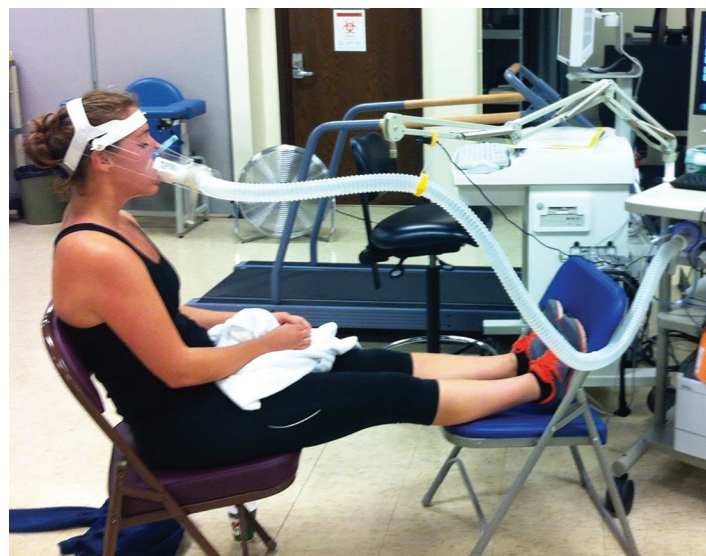
ABBIE SMITH-RYAN

Obesity, particularly excess body fat and low muscle mass, has been linked to an increased risk of chronic disease.

Despite the known health benefits of exercise, levels of reported physical activity remain at historic lows, with lack of time commonly cited as the primary barrier for exercise. Individuals also exercise with the expectations of weight loss and fat loss but often fail to achieve these outcomes. In fact, some individuals have an adverse response (e.g. gain weight or gain fat) to exercise.

My laboratory focuses on evidence-based practical and feasible approaches to exercise and nutrition as a way to mitigate obesity and chronic disease. Specifically, we have demonstrated the use of high-intensity interval training (HIIT) to be a time efficient approach to improving cardiovascular and metabolic health in as little as 20 minutes, two times per week. Additionally, initial data from my lab suggests that men and women may result in varied physiological responses when subjected to the same exercise

program. Thus, a better understanding of the individual-specific factors affecting exercise and physiological response to exercise will allow us to develop more effective and personalized exercise treatment programs. Using an animal model and controlling for genetics, we have identified that males and females do respond differently to exercise and fat response. Interestingly, HIIT trumps any paradoxical response, resulting in improved body composition, regardless of genetic predisposition. Additionally our group is the first to demonstrate HIIT as an effective aerobic exercise



approach for increasing muscle mass and improving muscle quality in humans, both of which have important implications for aging and a number of chronic diseases. With respect to nutrition, my team has also demonstrated that acute consumption of protein instead of carbohydrates before HIIT and resistance exercise is more advantageous for metabolism in women. We are now investigating the chronic effects of pre- vs. post-nutrient consumption in women when combined with high intensity resistance training. To date, it appears both exercise and nutrition recommendations should be sex-specific.

HEALTH/WELLNESS PROGRAMS

Brain and Body Health Program:

This collaborative program provides a comprehensive evaluation of former athletes' cognitive and physical functioning. Through participation in this program, we hope the quality of life and functional capacity for former athletes will be improved so they can fully appreciate life after sports.

Get REAL & HEEL Cancer Rehab Program:

Get REAL & HEEL is a unique program that integrates multidisciplinary research into clinical practice with the goal to help alleviate cancer treatment-related symptoms and to improve overall physical function/health and quality of life of cancer survivors. The program is in its 11th year and has helped thousands of cancer survivors in NC and surrounding states as well as served as a model for other countries. The multidisciplinary nature of the program allows for faculty, undergraduate and graduate students from EXSS and other departments on campus to develop, test, and deliver exercise training and other empirically based interventions to promote complementary alternative medicine for the rehabilitation of cancer survivors. The Get REAL & HEEL Program also offers the one-of-a-kind Telehealth Program where exercise sessions are broadcast live to hospitals in rural areas as an attempt to provide exercise rehabilitation to underserved and minority groups of survivors unable to attend the in-center program at UNC.

In addition to searching for solutions to society's problems, the work conducted in our centers/institutes, health/wellness programs, and research laboratories plays a fundamental role in educating students at Carolina and beyond. Each year, our faculty mentor and instruct more than 200 students through their research. In doing so, our faculty help to develop the next generation of problem solvers and leaders who are well prepared to tackle current and future challenging issues in exercise and sport science.

STAY UP TO DATE on the very latest work being conducted by all of our faculty and students. We invite you to visit the **EXSS Impact Blog**. This is an online resource for receiving weekly updates on new research findings by Exercise and Sport Science faculty and students.

VISIT:

EXSS.UNC.EDU/CATEGORY/EXSSIMPACT



Congratulations to all of our 348 graduates who are going out to make their "EXSS Impact" on the world!

Good
LUCK
DENISE



This year, the EXSS department said goodbye to the department's manager, **Denise Currin**. Denise was with us for over 10 years and with the University for 35 years. She made a huge impact on everyone and will be missed. We wish her the best in her retirement!



2016–17

Faculty Awards & Recognitions



Alain Aguilar

Department of Exercise and Sport Science's Excellence in Undergraduate Teaching Award



Sherry Salyer

C. Knox Massey Award from the University of North Carolina at Chapel Hill



Anthony Hackney

W. J. Kenan Jr. Research Scholar from the University of North Carolina at Chapel Hill



Nels Popp

Outstanding Service Award from the Sport Marketing Association



William Prentice

Outstanding Alumni Award from the Department of Kinesiology and Applied Physiology at the University of Delaware and University of North Carolina Sports Medicine Wall of Honor Inductee



Darin Padua

Medal for Distinguished Athletic Training Research from the National Athletic Trainers' Association Research and Education Foundation



Claudio Battaglini

Lifetime Distinguished Leadership Award in Sports and Health from the Dana-Faber/Harvard Cancer Institute, Harvard Medical Center



Brian Pietrosimone

Inducted as Fellow in the American College of Sports Medicine



Meredith Petschauer

Scholar Athlete Impactful Faculty Member from UNC Athletics



WELCOME

New Faculty

Jonathan A. Jensen Ph.D., M.S.

ROLES

Assistant Professor of Sport Administration, teaching sport marketing at the undergraduate and graduate level

EXPERTISE

Dr. Jensen's focus is on assisting sport organizations and the brands that sponsor them in strategic decision making, in particular the effective measurement of the returns from investments in sport sponsorship. Jensen is a leading voice in the application of advanced analytics to sport marketing and has twice been named a finalist in the research paper competition at the MIT Sloan Sports Analytics Conference in Boston.

Zachary Kerr Ph.D., M.P.H.

ROLES

Research Director for the Center for the Study of Retired Athletes, instructor for EXSS 273, and developing a new curriculum (CURE)

EXPERTISE

Dr. Kerr's research examines the strengths and limitations of sports injury surveillance to discuss strategies to estimate injury incidence. He also evaluates injury prevention strategies related to traumatic sport-related injuries, such as concussions and heat stroke. He also specializes in injury epidemiology, sports injury surveillance, and evaluation of effectiveness and implementation of sports injury prevention strategies.

Lee Stoner Ph.D., M.P.H., M.A., B.S. (Hons), F.R.S.P.H., S.F.H.E.A.

ROLES

Assistant Professor and Director of the
Cardiometabolic Lab

EXPERTISE

Dr. Stoner's interest lies in investigating interactions between lifestyle behavioral factors and cardio-metabolic disorders, the development of tools for assessing cardio-metabolic health, and translation of basic/applied science in to public health outcomes.

David F. Mitchell M.S.

ROLES

Director of Administration

EXPERTISE

David Mitchell brings 20 years of experience in working within the UNC system to this position. He brings a wealth of experience and expertise with his many years of working in human resources, finance, academic and administrative operations, student services, recruitment, and fundraising. David most recently served as the Regional Director of Operations at the Eshelman School of Pharmacy's Asheville Campus.





2016–17

Department Statistics

RESEARCH NUMBERS



\$4,338,200 in **research funding** by EXSS
Principal Investigators

- ▶ **ALL-TIME HIGH** in external research funding by EXSS
- ▶ **\$1,179,880** average research funding from 2011–16
- ▶ **3.67** fold increase from the previous 5 years



20 **grant awards** to EXSS faculty members
as the Principal Investigator

FACULTY NUMBERS



faculty members recognized
with University or National
level **awards or recognitions**

STUDENT NUMBERS



1,225 **undergraduate majors** in
the fall semester



largest program in the
College of Arts & Sciences

6

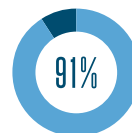
doctoral candidates **mentored** by EXSS faculty
earned their Ph.D. in Human Movement Science

200+

undergraduate students completing
an **internship, practicum**, and/or
research experience in EXSS



318 undergraduate students earned
their **B.A. degree** in EXSS



completed their degree
IN 4 YEARS



30 master students earned their
M.A. degree in EXSS



completed their degree
IN 2 YEARS

ALUMNI SPOTLIGHT

Dr. Micheal A. Clark M.S. '99

KAYLA A. BLEVINS '16

In his first year at Carroll College in Waukesha, Wisconsin, Micheal Clark M.S. '99, a member of the football team and a pre-med major, knew he wanted to be an orthopedic surgeon—it was the perfect career that combined his interests of academics and sports.

It wasn't until he witnessed a teammate's ACL tear and grueling recovery that he knew physical therapy would better suit him.

"I saw what my teammate went through," Clark said. "The physical therapist was with him through the whole process, literally taking him from where he couldn't walk to being back on the field playing football. I really liked that."

A little over two decades later, Clark, who has a bachelor's degree in physical therapy from the University of Wisconsin La Crosse, a master's degree in human movement science from UNC and a doctorate in physical therapy from Rocky Mountain University, remains an industry leader in sports medicine.

He founded the National Academy of Sports Medicine; created the Optimum Performance Training (OPT) model used by health and fitness professionals worldwide; is CEO and founder of Fusionetics, a manual therapy and corrective exercise assessment system for athletes used by more than 420 professional and college teams. He has also served as a sports medicine consultant and specialist for numerous professional athletes and teams, including at two Olympic Games, and he continues to be an authority in the sports medicine and therapy realm.

While completing his master's degree at UNC, Clark made meaningful relationships with some of the leading experts in the EXSS field, including Kevin Guskiewicz, Darin Padua and Bill Prentice.



"Being able to learn from them and become colleagues and friends with them was phenomenal," he said.

Even with three successful businesses (Clark also founded Movement Edge, a performance healthcare company), an incredible list of professional athletes and teams with whom he has worked—including serving as the team physical therapist for the Phoenix Suns for over 15 years and winning a NBA Championship with the San Antonio Spurs—and recognition as a global leader in the field, Clark remains committed to supporting research and education that places the evidence-based model of sports medicine at the forefront of the industry.

Clark said he invests his time and resources in the department of exercise and sport science because he wants to see UNC become the national leader in performance health care.

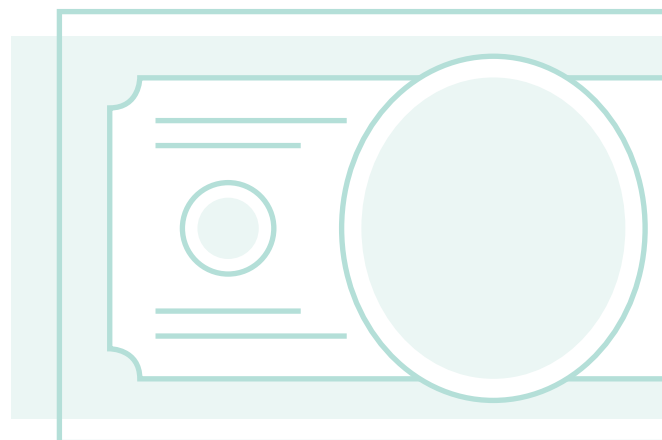
He also believes investments in the department support the future wave of health care practitioners.

"As our life span gets longer, we have to increase our health span to go with it. Movement efficiency, nutrition, stress management, sleep and hydration are critical for long term health and wellness," he said. "Having students come out of Carolina's EXSS program who are educated and prepared to work in multiple disciplines in the industry is inspiring and empowering. That's why we keep giving back."



It's easy to make a gift!

Visit us at EXSS.UNC.EDU/MAKE-A-GIFT



Gifts by check may be payable to
Arts and Sciences Foundation, Inc.
with **Department of Exercise and
Sport Science (101496)** in the
memo line mailed to:

The Arts and Sciences Foundation
Attn: André Williams
523 E. Franklin St.
Chapel Hill, NC 27514

For more information about giving
to the Department of Exercise
and Sport Science, please **contact**
the Arts and Sciences Foundation
at **919-962-0108**.

We are very **grateful** to all our
alumni, friends and donors for their
generosity. Private gifts play a critical
role in the current and future success
of our department.

THANK YOU FOR YOUR SUPPORT!

DEPARTMENT OF EXERCISE AND SPORT SCIENCE
THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
209 Fetzer Hall, Campus Box 8700
Chapel Hill, NC 27599



THANK YOU FROM THE EXSS IMPACT TEAM!

