

# movement



*Sport Management*  
**STUDENTS  
GIVE BACK**

PAGE  
**5**

*Stroke Recovery Through*  
**BRAIN  
STIMULATION**

PAGE  
**16**

*Key Moments in*  
**KINESIOLOGY  
HISTORY**

PAGE  
**18**

*U-M Launches*  
**EXERCISE & SPORT  
SCIENCE INITIATIVE**

PAGE  
**30**



# BUILDING OUR FUTURE

## LOOKING AHEAD TO OUR NEW HOME



As we celebrate the university's bicentennial year, it's the perfect time to reflect on how far the School of Kinesiology has come—and gear up for the history-making growth ahead of us.

My first 14 months here have been full of optimism and opportunity. Applications for our undergraduate and graduate programs are at record levels. Enrollment is robust across the board; students are committing to our school at a rate well above the university average. We're welcoming three new faculty members (and two new laboratories) to our outstanding cadre of educators and researchers. And our students are gaining valuable experiences through ever-expanding internships, clinical rotations, student organizations, study abroad excursions, and research opportunities.

This leads me to the most exciting development of all: Last summer, the Board of Regents approved the Edward Henry Kraus Natural Science Building to become our new home in the fall of 2020. Designed by renowned architect Albert Kahn, whose other campus masterpieces include Burton Memorial Tower, Hill Auditorium, and Hatcher Graduate Library, the Kraus Building has been a university landmark since 1915. We are honored to be the newest residents of this beautiful and historic structure.

Our goal, after a transformative renovation, is to have all our facilities—classrooms, laboratories, academic and career advising offices, collaboration spaces, and more—in one amazing location right in the heart of central campus. For the first time in our school's history, all our faculty, students, staff, and research will be together under one roof.

Later this fall, we look forward to sharing more information with you about the Kraus renovation, including renderings of what the finished space will look like. In the meantime, please visit [kines.umich.edu/newbuilding](https://kines.umich.edu/newbuilding) to see the latest news. You can also read more about the history of the Kraus Building on pp. 19.

Thank you for your continued support of our school—we could not do what we do without you. Happy bicentennial and Go Blue!

A handwritten signature in dark ink, appearing to read 'Lori Ploutz-Snyder'.

**Lori Ploutz-Snyder, Ph.D.**  
Professor and Dean  
School of Kinesiology

# contents

- |  |   |
|--|---|
| <p>2 <i>Letter from the Dean</i></p> <p>4 <i>By the Numbers</i></p> <p>5 <i>Sport Management Students Give Back</i></p> <p>6 <i>Diversity, Equity, and Inclusion</i></p> <p>8 <i>Concussed</i></p> <p>10 <i>Nick Shaw, Class of 2009</i></p> <p>12 <i>Motor Skill Research Turns Children into CHAMPions</i></p> <p>14 <i>Sport Management Leaders Visit Campus</i></p> <p>16 <i>Stroke Recovery Through Brain Stimulation</i></p> <p>18 <i>Key Moments in Michigan Kinesiology History</i></p> <p>20 <i>Motorized Prosthetics Improve Lives of Amputees</i></p> <p>22 <i>Homecoming 2016</i></p> <p>24 <i>Alumni Updates</i></p> <p>25 <i>Faculty and Staff Updates</i></p> | <p>26 <i>Kinesiology Students Go Global</i></p> <p>28 <i>InPACT Classroom Activity Study Gets Students Moving</i></p> <p>29 <i>Michigan Women Empowerment in Sport &amp; Entertainment</i></p> <p>30 <i>U-M Launches Exercise &amp; Sport Science Initiative</i></p> <p>32 <i>New Technology and Teaching Techniques</i></p> <p>33 <i>Lexi Mossman, Class of 2015</i></p> <p>34 <i>Alumni Opportunities at the Career Center</i></p> <p>35 <i>Victors for Kinesiology</i></p> |
|--|---|



*Basketball in Waterman Gym, circa 1910.*

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*Academic peer advisors take a quick break from summer orientation 2017.*

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MICHIGAN KINESIOLOGY

# BY THE NUMBERS\*

**\$10.5** MILLION

IN TOTAL RESEARCH EXPENDITURES  
(A 13% INCREASE)

**22%**

INCREASE IN FRESHMAN  
APPLICATIONS

**35%**

INCREASE IN GRADUATE  
APPLICATIONS

**26%**

INCREASE IN UNDERREPRESENTED  
MINORITY GRADUATE APPLICATIONS

**6%**

INCREASE IN  
NEW TRANSFER  
APPLICATIONS

**16%**

INCREASE IN  
UNDERREPRESENTED  
MINORITY  
UNDERGRADUATE  
APPLICATIONS

**126**

STUDENTS PARTICIPATED  
IN EDUCATION ABROAD  
PROGRAMS\*\*

**19**

COUNTRIES VISITED

**1,377,558**

TOTAL MILES FLOWN

**\$235,859**

IN SCHOOL  
SCHOLARSHIPS  
AWARDED TO  
92 STUDENTS

**\$192,639**

IN FELLOWSHIPS  
AWARDED TO  
33 STUDENTS

ESTABLISHED

**5**

NEW SCHOLARSHIPS  
THAT WILL SUPPORT

**11**

STUDENTS ANNUALLY

UNDERGRADUATE  
STUDENTS FROM

**35**  
STATES  
&

**12**  
COUNTRIES



## SPORT MANAGEMENT STUDENTS GIVE BACK

BY JEAN HUNT

Anyone who has applied for scholarships or asked for a raise is familiar with requesting money. For nonprofits, submitting grants for funding is essential and routine. But what is it like on the other side—as philanthropists wishing to distribute funds to deserving, viable beneficiaries?

Last winter, associate professor Dr. Kathy Babiak introduced students in her Sport Management 313 “Management of Nonprofit Sport Organizations” class to funding nonprofits, first by having them start their own, which they dubbed “Foundation 313.” Then, over the course of a semester, they acquired hands-on experience with how philanthropists evaluate potential beneficiaries and distribute their funds.

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**“Students in this class are learning how they can make an impact on society. We’ve been given an opportunity to give real money—enough to make a difference.” —KATHY BABIAK**

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Partnering with the Learning by Giving Foundation, student-members of Foundation 313 were awarded a \$10,000 grant, which they leveraged by raising \$3000 on their own, using a GoFundMe website and other fundraising methods. They then solicited requests for proposals from southeast Michigan nonprofit organizations that engage with and serve youth through sport, recreation, and physical activity programs and initiatives. Students evaluated and scored applications, finally awarding \$3500 to the Detroit Police Athletic League (PAL), which runs athletic, academic, and leadership youth development programs, and \$7500 to



*Top: Dr. Kathy Babiak, the SM 313 class, and representatives from the Detroit Police Athletic League and North Star Reach. Bottom: Babiak and class.*

North Star Reach, a free summer camp for children with serious medical conditions and their families.

“Students in this class are learning how they can make an impact on society. We’ve been given an opportunity to give real money—enough to make a difference,” Babiak said. “This is a big responsibility and a vehicle through which students will learn about the process of grant-making, philanthropy, and how nonprofit organizations operate.”

“The opportunity we have been given as Michigan students to make a contribution outside of the classroom is a privilege that we want to take full advantage of,” Foundation 313 student Zach Antell said. “This project will help us understand the role of giving and how to make strategic decisions with our grant that will make the biggest difference.”

The Learning by Giving Foundation was begun with an investment by Doris Buffett (yes, that Buffett—Warren is her younger brother). Its core mission is to support the teaching of philanthropy and nonprofit studies at the undergraduate level on college campuses nationwide, and to select high quality experiential for-credit courses in philanthropy i.e., those that combine the study of theory with the practice of philanthropy. Since 2003, Learning by Giving has distributed more than \$2.3 million to 629 nonprofit organizations. ■



# KIN ALL IN!

## DIVERSITY, EQUITY, & INCLUSION

BY DR. KETRA ARMSTRONG

The U-M School of Kinesiology continues to celebrate and elevate its commitment to making the ideals of diversity, equity, and inclusion (DEI) a reality. We are steadfast in our belief that diversity enriches the learning environment and enhances the School's innovation and overall productivity. We have developed and are implementing an ambitious and comprehensive DEI strategic plan consisting of various programs, policies, and practices to create a vibrant and supportive environment for all of our faculty, staff, and students to thrive. In the spirit of team, our motto is KIN ALL IN! Following is a summary of some of our DEI initiatives in the 2016-17 academic year.

### Diverse Student Recruitment

Kinesiology faculty, staff, and students participated in various demographically diverse recruitment fairs/events to meet with students and share opportunities for undergraduate and graduate education in our school.

### Alliances with Minority Serving Institutions

Kinesiology continues its successful alliance and engagement with a number of Minority Serving Institutions such as Historically Black Colleges and Universities and Hispanic Serving Institutions. We are exploring ways of enhancing the alliances by developing more mutually beneficial faculty and student initiatives.



### Kinesiology Diversity and Inclusion Network (KDIN)

To engage and empower our students to be advocates and champions of diversity and inclusion, we continue to support the Kinesiology Diversity and Inclusion Network. KDIN is comprised of a demographically diverse group of undergraduate and graduate students from various Kinesiology disciplines.

### Kinesiology "Kickback"

Kinesiology hosted an end-of-semester activity with food, fun, and games to create community and provide our students with a space and opportunity to decompress.

### Research Showcase

To celebrate ideological and disciplinary diversity within Kinesiology, we offered our annual Research Showcase featuring the research/scholarly activity of our graduate and undergraduate students.

### Kinesiology Bridge Program

This summer, Kinesiology instituted a program to connect and engage students from populations that are underrepresented in graduate education. The program featured presentations, social activities, campus tours, and team building activities.







### A Thousand Cuts: Responding to Climate Concerns

This seminar was open to all Kinesiology faculty, staff, graduate students, and leaders of our undergraduate student organizations. It featured dramatic renditions of campus and classroom climate issues by actors from the U-M Center for Research on Learning and Teaching (CRLT).

### Movie Night: Keepers of the Game

Kinesiology hosted the first of a planned series of movie nights—with popcorn, soft drinks, and other snacks. The featured movie, *Keepers of the Game*, focused on Native American women and the sport of lacrosse. It offered a poignant illustration of the intersections of race/ethnicity, culture, religion, and gender in sport. The movie elicited rich dialogue and discussion. *A Kinesiology Dialogue on Diversity initiative.*

### MLK Symposium: Lyrics of Activism

Building on the U-M theme, we hosted a MLK Symposium entitled “Lyrics of Activism: Sounds of Change in Kinesiology.” The event featured Kinesiology faculty, staff, students sharing their thoughts and reflections (through poetry, readings, music, and song) about activism. The audience participated in an insightful discussion about activism, and the event concluded with a reception.

### Moving Through the Centuries: The Empowerment of Women Through Physical Activity

To celebrate U-M’s bicentennial, Kinesiology partnered with the Institute for Research on Women and Gender, Women’s Studies Department, Athletics, and other U-M units to offer an event to celebrate gender equity. It consisted of a panel presentation and a semester-long archival exhibit showing the evolution of women in sport and physical activity at U-M.

### Stamped from the Beginning: The Definitive History of Racist Ideals in America

In partnership with Munger Graduate Residence and other U-M entities, Kinesiology co-sponsored a book discussion of

*Stamped from the Beginning* with 2016 National Book Award winner and *New York Times* bestselling author Dr. Ibram X. Kendi. He provided a historical and contemporary overview of racial ideology and racism, and engaged the audience in a stimulating Q&A. *A Kinesiology Dialogue on Diversity initiative.*

Interested in contributing to or participating in our diversity, equity, and inclusion efforts? Send us an email at [kines-dei@umich.edu](mailto:kines-dei@umich.edu) or visit [kines.umich.edu/DEI](http://kines.umich.edu/DEI). ■

*Opposite page top: Students at the “Kickback” embody DEI. Bottom: An attendee at the “Moving Through the Centuries” exhibit. This page top left: Attendees at the MLK Symposium. Top right: The Peace Neighborhood Center visits Kinesiology. Bottom: HBCU students visit campus; Dr. Ketra Armstrong (center) and attendees at the McNair Scholars Fair.*





# CONCUSSED

BY ALEX PIAZZA

Zack Lystedt squared up and tackled his opponent, but there was no celebration afterward. Video from the junior high football game shows Zack lying on the field, his hands clutching both sides of his helmet.

An official called a timeout and Zack was sidelined until halftime. The 13-year-old from Washington returned for the third quarter, but later collapsed on the field and was airlifted to a nearby hospital where he underwent emergency surgery.

Doctors removed the left and right side of Zack's skull to relieve pressure from his injured and swelling brain. Prematurely returning to the game after a traumatic brain injury left Zack in a coma for three months.

It took Zack nine months to speak a word and three years for him to stand again.

Traumatic brain injury caused during sports or recreation sends more than 170,000 kids and teens to the emergency ward each year, according to the U.S. Centers for Disease Control and Prevention. And while many of those kids and teens do not suffer the same fate as Zack, sport concussion is globally recognized as a major public health concern that not only affects youth, but also college and professional athletes, as well as other adults in a wide range of sports.

Researchers at the University at Michigan are working on a number of projects that address traumatic brain injury, with

a focus on reducing sport concussion and properly evaluating athletes before they return to play.

## Neck and Neck

Squats, bench press and deadlift. They are the three pillars of strength training, and they are included in most workout plans for football players. But when an athlete targets an opponent's head, those exercises won't necessarily prevent traumatic brain injury.

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**"NCAA schools have placed a priority on improved concussion management, but we still have many unanswered questions in this area. We believe in the incredible potential of this research."**

—NCAA PRESIDENT MARK EMMERT

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James Eckner has studied sport concussion for years, and the assistant professor of physical medicine and rehabilitation now focuses his research on how the neck influences head motion after impact.

Eckner and his U-M colleagues, including professor Dr. James Ashton-Miller, conducted an 8-week exercise intervention that was designed to strengthen the neck muscles of male and female youth athletes who compete in



contact sports. Researchers sought to determine the effect of the neck strengthening program on athletes' neck size and strength, as well as how their heads move when small standardized test forces were applied to their heads in a lab setting.

Participants performed a number of exercises designed to strengthen their neck muscles over 8 weeks, and researchers found that with greater neck strength, the magnitude of head acceleration following impact decreased.

And while neck exercises could help prevent concussions, Eckner, Ashton-Miller and their U-M colleagues also developed a tool that can assist with quickly identifying concussions after they occur.

Slowed reaction time is both a risk factor and a consequence of sport concussion. But many teams rely on expensive computer programs to measure an athlete's reaction time when assessing them for a concussion. That's why U-M researchers developed a simple, inexpensive, manual neurological testing device that measures reaction time. Here's how it works:

A tester vertically holds the standardized device, and when it is dropped, the athlete catches it as quickly as possible.

The distance it fell is then converted into a reaction time using the formula for a body falling under the influence of gravity. Researchers found the average reaction time measured over eight drops with this simple test could identify athletes with concussion just as well as other longer, more expensive computerized concussion tests.

The research team now is beginning to study a more complex version of the reaction time test that uses lights attached to the device to force an athlete to quickly decide whether to allow it to fall, or catch it before it hits the ground. Their goal is to determine whether the forced decision improves the test's ability to detect concussions.

### Preseason Routine

College football season is just weeks away, and student-athletes across the country are studying their playbook and watching game film to gain a competitive advantage.

And for 30 schools, from Los Angeles to Miami, preseason preparation also means a comprehensive concussion evaluation led by Dr. Steven Broglio, associate professor of athletic training, and his colleagues across the country. Concussions remain a serious concern within college athletics, as student-athletes suffered an average of 10,500 concussions for the past five years, 3,400 of which occurred in football.

In an effort to enhance player safety, for the past three years, Broglio has led the most comprehensive study of concussion and head impact exposure ever conducted.

As part of the NCAA-Department of Defense Concussion Assessment, Research and Education (CARE) Consortium study, every student-athlete from 30 schools nationwide, including U-M, undergo baseline testing before the season begins. Then, data are collected at specific intervals if he or she suffers a concussion so researchers can study the natural history of their traumatic brain injury.



*Above: Dr. Steven Broglio and student.*

So far, Broglio and his colleagues have collected more than 35 million data points from 18,000 student-athletes at 21 institutions. Nine schools recently joined the \$23 million study, which should increase the number of participants to 25,000 this year.

"To date, we have already studied over 1,000 concussions," said Broglio. "An average concussion study includes about 20 concussions, so you can see how expansive this study actually is." The goal is to improve athlete health and safety surrounding concussion, as well as the behavior and culture of concussion reporting and management.

"NCAA schools have placed a priority on improved concussion management, but we still have many unanswered questions in this area," said NCAA President Mark Emmert when the consortium was announced. "We believe in the incredible potential of this research. Student-athletes will be first to benefit from this effort, but it also will help to more accurately diagnose, treat and prevent concussions among service men and women, youth sports participants and the broader public." ■



RENAISSANCE MAN

# NICK SHAW

CLASS OF 2009

BY JENN MCKEE

*This page: Nick Shaw at Renaissance Periodization.  
Opposite: Shaw celebrates the Renaissance Periodization scholarship for Kinesiology students.*



The friendship that would eventually result in Nick Shaw (SM '09) launching Renaissance Periodization—a science-based health and strength training company—began in the Intramural Building's weight room.

Shaw, originally from Bronson, Michigan, near Battle Creek, was a sophomore when he met movement science major (and RP cofounder) Mike Israetel. “We started lifting together, and he convinced me to enter a power lifting meet,” said Shaw. “So we started training together in 2007, five years before we started RP.”

Shaw had been a U-M fan throughout his childhood, and he ran cross country and track in high school while also becoming interested in weight lifting. “Ever since middle school, I know I wanted to go to Michigan,” said Shaw. “It was one of my goals. And I got good grades in high school, so it was a no-brainer. I think it was the only place I applied.”

Israetel, a little older and further along in his studies, left for New York City and worked as a personal trainer. He encouraged Shaw to do the same, and when Shaw landed a job in Manhattan—his interview trip marked his first-ever visit to the city—he moved there with a few fellow Wolverines.

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**“We’re not interested in hiring a person who just looks the part of a trainer. We want people who have the education to back it up.” —NICK SHAW**

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But after working as a trainer for about a year and a half, Shaw realized he could do the same kind of work while being his own boss, and that online coaching—instead of one-on-one in-person sessions—would probably be a more efficient use of his time. Israetel, meanwhile, had a growing client list of his own (while working toward a Ph.D. in sport physiology from East Tennessee State University), so he and Shaw regularly referred clients to each other.

“After a while, we thought, ‘Why don’t we just team up and pool our knowledge and experience and success stories?’” said Shaw. “And that’s how we started RP in 2012.”

How did Shaw—RP’s CEO—arrive at the company’s name?

“‘Renaissance’ is the beginning of a new era,” said Shaw. “There’s so much misinformation out there within the health industry that we wanted to give birth to a new era that’s about evidence-based nutrition and training. Also, there’s a really successful hedge fund company called Renaissance Technologies. Instead of just employing a bunch of



stockbrokers, they hire mathematicians and other experts that will use statistics instead of the more traditional methods, and they almost always outperform others in the market. And similarly, at RP, we’re not interested in hiring a person who just looks the part of a trainer. We want people who have the education to back it up. We have about fourteen Ph.D.s on staff. So we’ve taken that same idea and applied it to the health industry.”

RP serves both elite athletes and “regular people,” “and we’re developing different kinds of offerings to reach more general population folks,” said Shaw. “The pool of serious athletes is small, while the general populace is huge, obviously. But getting into that market is easier said than done. People like shortcuts. But we’re starting to be more known in the athletic community, so we’re trying to springboard off of that and say, ‘Look at these results.’”

Shaw moved to Charlotte, North Carolina, in 2015 with his wife, Lori—who left her law career to work at RP two years ago—and their two children (ages 3 and 5), and he co-sponsors a scholarship available to U-M School of Kinesiology students.

“Mike and I both had to pay for school with tons of loans, and we are both alumni of the kinesiology program at Michigan,” said Shaw, who painted houses and waited tables while a student at U-M. “So it’s one of those things where we’re fortunate enough to be in a position to give back. We went through it, we know it’s like, so if we can offer something, that’s what we want to do.” ■

# Motor Skill Research Turns Children into CHAMPions

BY JEAN HUNT

Young children are constantly in motion, little bundles of energy bouncing off walls, furniture—even floors. Charmed by their energy and playfulness, Movement Science associate professor Dr. Leah Robinson decided to make children the focus of her research when she started her Ph.D. program in 2004. Her research has since proven fruitful.

Robinson's original goal was to work with elite athletes. But while teaching and coaching at a junior college in Pennsylvania, she observed a group of preschoolers and noticed that some lagged in developing basic motor skills. Donning her researcher hat, she sought out journal articles on fundamental motor skill (FMS) development and instruction in young children.

She found that while there was a rich history of motor development research, the focus was on the motor skills that individuals could perform, and how they performed them. "These were essential questions to answer, but I felt there were gaps in the literature relating to intervention programs that promote FMS in children, along with the potential influence of FMS on long-term health-related outcomes," Robinson said.

So she dropped her plan to research athletes in order to work with this pint-sized population—to much success, as it turns out. Recently she was awarded a grant for over \$2.5 million by the National Institutes of Health (NIH) and the NIH Common Fund to study the immediate and long-term effects of the Children's Health Activity Motor Program (CHAMP) intervention on 300 preschool age children, measuring their motor skills, physical activity, perceived competence, and self-regulation (e.g., cognitive flexibility, working memory, behavioral inhibition, and emotion regulation). Positive findings would provide initial support for CHAMP as an effective intervention that contributes to healthy

growth and development in children.

The current study proposes a three-year follow-up, meaning that her sampling of preschoolers would participate in a one-year intervention in CHAMP or a control group; then the research team would follow up to assess the children during kindergarten, first, and second grades.

Robinson directs the Child Movement, Activity & Developmental Health (CMAH) Laboratory in the School

of Kinesiology. Her research on CHAMP and self-regulation resulted in a 2016 article in *Frontiers in Public Health*, "Effect of the Children's Health Activity Motor Program on Motor Skills and Self-Regulation in Head Start Preschoolers: An Efficacy Trial," showing that her CHAMP intervention helps maintain self-regulation in children. This is one of the first studies to link a motor skill intervention to school readiness in preschoolers. Ph.D. candidate Kara Palmer and Kristen Bub (University of Illinois) were co-authors.



*This page: CMAH Laboratory students and their preschool subjects at work hard at play. Opposite: Dr. Leah Robinson and subject.*

Another article, "A Ball Skills Intervention in Preschoolers: The CHAMP Randomized Controlled Trial," will be published later this year in *Medicine and Science in Sports and Exercise*, which is the official journal of the American College of Sports Medicine.

A North Carolina native, Robinson received her B.S. from North Carolina Central University and graduate degrees (M.S., Ph.D.) at The Ohio State University, where she studied under Jacqueline Goodway. She currently holds a dual appointment with the Center for Human Growth and Development (CHGD). Before joining University of Michigan faculty, she taught and researched at Auburn University for seven years. ■





Learn more about CHAMP and Dr. Robinson's Child Movement, Activity & Developmental Health (CMAH) Laboratory at [cmahlab.com](http://cmahlab.com).





*Danny Koblin*



*Tom Garfinkel*



*Career fair participants*



*Students present their Intel project*



*Key Bank representatives (front row), Dr. Dae Hee Kwak (front row right), and class*



*Chris Parker*

# A CLASS ACT

## SPORT MANAGEMENT LEADERS VISIT CAMPUS

Our students and alumni have always known that a University of Michigan sport management degree can open doors, spark innovation, create partnerships, and change lives. In the 2016-2017 academic year, the school hosted so many amazing SM guests that Stephen Master (Ross '90), SVP of sports at The Nielsen Company, called us "the BEST network in sports."



*Mark Silverman*



*Howard Handler*



*Dhani Jones (back row center) and class*



## NOVEMBER 2016

Members of our Sport Management Advisory Board (SMAB) partnered with faculty to create engaged learning experiences for sport management students.

- Carrie Brzezinski (LSA '00), VP of marketing solutions at ESPN, and Jon Paley (SM '95), founder of The Vault NYC, spoke to Lecturer Kelli Donahue's business communications class.
- A panel of sport business executives, including David Berson (LSA '94), president of CBS Sports; Carrie Brzezinski; Dustin Cairo (SM '12), business development and marketing manager at Zebra Sports; David Herman (SM '15), associate partnerships manager at Twitter; Matthew Kauffman (LSA '90), VP of consulting at the Montag Group; David Oxfeld (SM '02), VP of client sales and business development at Excel Sports Management; Jon Paley; and Brandon Rhodes (SM '13), global brand management at Gatorade, spoke to Assistant Professor Kathryn Heinze's "Organizational Behavior in Sport" class.
- In Associate Professor Dae Hee Kwak's class, students were challenged to help Intel to grow as a technology innovator in the sports industry. An SMAB member mentored each team, providing critical insights, suggestions, and critiques. Attendees included David Berson, Carrie Brzezinski, Dustin Cairo, David Herman, Matthew Kauffman, David Oxfeld, Jon Paley, and Brandon Rhodes.

## JANUARY 2017

The Kinesiology Career Fair hosted representatives from the Big Ten Network, Detroit Pistons, Detroit



*Jon Paley, Brandon Rhodes, Carrie Brzezinski, Dustin Cairo, and Matt Kauffman judge the Intel project presentations.*

Red Wings/Olympia Entertainment, Detroit Tigers, Philly 76ers, and USA Hockey, among others.

## FEBRUARY 2017

Alumnus Danny Koblin (SM '96) spoke to Assistant Professor Stacy-Lynn Sant's sport tourism class about his role as chief bid officer of the LA 2024 Olympic Bid.

## APRIL 2017

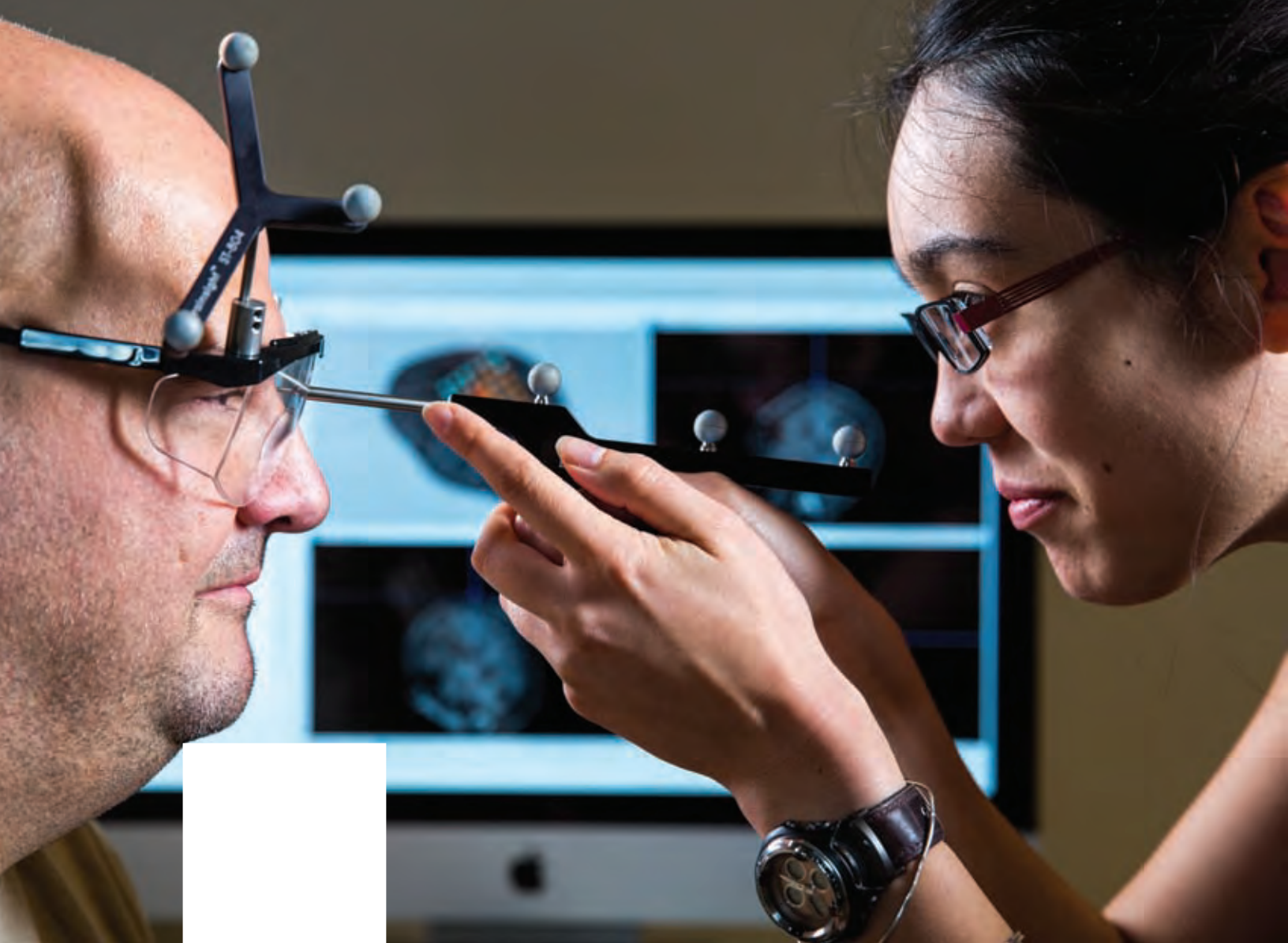
Students in Associate Professor Dae Hee Kwak's class were challenged by executives to provide strategic sponsorship and activation ideas for KeyBank and Intersport, their sport marketing agency, as they expand to new markets. Attendees included Mark Knierim, Betsy Wallace, and Tom Wennerberg from KeyBank and Morgan Bartelstein, Neil Carl, Jason Langwell, and Joe Sobolewski from Intersport.

In the SMAB spring edition, industry leaders gave insight and advice to sport management classes.

- John Goldman (LSA '85), partner and co-chair of the sports law group at Herrick, Feinstein LLP, spoke to Assistant Professor Stacy-Lynn Sant's sport tourism class.
- A panel of sport business executives, including Stephen Dubin (LSA '85), sports agent at Yee & Dubin Sports, LLC; Howard Handler (LSA '83), CMO of Major League

Soccer; Wally Hayward, CEO of W Partners; and David Oxfeld, spoke to Associate Professor Dae Hee Kwak's marketing class.

- Dustin Cairo and David Herman spoke to Lecturer Jen LaRoche's "Public and Small Group Communications" class.
- Chris Parker (SM '97), VP of corporate sales at Pegula Sports and Entertainment, spoke to Lecturer Kelli Donahue's career planning class.
- Dhani Jones (LSA '00), chairman of Qey Capital Partners and BowTie Cause, spoke to Associate Professor Kathy Babiak's "Nonprofit and Social Enterprise Management in Sport" class.
- Carrie Brzezinski and Jon Paley spoke to Associate Professor David Moore's "Sales Management in Sport Industry" class.
- Mark Silverman (Ross '91), president of the Big Ten Network, spoke to Professor Rod Fort's "College Sports Economics" class.
- Tom Garfinkel (Ross '01), president and CEO of the Miami Dolphins, spoke to Professor Mark Rosentraub's "Sports and Economic Development" class.
- Stephen Master spoke to Lecturer Youngho Park's research methods class. ■



# Positive Energy

Stroke Recovery Through Brain Stimulation

BY EMILY MATHEWS

The secret to stroke recovery might lie in an unlikely combination: magnetic currents and a healthy dose of optimism.

Transcranial magnetic stimulation, or TMS, is a non-invasive way to excite the brain through electromagnetism. The device rests on top of the head and passes electricity through wire coils to create a magnetic field. The brain, which is highly conductive, then responds to these electromagnetic signals in various ways.

*Top: Patient and student in the Human Sensorimotor Laboratory.*



Dr. Sean Meehan, an assistant professor of movement science, is working with students in his Human Sensorimotor Laboratory to harness the potential of TMS, particularly for the rehabilitation of stroke patients. “We’re using this technique to see if we can make the brain more receptive to physical or occupational therapy,” Meehan says. “We’re trying to stimulate the brain to put it in a state where, when patients work with their therapist, they’ll get more benefit.”

Meehan and his team have patients use TMS and then practice movements like those they would experience in physical or occupational therapy. By using a variety of patients with different characteristics—including health status—Meehan aims to quantify the benefits of and establish specific outcomes for TMS therapy. Once he’s able to do that, he and his team will move to large scale clinical trials to see if they can replicate what’s happening in the lab and fine-tune it to address patients’ individualized needs.

The ultimate goal? To give chronic stroke patients the technology—and hope—they need to recover their mobility. “Unfortunately, there’s this notion that if they haven’t recovered full function after six months, they’re never going to get it back,” Meehan says. “Generally, the health care system is structured to decrease the amount of available resources once the patient has chronic stroke because they don’t see as much recovery after that point.”

Meehan’s interest in neural plasticity—the brain’s ability to change over the lifespan—inspired him to investigate why the transition from acute to chronic stroke is the rehabilitation cut-off point. Since research has established that the brain can reorganize itself by strengthening connections between neurons at any point in time, why wouldn’t that apply to older or infirm adults who are relearning movement?

Neural plasticity comes in two forms: the “good” kind, which expands neuron connections, and the “bad” kind, which contracts them. That happens when the brain takes neurons that help

able to do, and then come back again tomorrow and try it again. The third time they come back, they’re able to do it. And then they try to do something else.” If patients are able to master tasks

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**“We’re trying to stimulate the brain to put it in a state where, when patients work with their therapist, they’ll get more benefit.” —SEAN MEEHAN**

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control an area of the body that’s not being used and reallocates them to another area that is being used.

Once the role of those neurons has shifted, it’s much harder to regain that lost functionality—for example, a patient who stops using their right arm after a stroke may not be able to pick up a glass with their right hand.

And that’s where the optimism comes in. Meehan has found that patients who go into the TMS sessions with motivation generally have the best outcomes. “Our patients have been told, ‘you’re not going to get any better.’ As soon as they hear that, they wonder why they should work so hard to get their lost ability back,” Meehan says. “If we can provide hope and keep them seeing some kind of advance, it has a snowball effect—they’ll go home and try to do something they haven’t been

like dressing, bathing, and feeding themselves, their independence and quality of life get an immediate boost.

That optimism also helps shield the patient against giving up after a setback, which is critical for rehabilitation. “We often hear stroke patients say, ‘I’ve stopped using my right hand and it’s gotten worse.’ We say, ‘Get a plastic cup. If you knock it over and spill it, it doesn’t matter. That’s progress.’ You can’t get better unless you make mistakes, because if you don’t make mistakes then you don’t learn what you’re doing wrong.” That’s a principle that Meehan tries to instill in his students, too. “Learning is a sustained change in your ability; performance is just how you did it in that particular moment,” he says. “If you’re making mistakes, that doesn’t mean you’re not learning.” ■

### WHAT’S NEXT FOR DR. MEEHAN AND THE HUMAN SENSORIMOTOR LABORATORY

- Studying how TMS intervention can enhance people’s ability to move their limbs, with support from a National Institutes of Health (NIH) grant
- Pinpointing biomarkers that help predict who might benefit most from TMS intervention, with support from a Claude D. Pepper Older Americans Independence Centers (OAICs) grant

The HSL is actively recruiting subjects for a number of studies. Learn more at [kines.umich.edu/hsl](https://kines.umich.edu/hsl) or email [StrokeTMS@umich.edu](mailto:StrokeTMS@umich.edu) to get involved.

# ALWAYS MOVING, FOREVER VALIANT

## KEY MOMENTS IN MICHIGAN KINESIOLOGY HISTORY



**1894** Waterman Gym is finished and ready for classes

**1898** Physical Education becomes a required program for all students and curriculum is expanded

**1900** Barbour Gym is finished and ready for women's Physical Education classes

**1921** The Department of Physical Education is created within the School of Education

**1931** A master's degree in Physical Education is established

**1938** A doctoral degree in Physical Education is established

**1950** Collaborative research between Physical Education, other university units, private industry, and the government begins

**1970** The men's and women's Physical Education programs are merged

**1977** Physical Education moves into the newly built Central Campus Recreation Building (CCRB)

**1984** Physical Education is separated from the School of Education and becomes the Division of Physical Education, an in-dependent degree-granting academic unit; the Sport Management major is established

**1989** The Adult Lifestyle Program, Summer Youth Fitness, and Fitness Over 50 (now known as Kinesiology Community Programs) are established

**1990** The Division of Physical Education becomes the Division of Kinesiology; the Movement Science major is established

**1998** The Athletic Training major is established

**2003** The Athletic Training program gains national accreditation

**2007** Kinesiology moves into the newly remodeled Observatory Lodge (in addition to the CCRB)



*This page, clockwise from top left: A student hard at work in the lab in 2000; Gym demolition begins before CCRB construction in 1977; A sport management student presents her UROP poster in 2004; Faculty members Margaret Bell and Fielding Yost on the balcony of the Women's Athletic Building, overlooking Palmer Field, in 1938; A physical education class led by faculty member George May in 1901; Fitness for Youth program participants in 1989.*





# THE KRAUS

## NATURAL SCIENCE BUILDING

The Edward Henry Kraus Natural Science Building, nestled in the heart of central campus, has been the home of scientific learning and research since its construction in 1915.

The university's emphasis on scientific curriculum led, eventually, to a serious lack of space for classrooms and laboratories. In 1913 the legislature appropriated \$375,000 for a Natural Science Building to be designed by the renowned Detroit architect Albert Kahn, whose other campus masterpieces include Burton Memorial Tower, Hill Auditorium, and Hatcher Graduate Library, among others.

The Natural Science Building housed the Departments of Botany, Geology, Mineralogy, Psychology, and Zoology; the School of Natural Resources; and the Natural Resources Library. It contained numerous laboratories, all equipped with specially adapted furniture: acid-proof tables, specially designed sinks, and other features. Many of the classrooms were equipped for picture projection. The Museums of Mineralogy and Geology were connected on the northeast corner of the second floor. Zoology had both an aquarium room and an animal house (erected in 1930 in the central court).

The Natural Science Building, carefully designed with its essential purpose as a lab building, was a pioneer in university construction. Kahn utilized a newly developed system of regularly placed steel and concrete piers to support the building, which made all the rooms exactly the width of the spaces between the piers or multiples of that space. The space between the piers was utilized entirely for windows, thus affording a maximum amount of light.

—From the University of Michigan Millennium Project,  
[umhistory.dc.umich.edu/mort](http://umhistory.dc.umich.edu/mort)

**2008** The Division of Kinesiology becomes the School of Kinesiology

**2012** The Intraoperative Neuromonitoring (IONM) program, one of three in North America, is created within Movement Science

**2014** The Health and Fitness major replaces the Physical Education major

**2015** The National Academy of Kinesiology ranks the School of Kinesiology 3rd in the nation; the IONM program becomes the first accredited program of its kind in the world

**2016** The Kinesiology doctoral degree is split into a Ph.D. in Movement Science and a Ph.D. in Sport Management

**2020** The School of Kinesiology moves into the newly renovated Edward Henry Kraus Natural Science Building

*This page, clockwise from top: A homecoming open house in 1978; Student commencement speaker Kamaria Washington in 2017; Students in an anatomy class in 2003. Right: The Natural Science Building under construction in 1914; The Kraus Building in 2016.*

Watch the transformation of our new space at  
[kines.umich.edu/newbuilding](http://kines.umich.edu/newbuilding)



# POWER PLAY

## Motorized Prosthetics Improve Lives of Amputees

BY LAURA BAILEY





When asked about her chosen field, Dr. Deanna Gates, assistant professor of movement science and director of the Rehabilitation Biomechanics Laboratory, always joked that she wanted to make Luke Skywalker's hand.

Gates' lab belongs to the U-M Rehabilitation Robotics Group. The theme of the many research projects conducted in the lab is pretty simple: Help upper- and lower-limb amputees get around in the world more easily. One of the lab's main lines of research involves a motor-driven lower limb prosthesis called BiOM, something that would have been considered science fiction a decade ago. "This is a unique device with a ton of potential," says Gates. "We're trying to determine who can benefit the most from this, and how we can help prostheses users maximize their performance benefits."

The Department of Defense is interested in the issue and is helping fund the research. There were more than 1,700 service-related amputations in Iraqi Freedom, Operation New Dawn and Operation Enduring Freedom, and most were young adults. Overall, an estimated 1.6 million people in the United States live with limb loss.

Gates' lab looks like something from the pages of Ray Bradbury. A 20-camera motion capture system fills the back of the room, with tripods of different heights pointing toward the center of the space at various mock scenarios. Here, Gates, her research assistants and students record subjects performing specific motor tasks to glean various pieces of information from the limb movements.

Gates, who also has an appointment in biomedical engineering, says that one of the theories behind the motor-driven BiOM device is that the extra power will lower the user's energy expenditure closer to that of a non-amputee. One of the drawbacks of traditional prosthetics is that they require 10-to-30 percent more energy to use. Consequently, many amputees don't get enough physical activity.

To that end, one of the lab's studies compares physical activity and muscle fatigue of patients outfitted with GPS and activity trackers using their own prosthetics, versus the powered BiOM. Researchers want to see if activity increases and muscle fatigue decreases. The hope is that with the right amount of power, walking with the BiOM will be more efficient.

A similar study in collaboration with mechanical engineering examines whether patients benefit from additional power in their prosthetic, and how much is optimal. "More is not always better," Gates says. "In some cases, a little power was worse than nothing." However, researchers believe that finding just the right amount could vastly improve the user's experience.



Another project looks at whether patients benefit immediately after clinicians fit their BiOM prosthesis. While still too early to say for certain, preliminary work shows that amputees may need training to help them take full advantage of the device features.

The lab is also working on studies involving upper limbs, Gates says. One project led by engineers and surgeons from biomedical engineering and plastic surgery takes existing nerves formerly connected to muscles in the amputated limb and wraps a tiny piece of another muscle, akin to a 'muscle burrito,' around the end of the nerve. The nerve then grows into the muscle, and electrical signals from those little muscles are used to control a more dexterous prosthesis.

Other projects look at which features are most important to upper limb prosthetic users and whether they're willing to have surgery to get these features, and quantify how people use different types of prosthetics.

Current and future research bodes well for prosthetic users. "It is a great time for prosthetics research. There's a lot of current research on new ways to control prostheses using signals from the body, such as the brain, nerves or muscles," Gates says. "These can give users more direct control of their devices and allow for more different types of motion."

Improvements in technology are being made to increase battery life, make batteries smaller and to construct comfortable, easy-to-wear devices that are connected to the body. "The good news is that these techniques are probably only a few years away from being implemented outside of the research lab," Gates says. ■

*Opposite page: Dr. Deanna Gates and subject. This page: Gates in the Rehabilitation Biomechanics Laboratory.*

# CONQU'RING HEROES HOMECOMING 2016

BY JEAN HUNT

Taking a page from the very successful career mixer held the previous year, 200 Kinesiology students and alumni gathered for conversation and networking on Friday, October 21, 2016, on the Michigan Union patio. Kinesiology alumni attending represented the career fields of events planning, sport business, personal fitness, sports medicine, physical education, and physical therapy.

The Kinesiology Alumni Achievement Awards dinner was held afterwards, also at the Michigan Union. These awards are given each year to alumni and friends who have made a significant impact with their careers, service, and philanthropy. Seven recipients were honored at the ceremony and were introduced by friends and colleagues. An eighth honoree, George Wade, received his award at a separate event.

## Early Career Achievement 2016 Awardees

After beginning her career at Nike and the Cleveland Cavaliers, **Liz Godek (SM '05)** joined Palace Sports and Entertainment to build loyalty and increase retention among passionate Detroit Pistons fans. As the senior director of fan and member experience, her year-round membership engagement platform increased retention, earning a top five finish in the NBA with a 93.8% renewal rate.

**Donté Scott's (SM '01)** marketing career includes nearly 10 years at Sponsorship Communications Research, most recently as principal, independent marketing consulting, where he provided marketing consulting services and analytical tools to help brands assess their sports marketing plans. Donté's current role is the executive vice president and chief insights officer for Turnkey Intelligence, where he leads the company's monitoring and valuating of marketing partnerships for both properties and sponsors.

## Career Achievement 2016 Awardees

Since joining the Naval Academy Athletic Association in 2007, **Robb Dunn (MVS '94)** has served as senior associate athletic director for administration, club sports, and development. Robb served on the NCAA Men's Gymnastics Committee from 2006 to 2012, including a three year stint as chair, and was also an Olympic stadium cluster supervisor for the 1996 Summer Olympic Games in Atlanta.

After beginning his marketing career at Nike and Starbucks, **Andrew Pudduck (SM '96)** became chief marketer and director of product development for Top of the World Headwear, the largest manufacturer of licensed collegiate headwear in the world. As vice president of marketing and

*Clockwise from left: Mixer attendees; Dinner attendees; Awardee Andrew Pudduck and presenter Tina Nielsen, Associate Director of the Great Lakes Bioenergy Research Center; Awardee Pete Kempf and presenter Dick Honig, former chair of the Kinesiology Alumni Society.*







*Clockwise from left: Awardee Donté Scott and presenter Brian Townsend, Director of Michigan Student-Athlete Development; Awardee Liz Godek and presenter Richard Haddad, Vice President and General Counsel at Palace Sports & Entertainment; Awardee Nancy “Eric” Erickson and presenter Carol Hutchins, U-M softball coach; Kinesiology Alumni Society Chairman Noel Cimmino, awardee Shelly Kovacs, and presenter John Rotche, CEO of Franworth; Awardee Robb Dunn and presenter Tom George, Assistant Professor of Clinical Practice for Health & Fitness and Sport Management. Below: Kinesiology Alumni Society Board members (back row, left to right) Chris Parker and Noel Cimmino; (front row, left to right) Heidi Haite, Patti Donohue-Ebach, Shawn Regan, Eryn McVerry, and Robert Haddad.*

merchandising at Hooters of America, he was tasked with reinvigorating the Hooters brand. Currently, Andrew is vice president of marketing/e-commerce for the Americas at HTC.

### Distinguished Service 2016 Awardees

During his career, **Pete Kempf (MVS ‘95)** worked at Ford, General Motors, and the United States Navy, focusing on military ergonomics, human factors engineering, biomechanics, anatomy, and product research design and development. He was responsible for developing the human-machine interface of combat weapons systems and their integration into land and air combat vehicles. Since retiring from the United States Navy Reserve, Pete has remained an integral part of the U-M community, serving on the Kinesiology Alumni Society Board of Governors, including a six years as president.

**Shelly Kovacs** devoted nearly 30 years to advising U-M Kinesiology students while working in the Office of Student Services, eventually becoming its director. Since departing Kinesiology, she’s been advising high school and college students and graduates through educational and life transitions through her educational consulting company, Kovacs Connections. She wrote a book, *College Knowledge for the Student Athlete*, (co-authored with David Schoem), and continues her public speaking and workshops with high schools, colleges, sport teams, and elite sport organizations.

### Lifetime Achievement 2016 Awardee

**Nancy “Eric” Erickson (PE ‘66)** became a pioneer for women’s athletics during the evolution of Title IX. Following a hall of fame career in baseball and softball, she joined the Toledo Troopers, a National Women’s Football

League (NWFL) team - the winningest team ever franchised by the NFL. Eric later became the recreation director for Arcadia, FL, where she started the state’s first integrated girls’ junior high softball team. Through her work, Eric has also been named as a charter member of the Florida Special Olympics Hall of Fame.

### Dean’s Medal Awardee

After graduating from the University of Tennessee medical school, **Dr. George Wade (PE ‘64)** did residencies in physical medicine and rehabilitation, as well as orthopedic surgery, at the University of Michigan. He eventually founded the Idaho Sports Medicine Institute and became team physician for Boise State University. George is an avid skier, rafter, and kayaker. ■

*View our Homecoming 2016 photo album on Flickr:*  
[flic.kr/s/aHskMqojC3](https://www.flickr.com/photos/aHskMqojC3/)



### STAY IN TOUCH

What have you been up to? Let us know at [bit.ly/kinesupdate](http://bit.ly/kinesupdate) and you could be featured in the next *Movement* magazine.

**Ryan Biddinger (MVS '11)** received his Doctor of Chiropractic degree and practices in Michigan.

**Paul Bragenzer (PE '83)** is now a senior safety consultant at Acrisure, an insurance brokerage, where he creates a proactive and leadership-driven safety consultation program for customers.

**Matt Campbell (SM '04)** was recently hired as chief executive officer for Select Specialty Hospital - Saginaw, a long-term acute care hospital that is part of a national network of more than 130 hospitals in 29 states. Matt transitioned from his role as director of specialty practices with the Covenant Medical Group.

**Niki Cianciola (SM '96)** is the director of Olympic sport services at the University of Cincinnati. Her job responsibilities include diversity and inclusion initiatives, professional sports counsel panel and sports agents, financial counseling, donation requests, and coach and student-athlete appearance requests. She is also co-chair of the Student-Athlete Advisory Committee. Niki earned her Master of Social Work degree in 2013, Master of Health Education degree in 2014, and Master of Education degree in 2017, all from the University of Cincinnati.

**Joshua D'Angelo (MVS '10)** recently co-founded a 501(c)3 non-profit organization, Move Together, whose mission is to increase access to quality rehab medicine around the corner and around the world. In May 2017, Move Together completed its first clinic development project in Villa Nueva,

Guatemala, where volunteers teamed up with local community members to build a sustainable rehab clinic from the ground up. Additionally, Move Together is preparing for its third annual PT Day of Service, which has gathered thousands of participants from 42 countries across the globe. Josh is currently serving as the volunteer chief operations officer and vice president of Move Together and is excited to continue bringing quality rehab medicine around the world while proudly representing the University of Michigan.

**Danielle Dillon (MVS '13)** is now the athletic event manager and coordinator of ticket sales at Texas State University. She manages all varsity sporting events and oversees ticket office sales on a group level.

**Patricia Donohue Ebach (PE '85, M.S. '86)** is now the recreation manager at Schoolcraft College in Livonia, Michigan.

**Suzanne Lavelle (SM '13)** is now a brand, marketing, and communications supervising associate at Ernst & Young. She manages day-to-day and emergency communications for the Americas and U.S. layers of the organization.

**Quentin Love (SM '02)** came aboard the Flint Area Reinvestment Office in 2016 as a consultant focused on identifying federal and state funding and facilitating ongoing communications with local organizations.

**Elizabeth Nota-Kirby (M.S. '87)** is the director medical management operations at Sunshine Health, a subsidiary of Centene Corporation, a leading multi-line healthcare enterprise. She manages operations for the case management, utilization management, and quality departments.

**Kari Pearce (MVS '11)** is featured in the documentary "Fittest on Earth," which follows CrossFit athletes as they compete to become the world's fittest athlete.

**Elisabeth Rayos (MVS '11)** is now a resident physician in physical medicine and rehabilitation at the University of Michigan.

**Andrew Stewart (MVS '12)** completed a master's degree in neuroscience and entered into the neuroscience Ph.D. program at Central Michigan University. He has developed CMU's first system for studying spinal cord injuries in animal models, and is studying/producing neuro-regenerative stem cell and gene therapeutic strategies for treating spinal cord injuries. Andrew's background from movement science has segued nicely into developing functional assays to evaluate motor and kinematic performances in animals recovering from spinal cord injuries, as well as provided for a great foundation into understanding how the nervous system produces motor behaviors in both normal and pathological conditions.

**Timothy Weaver (SM '07)** is now a team administrator at Real Salt Lake, a professional soccer franchise in Utah. He manages day-to-day player operations, team logistics, and player immigration.

### BICENTENNIAL TRIVIA

**How many total degrees has the School of Kinesiology conferred since it became an independent unit in 1984?**

Send your answer to Emily at [emathews@umich.edu](mailto:emathews@umich.edu) for a chance to win a Kines swag bag!\*

\*Current School of Kinesiology faculty and staff are ineligible to win.



# faculty & staff

## UPDATES

**Dr. Ketra Armstrong** was appointed as director for diversity, equity, and inclusion in summer 2017. She is also associate dean for graduate affairs, faculty athletics representative, and professor of sport management.

**Dr. Andrew Ludlow** joins us as assistant professor of movement science in fall 2017. He studies how humans change when they age and/or become diseased using a combination of cell biology, biochemistry, genetics, molecular biology, and physiology.

**Dr. Michael Vesia** joins us as assistant professor of movement science in fall 2017. He specializes in neuroscience.

**Dr. Wenche Wang** joins us as assistant professor of sport management in fall 2017. Her research interests include sport analytics, sports economics, applied microeconomics, and industrial organization.

**Sean DeWulf** joined us as business intelligence analyst in winter 2016.

**Joe Gagliardi** joined us as senior director of development in spring 2017.

**Lori Helvey** joined us as executive director of finance and planning in winter 2016.



*Office of Undergraduate Student Affairs staff.*

**Rebecca Krombeen** joined us as academic advisor in winter 2016.

**Beth Lee** joined us as assistant director of Kinesiology Community Programs (KCP) in summer 2017.

**Louis Perdue** was promoted to associate director of development in spring 2017.

**Terri Wohl** joined us as administrative assistant intermediate in fall 2016.

**Delina Zapata** joined us as diversity, equity, and inclusion coordinator in summer 2017.

## YOU'RE INVITED!

### JOIN US FOR THESE FUN FALL EVENTS

**Borer Lectureship with Dr. John Kirwan**  
Friday, October 13, from 3–6pm  
Chemistry Building, Room 1400  
Learn more and RSVP at [myumi.ch/Lzvbw](http://myumi.ch/Lzvbw)

**U-M Bicentennial Fall Festival**  
Friday, October 26–28  
Various times and locations across campus  
Learn more at [myumi.ch/aV17D](http://myumi.ch/aV17D)  
No RSVP needed

**Homecoming Student & Alumni Mixer**  
Friday, October 27, from 6–7:30pm  
Michigan Union Patio  
RSVP at [myumi.ch/6e0xM](http://myumi.ch/6e0xM)

**Office of Undergraduate Student Affairs**  
Parents' Weekend Open House  
Friday, November 3, from 2–4pm  
555 S. Forest, Ground Level  
No RSVP needed

**Chicago Game Watch (vs. Minnesota)**  
Saturday, November 4, time TBA  
Rockit Bar & Grill, River North:  
22 W. Hubbard St., Chicago, IL 60654  
RSVP at [myumi.ch/J9Pnx](http://myumi.ch/J9Pnx)

**New York City Game Watch (vs. Wisconsin)**  
Saturday, November 18, time TBA  
Barleycorn: 23 Park Pl., New York, NY 10007  
RSVP at [myumi.ch/Jd1Nn](http://myumi.ch/Jd1Nn)







# KINESIOLOGY STUDENTS GO GLOBAL

BY JEAN HUNT

Study abroad is a dream for many college students, and an opportunity that can have long-lasting, life-changing benefits. Taking courses overseas during spring and summer are preferred by some, because they are easier to fit into academic schedules. Our own student tours have the added bonus of being led by Kinesiology faculty.

The GoGlobal! Center for Global Opportunities in Kinesiology, staffed by global engagement coordinator and academic advisor Vanessa Barton, has been launching students on overseas journeys for over ten years. This summer's destinations included Australia, Wales, and Western Europe.

## Australia

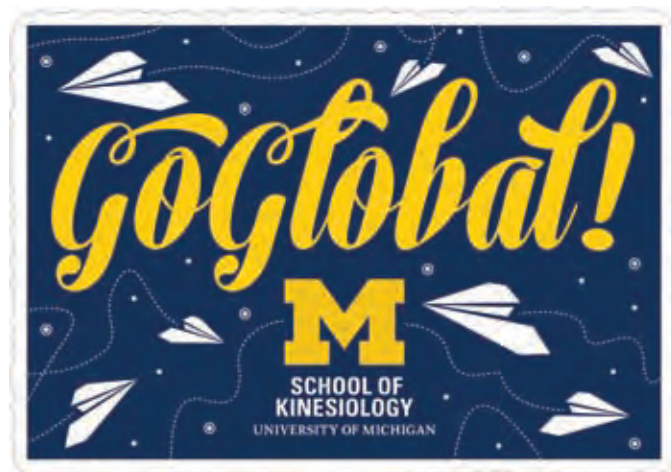
In May, twelve students flew “down under” to attend four weeks of classes at the University of Wollongong (UOW), an hour south of Sydney. Led by Movement Science associate professor Dr. Leah Robinson, they attended classes at the Early Start Research Institute, directed by Dr. Anthony Okely, who collaborates with Robinson on research.

While there, students observed motor skills and physical activity behaviors in Australian pediatric populations. Students worked in five local Wollongong childcare centers, assessing children's fundamental motor skill (FMS) performance, providing motor skill instruction, then re-assessing their subjects' motor performance to gauge progress.

## Wales

Kinesiology students, led by academic advisor Rebecca Krombeen, attended classes at the University of Wales Trinity Saint David, in Carmarthen, Wales. The university has one of the most popular Sport and Exercise Science curricula within the United Kingdom.

The theme for this course was, “Discovering Outdoor Lifestyles (Fitness, Health, and Leadership).” After attending classes in the morning, the students had opportunities to cycle, canoe, hike, climb, and plan team-building programs.



## Western Europe

Participants on this trip visited cities that have hosted the Olympic Games. It was led by Sport Management associate professors Dr. Judith Grant Long and Dr. Kathy Babiak, who each have an interest in the Olympics. For Long, it's from a financial and city planning perspective; for Babiak it's about strategic alliances and relationship marketing.

The itinerary included a visit to the International Olympic Committee (IOC) headquarters and museum in Lausanne, Switzerland. The group visited Olympic sites in Munich, Rome, and Barcelona, where they spoke with local experts.

Whenever students decide to pursue an overseas educational experience, planning ahead is essential. This means attending a study abroad info session in the fall, obtaining a passport that will be valid for at least six months beyond the return trip, and exploring funding opportunities. Merit- and need-based financial assistance is available through the School, as well as the U-M Office of Financial Aid. ■

*Opposite page, clockwise from top left: Dr. Leah Robinson (back row center) and students at the University of Wollongong, Australia; Sightseeing in Zurich, Switzerland; On a Welsh mountaintop; Spelunking in Wales; On the Princess Diana Memorial Walk; Student Abby Ruch visits the London Eye.*

# INPACT CLASSROOM ACTIVITY STUDY GETS STUDENTS MOVING

BY JEAN HUNT

Elementary teachers implement curricula designed to engage and inspire their students, as well as to prepare them to excel at standardized tests. But can they also get their students to move?

Physical activity has been proven to increase a student's attention span and concentration in the classroom, as well as fight obesity. But in recent years, schools have reduced—if not eliminated—physical education classes and other opportunities to be active. So young students have fewer options to get the exercise they need for optimal classroom learning, and to maintain a healthy weight.

Knowing this, Movement Science assistant professor Dr. Rebecca Hasson and her Childhood Disparities Research Laboratory (CDRL) are working with teachers to integrate healthy habits, including physical activity, into the classroom. Her study, “InPACT: Interrupting Prolonged sitting with ACTivity,” states its goal as “Incorporating purposeful movement into the classroom to prepare the brain for learning.”

In 2016, InPACT was launched after collaborating with the University of Michigan Taubman College of Architecture and Urban Planning (AUP) and School of Education Center for Education Design, Evaluation, and Research (CEDER), plus Project Healthy Schools (PHS), a community-Michigan Medicine collaborative.

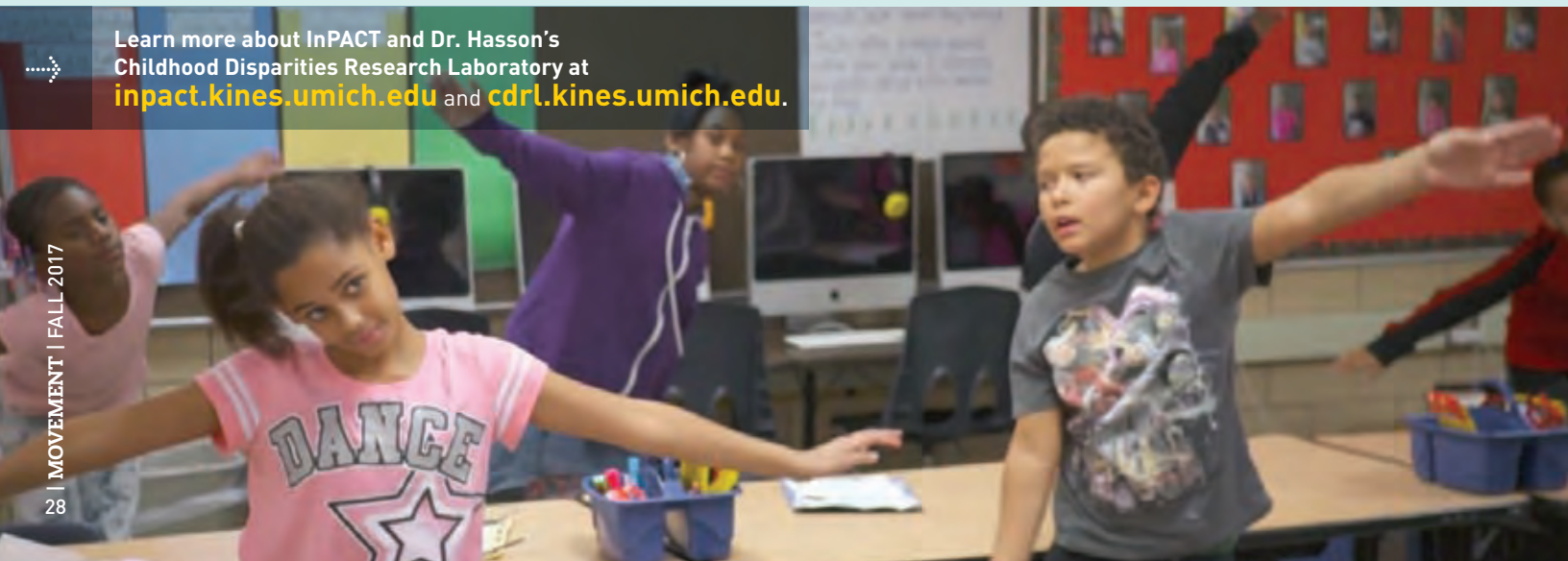


Each of these entities brought to the table their expertise in making room for, and integrating, exercise into the classroom.

Hasson partnered with PHS to educate teachers and school-age children on behaviors leading to healthy diet and exercise routines. The PHS team had read about Hasson's “Active Classroom” project in a 2015 Michigan News article, “Battling Obesity in the Classroom with Exercise.” Because PHS already had partnerships with 88 Michigan schools, they were able to provide a gateway to Hasson and her team.

InPACT provides teachers with resources to lead their classes in 10 three-minute activity breaks throughout the school day. The breaks follow children's natural physical activity patterns, to energize and motivate students to be active. This intervention is designed to answer specific questions, including:

Learn more about InPACT and Dr. Hasson's Childhood Disparities Research Laboratory at [inpact.kines.umich.edu](http://inpact.kines.umich.edu) and [cdrl.kines.umich.edu](http://cdrl.kines.umich.edu).







*Opposite page, top: Dr. Hasson (center) and her CDRL staff and students; Bottom: Elementary students take an InPACT break during class. This page: Hasson in the lab.*

1. What will the children's health outcome be? Will there be cognitive benefits?
2. How do children's activities affect food consumption, nutrition, obesity, and stress?
3. If academic scores improve, can that be truly attributed to healthier kids?

Hasson suggests that tiered interventions may be required to meet the needs of a variety of schools: rich, poor, rural, urban; high resource and low resource; and classrooms experiencing many disruptions, as well as those with few.

InPACT has had an impact on Hasson and her CDRL lab team, as well. Hasson says she personally benefitted from the multi-disciplinary collaboration to execute this study. And she was able to observe the issues that came up in a classroom environment. At year-end, Hasson said that 70% of the classrooms in the InPACT study were still using the activities.

Student members of CDRL benefitted from this research, too. Undergraduates Matthew Nagy and Molly O'Sullivan authored papers from the laboratory-based Active Classroom study. Master's student Lexie Beemer authored the main outcomes findings from InPACT, currently under review at the *Journal of School Health*.

Students also experience many other benefits from working in a lab, like an introduction to research processes, including etiquette for presenting findings; developing context for collecting data; practicing attention to detail and conceptual thinking; and leadership opportunities. Perhaps most importantly, they learn if they have the passion for research—and hopefully they will feel part of something bigger than themselves, Hasson says.

Hasson and her lab are currently preparing for InPACT 2.0, to be implemented in winter 2018. She is seeking funding from the National Institutes of Health (NIH) and other entities. Hasson will also present her InPACT observations at the upcoming Health & Fitness Workshop on Friday, December 1, on the U-M campus. ■

## WONDER WOMEN MWESE

Michigan Women Empowerment  
in Sport & Entertainment

BY LINDSEY LAFOREST (SM '19)

At the University of Michigan, Michigan Women Empowerment in Sport & Entertainment (MWESE) was established to provide an enriching environment in which women interested in sports and entertainment careers could expand and cultivate their social and professional networks. As a club, our mission is to assist in the development of women leaders in the sports and entertainment industries. Our group presents women of all majors with opportunities to be heard and respected as well as find mentorship. This past year, our club has created a mentorship program that pairs each MWESE member with two professional women in the sports and entertainment industries. This program provides our members with their own personal mentors and role models from which they can ask advice and develop working relationships. Dr. Kathryn Heinze, assistant professor of sport management, serves as our faculty adviser.

This past year, MWESE hosted speaking events with the Michigan Athletic Department, Olympia Entertainment, the Detroit Red Wings, FOX Sports Detroit, and more, as well as a How-To Series on skills necessary for professional development. In the coming year, we hope to increase our membership as well as provide innovative opportunities for our members on campus. Similarly, MWESE will be partnering with Women in Sports and Events as they strive to create a chapter in Detroit.

Alumni can learn more about MWESE by reaching out to Co-Founder and President Lindsey LaForest at [linlafor@umich.edu](mailto:linlafor@umich.edu). ■

*An M-WESE meeting.*





# RESEARCH IN MOTION

## U-M Launches Exercise & Sport Science Initiative

BY ALEX PIAZZA



*Above center: Dr. Cristine Agresta in the Michigan Performance Research Laboratory.*

Ako Thomas felt a sharp pain shoot through his hand as he swung at an outside pitch. The University of Michigan infielder ignored the discomfort and advanced to first base. But Thomas' hand soon began to swell, so he left the field. A CT Scan later revealed a broken bone in his hand, and Thomas had surgery a couple days later. His season was in jeopardy.

Enter Dr. Ellen Arruda. The Maria Comninou Collegiate Professor of Mechanical Engineering, who is developing a football helmet to better protect athletes from concussion, created a specialized batting glove for Thomas so that he could return to play without serious pain.

Arruda and her U-M colleagues fashioned composite padding in the shape of a donut, which they sewed into Thomas' batting glove. The glove helped reduce force and dissipate energy when Thomas' bat made contact with a baseball. And the unique shape provided padding around Thomas' surgery scar, without covering the incision, in order to reduce any discomfort.

Thomas' specialized glove is partly the result of a new U-M initiative that brings researchers, Michigan Athletics

and industry partners together to optimize physical performance and health. Launched in 2016, the U-M Exercise & Sport Science Initiative (ESSI) draws on expertise from across campus to interface, prioritize and conduct sport and exercise-related research and innovation.

"Science and technology are creating a host of new opportunities that have potential to transform the world of exercise and sport," said Arruda, who co-directs ESSI with Dr. Ron Zernicke, professor of kinesiology and director of the Michigan Performance Research Laboratory (MiPR). Below are examples of new research projects funded by ESSI.

### Time to perform

A student-athlete stays up late to study for a biology exam. The next day at practice, she is a step slower and her reaction time is delayed. This scenario is nothing new in the world of sports, as researchers have known for years that sleep influences athletic performance.

Led by Dr. Cathy Goldstein and Dr. Olivia Walch, U-M researchers are developing software that would assess both sleep and circadian rhythms to

help athletes achieve peak physical performance. "Many systems seek to develop wearables and analysis platforms to enhance athletic performance by improving sleep, but they ignore the circadian clock and the important effect light has on the body," said Goldstein, assistant professor of neurology and a primary investigator on the project.

The central circadian rhythm is an important factor here because, as the body's internal clock, it controls our sleep-wake cycle. Previous research indicates that not only sleep duration, but also the overlap between the time of competition and the biological schedule of athletes can modify outcomes.

Here is how the project would work:

- Healthy volunteers will wear Apple watches to collect movement and heart rate data. Through the mobile app, participants will enter light exposure and take a test to measure alertness and vigilance.
- Mathematical algorithms in the app will estimate sleep and the timing of the circadian rhythm based on movement, heart rate and light-dark information.



- After two weeks, participants will visit the U-M Sleep and Chronophysiology Lab to receive what's considered the gold standard assessment of sleep and circadian rhythm.
- Researchers will compare the app's mathematical prediction against the gold standard to ensure accuracy.
- Using the final algorithms, researchers will pilot the mobile and software platform in U-M athletes to track their sleep and circadian rhythm, and then correlate this to performance metrics.
- By assessing sleep and circadian contributions to physical performance with mathematical algorithms, the mobile app could estimate the time of peak physical performance and also recommend modifications to sleep duration and the timing of light-dark exposure.

"Athletes everywhere are looking for a competitive advantage, and this software could help them align their circadian rhythm appropriately with the time of competition to achieve peak performance," said Walch, research fellow in neurology. This research could extend well beyond athletics to benefit industries like trucking, where drivers often have fluctuating sleep schedules.

## Risk of running

A runner is sidelined for six weeks after she suffers a stress fracture during an intense training session. This storyline is all too common—especially among collegiate runners. Just ask Dr. Cristine Agresta, assistant research scientist at the School of Kinesiology and co-director, with Zernicke, of MiPR.

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**"Science and technology are creating a host of new opportunities that have potential to transform the world of exercise and sport."** —ELLEN ARRUDA

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"I think you'd be hard-pressed to find a collegiate athlete who's never been injured," said Agresta, who conducts running assessments for people of all ages and abilities at MiPR. "Injuries are an issue for all runners, no matter their caliber or skill level. But for collegiate runners, the biggest issue is severity. These are young adults, so these injuries could impact them over the course of their entire life."

The simple question then remains: how can we predict individual risk, and furthermore, how can coaches and athletes promote injury resilience?

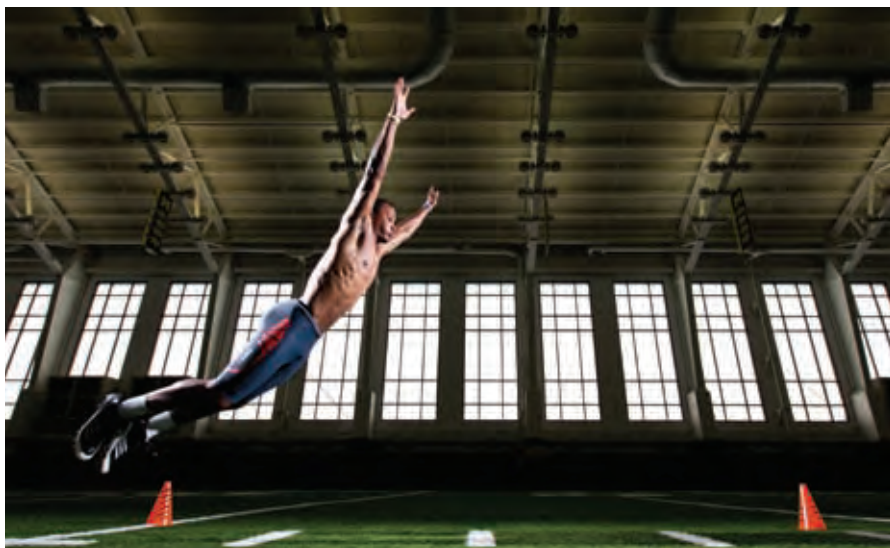
A team of U-M researchers plans to answer those questions by analyzing datasets that shed light on everything from a runner's biomechanics and medical history to their nutrition regimen and sleep schedule.

Agresta will partner with the U-M Biosocial Methods Collaborative and Michigan Athletics to develop a multi-level, systems-based model for studying running-related injury complexity in collegiate runners. The proposed framework will facilitate the development of analytical models that can predict individual risk, as well as identify unique determinants that can and should be corrected to promote resilience.

"The general thread that we're after here is to get a better understanding of how this complex system of biology, psychology and nutrition all fit together," said U-M professor Dr. Richard Gonzalez, the principal investigator on the project. "We're extending the way in which we look at injuries by studying the whole system of the runner, in the context of their entire life."

This is in stark contrast to how injuries are assessed, where trainers and physicians are often more inclined to isolate each potential predictor. U-M researchers instead plan to develop new ways to analyze datasets that are consistent with a systems-based approach.

"We want to understand these complex relationships in a practical, meaningful and usable way, and on top of that, we want to form interventions around our findings," said Agresta, who along with Gonzalez, eventually hopes to expand the target population to include new mothers and adults with heart disease. "There's no better time than now to do this type of research because everyone has tons of data about themselves, but they don't know what to do with it." ■



# GAME ON

## New Technology and Teaching Techniques

BY JENN MCKEE

Dr. Peter Bodary, clinical assistant professor of health and fitness and movement science, is all about pushing the boundaries, both in terms of his teaching methods and the technology his students get to test in the classroom.

In Bodary's wearable technology course—part of a series of experimental, “flipped” 400-level courses, first proposed by Dr. Melissa Gross, wherein class time is mostly dedicated to interactive, hands-on work—students have tested items like a hydration monitor that hadn't yet been released into the commercial marketplace; a tissue oxygen sensor; Microsoft's HoloLens, a “mixed reality,” self-contained, holographic computer you wear on your head; and a souped-up heart rate monitor.

“Students do mini-experiments in class with the technology and they'll present the data they've collected to the class,” said Bodary. “This allows students the chance to get research experience even when they're not in a dedicated research lab.”

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**“This allows students the chance to get research experience even when they're not in a dedicated research lab.”**

—PETER BODARY

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The 20-person class mostly draws movement science seniors and grad students, and they work in groups. “It's a fun course to teach because it's much more about critical thinking, and not so much about spitting information back at me,” said Bodary.

Part of that critical thinking involves thinking about how a wearable tech item might be used in the field; posing a question that can be tested through experimentation; and then not just gathering the data, but thinking about the optimal way to communicate those results.

Meanwhile, a very different 200-level class Bodary teaches, called “Exercise, Nutrition and Weight Loss,” casts a much broader net in terms of the students it attracts.

Packed with undergraduates from LS&A, business, engineering, kinesiology, and other departments, the class is capped at a whopping 250; there are no prerequisites; and



*Dr. Peter Bodary (right) demonstrates Microsoft's HoloLens*

Bodary has no graduate student instructors to help with grading. All these factors led to Bodary deciding, two years ago, to start trying to use “gamified” teaching techniques.

What exactly does that mean? Essentially, it's the academic version of “Choose Your Own Adventure.” Bodary adapted a pedagogy created by U-M learning technologies professor Dr. Barry Fishman, called GradeCraft, which provides students with various point-earning options. This allows them to learn about and explore the course's material in a way that's appropriate for their individual academic background and interests.

In other words, students are responsible for charting their own “path to success,” and they can easily track their progress throughout the semester. Bodary weights easier tasks, like watching and responding to a documentary like “King Corn,” with smaller point totals, so that students choosing that kind of path must complete quantitatively more assignments, while advanced students who are willing and able to do a more time-consuming deep dive into academic journals can perform a lit review and earn a bigger chunk of points in one fell swoop.

“Chemistry majors probably already have the science down, so that part might be too simple for them, but for someone studying sociology or theater, throwing some light chemistry in might make them feel like, ‘What's all this chemistry doing in here?’” said Bodary. “I've found it's a difficult task to teach the class in a traditional way without making it too easy for some students and overwhelming others. Gamified teaching suggests to students that there are many ways for them to learn the material.” ■



# PEAK PERFORMANCE

Lexi Mossman, Class of 2015

BY JENN MCKEE

According to MountainFit founder Lexi Mossman (AT '15), “‘Vail normal’ is not the same as the ‘regular normal’ for other people around the country. Other people might have one exercise class they go to in a day. Here, someone might do a yoga class, go mountain biking, and do some paddle boarding on the same day.”

But with all this physical activity—which, depending on the season, could be skiing, snowboarding, snowshoeing, rock climbing, triathlon training, cycling, and more—the potential for injuries rises. And that’s where Mossman comes in.

MountainFit—a mobile athletic training business that provides injury evaluation, prevention, recovery, and treatment to both locals and vacationers—helps clients make the most of their time on the mountain.

“I’ve always been interested in learning how to train the body,” said Mossman.



“Not for personal training—more how athletes can perform at their best, and if they’re injured, how they can come back from that and make the body move better, and how they can retrain it.”

Mossman officially launched her business in January 2016, and her first client hired her because she’s a Michigan grad. “I was in a lift line waiting to go up the mountain, and I saw a gentleman wearing Michigan gear,” said Mossman. “So I gave the traditional ‘Go Blue!’ shout, and then we started talking.”

The man and his wife were on vacation, and they were so excited about Mossman’s business idea that they scheduled a MountainFit session for that same afternoon. “They were pleased to see a young Michigan grad putting her degree to use,” said Mossman.

MountainFit is built on both convenience—which is to say, Mossman makes house calls to her clients—and a widespread need that was not being filled. Visitors and locals engaging in physical activity would sustain a minor injury, but not be able to gauge the best response.

“That’s a problem, and it’s why I started my business,” said Mossman, who grew up in Nashville, but spent numerous childhood vacations in Beaver Creek, Colorado. “When I was studying athletic training at Michigan, my parents had already moved to Vail, and when I was a freshman, their friends started calling me saying things like, ‘I hurt myself. Do you think this is serious enough to see a doctor?’



Lexi Mossman

No one was really treating the vacationers that come here every day and go from being not active at all to super-active. No one would come to their hotel room and say, ‘You can keep hiking or biking’ or ‘No, you need to see a doctor.’ These are people who may have already paid for rentals or lift tickets, so they just want to know if going back out there is OK.”

To help MountainFit get a foothold, Mossman joined local business groups and came up with some unconventional marketing ideas, like distributing MountainFit lip balm in the lift lines, partnering with hotels to offer recovery rooms for guests, and hosting “Prevention and Porter” discussions at a local brewery. She was a finalist for Vail’s Young Professional of the Year in 2016, but Mossman feels she’s still learning the ropes when it comes to running a business.

“It’s been a really exciting challenge,” said Mossman. “Because of the super-high expectations involved in treating athletes at Michigan, the norm for me has been to challenge and push myself.” ■

# PAYING IT FORWARD

## ALUMNI OPPORTUNITIES AT THE CAREER CENTER

BY AMY FREDELL

### Want to make a difference in a student's life?

The Kinesiology Career Development Center provides opportunities for alumni of all ages and career levels to engage with students. You'll get to meet qualified, passionate students who are the future leaders and best in physical activity, health and wellness, and sport management.

### Hire a Kines student

We're calling on you to let us know when your company is looking for talent. Post a job, internship, or shadowing experience on KINNECTIONS ([bit.ly/KINNECTIONS](http://bit.ly/KINNECTIONS)), our student job board. Get students excited about your opportunity by hosting an employer information session, attending a career fair, or scheduling on-campus interviews.

### Assist current students

Guidance from skilled experts is a crucial element for professional and career development. Volunteer your time to present a professional development workshop, share your story as an alumni guest speaker, or connect with students who share your interests. Our alumni are valued resources for students!



### Contact

Ready to engage with students? Contact Amy Fredell, Career Services Coordinator, at [afredell@umich.edu](mailto:afredell@umich.edu) to get started.

Learn more about the Kinesiology Career Development Center at [kines.umich.edu/careers](http://kines.umich.edu/careers).

*Above: Attendees at the fall alumni/student mixer. Below: Amy Fredell (center) checks in students at the mixer.*





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