

HUFFINES INSTITUTE  
FOR SPORTS MEDICINE  
& HUMAN PERFORMANCE

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2022/2023 ANNUAL REPORT



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# MESSAGE FROM THE DIRECTOR



I would like to start by thanking Dr. J. Timothy Lightfoot. Dr. Lightfoot served as Director of the Sydney and J.L. Huffines Institute for Sports Medicine and Human Performance for 12 years, beginning in 2010, and as Executive Director in 2022. Dr. Lightfoot's leadership has been instrumental in developing and advancing the mission of the Huffines Institute over the last decade. From all of us here at the Huffines Institute, we want to extend our most sincere gratitude for his mentorship and guidance, and we know this year's successes would not have been possible without him.

To say that the past year has been exciting would be an understatement. We continue to uphold the three tenets of the Huffines Institute's mission: to facilitate research, application, and communication as it relates to sports medicine and human performance. With this, we have established new collaborations with the Texas A&M Engineering Extension Service Fire Training Academy, hosted guests from the United States Olympic & Paralympic Committee and United States Para Cycling, and rebranded our podcast with a new name: "We Do the Heavy Lifting."

In addition, the Huffines Institute partnered with Texas A&M Athletics to establish a new seminar series. As the inaugural speakers for this event, we were overjoyed to welcome Dr. J. Bryan Mann - University of Miami, Dr. Gregory Haff - Edith Cowan University, and Dr. Courtney Benjamin - Samford University.

To clarify, this new seminar series is not to be confused with the annual Hilliard Discussion, which featured guest speakers, Professors Louise Burke and Peter Brukner, who spoke on keto diets. Details for all of these events and speakers can be found in the subsequent pages. We want to thank all of our collaborators and invited guests for their amazing work, and we look forward to continued work with you all in the future!

In last year's annual report, Dr. Lightfoot described the theme of Huffines Institute as 'transition.' As part of this transition, we are eager to begin the search for the next Director of the Huffines Institute. This individual will continue our trajectory of growth and success, and we look forward to welcoming this new individual to the Huffines Institute family and embracing a new chapter of Huffines.

This report outlines how the Huffines Institute is currently transitioning, progressing, and expanding. On behalf of everyone here at the Institute, we thank you for your continued support.

## **JENNA YENTES, PHD**

Acting Director, Sydney and J.L. Huffines Institute for Sports Medicine & Human Performance

Associate Professor, Department of Kinesiology & Sport Management

# STAFF



**DR. JENNA YENTES**  
Acting Director



**DR. J. TIM LIGHTFOOT**  
Executive Director



**DR. STEVE MARTIN**  
Associate Director of Testing



**BRETT HENRY**  
Testing Center Coordinator



**MACI COLES**  
Lead Administrative Assistant



**LAURYN HAWKINS**  
Testing Center Assistant



**ANISHA PATEL**  
Producer, We do the Heavy Lifting



**NAVIKA KUMAR**  
Producer, Huffines Human Performance Minute



**ANI SREERAM**  
Administrative Assistant



**WILLING DEMOTT**  
Administrative Assistant

# ADVISORY BOARD MEMBERS



**JIM FLUCKEY, PHD**

Chair of the Advisory Board  
-Professor, Department of Kinesiology  
and Sport Management



**LAURA E. MARSH, MD**

Clinical Assistant Professor, Texas A&M  
Primary Care and Rural Medicine &  
Head Team Physician,  
Texas A&M Athletics



**JUSTIN MOORE, MS**

Executive Deputy Athletics Director/  
Chief Operating Officer,  
Texas A&M Athletics



**MARLENE DIXON, PHD**

Professor & Department Head,  
Department of Kinesiology and  
Sport Management



**DAN JACOBI, ATC**

Senior Associate Athletics Director,  
Sports Medicine, Texas A&M Athletics



**HOWARD GRAY**

Associate Athletic Director for  
Performance, Texas A&M Athletics



**JOHN LAWLER, PHD**

Professor, Department of Kinesiology  
and Sport Management



**MARIANA JANINI-GOMES, PHD**

Assistant Professor, Department of  
Kinesiology and Sport Management



**MICHAEL THORNTON, Ed.D**

Clinical Assistant Professor and  
Director of the Thornton-Mcferrin  
Coaching Academy



**AMY HURLEY**

Director of Development,  
Texas A&M Foundation

# FACILITATING RESEARCH

*In 2022, the Huffines Institute  
renamed our Faculty Research  
Seed Grants in honor of  
Dr. JP Bramhall.*

Dr. Bramhall was involved in the founding of the Institute for Sports Medicine & Human Performance in 1999, and served in many capacities, including a 22-year term on the Institute's Advisory Board.

Dr. Bramhall provided medical support and oversight for many research projects and efforts within Huffines and the Department of Kinesiology and Sports Management.

The Dr. JP Bramhall Faculty Research Seed Grants provide financial support to Huffines' Affiliate Faculty members for research that contributes to data leading to proposals for extramural funding. These competitive grants are peer reviewed and up to two grants are funded each year.

Drs. Janini Gomes, Bramhall, Lawler, and Lightfoot at a reception honoring Dr. Bramhall for all he has done for Huffines.



Dr. Lightfoot gifted Dr. Bramhall a plaque that is proudly displayed in Huffines detailing his work with the Institute.

## 2022-2023 JP Bramhall Grant Recipients

*Principal Investigator:*

**Mariana Janini Gomes, PhD**

Assistant Professor,  
Department of Kinesiology  
& Sport Management



*Grant Title:*

**Interplay between inflammation and oxidative stress in the pathogenesis of skeletal muscle atrophy**

This study is focused on understanding the relationship between the immune system and our muscles. Specifically, we are looking at whether too much activity in a certain part of the immune system can cause damage to muscle cells. This may help us understand why patients lose muscle when suffering from many common conditions, including aging, cancers, heart disease, and more.



Dr. Janini Gomes at the bench.

*Principal Investigator:*

**John Lawler, PhD**

Professor,  
Department of Kinesiology  
& Sport Management



*Grant Title:*

**Novel Therapeutics to Mitigate Nox2 Assembly and Pathology in Duchenne Muscular Dystrophy**

Duchenne muscular dystrophy (DMD) is a progressive, deadly genetic disease that begins in childhood and weakens skeletal muscles and the heart. We initially identified a specific protein, called NOX2, as a major source of oxidative stress that contributes to DMD pathology. Our laboratory then investigated the role of a protein that causes osteoporosis with aging and bone loss with spaceflight, called RANKL, in mice with DMD. The current project demonstrated a circular relationship between the two proteins that amplifies damage, inflammation, and pathology in skeletal muscles with DMD. Our new discoveries will lead to new and more effective therapeutics to treat DMD, spaceflight, and aging to relieve skeletal muscle wasting and weakness.

## Huffines Student Research Grant Recipients



**Jacob Kendra: *Quantification of Mitochondrial Morphology in Whole Muscle to Inform Function***

“We collected three-dimensional images of mitochondria, the powerhouse of a muscle cell that helps make energy for movement, in both those with muscular dystrophy and those without. We plan to begin data analysis soon that will focus on measuring the function of the mitochondria.”



**Selina Uranga: *Characterizing mTOR-dependent anabolic pathways in diabetic myotubes***

“Insulin is a hormone that not only helps regulate blood sugar, but it also increases the rate at which healthy muscle cells make proteins. However, when muscle cells from people with type II diabetes are grown in low levels of sugar, the muscle cells do not make proteins as effectively as muscle cells from people without type II diabetes. Interestingly, certain markers related to muscle growth still increase in diabetic muscle cells when insulin is added. Further research is needed to determine how different sugar levels affect these responses.”



**Hakjoo Kim: *Enhancement of Plasticity with Physical, Observational, and Motor Imagery Learning***

“My study examined the connection between the two different motor areas of the brain using a technique where we stimulate targeted areas of the brain with a magnetic coil. When we stimulated both areas of the brain, we got a larger response, compared to when we stimulated one motor area only.”



**Patrick Ryan: *Exercise is chemotherapy: Exosomes as mediators of the anti-cancer benefit of exercise***

“Regular physical activity has long been shown to provide protection against cancer development and death, but the ways by which exercise produces these benefits is unclear. The work explored the effect of exosomes, small packets of signaling molecules released during muscle contraction, on cancer metabolism and pathology.”



**Nathan Keller: *Linking Cardiovascular and Neuromotor Responses to Orthostatic Challenge***

“If you’ve ever gotten out of bed too fast and the room spun, or gotten off of a rollercoaster and been a bit shaky on your legs, you’ve experienced an orthostatic challenge. Now imagine doing those things while piloting a high-performance vehicle like an airplane or spacecraft! This study looks at the effects of an orthostatic challenge on your ability to coordinate forces with your arms.”



**Seongmi Song: *Building holistic knowledge of human brain and muscle dynamics during hypo-gravity aqua walking***

“The study’s objective was to understand how the brain and muscles work together during walking in water. We used new methods to measure this connection between the brain and muscles. This work has the potential to provide valuable information for designing a personalized rehabilitation program.”





**John Hayes: Investigating the Impacts of Mental Fatigue on Sensorimotor Functions under Vestibular Impairment**

“We are trying to understand how mental fatigue interacts with challenges to the vestibular system, the system in our middle ear that helps us control our balance, and the impact it has on our sensory systems and movement. This work is important for a range of groups including concussion patients, high-impact sports athletes, astronauts, and sailors. We expect that vestibular challenges and mental fatigue together will have a greater impact on one’s ability to perform than either one alone.”



**Yo Pu Cheng: Human brain processes during visually guided walking in virtual reality**

“My study aims to understand how the human brain handles vision and body movements at the same time. I have collected brain signals, vision, and walking from subjects walking on a treadmill in a virtual reality environment. Soon, I will finish the data collection and move on to data analysis.”

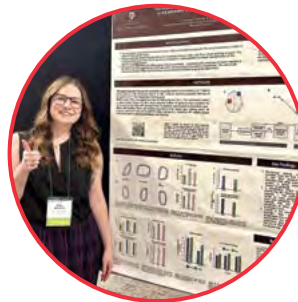
**Student Travel Awardees**

The Huffines Student Travel Grants support student travel to present their research at international and national conferences.

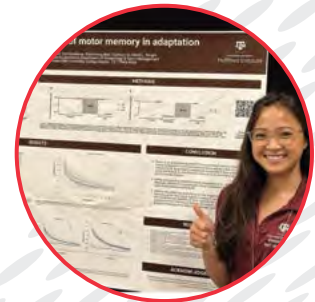
*This year, students traveled to Canada, France, and within the United States.*



**HAKJOO KIM**  
Neural Control of Movement  
Annual Meeting  
Victoria, BC, Canada



**ERYN ARMSTRONG**  
Neural Control of Movement  
Annual Meeting  
Victoria, BC, Canada



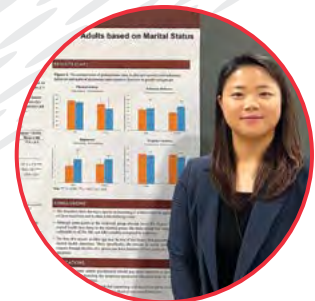
**LINA HUYNH**  
Neural Control of Movement  
Annual Meeting  
Victoria, BC, Canada



**MADISON WEINRICH**  
European College of Sport Science  
Paris, France



**JASAMINE HILL**  
North American Society of  
Sport Management  
Montreal, Quebec, Canada



**JEONGHUI PARK**  
American College of Sports  
Medicine Meeting  
Denver, Colorado

## STUDENT SPOTLIGHT: Drew Gonzales

Drew is a PhD Candidate in the Kinesiology & Sport Management program here at Texas A&M University, under the direction of Dr. Rick Kreider. His particular research interest is in tactical athletics & sport nutrition. Individuals that are considered tactical athletes include, but are not limited to first responders and military service members. Drew began working with tactical athletes during his Master's degree at Texas State with Dr. Matt McAllister.

In his own words, "After a short conversation with Dr. McAllister on the application of time restricted feeding (intermittent fasting) for the firefighter community, I was hooked. It is well established that firefighters have one of the highest (if not the highest) occupational risk for cardiovascular disease, and through nutritional interventions and lifestyle modifications, we could make a meaningful impact."



**DREW GONZALEZ**  
MS, SCCC, CISSN,  
CSCS,\*D, TSAC-F,\*D, EP-C

Recently, Drew started the Tactical Athlete Research Unit (TARU), which is a student organization devoted to initiatives focused on tactical personnel. During the Fall of 2022, TARU completed its first data collection on the physiological responses to live fire training evolutions at the TEEEX fire field.

Most importantly, this project catapulted the student-focused initiative to involve students in tactical research - many of the undergraduate TARU student members made significant contributions to the success of this research project.

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*From starting a new line of research to starting a new student organization, Drew's leadership has had a profound impact on Huffines, Texas A&M University, and our community.*

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*"I felt that our research was a way to contribute to protecting those who protect us. In addition, this line of research hits home for me as two of my cousins are in the fire service."*

Drew approached Dr. Martin, Director of the Huffines Testing Center, about including the assessment of various stress markers in the battery of clinical testing Dr. Martin was conducting with firefighters. Drew was able to lead these efforts annually for the past three years to build out a longitudinal study tracking important markers of cardiovascular disease risk. To date, Drew's research efforts with these annual biomarker collections has led to two publications.

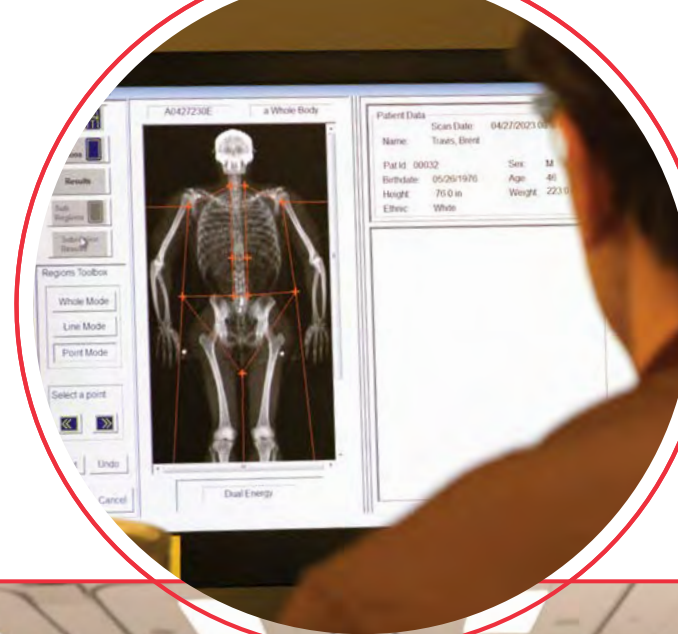
Drew and members of TARU along with Huffines own, Mr. Brett Henry, out on the collection site.



# FACILITATING APPLICATION

Continuing an effort started in 1984, the Huffines Institute continues to provide tests to verify the physical and cardiovascular readiness of first responders performing their physically demanding duties.

Dr. Martin, along with Kinesiology and Sport Management students within the Applied Exercise Physiology track, are involved in providing cardiovascular screening along with health and fitness testing for local fire and police agencies such as: College Station Police and Fire Departments, Bryan Police and Fire Departments, Texas Task Force One, and Brazos County Pct. 3 Volunteer Fire Department.

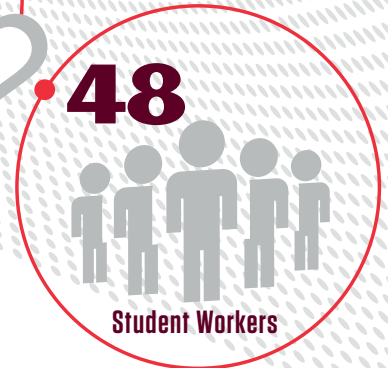
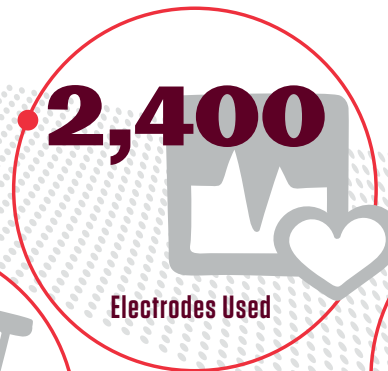


*Not only does the program benefit local first responders, but it also gives our students the opportunity to perform the skills they've learned in the classroom on live personnel.*



Local firefighter testing has been ongoing since 1984!

## The Year in Testing: TOTALS



\*Cardiovascular Health Profile

## Sports Science Testing

One of Huffines' closest partners is Texas A&M Athletics, Performance and Wellness. The data collected on our student-athletes assist in making decisions from the weight room, to the nutrition center, and out on the field of play (and everywhere in between).

The most widely performed test is the countermovement jump. This jump test is done preseason and at regular intervals throughout the year. Using specialized scales, called force platforms, we are able to determine an athlete's jump height, power output, and differences in force produced through their left vs. right legs. This information is important for certain athletes and sports to chart how their training, performance, and/or rehabilitation is changing; whether that is an improvement or a degradation. Detecting a decrease in performance is just as important as noting improvements as this can be an early indication of injury or other issue. Using the data during rehabilitation from surgery or injury has been particularly useful. Performance & Wellness staff can compare post surgery/

injury performance to the student-athletes' performance prior to injury. This allows the staff to identify benchmarks specific to the student-athlete that need to be achieved and allow for more detailed strategies in their return to play plan.

Several of the Athletics staff serve on our Steering Group. The purpose of this group is to evaluate testing that Huffines provides and to anticipate new, cutting edge testing protocols that can be implemented. This new Group will meet on a regular basis throughout the year to discuss testing needs of our stakeholders, how we meet those needs, and what we need to anticipate. Together, with Athletics, we strive to always provide first-class facilities, equipment, and support for all of our athletes.



Counter movement jumps are now included in most testing batteries at Huffines.

## Testing Center Steering Group



**DR. STEVE MARTIN**

Associate Director of Testing, Huffines Institute  
Clinical Associate Professor, Department of  
Kinesiology & Sport Management



**DR. SHERI WALTERS**

Assistant Athletics Director,  
Director of Physical Therapy &  
Olympic Sports Athletic Training



**SCOTT BATTLE**

Director of Sports Science Service



**MADISON TREECE**

Sports Science Fellow



**BO SANDOVAL**

Assistant Athletics Director, Strength  
& Conditioning (Golf, Men's Tennis)



**BRYAN SNYDER**

Assistant Athletic Director  
for Performance Nutrition

## STUDENT SPOTLIGHT: Brenna Howell

Brenna Howell comes from a long legacy of Aggies that goes back three generations on both sides of her family. Growing up, all she wanted was to be an Aggie! While finishing her undergraduate degree at Texas A&M University, in the midst of COVID-19 in 2020, Brenna remembers taking what she thought was her last final exam while sitting on her couch and thinking, “Now what? Maybe grad school?”



**BRENNA HOWELL, MS, BS**  
Clinical Exercise Physiologist,  
Baylor Scott & White  
Cardiac Rehabilitation

Graduate school was not something she had considered previously and did not feel prepared. Regardless, she seriously considered the option. After a bit of research, she applied and enrolled into the Clinical Exercise Physiology Master’s program here at Texas A&M.

*Through this program, Brenna learned about cardiac rehabilitation and felt a calling toward that career path.*

She completed her practicum course at Huffines, giving her vast experience in cardiac stress testing. She was able to hone her skills in taking blood pressures, viewing live EKGs, and working as a team. While she doesn’t conduct stress testing in her current role in outpatient cardiac rehab, learning those skills in a fast-paced environment prepared her for her current position.

Brenna’s number one advice to those trying to pick a career is to not feel rushed.

*“Looking back, I was exactly where I was supposed to be and everything fell into place when it was time.”*

“Your professors and TAs are amazing resources. Not only do they possess the knowledge and connections, but they are genuinely there to help.

Lastly, get experience and an internship if possible! Texas A&M provided me many opportunities to build up my resume that gave me a well-rounded background in healthcare and I truly believe that gave me a leg up when applying for a job.”

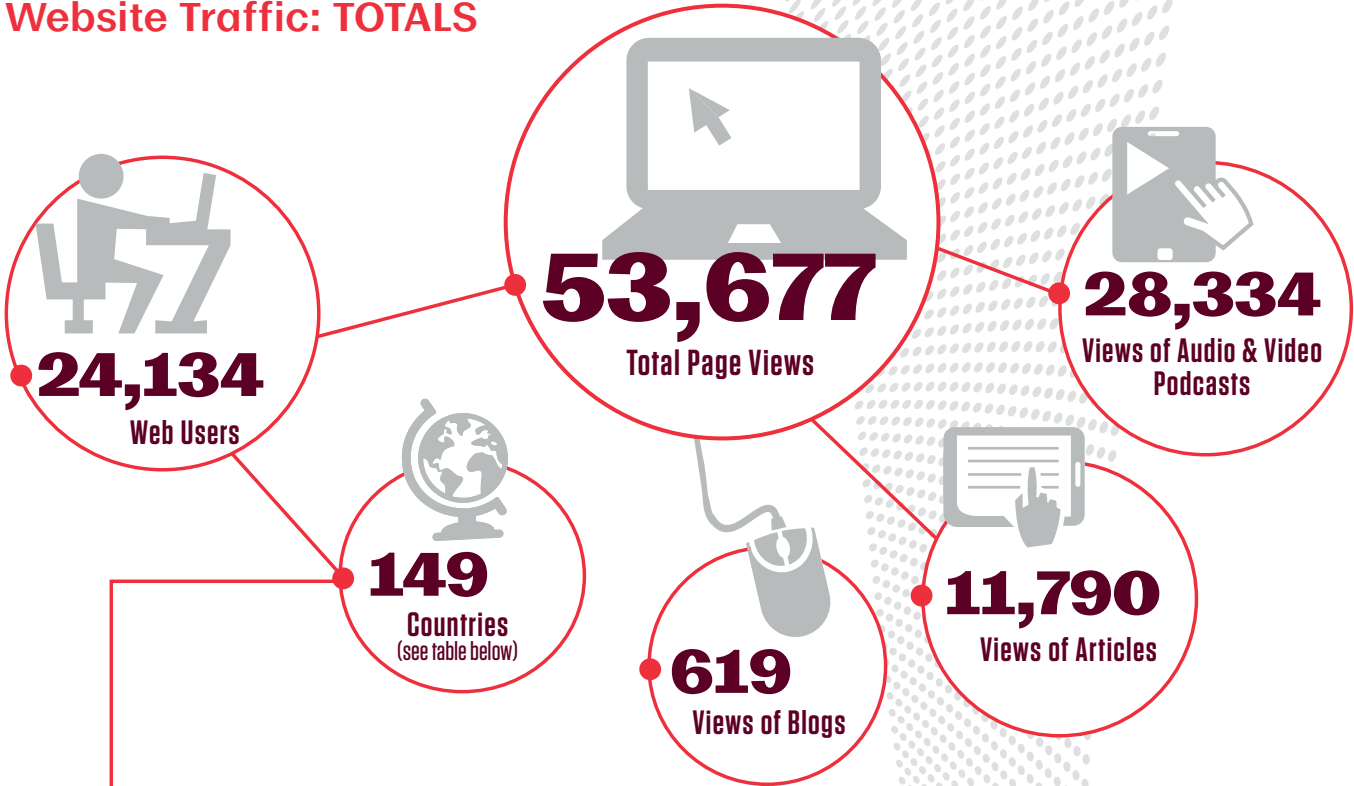
Brenna and her team at Baylor Scott & White.



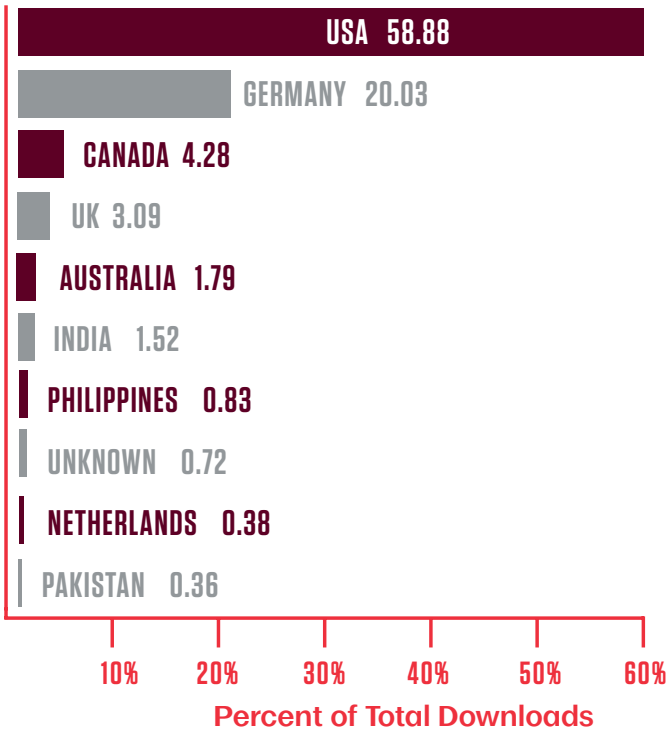
# FACILITATING OUTREACH

Our website, **HuffinesInstitute.org**, is our main source of outreach. Our website hosts articles, blogs, audio & video podcasts, and various other information about Huffines.

## Website Traffic: TOTALS



## Top Ten Download Locations



## Hilliard Discussion

The award-winning Hilliard Discussion is a free annual debate series that discusses the biggest topics in human performance and sports medicine.

*The Hilliard Discussion continues to facilitate outreach in the community by encouraging a dialogue between sport scientists, practitioners, and the public.*

The past year's discussion was held over Zoom on October 19, 2022 and debated the Keto diet,

which has been a controversial and prevalent topic for the past several years.

The diet was originally used as an alternative to treating epilepsy in young children and has been adapted into a weight loss method and human performance tool.

With hundreds of viewers, our debaters discussed whether or not the keto diet is the best diet for athletes. Professor Louise Burke from Australia Catholic University argued the "Pro" side of the question, while Professor Peter Brukner argued the "Con" side. Both parties battled it out with their own published studies and data for an interesting, informative hour-long presentation.



**Professor Louise Burke**

## KETO DIET PRO vs CON



**Professor Peter Brukner**

**“The Keto diet is NOT the best diet for athletes.”**

### PRE DEBATE POLL

**80%** Agree .....  
**8%** Disagree .....  
**12%** Undecided .....

### POST DEBATE POLL

**84%** Agree .....  
**0%** Disagree .....  
**16%** Undecided .....

*(313 Registrants)*

## PODCAST: *We Do the Heavy Lifting*

*We Do the Heavy Lifting* is Huffines' podcast. In January of 2023, the previous podcast, The Sports Medicine Podcast, was rebranded as *We Do the Heavy Lifting*.

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*The focus is relatable discussions about evolving human performance topics and is dedicated to engaging in dialogue about current sport and exercise research.*

Topics covered in the past year include antioxidants, finding peace in your surroundings, graduate school, the profession of coaching, Para athletics, and many more.

Since rebranding, our most popular episode to date was on breath regulation with Mr. Bo Sandoval, Assistant

Athletics Director for Strength & Conditioning (S&C). In this role, he oversees the development of the S&C Staff and provides tailored S&C services to varsity student-athletes. Prior to joining Texas A&M, Bo was the Director of S&C for the UFC Performance Institute in Las Vegas, Nevada.

Throughout his career, Bo has worked with NCAA champions, United States national champions, Paralympians, and Olympians in a wide range of sports and disciplines.

Additionally, he has delivered speeches and conducted training seminars worldwide, sharing his knowledge and experience in MMA, wrestling, judo, weight lifting, programming, and coaching operations across North America, Europe, Asia, and Australia.

Bo became interested in breath regulation because he was intrigued by the potential benefits it could offer.

Recognizing that breathing is a vital source of fuel for our energy systems, he wanted to explore how manipulating breath could optimize how we use oxygen and enhance performance.

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*Bo emphasized the significance of breathing through your nose rather than your mouth.*

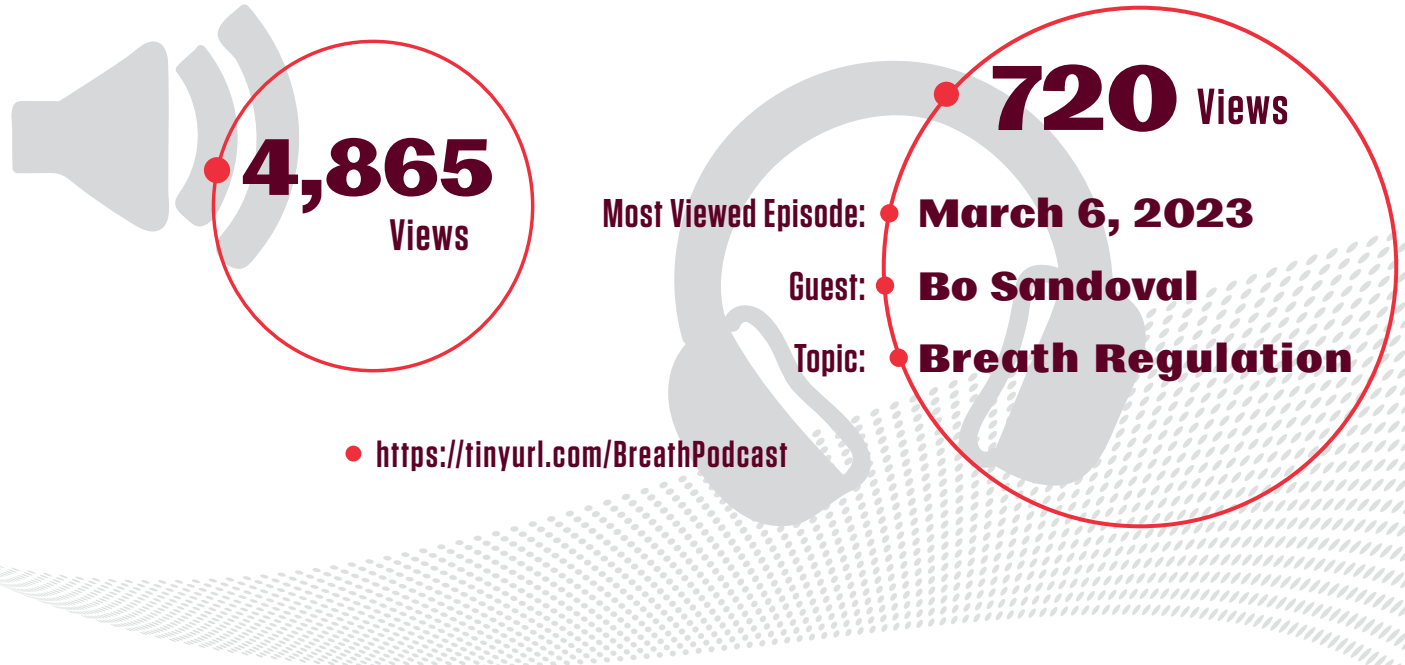
He stressed that proper breathing mechanics involve utilizing all parts of your lungs. Think about when you breathe in, can you make the top of your chest rise, or your back? He underlined the necessity of optimizing breathing as we can only go a few moments, maybe minutes, without it. It is more critical than food or water. By focusing on breath regulation, Bo aims to harness the power of breathing as a fuel source and improve elite performance.



Dr. Yentes and Mr. Sandoval on the set of *We Do the Heavy Lifting*.



## Podcast Numbers: TOTAL VIEWS

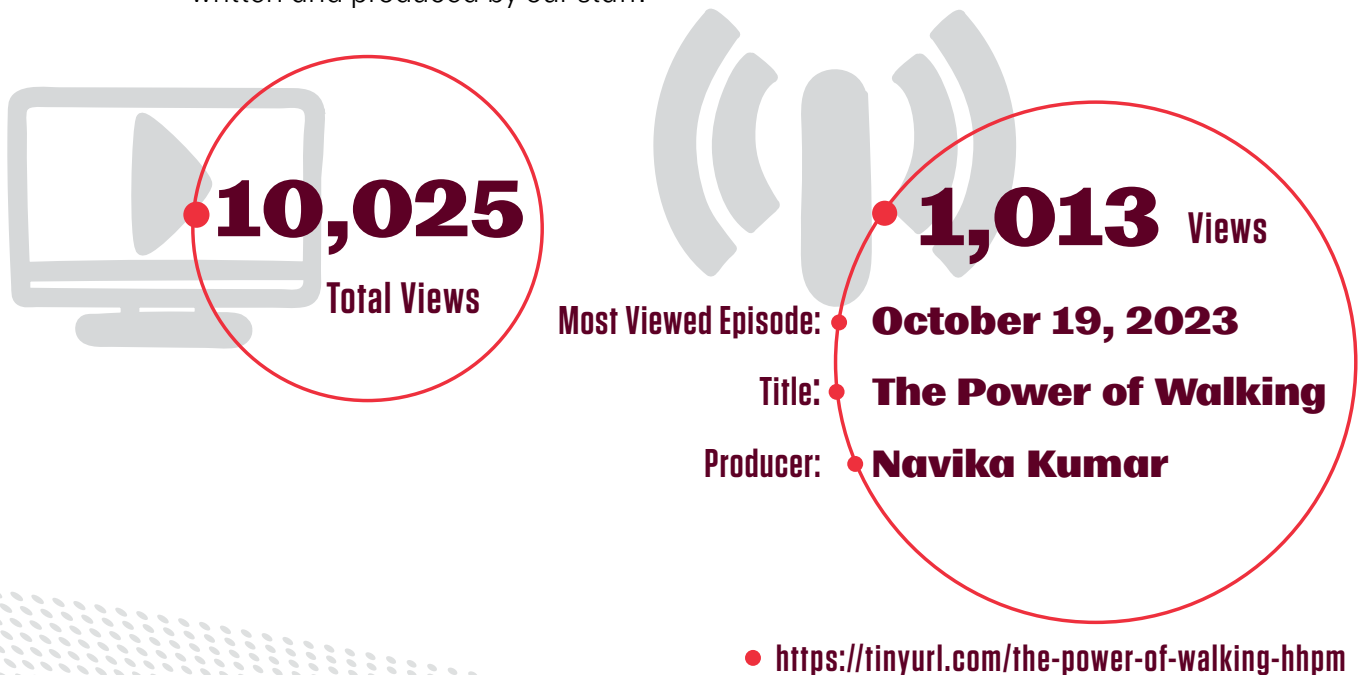


## Huffines Human Performance Minute



The Huffines Human Performance Minute (HHPM) is a one-minute, informational audio segment about a current topic related to human performance. These are written and produced by our staff.

In 2022-2023, these aired on local TexAgs radio and our public television station, KAMU. You can find our HHPMs on our website under audio podcasts.



# MORE GOOD STUFF

## Seminar Series

This year, the Huffines Institute partnered with Texas A&M Athletics to establish a new seminar series. Featured speakers included:

March 7, 2023

**DR. BRYAN MANN, University of Miami**

*"I have my force profile, now what?"*

April 17, 2023

**DR. G. GREGORY HAFF, Edith Cowan University**

*"Periodization Models in Team Sports"*

June 29, 2023

**DR. COURTENEY L. BENJAMIN, Samford University**

*"Heat and Hydration Strategies for Optimal Performance"*

## Additional Huffines Sponsored Seminars

March 24, 2023

**MS. HAILEY LEYVA, Women's National Xball League**

*"Life as a College Student and Professional Athlete"*



## "Adam & Barry" Metabolic Charts

*A huge thank you to our previous Interim Department Head, Dr. Adam Barry!*

Dr. Barry assisted in the purchase of two new metabolic carts, machines that we use to test how fit you are. In his honor, we have named the two machines, "Adam" and "Barry."



## ChallengeWorks

ChallengeWorks offers unique action-learning experiences and takes place at Texas A&M University's challenge course.

On May 19, 2023, the Huffines staff and students took part in a half-day of team building and challenge activities.

They conquered the 50 foot climbing wall as well as the crossing rope bridges high in the air.



## Thank You & Farewell

Dr. Lightfoot served as the Director of Huffines for twelve years and Executive Director for one year. During his tenure as Director, Dr. Lightfoot created the annual Hilliard Discussion, the Huffines Human Performance Minute, The Sport Medicine Podcast, and many other outreach programs. He implemented annual grant opportunities for faculty, students, and practitioners.

*His legacy is felt throughout all aspects of Huffines. Thank you Dr. Lightfoot for all you have done!*

Dr. Lightfoot is a fellow of the American College of Sports Medicine and named the University Graduate Student Mentor of the Year at Texas A&M in 2018. He has been named Teacher of the Year at three other universities. He is a native Texan, co-founder of the company Academic Career Development Services, has raced automobiles for fun, and is known to play the bass guitar.

## Plate Tradition


In some cultures, to signify that an individual is part of a community, a plate is given. This plate signifies that the owner can eat with other members of that community. In the same way, when an individual volunteers to work in Huffines, they receive a plate that signifies their membership in our community.

When an individual graduates, their plate is destroyed. This action reinforces that the individual is now expected to establish their own community and lead others in the ways that they've been led while at Texas A&M. However, a small piece of the destroyed plate is kept and displayed next to the individual's name and year of graduation so all can see who our community has developed and released into the world.



Dr. Lightfoot with Dr. Chris Woodman, Huffines Faculty Affiliate





Sydney and J.L. Huffines Institute  
for Sports Medicine and Human Performance

Department of Kinesiology and  
Sport Management

School of Education and Human Development

Texas A&M University  
West Campus - Player Development Center  
4259 TAMU  
College, Station, TX 77843

[www.huffinesinstitute.org](http://www.huffinesinstitute.org)

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