

RESEARCH AT THE AHPRC

THE ATHLETIC AND HUMAN PERFORMANCE RESEARCH CENTER



We are committed to transforming lives by optimizing athletic and human performance across all ages and abilities.

Here at the 'PRC



A key initiative of the AHPRC is to enhance the educational experience of Marquette undergraduate and graduate students and student-athletes. This edition highlights several key initiatives toward that goal. We feature the various groups of students working at the 'PRC in Fall 2019 including undergraduate interns and independent study students, as well as ongoing graduate student research projects.

We also highlight graduate student Mike Haischer, who is the research lab manager at the 'PRC, continue engagement with student-athletes including the Women's Lacrosse team, and host outside students from various programs (featured below photo). Check out the 'Exercise is Medicine' corner by clinical assistant professor Toni Uhrich which features timely information about the benefits of exercise. This issue also provides helpful tips for exercising in the cold weather, and there is a link to a WUWM National Public Radio interview on challenges and advice for exercising in the cold. In addition to our features, we list events at the 'PRC including upcoming applications for the AHPRC Pilot awards for 2020-2021. Finally, we value your input and support. Keep up to date with the exciting opportunities at the AHPRC, and the latest findings on human performance and the benefits of exercise. Visit our web page, connect with us on social media, and become a member of the AHPRC.

Sandra Hunter, PhD
AHPRC Planning Director
Professor, Exercise Science



AHPRC staff with students from the Kellogg Peak Initiative

Highlights & Happenings at the 'PRC

- **Homecoming Week:** Over 150 MU staff, students, and alumni visited the AHPRC for a Fall research open house and Explore Marquette.
- **Women's Lacrosse Open House:** Student-athletes learned more about the 'PRC research space and its potential benefits to Marquette Athletics.
- **"The Best Training":** A TV production crew from Sweden interviewed Dr. Hunter and filmed in the 'PRC and Exercise Physiology labs for features in the popular show which will air in Sweden in April.
- **Ex4Vets Study:** Veterans from the Milwaukee area attended a focus group on exercise to kick off Dr. Rachel Bollaert's AHPRC-funded pilot award.
- **AHPRC Pilot Awards:** Look for information about the 2020-21 awards!

<https://www.marquette.edu/athletic-human-performance-research-center/apply-for-pilot-awards.php>

Undergrads in the 'PRC

From staff positions to internships, there are many ways for undergraduates to be involved at the 'PRC. Rachel Beilfuss is a senior in the Exercise Physiology and Physical Therapy programs and an undergraduate staff member. She has enjoyed the opportunity to complete an independent study in the AHPRC under the guidance of Dr. Sandra Hunter and Toni Uhrich. This opportunity expanded her understanding and appreciation for the research process, while giving her a glimpse into the operational side of academia.

Additionally, three students from the Exercise Physiology program completed an internship for course credit last Fall at the Human Performance Assessment Core (HPAC) and AHPRC. Supervised by Toni Uhrich, Kathryn Bylis, Emily Zalinski, and Ryan McCabe gained experience with equipment and technology within the 'PRC. Assisting in various research studies, the students used exercise physiology equipment to help with exercise testing. Building on skills learned in their major courses in Exercise Physiology, the interns collaborated with the 'PRC and HPAC teams to learn the ins and outs of research at Marquette.

Kathryn Bylis reflects on her involvement, saying, "This internship has given me an opportunity to practice things I've learned in the classroom in the real world. I have had time to grow as an exercise physiologist, learn so many new things, all while collaborating with my peers."

Similarly, Emily Zalinski describes her experience: "As an intern at the AHPRC and the HPAC, I was given the opportunity to learn necessary skills utilized in the research realm of exercise physiology. On top of this, I was also able to see how research has the ability to positively impact its participants and change their lives for the better."

Ryan McCabe echoes Emily and Kathryn by saying, "After my semester at the AHPRC I have come out with a deeper understanding of research, and the components that go into it. From learning new skills to refining old ones, I have truly enjoyed every second of being here and I am very thankful that the staff at the AHPRC let me spend my semester with such wonderful people and participants!"

The interns gained essential new skills and experiences that will help them as they continue in the exercise physiology program. To learn more about internships at the AHPRC or HPAC, contact Toni Uhrich at toni.uhrich@marquette.edu



Interns in the research space.
From left to right:
Emily Zalinski, Kathryn Bylis,
Ryan McCabe

Spotlight on Student Research

Featuring Ph.D. Student Giovanni Berardi (EXRS) in the Pain Lab of Dr. Marie Bement (Dept of Physical Therapy)

Exercise is a non-pharmacological intervention that can help people manage their pain. Researchers and clinicians are exploring ways to optimize exercise as a pain management tool, in part to combat the opioid epidemic. Remarkably, even one bout of exercise can change the way pain is sensed and experienced by an individual. For example, a painful stimulus given to the hand is often rated as less painful after exercise than beforehand. This phenomenon is called exercise-induced analgesia and is a focus of the research conducted by Dr. Marie Bement and her graduate student, Giovanni Berardi. The reduction in pain typically experienced after a bout of exercise may be due to the activation of pain inhibitory systems in the brain and spinal cord where "pain inhibits pain". By introducing a new stimulus (i.e. exercise) to the individual experiencing pain, the sensation of pain may be changed.



Giovanni Berardi at the 'PRC

As a graduate student and physical therapist, Giovanni Berardi is investigating several important questions related to the impact of different types of exercise on people's experience of pain. This research determines if the relationship between exercise and pain is altered in people who experience chronic pain, such as patients with fibromyalgia. To do so, he uses a variety of 'PRC equipment to measure pain before and after exercise, and the 'PRC's DXA machine to precisely measure muscle mass, fat mass, and bone health.

The overall goal is to help clinicians identify the optimal exercise prescription and strategies to help people with chronic pain. "We are excited to show that regardless of clinical diagnosis or health status, there is a lot of variability in how pain perception changes in response to varying resistance exercise types," Giovanni explains. "Our long-term goal is to generate research evidence that will aid clinicians in prescribing the optimal type and dose of exercise so their patients can achieve greater pain relief and the best long-term outcomes." As we know, "exercise is medicine" and this includes the management of pain. This effective treatment strategy that is virtually cost-free could have wide-ranging societal impact.

Cold Weather Exercise Tips

Exercise can be just as enjoyable and safe in the winter as in other seasons if you take a few precautions. You can enjoy the beauty of winter while staying fit with a few helpful tips for exercising in the cold:

- Know the forecast. Be aware of wind chill more than absolute temperature.
- Dress appropriately. 3 layers: moisture-wicking, insulation (fleece/wool), outer layer (wind/water resistant).
- Cover your head, face, legs, feet, and hands, as they are at the greatest risk for injury.

<https://www.wuwm.com/post/fit-you-cold-weather-exercise-tips#stream/0>



Clinical Assistant Professor
Toni Uhrich, Director of the
HPAC, the AHPRC sister site.

**Exercise
is Medicine[®]**
On Campus

The Wonder Drug

"If doctors could prescribe exercise in a pill form, it would be the single most widely prescribed drug in the world" - Robert Butler MD

And might I add, with the most wide-reaching benefits and fewest side effects! Exercise positively affects every system of the body--brain to bone!

It takes around 150 minutes of moderate activity (think brisk walking here) per week. That's about 20 min/day or a walk with the dog around the block, a few flights of stairs several times a day, or a pickup game of soccer or basketball with the kids/coworkers/friends. With a few pushups, sit ups, or pushing some weights around, you have a recipe for good health. Have you gotten your 'dose' today?

For a deeper dive, check out this short piece "The 'Wonder' Drug - 'Exercise is Medicine!'" (<https://myage.fit/the-wonder-drug-exercise-is-medicine/>) by Planning Director, Dr. Hunter, or find an in depth read with Knowable Magazine's "The Workout Drug."

Featured 'PRC Team Member

Research Lab Manager: Mike Haischer, M.S., CSCS

Mike is a Marquette alum (B.S. Health Sci '14) and current student, studying for his Ph.D. in Exercise and Rehabilitation Science. As lab manager of the AHPRC, Mike serves to facilitate collaborative team science and assist investigators in realizing their research goals.



Mike administering a lung function test

Mike is also committed to making a positive impact on Marquette Athletics by helping to conduct applied research based on the performance goals of the teams, coaches, and individual athletes. "One of the best parts about my job is getting to gain experience with a wide variety of state-of-the-art equipment that can be used for testing of human performance," Mike says. "It is an exciting time to be in performance science in general, because of rapid development of new technologies, and the world-class facilities and support that we have here at Marquette make the opportunities for growth virtually limitless."

Earlier this year, Mike and former staff member and MU student-athlete Casandra Goodrich chatted about their personal journeys to, and involvement in, the AHPRC for the We Are Marquette podcast series.

Have a listen! <https://soundcloud.com/marquette-university/advancing-human-performance>



Exercising in the cold is not for everyone. People with asthma, heart conditions, exercise-induced bronchitis, and Raynaud's should take extra precaution or consult with healthcare provider. For more information on the topic of exercising in the cold, listen to the interview with Dr. Sandra Hunter on WUWM National Public Radio (NPR): Lake Effect Program. 'Fit For You: Cold Weather Exercise Tips.'