

Persephone McCrae (Greco-Otto)
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EDUCATION

Doctor of Philosophy (Veterinary Medical Science)

University of Calgary, 2015 - 2019

Bachelor of Science (Animal Biology)

University of Guelph, 2012 - 2015

ACADEMIC

Assistant Professor

October 2019 – Current

Department of Animal Science, *Sul Ross State University*

Equine Lameness and Rehabilitation (ANSC 3313)

Fall 2020 – Current

- This course is designed to provide students with an understanding of the common causes of lameness in sport horses.
- Topics include: fundamentals and advanced principles of lameness assessment and injury prevention, physical rehabilitation and regenerative medicine.

Applied Animal Behavior and Welfare (ANSC 3315)

Fall 2020 – Current

- This course covers the principles of animal behavior and how it relates to welfare.
- Topics include: normal animal behavior, stereotypic behaviors, enrichment, welfare in production animal species.

Equine Conditioning and Rehabilitation (ANSC 4311)

Fall 2020 – Current

- This directed studies course allows students to pursue an internship in equine sports medicine, conditioning and rehabilitation as applied to a variety of different equestrian disciplines.

Equine Exercise Physiology (ANSC 3312)

Spring 2020 – Current

- This course investigates the physiological and environmental factors associated with equine athletic performance.
- Topics include: the adaptation of the respiratory, cardiovascular, musculoskeletal, and support systems to training and exercise; common athletic injuries; conditioning programs.

Animal Physiology (ANSC 5324)

Spring 2020 – Current

- This course is designed for graduate students to build upon the basic and fundamental concepts of domestic animal physiology using a scientific and clinical framework.
- Topics include: physiology systems of domestic animal species, physiological impacts of disease, emerging scientific and veterinary literature.

Anatomy and Physiology of Domestic Animals (ANSC 3311)

Spring 2020 – Current

- This course is designed to introduce students to the basic and fundamental concepts of domestic animal anatomy and physiology.
- Topics include: species differences as related to various organ systems structure and function.

Horse Production and Management (ANSC 3305)

Spring 2020 – Current

- This course investigates the principles of scientific horse production and horse management.
- Topics include: equine reproduction, nutrition, health, stable management and commercial aspects of equine enterprises.

Graduate Teaching Assistant

Faculty of Veterinary Medicine, *University of Calgary*

Professional Skills for Health Science Research (VETM 601)

Fall 2018

- This course covers skills essential for success in health science research (mandatory course for all MSc and PhD students).
- Topics include: research integrity, ethics, grants and grant writing, verbal and written communication of research findings, career development, career opportunities in health sciences.

PEER-REVIEWED PUBLICATIONS

K. Nankervis, C. Tranquille, P. McCrae, J. York, M. Lashley, M. Maumann, M. King, E. Skyes, J. Lambourn, K.A., Miskimmon, D. Allen, E. van Mol, S. Brooks, T. Willinham, S. Lacey, V. Hardy, J. Ellis, R. Murray. (2021). **Consensus for the general use of equine water treadmills for healthy horses.** *Animals*. Under review.

E. Santosuosso, P. McCrae, T. Vinardell, F. David, R. Léguillette. (2021). **Kinematic analysis of the forelimb during free swimming in Arabian endurance horses.** *Comparative Exercise Physiology*. In process.

E. Santosuosso, P. McCrae, T. Vinardell, F. David, R. Léguillette. (2021). **Kinematic analysis of the hindlimb during free swimming in Arabian endurance horses**. In process.

E. Santosuosso, P. McCrae, T. Vinardell, F. David, R. Léguillette. (2021). **Cardio-metabolic response to equine swimming**. In process.

E. Santosuosso, P. McCrae, T. Vinardell, F. David, R. Léguillette. (2021). **Equine back biomechanics during swimming of endurance racehorses**. In process.

P. McCrae, M. Bradley, C. Rolian, R. Leguillette. (2020). **Water height modifies forelimb kinematics of horses during water treadmill exercise**. Comparative Exercise Physiology. Published online (DOI: 10.3920/CEP200013).

P. McCrae, L. Warlick, J. Jones, W. Bayly, R. Léguillette. (2020). **Effects of furosemide, blood depletion, and exercise on body fluid compartments in Thoroughbreds**. Canadian Veterinary Journal. 61(11), 1181-1185.

P. Greco-Otto, S. Bond, R. Sides, W. Bayly, R. Léguillette. (2020). **Conditioning equine athletes on water treadmills significantly improves peak oxygen consumption ($\dot{V}O_2$ peak)**. The Veterinary Record. 186(8), 250-257.

S. Bond, P. Greco-Otto, J. MacLeod, A. Galezowski, W. Bayly, R. Léguillette. (2020). **Efficacy of dexamethasone, salbutamol, and reduced respirable particulate concertation on aerobic capacity in horses with smoke-induced mild asthma**. Journal of Veterinary Internal Medicine. 34(2), 979-985.

P. Greco-Otto, M. Baggaley, W.B. Edwards, R. Léguillette. (2019). **Water treadmill exercise reduces equine limb segmental accelerations and increases shock attenuation**. BMC Veterinary Research. 15(1), 329-336.

P. Greco-Otto, R. Léguillette. (2019). **Assessment of body fluids and blood parameters associated with rapid weight change in heavy horses**. The Canadian Veterinary Journal. 60(7), 721-724.

R. Léguillette, P. Greco-Otto, R. Sides, S. Bond, S. Alami, W. Bayly. (2019). **Relative aerobic and anaerobic energy contribution in race fit endurance and Thoroughbred racehorses during strenuous exercise**. Comparative Exercise Physiology. 15(5), 299-306.

S. Bond, P. Greco-Otto, R. Sides, G. Kwong, R. Léguillette, W. Bayly. (2019). **Assessment of two methods to determine the relative contributions of the aerobic and anaerobic energy systems in racehorses.** Journal of Applied Physiology. 126(5), 1390-1398.

S. Bond, P. Greco-Otto, R. Sides, R. Léguillette, W. Bayly. (2019). **Assessment of high-intensity over-ground conditioning and simulated racing on aerobic and anaerobic capacities in racehorses.** Comparative Exercise Physiology. 15(3), 199-207.

P. Greco-Otto, R. Léguillette. (2018). **Determination of body proportion factor in draft horses for the use of bioimpedance spectroscopy.** The Canadian Veterinary Journal. 59(6), 650-654.

P. Greco-Otto, S. Bond, R. Sides, G. Kwong, W. Bayly, R. Léguillette. (2017). **Workload of horses on a water treadmill: Effect of speed and water height on oxygen consumption and cardiorespiratory parameters.** BMC Veterinary Research. 13(360), 1-9.

P. Greco-Otto, S. Massie, R. Léguillette, E. Shields, E. Pajor. (2016). **High intensity, short term pulling in heavy horses: The physiological effects of competition and rapid weight change.** BMC Veterinary Research, 13(1), 317.

K. Mizen, J. Woodman, S.R. Boysen, C. Wagg, P. Greco-Otto, R. Léguillette, M.-F. Roy. (2016). **Evaluation of the Effect of Dexamethasone on Resting Blood Lactate Levels in Horses.** Journal of Veterinary Internal Medicine, 3(1), 164-169.

PRESENTATIONS & ABSTRACTS

Oral presentation (2020): M. Cervantes, P. McCrae. **Assessment of muscle mass following a standardized equine water treadmill conditioning protocol. Annual McNair-Tafoya Symposium.** Alpine, United States.

Oral presentation (2019): P. McCrae, M. Bradley, C. Rolian, R. Léguillette. **Water treadmill exercise alters limb joint range of motion, but prolonged water treadmill training does not alter on-land kinematics.** American College of Veterinary Sports Medicine and Rehabilitation. Las Vegas, United States.

Oral presentation (2019): P. McCrae, M. Baggaley, W.B. Edwards, R. Léguillette. **Water height modifies forelimb kinematics of horses during water treadmill exercise.** Calgary International Equine Symposium. Calgary, Canada.

Oral presentation (2019): P. Greco-Otto, M. Bradley, C. Rolian, R. Léguillette. **The effect of water height during water treadmill exercise on forelimb range of motion.** American Association of Veterinary Anatomists. Banff, Canada.

Oral presentation (2019): P. Greco-Otto, M. Bradley, C. Rolian, R. Léguillette. **Equine gait during water treadmill exercise.** University of Calgary Faculty of Veterinary Medicine Research Day. Calgary, Canada.

Poster presentation (2019): P. Greco-Otto, M. Bradley, C. Rolian, R. Léguillette. **Kinematic effects of water treadmill exercise of sport horses.** Calgary International Equine Symposium, Calgary, Canada

Oral presentation (2018): P. Greco-Otto, M. Baggaley, W.B. Edwards, R. Léguillette. **Water treadmill exercise reduces equine limb segmental accelerations.** International Conference on Equine Exercise Physiology. Lorne, Australia.

Poster presentation (2018): P. Greco-Otto, L. Warlick, J. Jones, W. Bayly, R. Léguillette. **Effects of furosemide, blood depletion, and exercise on body fluid compartments measured by bioimpedance spectroscopy.** International Conference on Equine Exercise Physiology. Lorne, Australia.

Poster presentation (2018): P. Greco-Otto, R. Léguillette. **Assessment of weight change and body fluid compartments during the Heavy Horse Pull competition.** Calgary International Equine Symposium. Calgary, Canada.

Poster presentation (2018): P. Greco-Otto, M. Baggaley, W.B. Edwards, R. Léguillette. **Water treadmill exercise reduces equine distal limb shock.** University of Calgary Veterinary Medicine Graduate Research Day. Calgary, Canada.

Oral presentation (2017): P. Greco-Otto, S. Bond, R. Sides, W. Bayly, R. Léguillette. **Water treadmill training improves cardiorespiratory fitness of Thoroughbreds.** American Association of Equine Practitioners. San Antonio, United States.

Oral presentation (2017): P. Greco-Otto, S. Bond, R. Sides, W. Bayly, R. Léguillette. **Assessing the workload of horses on a water treadmill.** University of Calgary Veterinary Medicine Research Day. Calgary, Canada.

Oral presentation (2016): P. Greco-Otto, S. Bond, R. Sides, W. Bayly, R. Léguillette. **Conditioning equine athletes on water treadmills significantly improves maximal oxygen consumption ($\dot{V}O_2\text{max}$).** Veterinary Comparative Respiratory Society. Lansing, United States.

Poster presentation (2016): P. Greco-Otto, S. Massie, E. Shields, R. Léguillette, E. Pajor. **Physiological effects of pulling competition in heavy horses.** University of Calgary Veterinary Medicine Research Day. Calgary, Canada.

Poster presentation (2015): P. Greco-Otto, A. Watson, J. Thomason. **Surface effects on sport horse locomotion.** University of Guelph Undergraduate Research Program Presentations. Guelph, Canada.

Poster presentation (2015): P. Greco-Otto, A. Watson, J. Thomason. **Risk factors for the development of soft tissue damage in sport horses.** University of Guelph Undergraduate Research Program Presentations. Guelph, Canada.

AWARDS

American College of Veterinary Sports Medicine and Rehabilitation 1st place podium presentation (\$500.00) – 2019

American Association of Veterinary Anatomists Podium Presentation Award 1st place (\$500.00) – 2019

Alexander Graham Bell Canada Graduate Scholarship Doctoral (\$105,000.00) – 2018

Queen Elizabeth II Graduate (Doctoral) Research Scholarship (\$15,000.00) – 2018

Veterinary Medical Sciences Internship Award (\$2500.00) – 2018

University of Calgary Vet-U-Can Best Oral Presentation Award (\$200.00) – 2018

University of Calgary Veterinary Medicine Graduate Research Day Poster Award (\$200.00) – 2018

Veterinary Medical Sciences Travel Award (\$1000.00) – 2018

Alberta Graduate Citizenship Award for Excellence in Community Service (\$2,000.00) – 2017

Shannon Burwash Award for Leadership and Excellence in Equine Studies (\$2,000.00) – 2017

Alberta Graduate Student Scholarship (\$3,000.00) – 2017

University of Calgary Eyes High: Up Your Game (\$1,300.00) – 2017

Schrader-Turner Memorial Scholarship for Excellence in Communication (\$1,000.00) – 2016

University of Calgary Faculty of Graduate Studies Travel Award (\$500.00) – 2016

Queen Elizabeth II Graduate Scholarship (\$10,800.00) – 2016

University of Calgary Eyes High: Top Flight (\$1,500.00) – 2015

University of Calgary Veterinary Medicine Clinical Research Fund (\$8,145.00) – 2015

University of Calgary Eyes High: Learn from the Best (\$1,500.00) – 2015

University of Calgary Graduate Professional Development Grant (\$750.00) – 2015

PENDING GRANTS

Water treadmill exercise as a means of managing Equine Metabolic Syndrome (\$35,000.00)

The goal is to utilize 3D muscle volume scanning technology, bioimpedance spectroscopy, and glucose tolerance tests to assess the effects of a 4-week water treadmill exercise protocol on horses with Equine Metabolic Syndrome.

Role: PI

Development of high-resolution 3D models of equine gait (\$9,373.00).

The goal is to use 3D gait analysis technologies to create a 3D model of normal and abnormal equine gait as a teaching and research tool.

Role: Co-PI

FUNDED GRANTS

The effects of *Ascophyllum nodosum* seaweed on post-exercise recovery in Quarter horses (\$4,000.00).

The goal was to assess the effects of an equine feed supplement on post-exercise recovery rates.

Role: PI

Assessment of muscle mass following a standardized equine water treadmill conditioning protocol (\$5,500.00).

The goal was to utilize 3D body scanning, ultrasound and bioimpedance spectroscopy to assess changes in muscle volume of healthy horses following 4 weeks of water treadmill exercise.

Role: PI

MENTORSHIP

Master's Students:

Kaylee Smith (In process: Fall 2019 - present)

Thesis: *The effects of Total Equine™ grain containing Ascophyllum nodosum seaweed extract and chelated minerals on forage intake, cortisol levels, and cecal digestibility in mature Quarter horse mares under performance conditions.*

Role: committee member

Undergraduate Students:

Mariajose Cervantes (2019 - present)

McNair Scholars Program: *Assessment of muscle mass following a standardized equine water treadmill conditioning protocol.*

Dylan Porter (2020 - present)

McNair Scholars Program: *The effects of Ascophyllum nodosum seaweed on post-exercise recovery in Quarter horses.*

SERVICE

Animals, reviewer board member – 2020 - present

Animals, MDPI

Equine Hydrotherapy Working Group, member – 2019 - present

Hartpury University (Hartpury, UK)

IACUC review committee, member – 2020 - present

Sul Ross State University (Alpine, USA)

Teaching Council, Agricultural and Natural Resource Sciences Member at Large – 2020 - present

Sul Ross State University (Alpine, USA)

Quality Enhancement Plan, Navigator – 2020 - present

Sul Ross State University (Alpine, USA)

Academic Sub Task Force, member – 2020 - present

Sul Ross State University (Alpine, USA)

Effective Online Teaching committee, member – 2020 - present

Sul Ross State University (Alpine, USA)

Lobo Buddies program, mentor – 2020 - present

Sul Ross State University (Alpine, USA)

Promotion Secretary – 2017 - 2019

Equine Foundation of Canada (Calgary, Canada)

President – 2017 – 2019

University of Calgary Veterinary Medicine Graduate Students Association (Calgary, Canada)

Graduate Education Council, student representative – 2017-2019

University of Calgary (Calgary, Canada)

Faculty of Veterinary Medical Sciences Admissions Committee, member – 2017-2019

University of Calgary (Calgary, Canada)

Graduate Representative Council, Veterinary Medicine representative – 2017 - 2019

University of Calgary (Calgary, Canada)

College of Foothills Departmental Graduate Student Association, student representative – 2017 - 2019

University of Calgary (Calgary, Canada)

Faculty Tenure and Promotion Committee, student member – 2016 - 2019

University of Calgary (Calgary, Canada)

Swim Instructor – 2016 - 2017

Calgary Dolphins Swim Club (Calgary, Canada)

First Responder & Office Manager – 2013 - 2015

University of Guelph First Response Team (Guelph, Canada)

PROFESSIONAL DEVELOPMENT

Sam Houston State University Online Teaching Certificate – 2020 - present

Three-month long certification in course redesign and effective online teaching.

Equine reproductive ultrasound course – 2019

Attended 18 hours of lecture and hands-on experience provided by the Breeder's Assistant.

Utilizing frozen semen, uterine flushing and deep horn insemination of horses course – 2019

Attended 18 hours of lecture and hands-on experience provided by the Breeder's Assistant.

Canine Exercise Physiology Continuing Education Course – 2019

Attended 18 hours of lecture and hands-on experience provided by Dr. Davis (Oklahoma State University) on canine exercise physiology.

Innovation 4 Health Medical Hackathon – 2018

Received the "Collaboration Award" of \$4000.00 to further the development of an equine oral scope.

Campus Alberta Neuroscience Trainee Professional Development – 2018

Attended two weekend-long workshops on "Leadership Purpose" and "Designing your Future."

Business in Leadership in Medicine Seminar Series – 2017 - 2018

Attended six lectures on a variety of topics on business development in medicine.

Innovation 4 Health Medical Hackathon – 2017

Placed 4th overall for the development of a "biobullet" to be used in the vaccination of wildlife.