

Rafael E. Martínez

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EDUCATION

Doctor of Philosophy, Texas A&M University, College Station, TX **May 2022**
Major: Animal Science, Focus: Equine Nutrition & Reproductive Physiology

Sam Houston State University, Huntsville, TX **December 2015**
Master of Science in Agriculture, Equine Science

Sam Houston State University, Huntsville, TX **May 2014**
Bachelor of Science in Animal Science

LANGUAGE LEVELS

- Bilingual Spanish and English
- Proficient in Spanish and English reading & writing

PROFESSIONAL MEMBERSHIPS

American Quarter Horse Association	2014-Present
National Reining Horse Association	2019-Present
Equine Science Society	2019-Present
Stock Horse of Texas	2017-Present

GRADUATE RESEARCH AWARDS and GRANTS

Grayson-Jockey Club Research Foundation Grant (**Not funded**) **2020**

- L-arginine to improve placental efficiency in aged mares

Ronnie L. Edwards Graduate Teaching Award in Animal Science, Texas A&M University **2020**

- Outstanding graduate teaching assistant, PhD level, Department of Animal Science

American Quarter Horse Foundation, Young Investigator Award (**\$19,433.00**) **2020**

- Young Investigator Award; Quantification of Arginine Synthesis in the Equine Enterocyte: A Novel Approach in the Horse. Role: PI

Internal, Competitive Grant (**\$10,000.00**) **2019**

- Department of Animal Science; L-arginine Supplementation in Pregnant Aged Mares; Role: PI

Travel and Presentation Grant (**\$500.00**) **2019**

- Department of Animal Science

Travel and Presentation Grant (**\$750.00**) **2019**

- Office of Graduate and Professional Studies

Grayson-Jockey Club Research Foundation Grant (**Not funded**) **2018**

- L-arginine Supplementation to Pregnant Aged Mares

FELLOWSHIPS

Willie Mae Harris Fellowship for Outstanding Teaching Assistants (**\$5,000.00**) **2019**

- Fellowship award to cover \$5,000.00 and payment toward 6 credit hour tuition of Summer '19

RESEARCH and PROFESSIONAL EXPERIENCE

Texas A&M University, College Station, TX **2017-Present**

Graduate Research Assistant

- **Evaluating and quantifying protein make up of equine placenta** **2020**
 - Isolate specific proteins related to nutrient transfer, and vascularity in the equine placenta
 - Perform immunohistochemistry, western blotting, and qPCR techniques
- **Quantifying *in vitro* synthesis of amino acids** **2018-Present**
 - Isolate enterocyte cells from the equine small intestine
 - Perform HPLC and Liquid scintillation counting on equine enterocytes
- **Cartilage Biomarkers and Intra-articular Inflammation (CPII, C2C, PGE₂)** **2018-Present**

- Equine synovial fluid analysis using commercially available ELISA kits
- **Broodmare Management** **2019**
 - Utilized doppler ultrasonography to measure uterine hemodynamics
 - Monitored follicle and embryo development with
 - Collected and processed semen from stallions and artificially inseminated mares

Graduate Teaching Assistant

Equine Handling and Safety **2018**

- Provided a written laboratory curriculum and the development of teaching assistant reference guide
- Coordinated laboratory training from basic horse handling to ground working maneuvers

Equine Behavior and Training **2018, 2020**

- Hands-on applications as well as demonstrations of maneuvers that corresponded to lecture materials
- Provided a written laboratory curriculum and the development of teaching assistant reference guide

Equine Production and Management **2019-2020**

- Developed lab handouts, activities, and demonstrations on various topics (Breeding Soundness Exams, Stallion Handling, and Artificial Insemination)
- Assigned students to mares to monitor during foaling, and post-foaling mare and foal care
- Developed online video learning platform to adapt to COVID19 restrictions for topics such as: breeding soundness exams, teasing mares, ultrasound ovulation checks, semen collection/evaluation, pregnancy checks, and foal handling techniques.

Farm Animal Reproduction **2019**

- Developed lab handouts, activities, and demonstrations on various topics in regard to farm animal reproduction, breeding practices and management.

Parsons Mounted Cavalry **2017 – 2020**

- Provide riding lessons to 20-30 cadets daily
- Aid in the maneuvering of cannon horses and mule team on Kyle Field prior to football games

ORAL PRESENTATIONS

Martínez, R. E., J. L. Leatherwood, H. Valigura, C. E. Arnold, C. Glass, M. L. Much, S. H. White. 2019. Responses to an intra-articular lipopolysaccharide challenge following dietary supplementation of *Saccharomyces cerevisiae* fermentation product in young horses. Graduate Student Competition, Equine Science Society, Asheville, NC.

Martínez, R. E., J. L. Leatherwood, A. N. Bradbery, M. L. Much, B. L. Silvers, E. A. Posey, G. I. Nawaratna and G. Wu. Equine enterocytes actively oxidize L-glutamine but do not synthesize L-citrulline or L-arginine from L-glutamine or L-proline *in vitro*. Oral Presentation Abstract, Annual Meeting of the American Society of Animal Science, Madison, WI.

POSTER PRESENTATIONS

Martínez, R. E., J. L. Leatherwood, N. L. Walker, M. L. Much, and M. M Vogelsang. 2018. Evaluation of equine industry participation among young adults. Poster session presented at the Annual Meeting of the American Society of Animal Science, Vancouver, BC Canada.

Martínez, R. E., J. L. Leatherwood, N. L. Walker, M. L. Much, and M. M Vogelsang. 2018. Student perceptions on the ability of a certificate in equine science to prepare them for obtaining an industry career. Poster session presented at the Annual Meeting of the American Society of Animal Science, Vancouver, BC Canada.

EXTENSION AND OUTREACH

Equine Reproduction Short-Course, College Station, TX **2018-Present**

- Pregnancy Diagnosis
- Estrous Cycle Management in Mares
- Semen Collection, Evaluation, Shipping, and Insemination
- Production of instructional virtual videos in Spanish and English

INTERNATIONAL EXPERIENCE

Slovenian Quarter Horse Association and Danish Quarter Horse Association **2021**

- Traveled to Slovenia and Denmark to advise horse owners, breeders, veterinarians, and trainers with advanced techniques in equine reproduction and mare management, as a part of USDA-QSP funding program for the importation of frozen semen from the US. **2020**
- American Quarter Horse and American Paint Horse Association **2020**
- Prepared a booklet-presentation, and supply list to assist horse owners, breeders, veterinarians, and trainers with advanced techniques in equine reproduction and mare management, as a part of USDA-QSP funding program for the importation of frozen semen from the US.
- Acrícamde, Costa Rican Quarter Horse Association **2020**
- Traveled to Costa Rica to advise horse owners, breeders, veterinarians, and trainers with advanced techniques in equine reproduction and mare management, in regards to recent USDA-QSP funding for the importation of frozen semen from the US.
- Alberta Quarter Horse Racing Association **2019**
- Traveled to Calgary, Alberta to advise horse owners, breeders, veterinarians, and trainers with advanced techniques in equine reproduction and mare management
- Asociación Mexicana Cuarto de Milla **2018**
- Traveled to Mexico City, Mexico to advise horse owners, breeders, veterinarians, and trainers with advanced techniques in equine reproduction and mare management
- Horsemanship Clinician **2014 & 2015**
- Traveled to Germany, Slovenia, Switzerland, New Zealand, Australia, and China
 - Trained AQHA camp participants in western horsemanship activities, including reining, western pleasure, trail basic horsemanship, and saddle fitting
- EQUINE CONSULTING** **2016-Present**
- **Broodmare Management**
 - Utilized rectal ultrasonography to monitor donor/recipient mare herd estrous cycles
 - Collect and process semen from stallions
 - Artificially inseminate mares with fresh, cooled, and frozen semen
 - Non-surgical embryo retrieval and transfer
 - **Sales Preparation**
 - Custom nutritional and exercise programs
 - **Training**
 - Colt starting for a variety western disciplines
 - Stallion training for semen collection
- GUEST LECTURES**
- Reproduction in Farm Animals **2018, 2019, 2020**
- General Equine Reproduction
- Maintenance and Protein Requirements **2018**
- Equine Nutrition and Health
- Reproduction Requirements **2018**
- Equine Nutrition (*graduate course*)
- Stallion Collection and Semen Evaluation **2018, 2019, 2020**
- Equine Handling and Safety Labs
- CONTINUED EDUCATION**
- 2nd Latin American Symposium on Equine Assisted Reproduction, Guadalajara Jalisco **2019**
 - Colorado State University – Equine Reproduction Laboratory
 - The Problem Mare - Virtual Course **2020**
 - Foaling and Dystocia **2015**
- PUBLICATION LIST**
- 2021 **Martinez, R. E.**, J. L. Leatherwood, C.E. Arnold, K. G. Glass, K. W. Walter, H. C. Valigura, S. Norton, and S. H. White-Springer. 2021. Responses to an intra-articular lipopolysaccharide challenge following dietary supplementation of *Saccharomyces cerevisiae* fermentation product in young horses. *J. of Anim. Sci.* 99(10) doi: 10.1093/jas/skab272

- 2021 Valigura, H. C., J. L. Leatherwood, **R. E. Martínez**, S. Norton, and S. H. White-Springer. 2021. Dietary supplementation of a *Saccharomyces cerevisiae* fermentation product attenuates exercise-induced stress markers in young horses. *J. of Anim. Sci* doi: 10.1093/jas/skab199
- 2020 Silvers, B.L., J.L. Leatherwood, C.E. Arnold, B.D. Nielsen, C.J. Huseman, B.J. Dominguez, K.G. Glass, **R.E. Martínez**, M.L. Much, and A.N. Bradbery. Effects of aquatic conditioning on cartilage and bone metabolism in young horses. Accepted (7.16.2020) to *J. of Anim. Sci.* doi: 10.1093/jas/skaa239
- 2020 Much, M.L., J.L. Leatherwood, **R.E. Martínez**, B.L. Silvers, C.F. Basta, L.F. Gray, and A.N. Bradbery. Effects of an Oral Joint Supplement on Gait Kinematics and Biomarkers of Cartilage Metabolism and Inflammation in Mature Riding Horses. Accepted (7.15.2020) to *Transl. Anim. Sci.* doi: 10.1093/tas/txaa150
- 2020 Much, M.L., J.L. Leatherwood, J.L. Zoller, A.N. Bradbery, **R.E. Martínez**, A.D. Keegan, E.D. Lamprecht, and T.A. Wickersham. Influence of diet fortification on body composition and apparent digestion in mature horses consuming a low-quality forage. *Trans. Anim. Sci.* 4(2):1-9. doi: 10.1093/tas/txz137

Abstracts

- 2021 **Martínez, R.E.**, J. L. Leatherwood, A.N. Bradbery, B.L. Silvers, E.A. Posey, W. He, and G. Wu. 2021. Enterocytes from mature horses do not produce arginine or citrulline from glutamine or proline in vitro. 2021 Equine Science Society Virtual Symposium; July 1-4, 2021.
- 2020 **Martínez, R.E.**, J. L. Leatherwood, A.N. Bradbery, M.L. Much, B.L. Silvers, E.A. Posey, G.I. Nawaratna and G. Wu. 2020. Equine enterocytes actively oxidize L-glutamine but do not synthesize L-citrulline and L-arginine from L-glutamine or L-proline in vitro. 2020 ASAS-CSAS-WSASAS Virtual Annual Meeting and Trade Show; July 19-23, 2020.
- 2020 Bradbery, A. N., J. L., Leatherwood, B. L. Silvers, M. L. Much, **R. E. Martínez**, and C. E. Arnold. 2020. Intra-articular lipopolysaccharide challenge has no long-term effects on inflammation and cartilage metabolism. Accepted to the Annual Meeting of the American Society of Animal Science, Madison, WI.
- 2020 Silvers, B. L., J. L. Leatherwood, B. D. Nielsen, C. E. Arnold, B. Dominguez, K. G. Glass, C. J. Huseman, M. L. Much, **R. E. Martínez**, and A. N. Bradbery. 2020. Effects of aquatic conditioning in young horses. I. Markers of inflammation and cartilage metabolism. Accepted to the Annual Meeting of the American Society of Animal Science, Madison, WI.
- 2020 Silvers, B. L., J. L. Leatherwood, B. D. Nielsen, C. E. Arnold, B. Dominguez, K. G. Glass, C. J. Huseman, M. L. Much, **R. E. Martínez**, and A. N. Bradbery. 2020. Effects of aquatic conditioning in young horses. II. Bone metabolism. Accepted to the Annual Virtual Meeting of the American Society of Animal Science, Madison, WI.
- 2020 Silvers, B. L., J. L. Leatherwood, B. D. Nielsen, C.E. Arnold, B. Dominguez, K. G. Glass, C. J. Huseman, M. L. Much, **R. E. Martínez**, and A. N. Bradbery. 2020. Effects of aquatic conditioning on cartilage and bone metabolism in young horses. Research Abstract. Accepted to the American Association of Equine Practitioners 66th Annual Convention, Las Vegas, NV.
- 2019 **Martínez, R. E.**, J.L. Leatherwood, H. Valigura, C. E. Arnold, K. C. Glass, M. L. Much, S. H. White. Responses to an intra-articular lipopolysaccharide challenge following dietary supplementation of *Saccharomyces cerevisiae* fermentation product in young horses. *J. Equine Vet. Sci.* (76):80
- 2018 **Martínez, R. E.**, J. L. Leatherwood, N. L. Walker, M. L. Much, and M. M Vogelsang. 2018. Evaluation of equine industry participation among young adults. *J. Anim. Sci.* 96(E-Suppl. 3):255
- 2018 **Martínez, R. E.**, J. L. Leatherwood, N. L. Walker, M. L. Much, and M. M Vogelsang. 2018. Student perceptions on the ability of a certificate in equine science to prepare them for obtaining an industry career. *J. Anim. Sci.* 96(E-Suppl. 3):493-94