CURRICULUM VITAE

Dustin T. Yates, PhD

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Education

NIH/USDA Postdoctoral Fellowship, Developmental Physiology
University of Arizona, Tucson, 2010-14. Programming effects of maternofetal stress on prenatal and postnatal skeletal muscle development and metabolism. Advisor: Dr. Sean Limesand.

PhD, Reproductive Physiology
New Mexico State University, Las Cruces, NM, 2007-2009. Impact of the physiological stress response on reproduction and management practices for avoiding embryonic wastage. Advisor: Dr. Tim Ross.

MS, Animal Science
Angelo State University, San Angelo, TX, 2005-2006. Impact of chronic heat stress on fertility in small ruminants. Advisor: Dr. Michael Salisbury.

BS, Animal Science
Texas A&M University, College Station, TX, 2000-2004.

Professional Experience

Associate Professor of Stress Physiology
75% Research, 25% Teaching
University of Nebraska-Lincoln, 2020-Present.
Stress physiology, Fetal programming of skeletal muscle growth and metabolism, Myoblast function, Inflammatory regulation of myoblasts and skeletal muscle growth/metabolism.

Assistant Professor of Stress Physiology
75% Research, 25% Teaching
University of Nebraska-Lincoln, 2014-2020.

Postdoctoral Fellow
The University of Arizona, 2010 - 2014**.**
Fetal programming of metabolic dysfunction and growth deficits.

Research Assistant
New Mexico State University, 2007 - 2009**.**
Interactions between nutrition and stress responses in animals.

Graduate Student
Angelo State University, 2005 - 2006.
Effects of alternative nutrient source on fertility.

Teaching Experience

Instructor
University of Nebraska-Lincoln, 2015-Present. ASCI 340, Animal Physiological Systems. ASCI 240, Anatomy & Physiology of Domestic Animals.

Instructor
Clovis Community College, 2009. Introduction to Animal Science.

Lab Coordinator / Teaching Assistant
NMSU, 2008 - 2009. Introduction to Animal Science Lab Sections, Feeds & Feeding, Agricultural Animals of the World.

University of Nebraska-Lincoln Undergraduate Teaching										
Class Metrics						Student Learning		Student Evaluations (out of 5)		
Course	Semester	Enrollment	Credit Hrs.	Contact Hrs.	Credit %	Avg. Pre-test Score	Avg. Post-test Score	Course Structure	Instructor	Overall
ASCI 240	S2015	73	4	9	100	-	-	2.28	2.58	2.41
	F2015	72	4	9	100	-	-	2.34	2.71	2.50
ASCI 340	F2016	14	4	7	100	31.9%	85.4%	3.30	3.63	3.44
	F2017	23	4	7	100	29.1%	84.9%	3.12	3.58	3.31
	F2018	43	4	7	100	15.9%	80.6%	3.39	3.72	3.53
	F2019	58	4	7	100	17.1%	83.5%	4.48	4.51	4.43
	F2020	58	4	7	100	N/A	N/A	4.40	4.58	4.44
	F2021	52	4	7	100	39.5%	79.0%	4.71	4.69	4.70
	F2022	52	4	7	100	30.8%	75.7%	4.61	4.58	4.60
	F2023	49	4	9	100	31.0%	82.7%	4.60	4.51	4.53
Average (All)		**49**	**4**	**7.5**	**100**	**27.4%**	**81.7%**	**3.72**	**3.91**	**3.79**
Average (Last 3 yrs)		**54**	**4**	**7**	**100**	**35.2%**	**79.1%**	**4.64**	**4.59**	**4.61**

Mentored Students

Postdoctoral Fellows (2 Research)

Haley Beer (2022-Present). Co-Advisor. Project: "Using advanced technologies to improve zoo animal welfare management."

Rachel Gibbs (2023-2024). Advisor. Project: "Long-term effects of acute heat events on beef steer health and productivity." **USDA-NIFA Research Fellow*

Subsequent Position: Asst. Professor/Extension Specialist, North Dakota State University

Graduate Students - (10 PhD, 9 MS)

PhD Students

Melanie White (2023-Present). Advisor. PhD Project: "Improve growth and metabolism in heat-stressed lambs and cattle via bioactive nutritional supplements."

Carolyn Hanish (2023-Present). Advisor. PhD. Project: "Teaching approaches to optimized STEM learning in undergraduate science students."

Shelley Curry (2023-Present). Advisor. PhD Project: "Understanding pathologies in lipid homeostasis following stress-induced programming."

Pablo Grijalva (2020-2023). Advisor. PhD Project: "The role of inflammation in poor growth performance and metabolic inefficiency heat stress in finishing livestock."
Subsequent Position: USDA Food Safety & Inspection Specialist

Zena Hicks (2020-2023). Advisor. PhD Project: "The role of inflammatory adaptations in IUGR growth and metabolic deficits."
Subsequent Position: Research & Development, Tyson Foods

Rachel Gibbs (2020-2023). Advisor. PhD Project: "Identifying molecular mechanisms that link prenatal stress to postnatal muscle growth and metabolic deficits."
Subsequent Position: Postdoctoral Research Fellow, University of Nebraska-Lincoln

Haley Beer (2020-2022). Advisor. PhD Project: "Understanding behavioral patterns through the combined approach of physiological assessments and no-touch monitoring systems."
Subsequent Position: Postdoctoral Fellow, Omaha's Henry Doorly Zoo & Aquarium/UNL

Shawna Clement (2018-2022). Advisor. PhD Project: "Identifying stress biomarkers in blood samples from exotic species; Advancing animal science literacy through K-12 outreach."
Subsequent Position: Assistant Professor, VMBS, University of Nebraska-Lincoln

Joslyn Beard (2018-2020). Co-Advisor (w/ JT Mulliniks). PhD Project: "Fatty acid utilization in response to catecholamines in beef cows."
Subsequent Position: Assistant Professor of Animal Science, The University of Arizona
Caitlin Cadaret (2017-2019). Advisor. PhD Project: "Effects of fetal inflammatory adaptations to maternal stress on subsequent muscle growth and metabolic function."
Subsequent Position: Assistant Professor of Animal Science, Colorado State University

MS Students

Melanie White (2022-2023). Advisor. MS Project: "Improve growth and metabolism in IUGR-born neonates by moderating inflammatory cytokine activity."
Subsequent Position: PhD student, University of Nebraska-Lincoln

Micah Most (2020-2022). Advisor. MS Project: "Abatement of inflammation as a means to combat heat stress in finishing livestock."
Subsequent Position: Extension Educator, University of Wyoming

Taylor Lacey (2020-2021). Advisor. MS Project: "The role of heightened TNFR1 and TLR4 activity in IUGR metabolic deficits."
Subsequent Position: Research Lab Manager, University of California-Davis

Rachel Gibbs (2019-2020). Advisor. MS Project: "Identifying molecular mechanisms that link prenatal stress to postnatal muscle growth and metabolic deficits."
Subsequent Position: PhD student, University of Nebraska-Lincoln

Rebecca Swanson (2018-2020). Advisor. MS Project: "Impact of stress factor sensitivity on growth and metabolic function."
Subsequent Position: PhD student, Mississippi State University

Robert Posont (2017-2019). Advisor. MS Project: "Understanding neonatal pathophysiology and intervention strategies after sustained maternal inflammation during late gestation."
Subsequent Position: PhD student, Smithsonian Institute/George Mason University

Taylor Barnes (2016-2018). Co-Advisor (w/ JL Petersen). MS Project: "Effects of Adrenergic Agonists on muscle growth and metabolism."
Subsequent Position: PhD student, Texas A&M University; Assistant Professor, Rutgers Univ.

Caitlin Cadaret (2015-2017). Advisor. MS Project: "Effects of acute maternal inflammation with or without NSAID treatment on fetal mortality and muscle growth."
Subsequent Position: PhD student, University of Nebraska-Lincoln

Elena Merrick (2015-2017). Advisor. MS Project: "The Role of Chronic Inflammation in Fetal Origins of Obesity and Metabolic Dysfunction."
Subsequent Position: Youth Extension Educator, University of Nebraska

Graduate Student Awards/Honors

R. Gibbs

Young Scholar Award, American Society of Animal Science, 2023

Outstanding Grad Student-Research & Creative Activities Award, University of Nebraska, 2023

M.J. Cooksley Memorial Award, University of Nebraska, 2023

Perinatal Biology Trainee Award, Aspen/Snowmass Perinatal Biology Symposium, 2022

WSASAS Graduate Student Director, Western Section, Amer. Soc. of Animal Sci., 2021-2023

Arthaud Grad Student Oral Presentation Competition 2nd Place (PhD), University of Nebraska. 2021

3-Minute Video Competition 1st Place, Western Section Amer. Soc. of Animal Sci., 2021

Gamma Sigma Delta Honor Society Membership, Nebraska Chapter, 2021

Perinatal Biology Abstract Award, Aspen/Snowmass Perinatal Biology Symposium, 2019

M. White

Othmer Fellowship for Exceptional Scholars, University of Nebraska, 2023-2024

Arthaud Grad Student Oral Presentation Competition 1st Place (MS), University of Nebraska. 2023

Gamma Sigma Delta Honor Society Membership, Nebraska Chapter, 2022

M.J. Cooksley Memorial Award, University of Nebraska, 2023

M. Most

M.J. Cooksley Memorial Award, University of Nebraska, 2022

Arthaud Grad Student Oral Presentation Competition 2nd Place (MS), University of Nebraska. 2021

H. Beer

M.J. Cooksley Memorial Award, University of Nebraska, 2021

Gamma Sigma Delta Honor Society Membership, Nebraska Chapter, 2021

T. Lacey

Arthaud Grad Student Oral Presentation Competition 1st Place (MS), University of Nebraska. 2021

Z. Hicks

Arthaud Grad Student Oral Presentation Competition 3rd Place (PhD), University of Nebraska. 2021

R. Swanson

Young Scholar Award, Western Section Amer. Soc. of Animal Sci., 2020

Gamma Sigma Delta Honor Society Membership, Nebraska Chapter, 2020

C. Cadaret

Young Scholar Award, Western Section Amer. Soc. of Animal Sci., 2019

Perinatal Biology Abstract Award, Aspen/Snowmass Perinatal Biology Symposium, 2019

Outstanding Graduate Student Finalist, Gamma Sigma Delta, 2019

Graduate Student Paper Competition 1st Place, Western Section Amer. Soc. of Animal Sci., 2018

John Hallman Memorial Teaching Award, Department of Animal Science, 2018

Larrick Memorial Travel Grant, University of Nebraska-Lincoln ARD, 2018

Milton E. Mohr Teaching Excellence Fellowship, University of Nebraska-Lincoln IANR, 2017

Outstanding Graduate Teaching Asst. Honorable Mention, University of Nebraska-Lincoln, 2017

Gamma Sigma Delta Honor Society Membership, Nebraska Chapter, 2017

Whitmore Memorial Student Travel Grant, University of Nebraska-Lincoln ARD, 2016

Perinatal Biology Abstract Travel Award, Perinatal Biology, 2016

Graduate College Student Travel Grant, University of Nebraska-Lincoln, 2016

J. Beard

WSASAS Graduate Student Director-Elect, Western Section Amer. Soc. of Animal Sci., 2019-2021

Applied Paper Competition, 1st Place, Western Section Amer. Soc. of Animal Sci., 2019

Graduate Student Paper Competition 4th Place, Western Section Amer. Soc. of Animal Sci., 2019

3-Minute Video Competition 3rd Place, Western Section Amer. Soc. of Animal Sci., 2019

Larrick Memorial Travel Grant, University of Nebraska-Lincoln ARD, 2019

3-Minute Video Competition 3rd Place, Western Section Amer. Soc. of Animal Sci., 2018

R. Posont

Young Scholar Award, Western Section Amer. Soc. of Animal Sci., 2019

Gamma Sigma Delta Honor Society Membership, Nebraska Chapter, 2019

4th Annual Grad Student/Postdoc Competition 1st Place, NPOD, 2018

Graduate Student Paper Competition 3rd Place, Western Section Amer. Soc. of Animal Sci., 2018

Graduate Travel Awards Program, Reviewer, University of Nebraska-Lincoln, 2017, 2018

T. Barnes

3-Minute Video Competition 2nd Place, Western Section Amer. Soc. of Animal Sci., 2018

Graduate Student Paper Competition 2nd Place, Western Section Amer. Soc. of Animal Sci., 2017

Whitmore Memorial Student Travel Grant, University of Nebraska-Lincoln ARD, 2017

E. Merrick

3rd Annual Grad Student/Postdoc Competition 1st Place, NPOD, 2017

Graduate Students - Committee Member

Ibby Rodgers (2022-Present). PhD, Animal Science (L Luck).

Brooke Parrish (2022-Present). PhD, Animal Science (T Schmidt).

Rachel Reith (2021-Present). PhD, Animal Science (J Petersen).

Renae Sieck (2020-2021). MS, Animal Science (J Petersen).

Rachel Reith (2019-2021). MS, Animal Science (J Petersen).

Philma-Glora Muthuraj (2018-2021). PhD, Nutrition and Health Sciences (S Natarajan).

Erin Duffy (2018-2019). MS, Animal Science (J Petersen).

Rachael Kubik (2017-2018). MS, Animal Science (J Petersen).

Andrea McCain (2016-2019). MS, Animal Science (J Wood).

Rong Fan (2016-2018). MS, Nutrition and Health Sciences (S Chung).

Undergraduates

Abby Caswell (2022-2023). Assistant for growing lamb studies.

Jesse Mandina (2019-2021). Assistant for fetal sheep and lamb studies.

Emily Tenski (2019-2020). Assistant for fetal sheep and lamb studies.

Hannah Watson (2019-2020). Assistant for growing lamb studies.

Morgan Eggleston (2018-2020). Assistant for fetal sheep and growing lamb studies.

Micayla Freeman (2018-2020). Assistant for fetal sheep and growing lamb studies.

Micah Most (2018). Honors Program Advisor/UCARE: "Inflammatory programming in fetal myoblasts."

Marytza Abebe (2017-2018). Assistant for fetal sheep, fetal rat, and lamb studies.

Sophia Lentfer (2016-2017). Assistant for fetal sheep and lamb studies.

Hannah Riley (2013-2016). UCARE Project: "Fetal Programming of IUGR Muscle Stem Cell Function."

Academic Service

Radiation Safety Committee, Chair, UNL Environmental Health & Safety, 2022-Present.

Graduate Program Committee, UNL Dept. Anim. Sci. 2021-Present.

NPOD Pilot Grants Council, Nebraska's NIH COBRE, 2023-Present.

W4173 Hatch Multistate Project, 5-Year Renewal Writing Committee. 2020-2021.

Institutional Animal Care & Use Committee, Omaha's Henry Doorly Zoo & Aquarium, 2020-Present.

Radiation Safety Committee, UNL Environmental Health & Safety, 2020-Present.

Internal Advisory Committee, UNL Dept. Anim. Sci., 2017-2021, 2023-Present.

Search Committee, Veterinary Physiologist Faculty Position, UNL VMBS. 2020.

Search Committee Chair, Animal Behavior & Wellbeing Faculty Position, UNL Dept. Anim. Sci. 2019.

W3173 Hatch Multistate Annual Meeting, Host. 2020.

Young Scholar's Program Committee, West. Sect. ASAS, 2019-2022.

ASAS 2017 National Meetings Abstract Review Committee, 2017.

Writing Committee, Academic Program Review, UNL Dept. Anim. Sci., 2017-2018.

Animal Biology Chair, Academic Program Review, UNL Dept. Anim. Sci., 2017-2018.

Undergraduate Honors Thesis Committee - Alissa Martindale, 2017.

Undergraduate Honors Thesis Committee - Elizabeth Carriero, 2017.

SSR/ASAS 50th Anniversary Triennial Reproductive Symposium Steering Committee, 2016-2017.

UNL Life Sciences Research Core Planning Committee, 2017-Present.

Graduate Paper Competition Committee, West. Sect. ASAS, 2016-2018.

IANR Stress Biology Working Community - 2017-Present.

Science Literacy Committee, UNL Dept. Anim. Sci., 2017-Present.

ADR Website Focus Panel, 2016.

NPOD Pilot Project Grant Reviewer, 2016.

ARD Hatch Project Reviewer, 2015, 2016, 2017.

NPOD Symposium Poster Competition Judge, 2014, 2015, 2016, 2017.

UNL Faculty Search Committee - NPOD Assistant Prof. of Fetal Programming, 2015.

Editorial Board Member, Journal of Steroids and Hormonal Science, 2011-2020.

Ad Hoc Reviewer, Journal of Physiology, American Journal of Physiology, Journal of Animal Science, Journal of Cell and Animal Biology, Journal of Thermal Biology, BMC Veterinary Research, International Research Journal of Plant Science, African Journal of Biotechnology, African Journal of Food Science and Technology, 2010-Present.

Vice-President, NMSU ARS Graduate Student Association, 2007-2009.

Professional Activities & Memberships

NC1184 Hatch Multistate, Molecular Mechanisms Regulating Skeletal Muscle Growth & Differentiation. 2015-Present.

W4173 Hatch Multistate, Impacts of Stress on Performance, Health, & Well-Being. 2015-Present

NIH R01 Development Biguan, Braveman BioMed Consultants LLC- 2018

NIH Grantsmanship Short course, Braveman BioMed Consultants LLC - 2018

Soc. for Study of Reproduction (SSR) - Member, 2017-Present.

Nebraska Center for the Prevention of Obesity Diseases (NPOD) - Member, 2014-Present.

Nebraska Center for the Prevention of Obesity Diseases (NPOD) - Project Leader, 2017-2020.

ARISE Teaching Improvement Program - Peer Instruction, 2015.

ARISE Teaching Improvement Program - Research-Based Instructional Strategies, 2015.

American Society of Animal Science, Member, 2007-Present.

Gamma Sigma Delta, The Honor Society of Agriculture. 2009-Present.

Arizona Physiological Society, 2010-2014.

Fellowships and Honors

Dinsdale Family Faculty Award, UNL IANR, Nominee, 2019.

Young Scientist Award, Western Section American Society of Animal Science, 2018.

Project Leader, Nebraska Center for the Prevention of Obesity Diseases (NPOD), 2017-Present.

Dinsdale Family Faculty Award, UNL IANR, Nominee, 2017.

Research Development Fellowship Program, UNL ORED, 2015-2016.

Perinatal Biology Symposium Young Investigator Award, "*Intrinsic deficiencies in myoblast proliferation result in less differentiated myoblasts and smaller myofibers in IUGR fetal sheep,*" 2013.

NIFA Postdoctoral Fellowship Award, USDA, 2 yr postdoctoral research support. 2012-2014.

Ruth L. Kirschstein NRSA Institutional Postdoctoral Fellowship, Heart, Lung, and Blood Training Grant (T32), National Institutes of Health, 1 year of postdoctoral support, 2010-2011, Director: J. Burt

Perinatal Biology Symposium Travel Award, "*Adrenal demedullation abolishes hypoxemia-induced catecholamine suppression of glucose stimulated insulin secretion in fetal sheep,*" 2010

Most Outstanding Graduate Student in the College of ACES, Gamma Sigma Delta, 2009

Jack L. Ruttle Endowed Scholarship, For Research in the Area of Reproductive Physiology, 2008

Publication List

Peer-Reviewed Journal Articles	**At UNL**	**Overall**
Total	33	52
Sr. Author	29	29
1st / Sr. Author	30	44
Peer-Reviewed Proceedings & Reports		
Total	22	30
Sr. Author	17	17
1st / Sr. Author	17	22

Peer-Reviewed Journal Articles

**Members of my lab; **senior author*

[1] Beer HN*, Lacey TA*, Gibbs RL*, Most MS*, Hicks ZH*, Grijalva PC*, Marks-Nelson ES*, Schmidt TB, Petersen JL, **Yates DT****. 2024. Daily eicosapentaenoic acid infusion in IUGR fetal lambs reduced sys-temic inflammation, increased muscle ADRβ2 content, and improved myoblast function and muscle growth. *Metabolites.* 14(6):340. doi: 10.3390/metabo14060340

[2] Gibbs RL*, Wilson JA, Swanson RM*, Beard JK*, Hicks ZM*, Beer HN*, Marks-Nelson ES*, Schmidt TB, Petersen JL, **Yates DT****. 2024. Daily injection of the β2 adrenergic agonist clenbuterol improved muscle glucose metabolism, glucose-stimulated insulin secretion, and hyperlipidemia in juvenile lambs following heat-stress induced intrauterine growth restriction. *Metabolites* 14:156. doi: 10.3390/metabo14030156.

[3] Beer HN*, **Yates DT****, Shrader TC, Schmidt TB. 2024. Continuous video monitoring of zoo cheetahs demonstrates differential engagement patterns for six different types of environmental enrichment. *J. Zool. Botan. Gard.* doi: 10.3390/jzbg5030035.

[4] Clement SM*, Ubben TA, **Yates DT****. 2024. Cadaveric prosections by qualified staff were more efficient and effective teaching modalities for veterinary gross anatomy than in-class dissections by students. *J. Vet. Med. Educ.* doi: 10.3138/jvme-2024-0031.

[5] Gibbs RL*, Swanson RM*, Beard JK*, Hicks ZM*, Most MS*, Beer HN*, Grijalva PC*, Clement SM*, Marks-Nelson ES*, Schmidt TB, Petersen JL, **Yates DT****. 2023. Daily injection of the β2 adrenergic agonist clenbuterol improved poor muscle growth and body composition in lambs following heat stress-induced intrauterine growth restriction. *Front. Physiol.* 14:1252508. doi: 10.3389/fphys.2023.1252508.

[6] Beer HB*, Shrader TC, Karr LK, **Yates DT****. 2023. Allostatic load index effectively measures chronic stress status in zoo-housed giraffes. *J. Zool. Botanical Gardens* 4:623-636. doi: 10.3390/jzbg4030044.

[7] Beer HN*, Shrader TC, Schmidt TB, **Yates DT****. 2023. The Evolution of Zoos as Conservation Institutions: A Summary of the Transition from Menageries to Zoological Gardens and Parallel Improvement of Mammalian Welfare Management. *J. Zool. Botanical Gardens.* 4(4):648-664. doi: 10.3390/jzbg4040046.

[8] White MR*, **Yates DT****. 2023. Dousing the flame: Reviewing the mechanisms of inflammatory programming during stress-induced intrauterine growth restriction and the potential for ω-3 polyunsaturated fatty acid intervention. *Front. Physiol.* 14:1250134. doi: 10.3389/fphys.2023.1250134

[9] Posont RJ*, Most MS*, Cadaret CN*, Marks-Nelson E*, Beede KA*, Limesand SW, Schmidt TB, Petersen JL, **Yates DT****. 2022. Primary myoblasts from intrauterine growth-restricted fetal sheep exhibit intrinsic dysfunction of proliferation and differentiation that coincides with enrichment of inflammatory cytokine signaling pathways. *J. Anim. Sci.* 100(8):skac145 doi: 10.1093/jas/skac145

[10] Cadaret CN*, Posont RJ*, Swanson RM*, Beard JK*, Gibbs RL*, Barnes TL*, Marks-Nelson ES*, Petersen JL, **Yates DT****. 2022. Intermittent maternofetal oxygenation during late gestation improved birthweight, neonatal growth, body symmetry, and muscle metabolism in intrauterine growth-restricted lambs. *J. Anim. Sci.* 100(1):skab358 doi: 10.1093/jas/skab358

[11] Reith RR, Sieck RL, Grijalva PC*, Swanson RM*, Fuller AM, Diaz DE, Schmidt TB, **Yates DT**, Petersen JL. 2022. Transcriptome analyses indicate that heat stress-induced inflammation in white adipose tissue and oxidative stress in skeletal muscle is partially moderated by zilpaterol supplementation in beef cattle. *J. Anim. Sci.* 100(3):skac019 doi: 10.1093/jas/skac019

[12] Sieck RL, Treffer LK, Fuller AM, Ponte Viana M, Khalimonchuk O, Schmidt TB, **Yates DT**, Petersen JL. 2022. Beta-adrenergic agonists alter oxidative phosphorylation in primary myoblasts. *J. Anim. Sci.* 100(8):skac208 doi: 10.1093/jas/skac208

[13] Most MS*, **Yates DT****. 2021. Inflammatory mediation of heat stress-induced growth deficits in livestock and its potential role as a target for nutritional interventions: A review. *Animals* 11:3539. doi: 10.3390/ani11123539

[14] Gibbs RL*, **Yates DT****. 2021. The Price of Surviving on Adrenaline: Developmental Programming Responses to Chronic Fetal Hypercatecholaminemia Contribute to Poor Muscle Growth Capacity

and Metabolic Dysfunction in IUGR-born Offspring. *Front. Anim. Sci.* 2:769334 doi:10.3389/fanim.2021.769334

[15] Hicks ZM*, **Yates DT****. 2021. Going Up Inflame: Reviewing the Underexplored Role of Inflammatory Programming in Stress-Induced Intrauterine Growth Restricted Livestock. *Front. Anim. Sci.* 2:761421. doi:10.3389/fanim.2021.761421

[16] Cadaret CN*, **Yates DT****. 2021. Homework questions designed to require higher-order cognitive skills in an undergraduate animal physiology course did not produce desirable difficulties, testing effects, or improvements in information retention. *J. Anim. Sci.* 99: skab246 doi:10.1093/jas/skab246

[17] Posont RJ*, Cadaret CN*, Beard JK*, Swanson RM*, Gibbs RL*, Marks-Nelson ES*, Petersen JL, **Yates DT****. 2021. Maternofetal inflammation induced for two weeks in late gestation reduced birthweight and impaired neonatal growth and skeletal muscle glucose metabolism in lambs. *J. Anim. Sci.* 99:skab102. doi:10.1093/jas/skab102

[18] Cadaret CN*, Abebe MD*, Barnes TL*, Posont RJ*, **Yates DT****. 2021. Lipopolysaccharide endotoxin injections elevated salivary TNFα and corneal temperatures and induced dynamic changes in circulating leukocytes, inflammatory cytokines, and metabolic indicators in wether lambs. *J. Anim. Sci.* doi:10.1093/jas/skab120

[19] Barnes TL*, Burrack RM, Schmidt TB, Petersen JL, **Yates DT****. 2021. Sustained heat stress elevated corneal and body surface temperatures and altered circulating leukocytes and metabolic indicators in wether lambs supplemented with ractopamine or zilpaterol. *J. Anim. Sci.* 99:skab236. doi:10.1093/jas/skab236

[20] Swanson RM*, Tait Jr. RG, Galles BM, Duffy EM, Schmidt TB, Petersen JL, **Yates DT****. 2020. Heat stress-induced deficits in growth, metabolic efficiency, and cardiovascular function 2 coincided with chronic systemic inflammation and hypercatecholaminemia in ractopamine-3 supplemented feedlot lambs. *J Anim Sci.* 98(6):skaa168. doi:10.1093/jas/skaa168

[21] Burrack RM, Duffy EM, Erickson GE, **Yates DT**, Schmidt TB, Petersen JL. 2020. Whole blood transcriptome analysis in feedlot cattle after a 35-day supplementation with a β1-adrenergic agonist. *J Appl Genetics* 61:117-121.

[22] Cadaret CN*, Merrick EM*, Barnes TL*, Beede KA*, Posont RJ*, Petersen JL, **Yates DT****. 2019. Sustained maternal inflammation during the early third trimester yields intrauterine growth restriction, impaired skeletal muscle glucose metabolism, and diminished β cell function in fetal sheep. *J Anim Sci.* 97:4822-4833.

[23] Cadaret CN*, Posont RJ*, Beede KA*, Riley HE*, Loy JD, **Yates DT****. 2019. Maternofetal inflammation at mid-gestation induces intrauterine growth restriction (IUGR) and impairs indices of fetal muscle development at term in rats. *Translational Animal Science* 3:867-876.

[24] Barnes TL*, Cadaret CN*, Beede KA*, Schmidt TB, Petersen JL, **Yates DT****.** 2019. Hypertrophic muscle growth and metabolic efficiency were impaired by chronic heat stress, improved by zilpaterol supplementation, and not affected by ractopamine supplementation in feedlot lambs. *J Anim Sci*. 97:4101-4113.

[25] **Yates DT*,** Camacho LE, Kelly AC, Davis MA, Antolic AT, Anderson MJ, Allen RE, Hay WW, Limesand SW. 2019. Postnatal β2 Adrenergic Treatment Improves Insulin Sensitivity in Lambs with IUGR but not Persistent Defects in Skeletal Muscle Glucose Oxidation. *J Physiol* 597:5835-5858.

[26] Beede KA*, Limesand SW, Petersen JL, **Yates DT**.** 2019. Real supermodels wear wool: Summarizing the impact of the pregnant sheep as an animal model for adaptive fetal programming. *Animal Frontiers* 9:28-33.

[27] Beard JK*, Mulliniks JT, **Yates DT**.** 2019. Function and dysfunction of fatty acid mobilization: a review. *Diabesity* 5:1-5.

[28] Posont RJ* and **Yates DT**.** 2019. Postnatal nutrient repartitioning due to adaptive developmental programming. *Vet Clin Food Anim* 35:277-88.

[29] **Yates DT**.**, Petersen JL, Schmidt TB, Cadaret CN*, Barnes TB*, Posont RJ*, Beede KA*. 2018. Fetal origins of impaired muscle growth and metabolic dysfunction: Lessons from the heat-stressed pregnant ewe. *J Anim Sci* 96:2987-3002.

[30] Cadaret CN*, **Yates DT**.**. 2018. Retrieval practices are more beneficial to long-term information retention when spaced 5 days after introducing physiology topics compared to 1 day afterward. *Adv Physiol Educ* 42:305-10.

[31] Cadaret CN*, Beede KA*, Riley HE*, **Yates DT**.**. 2017. Acute exposure of primary rat soleus muscle to zilpaterol HCl (β2 adrenergic agonist), TNFα, or IL-6 in culture increases glucose oxidation rates independent of the impact on insulin signaling or glucose uptake. *Cytokine* 96:107-13.

[32] Posont RJ*, Cadaret CN*, Barnes TL*, **Yates DT**.**. 2017. A potential role for mTORC1/2 in β2 adrenergic regulation of skeletal muscle glucose oxidation in models of intrauterine growth restriction. *Diabesity* 3:9-12.

[33] **Yates DT**.**, Cadaret CN*, Beede KA*, Riley HE*, Macko AR, Anderson MJ, Camacho LE, Limesand SW. 2016. Intrauterine growth-restricted sheep fetuses exhibit smaller hindlimb muscle fibers and lower proportions of insulin-sensitive Type I fibers near term. *Am J Physiol Regul Integr Comp Physiol* 310:R1020-9.

[34] Chen X, Kelly AC, **Yates DT**, Macko AR, Lynch RM, Limesand SW. 2017. Islet adaptations in fetal sheep persist following chronic exposure to high norepinephrine. *J Endocrinol* 232:285-95.

[35] Macko AR, **Yates DT**, Chen X, Shelton LA, Kelly AC, Davis MA, Camacho LE, Anderson MJ, Limesand SW. 2016. Adrenal Demedullation and Oxygen Supplementation Independently Increase Glucose-Stimulated Insulin Concentrations in Fetal Sheep with Intrauterine Growth Restriction. *Endocrinol* 157:2104-15.

[36] **Yates DT**, Clarke DS, Macko AR, Anderson MJ, Shelton LA, Nearing M, Allen RE, Rhoads RP, Limesand SW. 2014. Myoblasts from intrauterine growth-restricted sheep fetuses exhibit intrinsic deficiencies in proliferation that contribute to smaller semitendinosus myofibres. *J Physiol* 592:3113-25.

[37] Chen X, Green AS, Macko AR, **Yates DT**, Kelly AC, Limesand SW. 2014. Enhanced insulin secretion responsiveness and islet adrenergic desensitization after chronic norepinephrine suppression is discontinued in fetal sheep. *Am J Physiol Endocrinol Metab* 306:E58-64.

[38] Macko, AR, **Yates DT**, Chen X, Green AS, Kelly AC, Brown LD, Limesand SW. 2013. Elevated Plasma Norepinephrine Inhibits Insulin Secretion but Adrenergic Antagonist Reveal Enhanced β-cell Responsiveness in an Ovine Model of Placental Insufficiency at 0.7 of Gestation. *DOHaD* 4:402-10.

[39] **Yates, DT**, Macko AR, Chen X, Green AS, Kelly AC, Anderson MJ, Fowden AL, Limesand SW. 2012. Hypoxaemia-induced catecholamine secretion from adrenal chromaffin cells inhibits glucose-stimulated hyperinsulinaemia in fetal sheep. *J Physiol* 590:5439-47.

[40] **Yates DT**, Macko AR, Nearing M, Chen X, Rhoads RP, Limesand SW 2012. Developmental programming in response to intrauterine growth restriction impairs myoblast function and skeletal muscle metabolism. *J Pregnancy* 2012:631038.

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[52] Martinez CH, Edrington TS, Thomas JD, Ross TT, Soto-Navarro S, Redden RR, Herron BJ, **Yates DT**. 2007. Prevalence of Salmonella and E. Coli 0157:H7 in large herd dairies in southwestern United States and northern Mexico. J Anim Sci 85(Suppl. 2):167.

[53] **Yates DT**, Salisbury MW, Anderson H. 2007. Effects of supplementation of tasco-ex on infertility in young male goats experiencing heat-stress. J Anim Sci 85(Suppl. 2):171.

Invited Presentations

Seminars in Endocrinology and Animal Biosciences, Rutgers University, 2024. *Postnatal consequences of prenatal stress.*

ASAS Triennial Growth Symposium, 2022. *Overcoming the Growth Deficits Programmed by Maternofetal Stress.*

ASAS International Congress on Farm Animal Endocrinology, 2021. *Metabolic fetal programming related to maternal stress, placental insufficiency, and intrauterine growth restriction.*

American Dairy Science Association, 2021. *Southern Branch Symposium: Managing Heat Stress in a Warmer Planet.*

Children's Hospital Colorado / University of Colorado School of Medicine, Neonatology Series, 2021. *Stress-induced developmental origins of metabolic dysfunction.*

Modern Views of Nutrition, Iowa State University, 2019. *Fetal programming of poor muscle growth & metabolism by maternal stress.*

Nebraska Sheep & Goat Producers Association, 2018. *Impact of Maternal Stress on muscle growth & metabolism in the fetus & offspring.*

SSR/ASAS 50th Anniversary Triennial Reproductive Symposium, 2017. *Fetal origins of impaired muscle growth and metabolic dysfunction: Lessons from the heat stressed pregnant ewe.*

UNMC VA 2016 NWI Research Seminar Series. *Fetal Origins of Impaired Muscle Growth and Metabolic Dysfunction.*

NPOD/NGN 2015 Spring Seminar Series. *Fetal origins of poor muscle growth and metabolic dysfunction.*

Research Grants ($6,647,284)

Primary Investigator (PI)

External ($2,772,908)

USDA-NIFA Foundational Program, 2024, "*Improving outcomes of stress-induced low birthweight with nutraceutical interventions.*" PI: Yates $650,000 (pending)

USDA-NIFA Foundational Program, 2023, "*Inflammatory mediation of poor welfare in heat-stressed feedlot animals*" PI: Yates $650,000 (funded 2024-2028)

USDA-NIFA Foundational Program, 2019, "*Abatement of inflammation as a means to combat heat stress in finishing livestock.*" PI: Yates $500,000 (funded 2020-2024)

UDSA-NIFA Foundational Program, 2018, "Recovering performance and quality in IUGR-born low birthweight livestock. (A2)" PI: Yates $500,000 (funded 2019-2023)

NIH COBRE Administrative Supplement, 2020, "*The role of stress in the fetal origin of obesity and metabolic dysfunction."* PI: Yates, Center Director: J Zempleni $306,528 (funded 2020-2021)

NIH COBRE (NE Center for Prevention of Obesity Diseases) Project Leader, 2017, "*Impact of fetal oxygen and adrenergic adaptations on metabolic outcomes in IUGR offspring."* Center Director: J Zempleni, PL: Yates $690,750 (funded 2017-2019)

NIFA Postdoctoral Fellowship, 2012-67012-19855, USDA, "*Chronic hypercatecholaminemia evokes IUGR pathology in myoblasts and skeletal muscle of the heat-stressed fetus"* PI: D. Yates, $125,630 (funded 2013-2014)

Ruth L. Kirschstein F32 Postdoctoral Fellowship, National Institutes of Health/NICHD, "*Chronic adrenergic activation evokes IUGR fetal skeletal muscle pathology*" PI: D. Yates, $121,717 (offered, declined by applicant due to concurrent funding)

Internal ($1,222,828)

Nebraska Collaboration Initiative, 2021 Team Seed Grant, #26899, NRI, "*Effect of omega-3 PUFAs on metabolic disruption in IUGR offspring*" PI: D. Yates, $141,351 (funded 2021-2023)

ARD Hatch Multistate Research Enhancement Grant, 2020, #20281, UNL, *"Stress-induced fetal programming mechanisms underlying low birthweight in livestock."* PI: Yates $500,000 (funded 2020-2025)

UNL Salivary Core Pilot Grant, 2017, UNL-CB3, *"Salivary cytokine analysis as a noninvasive biomarker of systemic inflammation in sheep."* PI: Yates $6,000 (funded 2017-2018)

ARD Hatch Multistate Research Enhancement Grant, 2016, #1777, UNL, *"Developmental origins of impaired muscle growth in food animals."* PI: Yates $400,000 (funded 2016-2020)

NPOD Pilot Grant, 2015, NPOD/UNL, *"The Role of Chronic Inflammation in Fetal Origins of Obesity and Metabolic Dysfunction."* PI: Yates $100,000 (funded 2016-2017)

ARD Strategic (Misc.) Funding, 2015, #1154, UNL, *"Modernization of PCR Technology and Capabilities for the Department of Animal Science."* PI: Yates $55,477 (funded 2015-2016)

Layman Seed Award, 2015, #812, UNL, *"Mechanisms for fetal programming of IUGR myoblasts and macrophages."* PI: Yates $10,000 (offered, declined by applicant due to concurrent UNL funding)

Research Council Interdisciplinary Grant, 2015, #737, UNL, *"Effects of acute maternal inflammation with or without NSAID treatment on fetal mortality and muscle growth."* PI: Yates, $20,000 (funded 2015)

Co-PI / Co-I

External ($875,000)

USDA-NIFA Postdoctoral Fellowship, 2023, *"Allostatic load in livestock animals as a predictor of stress tolerance."* PI: R. Gibbs $225,000 (funded 2024-2026)

USDA-NIFA Foundational Program, 2022, "*Improving the efficiency of beef production by understanding the untapped potential of mitochondrial variation.*" PI: J Petersen $650,000 (funded 2023-2027)

Internal ($1,776,548)

ARD Hatch Multistate Research Enhancement Grant, 2021, #29632, UNL, *"Elucidating epigenomic, physiological and behavioral targets to improve well-being and performance outcomes of acute heat stress in beef cattle."* PI: J. Petersen $250,000 (funded 2021-2026)

Research Council Interdisciplinary Grant, 2022, #31033, UNL, *"Effects of milk exosome consumption on testicular development in a neonatal swine model."* PI: Desaulniers, $20,000 (funded 2022)

UN Collaboration Initiative Seed Grant. 2017, Univ. Neb., *"Maternal obesity-dependent mechanisms that increase offspring predisposition for metabolic dysfunction."* PI: J. Wood $150,000 (funded 2017-2019)

ARD Hatch Multistate Research Enhancement Grant, 2016, #1802, UNL, *"Effect of Excess Androgen on Metabolic, Immune and Reproductive Function in Beef cows"* PI: A. Cupp $500,000 (funded 2016-2021)

ARD Hatch Multistate Research Enhancement Grant, 2016, #1798, UNL, *"A physiological, molecular, and whole-animal evaluation of the impact of stress on animal well-being and performance"* PI: J. Petersen $500,000 (funded 2016-2021)

Food for Health Collaborative Initiative Research Grant, 2016, UNL, *"The interaction of prenatal programing and gene variants on altered metabolic, immune and reproductive function resulting in reduced SHBG."* PI: A. Cupp $300,000 (funded 2016-2017)

ARD Strategic (Misc.) Funding, 2016, #2223, UNL, *"Elucidating the impact of beta-adrenergic agonist supplementation on the muscle transcriptome and physiology of ruminant livestock."* PI: J Petersen $27,970 (funded 2016-2017)

Food for Health Collaborative Initiative Planning Grant, 2016, UNL, *"Adaptive Programming of Childhood Diseases and Disorders."* PI: J. Wood $18,578 (funded 2016-2017)

Layman Seed Award, 2016, #1571, UNL, *"Defining genetic pathways altered by beta-agonist supplementation in livestock production."* PI: J. Petersen $10,000 (funded 2016-2017)