

Assistant Professor | School of Kinesiology | Louisiana State University
hallaway@lsu.edu | ORCID: 0000-0003-2023-9337

EDUCATION

Ph.D.	<i>Integrative and Biomedical Physiology</i> , Pennsylvania State University, USA	05/2017
M.S.	<i>Obstetrics and Gynecology</i> , University of Saskatchewan, Canada	10/2012
Certificate	<i>Space Studies Program</i> , International Space University, France	08/2010
B.S.	<i>Honors Biology, minor Physics</i> , Mount Allison University, Canada	05/2007

ACADEMIC APPOINTMENTS

Assistant Professor: 08/2021-present
School of Kinesiology, Louisiana State University,
Women's Physiology Research Laboratory, Director
Track: Exercise Science and Human Performance

Adjunct Professor: 03/2019–present
International Space University,
Teaching Focus: Human Performance in Space

Research Scientist: 01/2021–08/2021
Department of Medical Physiology, Texas A&M University Health Science Center,
Bagher Laboratory, *Mentor:* Pooneh Bagher, Ph.D.
Research Focus: Female cardiovascular health

Postdoctoral Research: 03/2017–12/2020
Department of Health and Kinesiology, Texas A&M University,
Bone Biology Laboratory, *Mentor:* Susan Bloomfield, Ph.D.
Translational Research Institute for Space Health Postdoctoral Fellow and Laboratory Manager.
Research Focus: Skeletal health in microgravity

Doctoral Graduate Research Assistant: 08/2012–05/2017
Department of Kinesiology, Pennsylvania State University,
Women's Health and Exercise Laboratory, *Advisor:* Mary Jane De Souza, Ph.D.
Graduate Student, Project Coordinator, and Laboratory Manager.
Research Focus: Women's health across the lifespan – menarche to menopause

Master's Graduate Research Assistant: 08/2007–05/2012
Department of Obstetrics, Gynecology, and Reproductive Sciences, University of Saskatchewan,
Women's Health Imaging Research Laboratory, *Mentor:* Roger Pierson, Ph.D.
Graduate Student and Project Coordinator.
Research Focus: Ovarian function and imaging
Project: Aromatase inhibitor effects on ovarian function during the follicular and early luteal phase in women

RESEARCH AGENDA

My research agenda takes a whole organism perspective to better understand women's health across the life span. Specifically, my research aims to understand the impact of modifiable factors on women's reproductive health and the downstream implications for musculoskeletal health and exercise performance. Modifiable factors include hormonal contraception use, energy status, exercise, microgravity/unloading, and psychology. This information helps to inform the development and implementation of evidenced-based strategies to promote healthy participation in physical activity. A parallel area of my research involves understanding factors that lead young girls and women to leave sports and developing strategies to increase the awareness and education of athletes regarding the Athlete Triad.

RESEARCH PROJECTS

Current

- 1) Mechanistic insights into the combined chronic impact of spaceflight and aging on cardiovascular physiology – Principal Investigator, 01/2021 -
- 2) Impact of sex and duration of hindlimb unloading on the musculoskeletal system (PI: Hein, TAMU) – Tissue sharing collaboration, 01/2020-
- 3) Rodent Research -23 Mission, (PI: Zawieja, TAMU) – Tissue sharing collaboration, 11/2020 –
- 4) Impact of continuous, low dose-rate neutron radiation exposure during pregnancy on maternal and fetal skeletons (PI: Steller, UC Irvine) – Tissue sharing collaboration, 01/2018–
- 5) Will use of long-acting, reversible contraceptives mitigate musculoskeletal degeneration in female rats during simulated exploration class missions? – Principal Investigator, 10/2017–
- 6) REFUEL Active Women's Study II: The impact of increased caloric intake on bone health and menstrual cyclicity in energy deficient exercising women, (PI's De Souza and Williams, PSU) – Graduate Student, 09/2012–05/2015 – Ongoing data analysis and publishing
- 7) Energy deficiency, performance, and bone health related injury outcomes in female distance runners – Project Coordinator, 06/2013–03/2017 – Ongoing data analysis and publishing

Previous

- 1) Mitigation of acute simulated galactic cosmic radiation induced bone loss by a diet high in omega-3 fatty acids – Mentor, 03/2017–01/2020
- 2) Primary mechanisms underlying the effects of oral vs. non-oral contraceptives on the growth hormone/insulin-like growth factor-1 axis and bone metabolism in young women – Graduate Student/Project Coordinator, 09/2015–12/2016.
- 3) The effect of a mixed composition meal on the thermic effect of food, fuel utilization, subjective appetite, and appetite hormone responses in young exercising women across the BMI spectrum – Graduate Student/Project Coordinator, 06/2013-03/2017; Mentor, 03/2017–09/2019
- 4) Randomized control trial of dietary supplementation with dried plums on bone density, geometry, and estimated bone strength in postmenopausal women – Graduate Student/Project Coordinator, 09/2015–03/2017.
- 5) LEGACY Girls Study: The relationship between lifestyle factors, puberty and development, and breast cancer risk (PI: E. John, Stanford) – Laboratory Manager/Graduate Student, 06/2013–10/2017.
- 6) DCRA: Pilot study on urinary assessment of reproductive hormones in adolescents across the pubertal transition (PI: E. John, Stanford) – Laboratory Manager/Graduate Student, 06/2013–10/2017.
- 7) Aromatase inhibitor effects on ovarian function during the follicular and early luteal phase in women (PI: Pierson, UofS) – Graduate Student/Study Coordinator, 09/2008-09/2011

GRANTS AWARDED

Previous:

Allaway, HCM (PI) and Bagher, P (Co-I) 01/01/2021-12/31/2021
Go-For-Launch Program, Translational Research Institute for Space Health

Mechanistic insights into the combined chronic impact of spaceflight and aging on cardiovascular physiology

Total Project Amount: \$150,000

**Award closed early to accept tenure-track position at Louisiana State University 08/15/2021*

Allaway, HCM (PI) and Bloomfield, SA (Mentor) 01/01/2018–12/31/2020
Translational Research Institute for Space Health Postdoctoral Fellowship (2 years) and Competitive Extension (1 year), National Aeronautics and Space Administration Grant #NNX16AO69A P0204

Will use of long-acting, reversible contraceptives mitigate bone loss in female rats during simulated exploration class missions?

Total Project Amount: \$197,000

Allaway, HCM (Co-PI) and Lieberman, J (Co-PI) 07/01/2014–03/31/2018

De Souza, MJ and Williams, NI (Mentors)

Pennsylvania State University Childhood Obesity Training Program Seed Grant, USDA National Institute for Food and Agriculture Grant #2011-67001-30117 Program A2121

The Effect of a mixed composition meal on the thermic effect of food, fuel utilization, subjective appetite, and appetite hormone responses in young exercising women across the BMI spectrum.

Total Project Amount: \$6,000

Allaway, HCM (PI) and Pierson, RA (Mentor) 08/01/2008-07/31/2010
Strategic Training Initiative in Research in the Reproductive Health Science (STIRRHS) Matching Funding Bursary, Canadian Institutes of Health Research (CIHR) and Association of Professors of Obstetrics and Gynecology of Canada (APOG)

Aromatase inhibitor effects on ovarian function during the follicular and early luteal phase in women.

Total Project Amount: CAD \$18,000

SUBMITTED (But unfunded)

Allaway, HCM (PI) 03/23/2021

National Aeronautics and Space Administration, Space Life and Physical Sciences Research Opportunities in Space and Earth Sciences – 2020

Insights into the impacts of continuous, low-dose-rate neutron radiation exposure on maternal and fetal skeletal physiology

Total Project Amount: \$100,000

Allaway, HCM (PI) and Steller, J (Co-I) 07/08/2018

American Society for Bone and Mineral Research Fund for Research & Education Research Grant

Impact of continuous, low-dose-rate neutron radiation exposure during pregnancy on maternal and fetal skeletons.

Total Project Amount: \$7,500

Bagher, P (PI) and Allaway, HCM (Co-I) 05/31/2018

Translational Research Institute for Space Health Synergy Grant

Synergistic effects of long-acting reversible contraceptives and simulated microgravity on cardiovascular health.

Total Project Amount: \$50,000

PUBLICATION SUMMARY

Manuscripts in Peer-Reviewed Journals	13
Review Articles	1
Book Chapters/White Papers	2
Abstracts	45

Publication list available at: https://www.ncbi.nlm.nih.gov/myncbi/181X7ENK_BM5T2/bibliography/public/

MANUSCRIPTS in PEER-REVIEWED JOURNALS (7 first author)

Mitchell R, Frederick N, Holzman E, Agobe F, **Allaway HCM**, Bagher P. Ifetroban reduces coronary artery dysfunction in a mouse model of Duchenne Muscular Dystrophy. *AJP-Heart and Circulatory Physiology*. 2021, 321 (1): H52-58. doi: 10.1152/ajpheart.00180.2021.

De Souza MJ, Mallinson RJ, Olmstead M, Strock NCA, Kolton KJ, Ricker EA, Scheid JL, **Allaway HC**, Mallinson DJ, Don PK, Williams NI. Randomized controlled trial of the effects of increased energy intake on menstrual recovery in exercising women with menstrual disturbances: The "REFUEL" Study. *Human Reproduction*. 2021, 36 (8): 2285. doi: 10.1093/humrep/deab149.

Allaway HCM[#], Pierson RA, Invik J, Bloomfield S. A rodent model of human dose-equivalent progestin-only implantable contraception. *Reproductive Biology and Endocrinology*. 2021, 19: 47. doi: 10.1186/s12958-021-00729-w. ^{#Corresponding author}

Mantri A*, **Allaway HCM***, Brezicha J, Hogan HA, Bloomfield SA. Role of unopposed oral estradiol supplementation on bone health in hindlimb unloaded female Sprague-Dawley rats. *Aerospace Medicine and Human Performance*. 2021, 92 (2): 65-74. doi: 10.3357/AMPH.5668.2021 *Co-first authors, A. Mantri posthumously.

Allaway HCM, Misra M, Stone MS, Weaver CM, Petkus DL, Southmayd EA, De Souza MJ. Oral and vaginal hormonal contraceptive use decrease rhGH-stimulated hepatic IGF-1 secretion and circulating P1NP in healthy, young women. *Frontiers in Endocrinology*. 2020, 11: 334. doi: 10.3389/fendo.2020.00334

Allaway HCM, John EM, Keegan TH, De Souza MJ. A pilot study on the utilization of reduced urinary collection frequency protocol for the assessment of reproductive hormones in adolescent girls. *Journal of Pediatric Endocrinology and Metabolism*. 2017, 30 (10): 358. doi: 10.1515/jpem-2017-0050

Allaway HCM, Chizen DR, Adams GP, Pierson RA. Effects of a single 20mg dose of letrozole on ovarian function post dominant follicle selection: an exploratory randomized controlled trial. *Journal of Ovarian Research*. 2017, 10 (1): 6. doi: 10.1186/s13048-017-0303-x

Koehler K, Williams NI, Mallinson RJ, Southmayd EA, **Allaway HCM**, De Souza MJ. Low resting metabolic rate in exercise-associated amenorrhea is not due to a reduced proportion of energetically expensive tissue compartments. *American Journal of Physiology Endocrinology and Metabolism*. 2016, 311 (2): E480. doi: 10.1152/ajpendo.00110.2016

Mallinson RJ, Williams NI, Gibbs JC, Koehler K, **Allaway HCM**, Southmayd EA, De Souza MJ. Current and past menstrual status is an important determinant of femoral neck geometry in exercising women. *Bone*. 2016, 88: 101. doi: 10.1016/j.bone.2016.01.030

Clement G, **Allaway HCM**, Demel M, Golemis A, Kindrat A, Melinyshyn AN, Merali T, Thirsk R. Long-duration spaceflight increases depth ambiguity of reversible perspective figures. *PLOS One*. 2015, 10 (7): e0132317. doi: 10.1371/journal.pone.0132317

Allaway HCM, Williams NI, Mallinson RJ, Koehler K, De Souza MJ. Reductions in urinary collection frequency for assessment of reproductive hormones provide physiologically representative exposure and mean concentrations when compared with daily collection. *American Journal of Human Biology*. 2015, 27 (3):358. doi: 10.1002/ajhb.22649

Allaway HCM, Bloski TG, Pierson RA, Lujan ME. Digit ratios (2D:4D) determined by computer-assisted analysis are more reliable than those using physical measurements, photocopies, and printed scans. *American Journal of Human Biology*. 2009, 21 (3): 365. doi: 10.1002/ajhb.20892

Allaway HCM, Lloyd V, Kaczmarzka I. Whole mount *in situ* immunofluorescent hybridization of diatoms. *Diatom Research*. 2008, 23 (1): 1. doi: 10.1080/0269249X.2008.9705732

INVITED REVIEW ARTICLES

Allaway HCM, Southmayd EA, De Souza MJ. The physiology of functional hypothalamic amenorrhea associated with energy deficiency in exercising women and in women with anorexia nervosa. *Hormone Molecular Biology and Clinical Investigation*. 2016, 25 (2): 91. doi: 10.1515/hmbci-2015-0053

BOOK CHAPTERS/WHITE PAPERS

Allaway HCM, Mallinson RJ, De Souza MJ. Impact of combined oral contraceptive use on exercise and health in female athletes. IN *Exercise and Human Reproduction: Induced Fertility Disorders and Possible Therapies*. Eds. Vaamonde D, du Plessis SS, Agarwal A. Springer Science+Business Media, New York. 2016, p. 287.

Sarty G, Frank-Wilson A, Allen NJ, Battler M, Boyd S, Chilibeck P, Dixon M, McLeod SA, Farthing J, Fulford P, Hughson RL, Johnston JD, Kontulainen S, Lanovaz J, Mendez I, Saary MJ, Salajeghe S, Scott A, Kawalilak C, Sharp J, Shoemaker JK, Sutherland G, Girouard H, Hard DA, Tomanek B, Turek K, Lehnhardt K, **Allaway HCM** & Obenaus A. *Topical Team on Space Health: Multidisciplinary Approach to Health Risk Mitigation in Space*. White Paper Commissioned by the Canadian Space Agency. 11/2016.

ABSTRACTS

* indicates Poster Presentation, # indicates Oral Presentation

Published (14 total, 7 first author, citation included)

*Strock NCA, De Souza MJ, **Allaway HC**, Gibbs JC, Williams NI. 12-month RCT to increase dietary intake does not exacerbate disordered eating in amenorrheic/oligomenorrheic exercising women. *Medicine & Science in Sports & Exercise*. 2021, 53(8S): 342.

***Allaway HCM**, Elizondo JP, Little SE, Hogan HA, Bloomfield SA. LARC implant use does not exacerbate bone loss associated with hindlimb unloading. *Medicine & Science in Sports & Exercise*. 2020, 52(7S):73-74.

***Allaway HCM**, Little SE, Hogan HA, Bloomfield SA. Impact of long-acting, reversible contraceptives on bone density during simulated microgravity. 66th Annual Meeting American College of Sports Medicine. Orlando, FL. 05/28-06/01/2019. *Medicine & Science in Sports & Exercise*. 2019, 51(5S): 1485.

*Little SE, **Allaway HCM**, Bokhari RS, Seidel DV, Wahl KL, Turner ND, Ford JR, Suva L, Bloomfield SA. Can acute galactic cosmic radiation-induced bone loss be mitigated by dietary modulation of inflammatory cytokines. 66th Annual Meeting American College of Sports Medicine. Orlando, FL. 05/28-06/01/2019. *Medicine & Science in Sports & Exercise*. 2019, 51(5S): 1486.

***Allaway H**, Pierson R, Invik J, Bloomfield S. Development of an animal model of long-acting, reversible contraception at physiologic equivalent doses. Endocrine Society Annual Meeting. New Orleans, LA. 03/23-26/2019. *Journal of the Endocrine Society*. 2019, 3(S1): SAT-LB039.

*Vargas XS, **Allaway HCM**, Little SE, Bloomfield S. Do implantable, progestin only contraceptives alter the bone response to unloading? Texas Chapter of the American College of Sports Medicine Annual Meeting. Fort

Worth, TX. 02/28-03/01/2019. *International Journal of Exercise Science: Conference Proceedings*. 2019, 2(11): 122.

*Little SE, **Allaway HCM**, Bokhari R, Wahl KL, Seidel DV, Turner ND, Ford JR, Suva L, Bloomfield S. Can acute galactic cosmic radiation-induced bone loss be mitigated by dietary modulation of inflammatory cytokines. Texas Chapter of the American College of Sports Medicine Annual Meeting. Fort Worth, TX. 02/28-03/01/2019. *International Journal of Exercise Science: Conference Proceedings*. 2019, 2(11): 16.

*Koltun KJ, **Allaway HCM**, Williams NI, De Souza MJ. The association of leptin with unique measures of body composition distribution in exercising women. 64th Annual Meeting American College of Sports Medicine. Denver, CO. 05/30-06/03/2017. *Medicine & Science in Sports & Exercise*. 2017, 49(5S): 1090.

***Allaway HCM**, Weaver CM, Petkus DL, Stone MS, Misra M, Martin BR, Williams NI, Southmayd EA, De Souza MJ. Oral and non-oral contraceptives decrease recombinant human GH-stimulated hepatic IGF-1 secretion in young women following two months of use. 99th Annual Meeting of the Endocrine Society. Orlando, FL. 04/01-04/2017. *Endocrine Reviews* 2017, 38(3S): MON-079. (Selected for Presidents Poster Competition)

*Southmayd EA, Mallinson RJ, Williams NI, **Allaway HC**, De Souza MJ. Reduced lean mass and fat mass exacerbate effects of estrogen deficiency on bone. 64th Annual Meeting American College of Sports Medicine. Denver, CO. 05/30-06/03/2017. *Medicine & Science in Sports & Exercise*. 2017, 49(5S): 402.

***Allaway HCM**, Koehler K, Mallinson RJ, Southmayd EA, De Souza MJ, Williams NI. Low resting metabolic rate in exercise-associated amenorrhea is not due to a reduced proportion of energetically expensive tissue compartments. 63rd Annual Meeting of the American College of Sports Medicine. Boston, MA. 05/31-06/03/2016. *Medicine & Science in Sports & Exercise*. 2016, 48(5S): 1084.

Mallinson RJ, Williams NI, Gibbs JC, Koehler K, **Allaway HCM, Southmayd E, De Souza MJ. Cumulative menstrual status is an important determinant of femoral neck geometry in exercising women. 63rd Annual Meeting of the American College of Sports Medicine. Boston, MA. 05/31-06/03/2016. *Medicine & Science in Sports & Exercise*. 2016, 48(5S): 491.

****Allaway HCM**, Williams NI, Gibbs JC, De Souza MJ. The effect of energy status on distance running performance across a competitive season in female cross-country runners. 62nd Annual Meeting of the American College of Sports Medicine. San Diego, CA. 05/26-30/2015. *Medicine & Science in Sports & Exercise*. 2015, 47(5S): 1.

***Allaway HCM**, Gibbs JC, Williams NI, Mallinson RJ, De Souza MJ. Cumulative menstrual status is associated with current lumbar spine bone mineral density in exercising women. 60th Annual Meeting of the American College of Sports Medicine. Indianapolis, IN. 05/28-06/01/2013. *Medicine & Science in Sports & Exercise*. 2013, 45(5S): 331.

Non-Published (31 total, 22 first author)

*Rau J, Metzger C, **Allaway HC**, Stefanov A, Allen M, Hook M. Bone loss following spinal cord injury: Effects of age and time post injury. Society for Neuroscience. Hybrid Conference, Chicago, IL. 11/8-16/2021.

#**Allaway HCM**, Elizondo JP, Hogan HA, Bloomfield SA. Progestin-only contraception implants did not exacerbate simulated microgravity induced bone changes. International Society for Gravitational Physiology. Virtual Conference. 05/24-27/2021.

#**Allaway HCM**, Elizondo JP, Hogan HA, Bloomfield SA. Impact of progestin-only implanted contraception on bone loss associated with hindlimb unloading. NASA Human Research Program Investigators' Workshop. Virtual Conference. 02/01-04/2021.

***Allaway HCM**, Elizondo JP, Little SE, Hogan HA, Bloomfield SA. LARC implant use does not exacerbate bone loss associated with hindlimb unloading. 4th Annual TAMU Postdoctoral Research Symposium, College Station, TX. 09/23/2020.

****Allaway HCM**, Elizondo JP, Little SE, Hogan HA, Bloomfield SA. Use of physiologically equivalent LARC implants did not exacerbate bone loss associated with hindlimb unloading. NASA Human Research Program Investigators' Workshop. Galveston, TX. 01/27–30/2020.

#Little SE, **Allaway HCM**, Bokhari RS, DV Seidel, Wahl KL, Turner ND, Ford JR, Suva L, Bloomfield SA. Can acute galactic cosmic radiation-induced bone loss be mitigated by dietary modulation of inflammatory cytokines? NASA Human Research Program Investigators' Workshop. Galveston, TX. 01/27–30/2020.

***Allaway HCM**, Elizondo JP, Hogan HA, Bloomfield SA. Impact of long-acting, reversible contraceptives on femoral bone density and mechanical properties during simulated microgravity. 48th International Musculoskeletal Biology Workshop, Sun Valley, ID. 07/24-28/2019.

#Young L, **Allaway H**, Cunha M, Marshall-Bowman K, Vivekanand V, Jimenez M. Space health career development – The TRISH post-doctoral fellows. NASA Human Research Program Investigators' Workshop. Galveston, TX. 01/22–25/2019.

***Allaway HCM**, Pierson RA, Hogan HA, Bloomfield SA. Will use of long-acting, reversible contraceptives mitigate bone loss in female rats during simulated exploration class missions? NASA Human Research Program Investigators' Workshop. Galveston, TX. 01/22–25/2019.

*Little SE, **Allaway HCM**, Bokhari RS, DV Seidel, Wahl KL, Turner ND, Ford JR, Suva L, Bloomfield SA. Can acute galactic cosmic radiation-induced bone loss be mitigated by dietary modulation of inflammatory cytokines? NASA Human Research Program Investigators' Workshop. Galveston, TX. 01/22–25/2019.

***Allaway HCM**, Pierson RA, Hogan HA, Bloomfield SA. Will use of long-acting, reversible contraceptives mitigate bone loss in female rats during simulated exploration class missions? NASA Human Research Program Investigators' Workshop. Galveston, TX. 01/22–25/2018.

***Allaway HCM**, Bokhari RS, Seidel DV, Wahl KL, Turner ND, Ford JR, Gaddy D, Suva L, Bloomfield SA. Potential mitigation of acute galactic cosmic radiation induced bone loss by a diet high in omega-3 fatty acids. NASA Human Research Program Investigators' Workshop. Galveston, TX. 01/22–25/2018.

***Allaway HCM**, Koehler K, Mallinson RJ, Southmayd EA, De Souza MJ, Williams NI. Low resting metabolic rate in exercise-associated amenorrhea is not due to a reduced proportion of energetically expensive tissue compartments. 1st Annual Penn State Life Science Symposium. University Park, PA. 05/2016.

#**Allaway HCM**, Mallinson RJ, Williams NI, Gibbs JC, Koehler K, Southmayd EA, De Souza MJ. Current and past menstrual status is an important determinant of femoral neck geometry in exercising women. Penn State Center for Women's Health Research, Women's Health Research Day. Hershey, PA. 04/2016.

***Allaway HCM**, Williams NI, Petkus DL, Southmayd EA, Stone MS, Martin BR, Weaver CM, De Souza MJ. The effects of oral vs. non-oral contraceptives on the hepatic GH/IGF-1 axis in young women. Pennsylvania State University Graduate Exhibition. University Park, PA. 03/2016.

*Stone MS, De Souza MJ, **Allaway HCM**, Petkus DL, Williams NI, Southmayd EA, Martin BR, Weaver CM. The effects of oral vs. non-oral contraceptives on the hepatic GH/IGF-1 axis in young women. Purdue University Interdepartmental Nutrition Program Recruitment Day. West Lafayette, IN. 02/2016.

- *Koehler K, Mallinson RJ, **Allaway HCM**, Williams NI, De Souza MJ. High body dissatisfaction is associated with higher BMI, reduced aerobic fitness, restrained eating behavior and low energy availability in young, exercising women. Annual Congress of the European College of Sport Sciences. Amsterdam, Netherlands. 07/02–05/2014. Abstract: OP-PM31-1.
- ***Allaway HCM**, Gibbs JC, Williams NI, Mallinson RJ, De Souza MJ. Cumulative menstrual status is associated with current lumbar spine bone mineral density in exercising women. Pennsylvania State University Graduate Exhibition. University Park, PA. 03/2013.
- #**Allaway HCM**, Chizen DR, Adams GP, Pierson RA. Residual effects of a single 20mg dose of an aromatase inhibitor (AI) on follicular development in women. 58th Annual Meeting of the Canadian Fertility and Andrology Society. Ottawa, ON. 09/05–09/2012. Abstract: FCo2-20.
- ***Allaway HCM**, Chizen DR, Pierson RA. Residual effects of a single 20mg dose of aromatase inhibitor (AI) on follicular development in women. 22nd Annual Reproductive Science and Medicine Research Symposium. Saskatoon, SK. 03/30/2012.
- *Melinyshyn A, Kindrat A, **Allaway H**, Pankhania J, Muller J, Merali T, Demel M, Clement G, Thirsk, R. Illusions in Space: The impact of weightlessness on our perception of ambiguous images. 62nd International Astronautical Congress (IAC). Cape Town, South Africa. 10/03–07/2011.
- ***Allaway HCM**, Melinyshyn A, Kindrat A, Pankhania J, Muller J, Perez-Poch A, Gonzalez Alonso DV, Clement G. Perception of ambiguous images in weightlessness. 2011 Symposium and General Assembly of the European Low Gravity Research Association (ELGRA). Antwerp, Belgium. 09/06–09/2011.
- #**Allaway HCM**, Chizen DR, Adams GP, Pierson RA. A single 20mg dose of aromatase inhibitor (AI) does not effect folliculogenesis in the follicular phase of the menstrual cycle. 21st Annual Reproductive Science and Medicine Research Symposium. Saskatoon, SK. 03/18/2011. Abstract: 15. (*Award Winner*)
- ***Allaway HCM**, Chizen DR, Adams GP, Pierson RA. A single 20mg dose of aromatase inhibitor (AI) does not effect folliculogenesis in the follicular phase of the menstrual cycle. 18th Annual Life and Health Sciences Research Day. Saskatoon, SK. 03/11/2011. Abstract: 97. (*Award Winner*)
- #**Allaway HCM**, Chizen DR, Adams GP, Pierson RA. A single 20mg dose of aromatase inhibitor (AI) does not effect folliculogenesis in the follicular phase of the menstrual cycle. 56th Annual Meeting of the Canadian Fertility and Andrology Society. Vancouver, BC. 09/29–10/02/2010. Abstract: TC01-41. (*Award Winner*)
- #**Allaway HCM**. The effects of exercise and nutrition on hormones and physiology of female reproductive cycles in low earth orbit. 5th International Symposium – Selected Topics in Space Life Sciences, International Space University. Strasbourg, France. 08/06/2010. Abstract: ISU-2010-105. (*Award Winner*)
- #**Allaway HCM**, Bloski T, Pierson RA, Lujan M. 2D:4D determined by computer-assisted analysis are more reliable than those using physical measurements, photocopies, and printed scans. 19th Annual Reproductive Science and Medicine Research Symposium. Saskatoon, SK. 02/27/2009. Abstract: 19.
- *Lujan M, **Allaway HCM**, Pierson RA, Chizen DR. Do follicle populations change in amenorrheic women with polycystic ovary syndrome? 90th Annual Meeting of the Endocrine Society. San Francisco, CA. 06/15–18/2008. Abstract: P1-598.
- *Bloski, TG, **Allaway HCM**, Lujan M. Evaluation of Intra and Inter-Observer Variability of Digit Ratios: Direct versus Scanned versus Photocopied Images of Men and Women’s Digits. 15th Annual Life and Health Sciences Research Conference. Saskatoon, SK. 03/14/2008.

#**Allaway HCM**, Lloyd V, Kaczmarska I. What characteristics do the araphid pennate diatom *Tabularia fasciculata* pass from parent to progeny? Mount Allison University Honors Day Presentation. Sackville, NB. 04/04/2007.

***Allaway HCM**, Lloyd V, Kaczmarska I. Parent specific heritable characteristics in the araphid, pennate diatom *Tabularia fasciculata*. Mount Allison University Research Fair Poster Presentation. Sackville, NB. 02/16/2007.

THESES & DISSERTATIONS

Allaway HCM. *Assessment and evaluation of systemic biomarkers of reproductive and energetic status in endogenous and exogenous estrogen environments*. Doctor of Philosophy, Pennsylvania State University, University Park, PA. 05/2017. pp. 1-271.

Allaway HCM. *Effects of a non-steroidal aromatase inhibitor on human ovarian function*. Master of Science, University of Saskatchewan, Saskatoon, SK. 05/2012. pp. 1-95.

TEACHING EXPERIENCE

Instructor, School of Kinesiology, Louisiana State University, Baton Rouge, LA.

KIN 3515 Physiologic Basis of Kinesiology, 08-12/2021

Co-Instructor, Department of Health and Kinesiology, Texas A&M University, College Station, TX.

KINE 682 Hot Topics in Bone Biology Graduate Seminar, 01-05/2019.

Topics covered included Basic Bone Biology and Biomechanics, Bone Aspects of the Athlete Triad, Gut Microbiome Interactions with Bone, and Osteocytes.

Co-Instructor: Susan Bloomfield, Ph.D.

Chair, Space Studies Program, International Space University, hosted by the Delft University of Technology, Delft, the Netherlands.

Human Performance in Space Department, Planning (10/2017–06/2018) & Implementation (07–08/2018).

Development and coordination of a program of 15 workshops of 3-4 hours' duration to utilize the expertise of visiting lecturers and the facility of the host sites (TU Delft, Leiden University, and ESA ESTEC) to teach life sciences with a focus on physiology and medicine to participants with non-life science backgrounds (engineering, physical sciences, humanities, space applications). Additionally, I mentored students through the development of a project from idea to hypothesis and methodological study design, and presenting the question and study design.

Co-Instructor, Department of Kinesiology, Pennsylvania State University, University Park, PA.

KINES 197a Biophysical Basis of Kinesiology, Sensory Systems and Motor Control Section, 07–08/2015

KINES 454 Women's Health and Exercise Across the Lifespan, Physiology of Reproduction and Hormonal Contraception across the Premenopausal Timespan Section, 01–06/2015.

Instructor of Record/Teaching Mentor: Mary Jane De Souza, Ph.D.

VISITING LECTURER

AERO 489/689, Special Topics: Human Performance in Aerospace Environments, Department of Aerospace Engineering, Texas A&M University, College Station, TX.

Bone Biology and Biomechanics: Adaptations to Spaceflight, 10/21/2021.

Bone Biology and Biomechanics: Adaptations to Spaceflight, 09/17/2020.

Bone Biology and Biomechanics: Adaptations to Spaceflight, 03/07/2019.

KINES 101 Biophysical Basis of Kinesiology, Department of Kinesiology, Pennsylvania State University, University Park, PA.

The Female Athlete Triad and Basic Concepts of Energy Metabolism, 01/19/2017.

The Female Athlete Triad and Basic Concepts of Energy Metabolism, 11/10/2016.

Human Performance in Space Department, Space Studies Program, International Space University, hosted at Cork Institute of Technology, Cork, Ireland.

Cardiovascular Physiology and Adaptations to Space Flight & Exercise and Bone Physiology and Adaptations to Space Flight, 07/26–08/02/2017.

Human Performance in Space Department, Space Studies Program, International Space University, hosted at Technion, Haifa, Israel.

Cardiovascular Physiology and Adaptations to Space Flight & Exercise and Bone Physiology and Adaptations to Space Flight, 08/01–08/09/2016.

KINES 455 Physiological Basis of Exercise in Medicine. Pennsylvania State University, University Park, PA.
Introduction to Bone Health, 04/13/2016.

Human Performance in Space Department, Space Studies Program, International Space University, hosted at Ohio University, Athens, Ohio, USA.

Cardiovascular Physiology and Adaptations to Space Flight & The Search for Life in the Universe, 07/06–07/15/2015.

TEACHING ASSOCIATE

Department of Kinesiology, Pennsylvania State University, University Park, PA.

KINES 101 Biophysical Basis of Kinesiology, 01–05/2016.

Mentors: Stephen Piazza, Ph.D., Mary Jane De Souza, Ph.D., and Robert Sainburg, Ph.D.

KINES 197a Biophysical Basis of Kinesiology, 07–08/2014.

Lectures Given: Special Sensory Systems and Sensory Integration.

Mentor: Mary Jane De Souza, Ph.D.

KINES 454 Women's Health and Exercise Across the Lifespan, 01–06 and 08–12/2014.

Lectures Given: Physiology of the Menstrual Cycle, Contraceptive Therapy Impact across the Premenopausal Timespan.

Mentor: Mary Jane De Souza, Ph.D.

KINES 454 Women's Health and Exercise Across the Lifespan, 08–12/2013.

Lectures Given: Physiology of the Menstrual Cycle.

Mentor: Mary Jane De Souza, Ph.D.

Department of Biology, Pennsylvania State University, University Park, PA.

BIOL 142 Introductory Physiology Lab, 08–12/2013, 01–05/2014 and 01–05/2015.

Mentor: John Waters, Ph.D., and Nanette Tomicek, Ph.D.

BIOL 421 Comparative Chordate Anatomy, 08–12/2014.

Mentor: Jeff Dodds, DVM.

Space Studies Program, International Space University, hosted at Florida Institute of Technology and Kennedy Space Center, Melbourne, FL.

Space and Society Department, 05/27–08/07/2012.

Mentors: Ondrej Doule, Ph.D. and Ruth McAvinia, MS.

Department of Physiology, University of Saskatchewan, Saskatoon, SK, Canada.

PHSI 334.6 Experimental Basis of Physiology, 01/2008, 01/2009 and 01/2010.

Mentor: Angela Baerwald, Ph.D.

Department of Biology and Biochemistry, Mount Allison University, Sackville, NB, Canada.

BIOL 3751 Chordate Anatomy, 01–04/2006 and 01–04/2007.

BIOL 2401 Animal Biology, 08–12/2006 and 08–12/2007.

Mentor: Gay Hansen, MS

Department of Physics, Mount Allison University, Sackville, NB, Canada.
PHYS 1001 Astronomy, 08–12/2005, 08–12/2006 and 08–12/2007.
Mentor: Robert Hawkes, Ph.D.

ADVISING EXPERIENCE

GRADUATE STUDENTS

Masters Projects

Dylan L. Petkus, Integrative and Biomedical Physiology Program, Huck Institutes for the Life Sciences, Pennsylvania State University. 11/2013-04/2016

Peer Mentor

Thesis Title: *A higher prevalence of iron depletion in eumenorrheic exercising women than amenorrheic exercising women.*

Faculty Advisor: Mary Jane De Souza, Ph.D.

UNDERGRADUATE RESEARCH STUDENTS

Research/Internship Credit Hours:

Ximena S. Vargas, Department of Biomedical Sciences, Texas A&M University. (KINE 491) 08/2018-05/2019.

Faculty Advisor of Record: Susan A. Bloomfield, Ph.D.

Clara V. Etter, Department of Kinesiology, Pennsylvania State University. (KINE 395) 08/2014-12/2014.

Faculty Advisor of Record: Mary Jane De Souza, Ph.D.

Honors Projects:

Sinclair T. Stockard, Department of Kinesiology, Pennsylvania State University. 06/2016–05/2017.

Preliminary Thesis Title: *The effect of a mixed composition meal on the thermic effect of fuel and fuel utilization in exercising women.*

Faculty Advisor: Mary Jane De Souza, Ph.D.

Kathleen V. Rodden, Department of Kinesiology, Pennsylvania State University. 08/2013–05/2015.

Thesis Title: *Energy Deficiency, Performance, and Bone Health Related Injury Outcomes in Female Distance Runners.*

Faculty Advisor: Mary Jane De Souza, Ph.D.

HONORS & AWARDS

2021 **NASA STAR Academy**, 2021-2022 Virtual Masterclass for Space Biosciences Training, National Aeronautics and Space Administration.

2020 **Young Investigator for ECTS Digital Masterclass Award**, 2020 ECTS Digital Masterclass for PhD Students, Trainees and Young Investigators, American Society for Bone and Mineral Research.

2019 **Alice L. Jee Young Investigator Award**, 48th International Musculoskeletal Biology Workshop, Orthopedic Research Society.

Postdoctoral Scholar Travel Award, Division of Research & Texas A&M University Postdoctoral Association, Texas A&M University.

2018 **iGIANT Space Health Prize**, Impact of Gender/Sex on Innovation and Novel Technologies (iGIANT) Space Health Challenge, NASA Human Research Program Investigators' Workshop.

TRISH Postdoctoral Fellowship, Translational Research Institute for Space Health (TRISH) through Cooperative Agreement with the National Aeronautics and Space Administration (NNX16AO69A).

- 2015 **Janet W. McArthur Award for Excellence in Women's Health Research**, College of Health and Human Development, Pennsylvania State University.
- 2012 **Herbert J. Bailey Endowed Graduate Fellowship**, The Graduate School, Pennsylvania State University.
- Dorothy L. Anderson Endowed Graduate Fellowship for Women**, The Graduate School, the Pennsylvania State University.
- 2011 **Excellence in Research Award**, 21st Annual Reproductive Science and Medicine Research Symposium, University of Saskatchewan.
- Runner Up, Best Student Paper – Reproductive Sciences**, 18th Annual Life and Health Sciences Research Day, University of Saskatchewan.
- 2010 **Experimental Flight on the UPC Microgravity Aerobatics Platform**, 1st Barcelona Aerobatics Zero-G Challenge Educational Campaign, Universitat Politècnica de Catalunya (UPC) Barcelona Tech.
- Travel Award**, College of Medicine, University of Saskatchewan.
- Best Student/Resident Paper Award**, 56th Annual Conference of the Canadian Fertility and Andrology Society.
- Graduate Scholarship**, College of Medicine, University of Saskatchewan.
- Best Individual Presentation**, 5th International Symposium – Selected Topics in Space Life Sciences, International Space University.
- Space Studies Program Scholarship**, Canadian Federation for International Space University.
- 2009 **Master's Thesis Scholarship**, College of Graduate Studies and Research, University of Saskatchewan.
- 2008 **Strategic Training Initiative in Research in Reproductive Health Science (STIRRHS) Matching Funding Bursary**, Canadian Institutes of Health Research (CIHR) and Association of Professors of Obstetrics and Gynecology of Canada (APOG).
- Master's Thesis Scholarship**, College of Graduate Studies and Research, University of Saskatchewan.

INVITED SEMINARS & TALKS & PANELS

The Physiological Adaptations to Space Panel Discussion. 3rd Australian Space Biology x Health Summit, Virtual Conference. 11/17/2021.

Female Astronaut Health: Using animal models to advance our understanding. 3rd Australian Space Biology x Health Summit, Virtual conference. 11/16-19/2021

Women's Health in the Athletic World: Understanding the Fundamentals of Recovery from the Athlete Triad. Postdoctoral Lecture, Texas Chapter of the American College of Sports Medicine Conference, Virtual Conference. 02/25/2021.

The Female Athlete Triad, Cumulative Risk, and Return to Play, and Treatment Strategies. Presentation for a delegation from the Chinese Center for Sport. Pennsylvania State University, University Park, PA. 10/23/2014.

Aromatase Inhibitors: A Novel Emergency Contraceptive or a Fertility Therapy? Noll Physiological Research Seminar. Pennsylvania State University, University Park, PA. 04/05/2013.

Perspective Reversible Figures. Joint CSA/ESA/JAXA/NASA Increment 31-32 Science Symposium. Johnson Space Center. 12/07/2011. *Presented on behalf of the team via teleconference for the symposium.

Listen to your heart, follow your dreams. Roads to Success Career Fair. Sun West School Division. Rosetown Central High School, Rosetown, SK, Canada. 04/22/2010.

Making Dreams a Reality. Roads to Success Career Fair. Sun West School Division. Rosetown Central High School, Rosetown, SK, Canada. 04/17/2008.

SERVICE

UNIVERSITY, COLLEGE, DEPARTMENTAL

2018-2020 *Postdoctoral Representative.* Faculty and Student Advisory Board of the Center for Teaching Excellence, Texas A&M University, College Station, TX, 10/2018–07/2021

2018-2019 *Treasurer.* Texas A&M University Postdoctoral Association Executive Committee, Texas A&M University, College Station, TX. 06/2018–05/2019.

2018 *External Adjudicator.* 21st Annual Graduate Student Forum, Department of Entomology, Texas A&M University, College Station, TX. 08/2018.

2017-2018 *Recording Secretary.* Texas A&M University Postdoctoral Association Executive Committee, Texas A&M University, College Station, TX. 06/2017–05/2018.

2016 *Adjudicator.* Undergraduate Research Exhibition, Pennsylvania State University, 04/2016.

2015 *Adjudicator.* Graduate Research Exhibition, Pennsylvania State University, 03/2015.

COMMUNITY MENTORSHIP & OUTREACH ACTIVITIES

2021 *Score Keeper Student Bowl.* Texas Chapter of the American College of Sports Medicine. Virtual Conference. 02/2021.

2020 *Score Keeper IPE Quiz Bowl.* American Physiological Society Integrative Physiology of Exercise Virtual Conference. 11/2020.

Score Keeper Student Bowl. Texas Chapter of the American College of Sports Medicine. Waco Convention Center. 02/2020.

2019 *Score Keeper Student Bowl.* Texas Chapter of the American College of Sports Medicine. Tarrant County College Trinity River Campus. 02/2019.

2016 *Adjudicator.* State Meeting of Pennsylvania Junior Academy of Science. University Park, PA. 05/2016.

Debate Advisor, Team Nutrition. "Is nutrition or exercise most important in attainment of peak bone mass in adolescents?" SELECT Exercise Physiology, Pennsylvania State University, 01–05/2016.

- 2013-2014 *Women's Gymnastics Coach*. Penn State Club Gymnastics, University Park, PA. 09/2013–08/2014.
- 2011 *Saskatoon Site and Program Committee*. CIBC Breast Cancer Run for the Cure, Saskatoon, SK, Canada. 02/2011–11/2011.
- 2010-2012 *Saskatoon Area Program Volunteer*. Let's Talk Science, Saskatoon, SK, Canada. 08/2010–05/2012.
- 2009-2010 *Tutor*, Saskatchewan High School Science, Saskatoon, SK, Canada. 01/2009–06/2010.
- 2008-2012 *Gymnastics Coach*. Marian Gymnastics, Saskatoon, SK, Canada. 09/2008–05/2012.
- 2008 *Adjudicator*. Saskatoon Regional Science Fair. Saskatoon, SK, Canada. 04/2008.
- Educational Outreach on the Importance of Analogue Research: "Life Lecture from Mars."* Mars Desert Research Station to B. Barnstable Science 10 Classroom, Rosetown Central High School, Rosetown, SK, Canada. 02/27/2008.

AD HOC PEER REVIEW ACTIVITIES – JOURNALS

Human Reproduction
 Journal of Adolescent Health
 Medicine and Science in Sport and Exercise
 American Journal of Physiology – Regulatory, Integrative and Comparative Physiology
 European Journal of Sport Science

MEMBERSHIPS IN PROFESSIONAL SOCIETIES

American College of Sports Medicine	Female Athlete Triad Coalition
American Physiological Society	Academy of Bioastronautics
American Society of Bone and Mineral Research	Canadian Fertility and Andrology Society
International Society for Gravitational Physiology	Reproductive Science and Medicine Research Group
Endocrine Society	

STATEMENT OF ACCURACY AND AUTHENTICITY

This statement of accuracy and authenticity certifies that all the information in this CV is accurate and represents the education, experiences, and accomplishments of Heather C.M. Allaway.

Date: 2021/11/17