







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Education

- 2019-Present **Graduate Certificates**
Bioinformatics (expected Dec 2020)
Data Science (expected Dec 2022)
University of Memphis, Memphis, TN, USA
- 2007-2012 **Doctor of Philosophy**, awarded May 2012
Exercise Physiology, specialization in Exercise Immunology
University of Illinois at Urbana-Champaign, Urbana, IL, USA
- 2003-2007 **Bachelor of Arts**, awarded May 2007
Movement and Sports Sciences
Purdue University, West Lafayette, IN, USA

Appointments

- 2016-Present **Assistant Professor of Nutrition**
School of Health Studies
Center for Nutraceutical and Dietary Supplement Research
University of Memphis, Memphis, TN, USA
- 2012-2016 **Postdoctoral Research Associate**
Department of Kinesiology and Community Health
University of Illinois at Urbana-Champaign, Urbana, IL, USA
- 2007-2012 **Research and Teaching Assistant**
Department of Kinesiology and Community Health
University of Illinois at Urbana-Champaign, Urbana, IL, USA
- 2006-2007 **Undergraduate Laboratory Assistant**
Department of Health and Kinesiology
Purdue University, West Lafayette, IN, USA

Research Interests

- Regulation of monocyte and macrophage metabolism, inflammatory responses, and function by aging
- Molecular links between cellular senescence, inflammaging, and immunosenescence
- Function and phenotype of senescent monocytes and macrophages
- Immunometabolic regulation of atherosclerosis
- Exercise and nutritional interventions to promote immune health in aging and disease
- Macrophage and monocyte contributions to pathogenesis of SARS-CoV-2 and COVID-19

Grant Activity

Current External Support

- University of Tennessee Health Science Center 08/01/2020 – 07/31/2021
 UTHSC/UofM SARS-CoV-2/COVID-19 Research CORNET Award
 Determination of inflammatory and fibrotic markers in SARS-CoV-2 infected macrophages and fibroblasts
 Co-Principal Investigator (Ted Cory, Co-PI, UTHSC)
 \$50,000
- American Heart Association 07/01/2019 – 06/30/2022
 Transformational Project Award (19TPA34910232)
 Mdivi-1 as an immunometabolic regulator to treat atherosclerosis
 Principal Investigator
 \$300,000
- University of Washington Nathan Shock Center 07/01/2019 – 06/30/2020
 Nathan Shock Center Metabolomics Pilot Award
 Metabolomics for the effect of GDF-15 on monocyte immunosenescence
 Principal Investigator
 \$10,000
- American Heart Association 04/01/2018 – 01/31/2021
 AHA Institutional Research Enhancement Award (18AIREA33960189)
 Glycolytic metabolism and cellular function in monocytes from older adults
 Principal Investigator
 \$154,000

Current Internal Support

- FedEx Institute of Technology 05/01/2019 – 12/31/2020
 Agriculture and Food Technologies Research Cluster Pilot Grants
 A plant-derived polyphenol modulates immunity through metabolic
 reprogramming of innate immune cells
 Principal Investigator
 \$10,000
- University of Memphis 01/01/2019 – 12/31/2020
 School of Health Studies Faculty Research Grant
 Modulation of LPS responses in mice by EGCG and Mdivi-1
 Principal Investigator
 \$7,500

Completed Support

- American College of Sports Medicine 08/01/2018 – 12/31/2019
 Foundation Research Endowment (17-00497)
 Aging, exercise, and metabolic function in monocytes
 Principal Investigator
 \$10,000
- University of Memphis 01/01/2017 – 12/31/2018
 School of Health Studies Faculty Research Grant
 Maternal nutrition and offspring immune response to RSV infection in mice
 Principal Investigator
 \$7,500

Completed Support cont.

American College of Sports Medicine Foundation Research Endowment (2014-03746) Exercise and immune response to vaccinia infection in mice Principal Investigator \$10,000	07/01/2014 – 04/01/2016
Gatorade Sports Science Institute Student Grant Program (2010-00224) Carbohydrate supplementation and DTH response to exhaustive exercise Principal Investigator \$3,340	07/15/2009 – 08/31/2013
Sigma Xi Grants-in-Aid of Research (G20111015158327) Macrophage function in obesity and influenza infection Principal Investigator \$1,000	01/01/2012 – 12/31/2012
Midwest American College of Sports Medicine Student Research Project Award NLRP3 inflammasome activity in obesity, wound healing, and exercise Principal Investigator \$500	01/01/2012 – 12/31/2012
American College of Sports Medicine Foundation Student Grant (2009-03689) Wound healing and exercise in diabetic mice Principal Investigator \$4,956	07/01/2009 – 06/30/2010

Publications

Peer Reviewed Publications †senior/corresponding author

- †40. Yarbrow JR, Emmons RS, **Pence BD**. Macrophage immunometabolism and inflammaging: Roles of mitochondrial dysfunction, cellular senescence, CD38, and NAD. *Immunometabolism* 2(3): e200026, 2020. Review.
- †39. **Pence BD**. Fanning the flames of inflammaging: Impact of monocyte metabolic reprogramming. *Immunometabolism* 2(3): e200025, 2020. Commentary.
- †38. **Pence BD**. Severe COVID-19 in aging: Are monocytes the key? *GeroScience* 42: 1051-1061, 2020. Review.
- 37. Nieman DC, **Pence BD**. Exercise immunology: Future directions. *Journal of Sport and Health Science*. (in press). Review.
- †36. Yarbrow JR, **Pence BD**. Classical monocytes from older adults maintain capacity for metabolic compensation during glucose deprivation and lipopolysaccharide stimulation. *Mechanisms of Ageing and Development* 183: 111146, 2019.
- 35. Sun Y, **Pence BD**, Wang SS, Woods JA. Effects of exercise on stress-induced attenuation of vaccination responses in mice. *Medicine and Science in Sports and Exercise* 51(8): 1635-1641, 2019.

Peer Reviewed Publications cont. †senior/corresponding author

34. Smith DL, Friedman N, Bloom SI, Armero WL, **Pence BD**, Fernhall B, Horn GP, Woods JA. Firefighting induces acute inflammatory responses that are not relieved by aspirin in older firefighters. *Journal of Occupational and Environmental Medicine* 61(7): 617-622, 2019.
- †33. **Pence BD**, Yarbrow JR. Classical monocytes maintain ex vivo glycolytic metabolism and early but not later inflammatory responses in older adults. *Immunity & Ageing* 16: 3, 2019.
32. Mailing LJ, Allen JM, **Pence BD**, Rytych J, Sun Y, Bhattacharya TK, Park P, Cross TW, McCusker RH, Swanson K, Fahey GC, Rhodes JS, Kelley KW, Johnson RW, Woods JA. Behavioral response to fiber feeding is cohort dependent and associated with gut microbiota composition in mice. *Behavioural Brain Research* 359: 731-736, 2019.
- †31. Yarbrow JR, **Pence BD**. Monocytes in aging and exercise. *Exercise Medicine* 2: 15, 2018. Review.
- †30. **Pence BD**, Yarbrow JR. Aging impairs mitochondrial respiratory capacity in classical monocytes. *Experimental Gerontology* 108: 112-117, 2018.
- †29. **Pence BD**, Ryerson MR, Bravo Cruz AG, Woods JA, Shisler JL. Voluntary wheel running does not alter mortality to or immunogenicity of vaccinia virus in mice: A pilot study. *Frontiers in Physiology* 8: 1123, 2018.
28. **Pence BD**, Bhattacharya TK, Park P, Rytych JL, Allen JM, Sun Y, McCusker RH, Kelley KW, Johnson RW, Rhodes JS, Woods JA. Long-term supplementation with EGCG and beta-alanine decreases mortality but does not affect cognitive or muscle function in aged mice. *Experimental Gerontology* 98: 22-29, 2017.
27. **Pence BD**, Bhattacharya TK, Park P, Rytych JL, Allen JM, Sun Y, McCusker RH, Kelley KW, Johnson RW, Rhodes JS, Woods JA. Dose-dependent decrease in mortality with no cognitive or muscle function improvements due to dietary EGCG supplementation in aged mice. *Applied Physiology, Nutrition, and Metabolism* 42(5): 495-502, 2017.
26. Klaren RE, Stasula U, Steelman AJ, Hernandez J, **Pence BD**, Woods JA, Motl RW. Effects of exercise in a relapsing-remitting model of experimental autoimmune encephalomyelitis. *Journal of Neuroscience Research* 94(10): 907-914, 2016.
25. Cook MD, Allen JM, **Pence BD**, Wallig MA, Gaskins HR, Woods JA. Exercise and gut immune function: Evidence of alterations in colon immune homeostasis and microbiome characteristics with exercise training. *Immunology and Cell Biology* 94(2): 158-163, 2016.
24. **Pence BD**, Gibbons TE, Bhattacharya TK, Mach HC, Ossyra JM, Petr G, Martin SA, Wang L, Rubakhin SS, Sweedler JV, McCusker RH, Kelley KW, Rhodes JS, Johnson RW, Woods JA. Differential effects of voluntary wheel running and a diet containing EGCG and β -alanine on physical function and gene expression in skeletal muscle of aged mice. *Applied Physiology, Nutrition, and Metabolism* 41(2): 181-190, 2016.
23. Bhattacharya TK, **Pence BD**, Ossyra JM, Gibbons TE, Perez S, McCusker RH, Kelley KW, Johnson RW, Woods JA, Rhodes JS. Dietary supplementation with (-)-Epigallocatechin-3-gallate and/or β -Alanine does not enhance pro-cognitive or physical fitness effects of voluntary wheel running in young adult male BALB/cJ mice. *Physiology & Behavior* 145: 29-37, 2015.
22. Allen JM, Berg Miller ME, **Pence BD**, Whitlock K, Nehra V, Gaskins HR, White BA, Fryer JD, Woods JA. Voluntary and forced exercise differentially alter the gut microbiome in C57Bl/6J mice. *Journal of Applied Physiology* 118(8): 1059-1066, 2015.
21. Woods JA, **Pence BD**. Physical activity, exercise, and the immune system: Three lines of research that have driven the field. *Kinesiology Review* 4: 118-125, 2015. Review.

Peer Reviewed Publications cont. *equal contribution

20. Leckie RL, Oberlin LE, Voss MW, Prakash RS, Szabo-Reed A, Chaddock-Heyman L, Phillips SM, Gothe N, Mailey E, Vieira-Potter VJ, Martin SA, **Pence BD**, Lin M, Parasuraman R, Greenwood PM, Fryxell KJ, Woods J, McAuley E, Kramer AF, Erickson KI. BDNF mediates improvements in executive function following a 1-year exercise intervention. *Frontiers in Human Neuroscience* 8: 985, 2014.
19. Gibbons TE*, **Pence BD***, Petr G, Ossyra JM, Bhattacharya TK, Perez S, Martin SA, McCusker RH, Kelley KW, Rhodes JS, Johnson RW, Woods JA. Voluntary wheel running, but not a diet containing EGCG and β -alanine, improves learning and memory and hippocampal neurogenesis in aged mice. *Behavioural Brain Research* 272:131-140, 2014.
18. Markofski MM, Carrillo AE, Timmerman KL, Jennings K, Coen PM, **Pence BD**, Flynn MG. Exercise training modifies ghrelin and adiponectin concentrations and is related to inflammation in older adults. *The Journals of Gerontology, Series A: Biological Sciences and Medical Sciences* 69(6): 675-681, 2014.
17. **Pence BD**, Woods JA. Exercise, obesity, and cutaneous wound healing: Evidence from rodent and human studies. *Advances in Wound Care* 3(1): 71-79, 2014. Review.
16. Cook MD, Martin SA, Williams C, Wallig MA, **Pence BD**, Woods JA. Forced treadmill exercise training exacerbates inflammation and causes mortality while voluntary wheel training is protective in a mouse model of colitis. *Brain Behavior and Immunity* 33: 46-56, 2013.
15. Thorum SC, Hester SN, Comstock SS, Monaco MH, **Pence BD**, Woods JA, Donovan SM. Dietary (1,3/1,6)- β -D-glucan decreases transforming growth factor β expression in the lung of the neonatal piglet. *Nutrition Research* 33(4): 322-331, 2013.
14. Martin SA, **Pence BD**, Greene R, Johnson S, Dantzer R, Kelley KW, Woods JA. Voluntary wheel running has no effect on LPS-induced inflammation or sickness behavior in aged mice. *Brain Behavior and Immunity* 29: 113-123, 2013.
13. Voss MW, Erickson KI, Prakash RS, Chaddock L, Kim JS, Alves H, Szabo A, White SM, Wojcicki TR, Mailey EL, Olson EA, Gothe N, Potter VV, Martin SA, **Pence BD**, Cook MD, Woods JA, McAuley E, Kramer AF. Neurobiological markers of exercise-related brain plasticity in older adults. *Brain Behavior and Immunity* 28: 90-99, 2013.
12. **Pence BD**, DiPietro LA, Woods JA. Exercise speeds cutaneous wound healing rate in high-fat diet-induced obese mice. *Medicine and Science in Sports and Exercise* 44(10): 1846-1854, 2012.
11. Hester SN, Thorum SC, Comstock SS, Monaco MH, **Pence BD**, Woods JA, Donovan SM. Intestinal and systemic immune development are unaffected by dietary (1,3/1,6)- β -D-glucan supplementation of neonatal piglets. *Clinical and Vaccine Immunology* 19(9): 1499-1508, 2012.
10. **Pence BD**, Lowder TW, Keylock KT, Vieira Potter VJ, Cook MD, McAuley E, Woods JA. Relationship between systemic inflammation and delayed-type hypersensitivity response to candida antigen in older adults. *PLoS One* 7(5): e36403, 2012.
9. **Pence BD**, Hester SN, Donovan SM, Woods JA. Dietary whole glucan particles do not affect antibody or cell-mediated responses to influenza virus vaccination in mice. *Immunological Investigations* 41(3): 275-289, 2012.
8. Anderson-Hanley C, Arciero PJ, Brickman AM, Nimmon JP, Okuma N, Westen SC, Merz ME, **Pence BD**, Woods JA, Kramer AF, Zimmerman EA. Exergaming and older adult cognition: A cluster randomized controlled trial. *American Journal of Preventive Medicine* 42(2): 109-119, 2012.
7. **Pence BD**, Martin SA, Woods JA. Effects of exercise on immunosenescence in aged populations. *American Journal of Lifestyle Medicine* 5(3): 238-246, 2011. Review.

Peer Reviewed Publications cont.

6. Erickson KI, Voss MW, Prakash RS, Basak C, Szabo A, Chaddock L, Kim JS, Heo S, Alves H, White SM, Wojcicki TR, Mailey E, Vieira VJ, Martin SA, **Pence BD**, Woods JA, McAuley E, Kramer AF. Exercise training increases size of the hippocampus and improves memory. *Proceedings of the National Academy of Sciences USA* 108(7): 3017-3022, 2011.
5. Coen PM, Flynn MG, Markofski MM, **Pence BD**, Hannemann RE. Adding exercise to rosuvastatin treatment: influence on C-reactive protein, monocyte toll-like receptor 4 expression and inflammatory monocyte (CD14+CD16+) population. *Metabolism* 59: 1775-1783, 2010.
4. Erickson KI, Prakash RS, Voss MW, Chaddock L, Heo S, McLaren M, **Pence BD**, Martin SA, Vieira VJ, Woods JA, Kramer AF. BDNF is associated with age-related decline in hippocampal volume. *Journal of Neuroscience* 30(15): 5368-5375, 2010.
3. Martin SA, **Pence BD**, Woods JA. Exercise and respiratory tract viral infection. *Exercise and Sports Sciences Reviews* 37(4): 157-164, 2009. Review.
2. Coen PM, Flynn MG, Markofski MM, **Pence BD**, Hannemann RE. Adding exercise training to rosuvastatin treatment: influence on serum lipids and biomarkers of muscle and liver damage. *Metabolism* 58(7): 1030-1038, 2009.
1. Timmerman KL, Flynn MG, Coen PM, Markofski MM, **Pence BD**. Exercise training-induced lowering of inflammatory (CD14+CD16+) monocytes: a role in the anti-inflammatory influence of exercise? *Journal of Leukocyte Biology* 84(5): 1271-1278, 2008.

Manuscripts in Progress †senior/corresponding author

2. Sun Y, Mailing LJ, **Pence BD**, Allen JM, McCusker RH, Rhodes JS, Kelley KW, Fahey GC, Swanson K, Johnson RW, Woods JA. Dietary fiber and voluntary wheel running synergistically improve spatial memory accuracy in mice. (in review)
- †1. **Pence BD**, Yarbrow JR, Emmons RS. Growth differentiation factor-15 is associated with age-related monocyte immunosenescence. (in prep).
– Preprint is available on *bioRxiv*, doi: <https://doi.org/10.1101/2020.02.05.935643>.

Book Chapters

2. Woods JA, Sun Y, **Pence BD**. Exercise, aging, and immunity. *Lifestyle Medicine*, 3rd ed. J.M. Rippe (Ed.). New York: CRC Press. 2019.
1. Woods JA, **Pence BD**, Martin SA, Cook MD. Exercise, aging, and immunity. *Lifestyle Medicine*, 2nd ed. J.M. Rippe (Ed.). New York: CRC Press. 2013.

Published Abstracts

40. Yarbrow JR, **Pence BD**. Metabolic flexibility in classical monocytes is not affected by age. *Innovation in Aging* 3(S1): S105, 2019.
39. **Pence BD**, Yarbrow JR. Growth differentiation factor 15 is correlated to markers of immunosenescence in monocytes. *Innovation in Aging* 3(S1): S103, 2019.
38. **Pence BD**, Yarbrow JR. Aging alters respiratory but not glycolytic capacity in human monocytes. *Innovation in Aging* 2(S1): 91-92, 2018.
37. **Pence BD**, Ryerson MR, Bravo-Cruz AG, Woods JA, Shisler JL. Voluntary wheel running and response to vaccinia virus infection and inoculation in mice. *Medicine and Science in Sports and Exercise* 49(5S): 196-197, 2017.
36. **Pence BD**, Ryerson MR, Bravo-Cruz AG, Woods JA, Shisler JL. Voluntary wheel running in mice is safe during vaccinia virus infection and does not impair vaccine responses. *FASEB Journal* 31(1S): 1b740, 2017.

Published Abstracts cont.

35. Woods JA, Allen JM, Rytych J, Sun Y, Pence BD, Bhattacharya TK, Park P, Liu TW, Swanson K, Fahey GC, Rhodes JS, Kelley KW, Johnson RW. Cohort differences in learning and memory in response to fiber feeding in genetically identical C57Bl/6J mice: A relationship to the gut microbiota? *Brain Behavior and Immunity* 57S: e40, 2016.
34. Sun Y, **Pence BD**, Garg K, Dvoretzkiy SV, Niemiro GM, Allen JM, De Lisio M, Boppart MD, Woods JA. Acute eccentric exercise does not improve primary antibody responses to ovalbumin vaccination in mice. *Medicine and Science in Sports and Exercise* 48(5S): 85, 2016.
33. **Pence BD**, Bhattacharya TK, Rytych JL, Park P, Allen JM, Sun Y, McCusker RH, Kelley KW, Johnson RW, Rhodes JS, Woods JA. Effects of dietary fiber and exercise on cognition, muscle function, and SCFA in young mice. *Medicine and Science in Sports and Exercise* 48(5S): 522, 2016.
32. Mailing L, Allen J, Liu TW, Bhattacharya T, Park P, **Pence B**, Johnson R, Swanson K, Rhodes J, Woods J. Pectin feeding for 16 weeks improves learning and memory in Young C57Bl/6J mice: A relationship to the gut microbiota? *FASEB Journal* 30(1S): 683.10, 2016.
31. **Pence BD**, Bhattacharya TK, Rytych JL, Park P, Allen JM, Sun Y, McCusker RH, Kelley KW, Johnson RW, Rhodes JS, Woods JA. Dietary fiber and exercise: Effects on muscle function, cognition, and short-chain fatty acids in mice. *FASEB Journal* 30(1S): 1287.3, 2016.
30. **Pence BD**, Bhattacharya TK, Rytych JL, Park P, Allen JM, Sun Y, McCusker RH, Kelley KW, Johnson RW, Rhodes JS, Woods JA. EGCG decreases mortality in a dose-dependent fashion but does not improve cognition in mice. *FASEB Journal* 30(1S): 407.1, 2016.
29. Klaren RE, Steelman AJ, **Pence B**, Woods JA, Motl RW. Effects of voluntary exercise on the pathogenesis of experimental autoimmune encephalomyelitis. *International Journal of MS Care* 17: S73, 2015.
28. **Pence BD**, Woods JA. Metabolic activation: A potential mechanism for exercise-induced phenotypic switch in macrophages. *Medicine and Science in Sports and Exercise* 47(5S): 716, 2015.
27. Sun Y, **Pence B**, Pishevar N, Boppart M, Woods JA. Acute eccentric or concentric exercise does not improve antibody responses to ovalbumin vaccination in mice. *Medicine and Science in Sports and Exercise* 47(5S): 715, 2015.
26. Allen JM, Panasevich MR, **Pence BD**, Sun Y, Dilger RR, Woods JA. Acute exercise increases short chain fatty acids in the mouse cecum. *Medicine and Science in Sports and Exercise* 47(5S): 488, 2015.
25. Woods JA, **Pence BD**, Bhattacharya TK, Park P, Sun Y, Rytych JL, Allen JM, McCusker RH, Kelley KW, Johnson RW, Rhodes JS. Diet containing EGCG and beta-alanine decreases mortality, but has no effect on cognitive function and variably affects muscle function in aged mice. *Medicine and Science in Sports and Exercise* 47(5S): 336, 2015.
24. **Pence BD**, Bhattacharya TK, Park P, Sun Y, Rytych JL, Allen JM, McCusker RH, Kelley KW, Johnson RW, Rhodes JS, Woods JA. A diet containing EGCG and beta-alanine decreases mortality and improves balance in aged mice, but does not affect cognitive function. *FASEB Journal* 29(1S): 392.4, 2015.
23. Allen JM, Wang J, **Pence BD**, Cook MD, Whitlock K, Molitor M, Woods JA. Short bouts of voluntary wheel running reduce the inflammatory insult of ulcerative colitis in C57Bl/6J mice. *Brain Behavior and Immunity* 40S: e40, 2014.
22. **Pence BD**, Gibbons TE, Bhattacharya TK, Mach HC, Ossyra JM, McCusker RH, Kelley KW, Rhodes JS, Johnson RW, Woods JA. Impact of exercise and/or beta-alanine and EGCG on muscle function and inflammation in aged mice. *Medicine and Science in Sports and Exercise* 46(5S): 77, 2014.
21. Ossyra J, Mach H, Bhattacharya T, Gibbons T, **Pence B**, Woods J, Johnson R, Rhodes J. The influence of nutritional supplementation with epigallocatechin gallate and β -alanine in combination with physical exercise on adult hippocampal neurogenesis and contextual fear conditioning in young adult Balb/cJ mice. *FASEB Journal* 28(1S): 124.5, 2014.

Published Abstracts cont.

20. **Pence BD**, Gibbons TE, Bhattacharya TK, Mach HC, Ossyra JM, McCusker RH, Kelley KW, Rhodes JS, Johnson RW, Woods JA. Impact of exercise and/or beta-alanine and epigallocatechin gallate on muscle function and oxidative stress in aged mice. *FASEB Journal* 28(1S): 1027.2, 2014.
19. Gibbons TE, **Pence BD**, Bhattacharya TK, Mach HC, Ossyra JM, McCusker RH, Kelley KW, Rhodes JS, Johnson RW, Woods JA. Diet, exercise, neurogenesis, and cognition. *FASEB Journal* 28(1S): 1025.4, 2014.
18. Woods JA, Cook MD, Martin SA, Williams C, Whitlock K, Wallig M, **Pence BD**. Forced treadmill exercise exacerbates inflammation and causes mortality while voluntary wheel training is protective in a mouse model of colitis. *Brain Behavior and Immunity* 32S: e19, 2013.
17. **Pence BD**, Woods JA. Sex differences in healing rate of cutaneous wounds in mice: No impact of exercise. *Medicine and Science in Sports and Exercise* 45(5S): 231, 2013.
16. Woods JA, Martin S, **Pence B**, Greene R, Johnson S, Dantzer R, Kelley K. Effect of wheel running on sickness behavior and inflammation in aged mice. *Medicine and Science in Sports and Exercise* 44(5): S242, 2012.
15. **Pence BD**, Martin SA, Woods JA. Effects of exercise on wound healing and wound tissue inflammation in obese mice. *Brain Behavior and Immunity* 25(S2): S211, 2011.
14. **Pence BD**, Martin SA, Woods JA. Exercise speeds wound healing rate in diet-induced obese mice. *Medicine and Science in Sports and Exercise* 43(5): S34, 2011.
13. Martin SA, **Pence BD**, Cady M, Antao NN, Haas NL, Woods JA. Diet-induced obesity does not exacerbate the peak peripheral and central inflammatory response to LPS in C57/BL6J mice. *Brain Behavior and Immunity* 24(S1): S196, 2010.
12. Cady M, Woods JA, Baynard T, Wilund KR, Valentine RJ, Martin SA, Cortez F, **Pence BD**. Reduced adipose tissue hypoxia as a potential mechanism by which exercise and/or low fat diet reduces inflammation in obese mice. *Brain Behavior and Immunity* 24(S1): S198, 2010.
11. **Pence BD**, Hester SN, Martin SA, Donovan SM, Woods JA. No effect of dietary yeast beta-glucan on antibody or cell-mediated response to influenza virus vaccine. *Brain Behavior and Immunity* 24(S1): S92, 2010.
10. Jae SY, Heffernan K, Woods J, Vieira V, Martin S, **Pence B**, Fernhall B. Acute systemic inflammation increases central blood pressure and pulse wave velocity in healthy subjects. *Circulation* 120: S1006, 2009.
9. Timmerman KL, Flynn MG, Coen PM, Markofski MM, **Pence BD**. Exercise training does not influence CD8+ phenotype or mitogen-activated TNF- α production in previously-sedentary inactive elderly. *Medicine and Science in Sports and Exercise* 41(5): S400, 2009.
8. Martin SA, Dumich SA, O'Connor JC, **Pence BD**, Kelley KW, Dantzer R, Woods JA. Voluntary wheel running does not attenuate LPS induced sickness behavior in CD-1 mice. *Medicine and Science in Sports and Exercise* 41(5): S401, 2009.
7. **Pence BD**, Martin SA, Vieira VJ, Keylock KT, Woods JA. Aerobic exercise does not improve delayed-type hypersensitivity to tetanus or candida in older adults. *Medicine and Science in Sports and Exercise* 41(5): S401, 2009.
6. Markofski MM, Flynn MG, Timmerman KL, Coen PM, **Pence B**. Exercise training increases adiponectin in elderly males and females. *Japanese Journal of Physical Fitness and Sports Medicine* 58(1): 205, 2009.
5. Martin S, **Pence B**, Vieira V, McAuley E, Woods J. Exercise training-induced improvements in antibody responses to influenza vaccination in older adults are related to changes in cardiovascular fitness. *The Physiologist* 51(6): 348, 2008.

Published Abstracts cont.

4. Coen P, Flynn M, Markofski M, **Pence B**, Carrillo A, Bell J, Hannemann R. The effect of combined statin therapy and exercise training on mediators of inflammation. *The Physiologist* 51(6): 346, 2008.
3. Carrillo AE, Flynn MG, Timmerman KL, Coen PM, Markofski MM, **Pence BD**. Changes in plasma ghrelin is associated with human monocyte phenotype following exercise training. *Medicine and Science in Sports and Exercise* 40(5): S433, 2008.
2. **Pence BD**, Vieira VJ, Baynard T, Keylock KT, Lowder TW, Woods JA. Effect of cardiovascular exercise on CRP levels in previously sedentary older men and women. *FASEB Journal* 22: 1175.11, 2008.
1. Timmerman KL, Flynn MG, Coen PM, Markofski MM, **Pence BD**, Woodall NJ. The influence of physical activity level on monocyte subpopulations. *Medicine and Science in Sports and Exercise* 38(11): S38, 2006.

Conference Abstract Co-Author *co-authored contributions not published in academic journals*

9. Yarbrow JR, **Pence BD**. Metabolic flexibility in classical monocytes is not affected by age. Oklahoma Geroscience Symposium, 2019.
8. Bhattacharya TK, Park P, Rendeiro C, **Pence BD**, Cobert AJ, Swanson KS, Fahey GC, Johnson RW, Kelley KW, McCusker RH, Woods JA, Rhodes JS. Mice consuming a diet containing pectin fiber but not EGCG display cognitive benefits on the Morris water maze. Society for Neuroscience, 2015. Abstract 535.12.
7. Allen JM, Panasevich MR, **Pence BD**, Sun Y, Dilger RN, Woods JA. Acute exercise increases short chain fatty acid concentrations in the mouse cecum. Illinois Brain Behavior and Immunity Meeting, 2015.
6. Sun Y, **Pence B**, Pishavar N, Boppart M, Woods JA. Acute eccentric or concentric exercise does not improve antibody responses to ovalbumin vaccination in mice. Illinois Brain Behavior and Immunity Meeting, 2015.
5. Oberlin LE, Voss MW, Prakash RS, Szabo S, Wojcicki T, Martin SA, **Pence BD**, Phillips SM, Mailey E, Woods JA, McAuley E, Kramer AF, Erickson KI. Interleukin-6 mediates the association between aerobic fitness and executive function in an older adult population. Cognitive Aging Conference, 2014.
4. Rhodes JS, Ossyra JM, Mach HC, Bhattacharya TK, Gibbons T, **Pence BD**, Woods JA, Johnson RW. The influence of nutritional supplementation with epigallocatechin gallate and β -alanine in combination with physical exercise on adult hippocampal neurogenesis and contextual fear conditioning in young adult BALB/cJ mice. Society for Neuroscience, 2013. Abstract 192.04.
3. Alvarez TA, Turney IC, Lecki R, Voss MW, Prakash RS, Chaddock L, Szabo A, Mailey E, White SM, Wojcicki TR, Vieira VJ, Martin SA, **Pence BD**, Woods JA, McAuley E, Kramer AF, Erickson KI. Aerobic fitness moderates an age-related decline in serum BDNF. Cognitive Aging Conference, 2012.
2. Woods J, Martin S, **Pence B**, Cook M, Greene R. Exercise as a means of reducing acute and chronic inflammation: Impact on health. International Society for Exercise and Immunology, 2011.
1. Voss MW, Erickson KI, Prakash RS, Basak C, Chaddock L, Kim JS, Alves H, Heo S, Szabo AN, White SM, Wojcicki TR, Mailey EL, Olson EA, Gothe N, Potter VV, Martin SA, **Pence BD**, Cook MD, Woods JA, McAuley EM, Kramer AF. Neurobiological markers on plasticity of brain networks in a randomized intervention trial of exercise training in older adults. 2nd Biennial International Conference on Resting-State Functional Brain Connectivity, 2010.

Non-Peer Reviewed Contributions

1. **Pence BD**, Woods JA. Active voice: Exercise speeds healing in obese mice. *ACSM Sports Medicine Bulletin*. 18 Sept 2012. Invited commentary on Pence *et al.* *Med Sci Sports Exerc* 44: 1846-54, 2012.

Presentations

Contributed Presentations

32. Immunometabolic activation of monocytes by SARS-CoV-2 spike protein suggests potential therapeutic role of geroprotector drugs. American Aging Association Meeting, 2020. (Virtual Poster)
31. Growth differentiation factor 15 is correlated to markers of immunosenescence in monocytes. Gerontological Society of America Annual Meeting, 2019. Austin, TX. (Poster)
30. GDF-15 is correlated with monocyte immunosenescence indicators. American Aging Association Annual Meeting, 2019. Burlingame, CA. (Poster)
29. Growth/Differentiation Factor-15 is correlated to markers of immunosenescence in monocytes. Oklahoma Geroscience Symposium, 2019. Oklahoma City, OK. (Poster)
28. Aging alters respiratory but not glycolytic capacity in human monocytes. Gerontological Society of America Annual Meeting, 2018. Boston, MA. (Poster)
27. Aging alters respiratory but not glycolytic capacity in human monocytes. Nathan Shock Center Symposium, University of Alabama-Birmingham, 2018. Birmingham, AL. (Poster)
26. Aging impairs monocyte mitochondrial respiration and increases proportion of non-classical phenotype. Keystone Symposium on Aging, Inflammation and Immunity, 2018. Austin, TX. (Poster)
25. Voluntary wheel running and response to vaccinia virus infection and inoculation in mice. ACSM Annual Meeting, 2017. Denver, CO. (Slide)
24. Voluntary wheel running in mice is safe during vaccinia virus infection and does not impair vaccine responses. Experimental Biology 2017. Chicago, IL. (Poster)
23. Effects of dietary fiber and exercise on cognition, muscle function, and SCFA in young mice. ACSM Annual Meeting, 2016. Boston, MA. (Poster)
22. EGCG decreases mortality in a dose-dependent fashion but does not improve cognition in mice. Experimental Biology 2016. *Emerging Leaders in Nutrition Science Poster Competition*, ASN. San Diego, CA. (Poster)
21. EGCG decreases mortality in a dose-dependent fashion but does not improve cognition in mice. Experimental Biology 2016. San Diego, CA. (Slide)
20. Dietary fiber and exercise: Effects on muscle function, cognition, and short-chain fatty acids in mice. Experimental Biology 2016. San Diego, CA. (Poster)
19. EGCG decreases mortality in a dose-dependent fashion but does not improve cognition in mice. Cognition, Lifespan Engagement, Aging, and Resilience (CLEAR) Initiative, Beckman Institute, University of Illinois at Urbana-Champaign. Urbana, IL. (Poster)
18. Diet containing EGCG and beta-alanine decreases mortality, but has no effect on cognitive function and variably affects muscle function in aged mice. ACSM Annual Meeting, 2015. San Diego, CA. (Poster)
17. Metabolic activation: A potential mechanism for exercise-induced phenotypic switch in macrophages. ACSM Annual Meeting, 2015. San Diego, CA. (Slide)
16. A diet containing EGCG and beta-alanine decreases mortality and improves balance in aged mice, but does not affect cognitive function. Experimental Biology 2015. Boston, MA. (Slide)
15. A diet containing EGCG and beta-alanine decreases mortality and improves balance in aged mice, but does not affect cognitive function. Experimental Biology 2015. *Emerging Leaders in Nutrition Science Poster Competition*, ASN. Boston, MA. (Poster)

Contributed Presentations cont.

14. A diet containing EGCG and beta-alanine decreases mortality and improves balance in aged mice, but does not affect cognitive function. Experimental Biology 2015. *The Postdoctoral Research Award Competition*, ASN. Boston, MA. (Slide)
13. Voluntary wheel running and a diet containing EGCG and Beta-alanine: Effects on cognition and muscle function. Illinois Brain Behavior and Immunity Meeting, 2015. Chicago, IL. (Slide)
12. Impact of exercise and/or beta-alanine and EGCG on muscle function and inflammation in aged mice. ACSM Annual Meeting, 2014. Orlando, FL. (Poster)
11. Impact of exercise and/or beta-alanine and epigallocatechin gallate on muscle function and oxidative stress in aged mice. Experimental Biology 2014. San Diego, CA. (Poster)
10. Sex differences in healing rate of cutaneous wounds in mice: No impact of exercise. ACSM Annual Meeting, 2013. Indianapolis, IN. (Poster)
9. Treadmill exercise ameliorates delayed healing in obese versus lean mice. MWACSM Annual Meeting, 2011. Indianapolis, IN. (Slide)
8. Exercise influence on wound healing and tissue inflammation in obese high-fat diet-fed mice. 10th ISEI Conference, 2011. Oxford, UK. (Slide)
7. Effects of exercise on wound healing and wound tissue inflammation in obese mice. 18th PNIRS Conference, 2011. Chicago, IL. (Slide)
6. Exercise speeds wound healing rate in diet-induced obese mice. ACSM Annual Meeting, 2011. Denver, CO. (Thematic Poster)
5. No effect of dietary yeast beta-glucan on antibody or cell-mediated response to influenza virus vaccine. 17th PNIRS Conference, 2010. Dublin, Ireland. (Poster)
4. Associations between gene expression of Toll-like receptor 4 and markers of inflammation in adipose tissue: the role of exercise. 9th ISEI Conference, 2009. Tübingen, Germany. (Poster)
3. Aerobic exercise does not improve delayed-type hypersensitivity to tetanus or candida in older adults. ACSM Annual Meeting, 2009. Seattle, WA. (Poster)
2. Exercise training-induced improvements in antibody responses to influenza vaccination in older adults are related to changes in cardiovascular fitness. APS Integrative Biology of Exercise V, 2008. Hilton Head, SC. (Poster)
1. Effect of cardiovascular exercise on CRP levels in previously sedentary older men and women. Experimental Biology, 2008. San Diego, CA. (Poster)

Institutional Seminars

3. Dysfunction in macrophages and monocytes: Links to metabolism, aging, and cellular senescence. Biomedical Engineering Seminar, University of Memphis. Feb 21, 2020.
2. Monocyte and macrophage metabolism in aging and heart disease. School of Health Studies Research Seminar, University of Memphis. Nov 22, 2019.
1. Aging and monocyte immune function. School of Health Studies Lunch 'n' Learn, University of Memphis. Apr 13, 2018.

Awards

External Awards

2019 **Selectee**, Summer Training Course in Experimental Aging Research, National Institute of Aging

External Awards cont.

- 2018 **Travel Award**, Keystone Symposium on Aging, Inflammation and Immunity, Agilent Technologies
- 2016 **Finalist**, Emerging Leaders in Nutrition Science, American Society for Nutrition
- 2015 **Postdoctoral Research Award**, American Society for Nutrition
- 2015 **Finalist**, Emerging Leaders in Nutrition Science, American Society for Nutrition
- 2011 **Outstanding Graduate Student Award**, Midwest American College of Sports Medicine
- 2011 **Early Career Research Award**, International Society for Exercise and Immunology
- 2011 **Trainee Scholar Award**, Psychoneuroimmunology Research Society
- 2003 **National Merit Finalist**, National Merit Scholarship Corporation

Internal Awards

- 2020 **MVP Award**, College of Health Sciences, University of Memphis
- 2009 **Graduate College and Departmental Travel Awards**, University of Illinois Urbana-Champaign
- 2008 **Departmental Travel Award**, University of Illinois Urbana-Champaign
- 2003 **Academic Success Award**, Purdue University

Teaching Experience

University of Memphis

- Exercise, Sport, and Movement Science 4010/6010**, Supplements/Food/Drugs Health *[Online]*
— Course Designer and Instructor of Record (2 semesters)
- Human Movement Science and Education 7010**, Research Methods in Health Studies
— Course Designer and Instructor of Record (3 semesters)
- Health Sciences 4400**, Statistics for Health Sciences *[Online]*
— Course Designer and Instructor of Record (3 semesters)
- Nutrition 7000**, Sports Nutrition *[Online]*
— Course Designer and Instructor of Record (4 semesters)
- Nutrition 7100**, Intro to Wet Lab Methods in Health Studies
— Course Designer and Instructor of Record (1 semester)
- Nutrition 7152**, Problems in Nutrition
— Course Designer and Instructor of Record (1 semester)

University of Illinois at Urbana-Champaign

- Kinesiology 494**, Exercise and Disease
— Course Designer and Instructor of Record (1 semester)
- Kinesiology 150**, Bioscience of Human Movement
— Laboratory Instructor (2 semesters)
- Kinesiology 352**, Bioenergetics of Movement
— Laboratory Instructor (6 semesters)

Mentorship

<u>Years</u>	<u>Name and Program</u>	<u>Role</u>	<u>Present Position</u>
Postdoctoral			
2019-2020	Russell Emmons, PhD Postdoctoral Fellow University of Memphis	Supervisor	Current
Graduate – Chair			
2020-2022	Kierstin Davis M.S., Exercise Sport and Movement Science University of Memphis	Thesis Committee Chair	Current
2020-2022	Alexandria Griffin M.S., Nutrition Science University of Memphis	Thesis Committee Chair	Current
2017-2020	Johnathan Yarbro M.S., Nutrition Science M.S., Bioinformatics University of Memphis	Thesis Committee Chair	Current
Graduate – Committee			
2018-2020	Martina Faietti M.S., Nutrition Science University of Memphis	Thesis Committee Member	
2016-2018	Sunita Sharma M.S., Nutrition Science University of Memphis	Thesis Committee Member	Technician Trott Laboratory UT- Arlington
Graduate – Clinical Nutrition Intern			
2019-2020	Christopher Branner M.S., Clinical Nutrition University of Memphis	Internship Supervisor	M.S. Student University of Memphis
2016-2017	Lindsey Hedrick M.S., Clinical Nutrition University of Memphis	Internship Supervisor	Dietician Mercy Hospital Rogers, AR
Undergraduate			
2019-2020	Ian Russell B.S., Biology University of Memphis	Undergraduate Research Supervisor	
2019-2020	Alexandria Griffin B.S., Health Sciences University of Memphis	Undergraduate Research Supervisor	M.S. Student University of Memphis

Service

University of Memphis – University

- 2020 **Member**, Committee on STEM Research Space Renovations
- 2018-2020 **Member**, University of Memphis Research Council
- 2018-2020 **Judge**, University of Memphis Student Research Forum
- 2017-2020 **Scientific Member**, Institutional Animal Care and Use Committee

University of Memphis – School of Health Studies/College of Health Sciences

- 2019 **Member**, Search Committee for Research Assistant Professor of Nutrition
- 2019 **Member**, Search Committee for Clinical Assistant/Associate Professor of Nutrition
- 2019 **Reviewer**, School of Health Studies Faculty Research Grants
- 2018 **Chair**, Search Committee for Assistant/Associate Professor of Nutrition
- 2018 **Member**, Search Committee for Research Assistant Professor in Nutrition
- 2017-2019 **Member**, Planning Committee for PhD Program in the School of Health Studies
- 2017 **Member**, Search Committee for Research Assistant Professor in Nutrition
- 2017 **Reviewer**, School of Health Studies Faculty Research Grants

University of Illinois at Urbana-Champaign

- 2015-2016 **Judge**, Nutrition Symposium Poster Presentations
- 2011-2012 **Member**, Search Committee for Associate/Full Professor in Exercise Physiology
- 2007-2008 **Representative**, Kinesiology Graduate Student Association

Gerontological Society of America

- 2017-2020 **Abstract Reviewer**, Gerontological Society of America Annual Meeting

American College of Sports Medicine

- 2020-2023 **Member**, ACSM Research Review Committee
- 2020 **Ad Hoc Reviewer**, ACSM Research Review Committee

Other External Service

- 2020 **Ad Hoc Book Proposal Reviewer**, CRC Press
- 2017 **Judge**, Emerging Leaders in Nutrition Science Competition, American Society for Nutrition
- 2017 **Session Chair**, National Conference on Undergraduate Research (four sessions)
- 2016-2018 **Abstract Reviewer**, American Society for Nutrition Annual Meeting
- 2016 **Abstract Reviewer**, National Conference on Undergraduate Research
- 2010 **Session Chair**, 3rd Annual Illinois Brain Behavior & Immunity Meeting
- 2009 **Session Chair**, 2nd Annual Illinois Brain Behavior & Immunity Meetings

Grant Review

- 2020 **Early Career Reviewer**, Innate Immunity and Inflammation (III) Study Section, NIH
- 2019 **Ad Hoc Reviewer**, Discovery Grant, NSERC (Canada)
- 2019 **Ad Hoc Reviewer**, CAREER Application, National Science Foundation

Grant Review cont.

- 2018 **Ad Hoc Reviewer**, E.W.R Steacie Memorial Fellowship Application, NSERC (Canada)
 2017-2021 **Reviewer**, Fellowship Immunology Basic Science Study Section, American Heart Association

Editorial Board

- 2020-Pres **Associate Editor**, *Frontiers in Immunology*
 2020-Pres **Associate Editor**, *Frontiers in Nutrition*
 2018-Pres **Academic Editor**, *PLoS One*
 2017-2020 **Review Editor**, *Frontiers in Immunology*
 2017-2020 **Review Editor**, *Frontiers in Nutrition*

Ad Hoc Manuscript Reviewer

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| <i>American Journal of Lifestyle Medicine</i> | <i>American Journal of Physiology – Reg Int Comp Physiol</i> |
| <i>Biomolecules</i> | <i>Brain Behavior and Immunity</i> |
| <i>Clinical and Translational Medicine</i> | <i>Clinical Interventions in Aging</i> |
| <i>Current Aging Science</i> | <i>Diseases</i> |
| <i>FASEB Journal</i> | <i>FEBS Open Bio</i> |
| <i>Free Radical Research</i> | <i>Frontiers in Immunology</i> |
| <i>Frontiers in Microbiology</i> | <i>Frontiers in Nutrition</i> |
| <i>Frontiers in Physiology</i> | <i>GeroScience</i> |
| <i>Gut Microbes</i> | <i>Immunotherapy</i> |
| <i>Int J of Environ Research and Public Health</i> | <i>International Journal of Sports Medicine</i> |
| <i>International Wound Journal</i> | <i>iScience</i> |
| <i>Journal of Cellular and Molecular Medicine</i> | <i>Journal of Clinical Medicine</i> |
| <i>Journal of Heart Health</i> | <i>Journal of Immunological Sciences</i> |
| <i>Journal of Leukocyte Biology</i> | <i>Journal of Molecular Medicine</i> |
| <i>Marine Drugs</i> | <i>Medicine and Science in Sports and Exercise</i> |
| <i>MethodsX</i> | <i>Molecular Neurobiology</i> |
| <i>Molecules</i> | <i>Nanomaterials</i> |
| <i>Nutrients</i> | <i>Nutrition Research</i> |
| <i>Physiology and Behavior</i> | <i>PLoS One</i> |
| <i>Rehabilitation Research and Practice</i> | <i>Scientific Reports</i> |
| <i>Sports</i> | <i>Toxins</i> |
| <i>US Respiratory & Pulmonary Diseases</i> | <i>Vaccine</i> |
| <i>Vaccines</i> | <i>Wound Repair and Regeneration</i> |

Current Professional Affiliations

2006	American College of Sports Medicine
2009	International Society for Exercise and Immunology
2017	Gerontological Society of America
2017	American Aging Association
2017	American Heart Association